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AI's Employment Promotion Mechanism for Chinese College Students in an Aging Society: A Dual-Perspective Study

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Abstract. This project addresses employment challenges university students face under China's delayed retirement policy and AI-driven economic transformation. Given an aging population, academic inflation, and intensified job competition, this study investigated how AI technologies can generate emerging professions (e.g. algorithm engineers, AI maintenance specialists), enhance skills development (personalized learning systems), and optimize job matching (intelligent platforms). Five recruitment experts were interviewed to identify how the AI-driven economic being transformed. The results found that mitigating the employment pressure on college graduates caused by delayed retirement policies, while also innovatively proving that AI is not a "job displacer" but rather a "bridge builder" for youth to break through to new careers in an era of dramatic demographic shifts and technological explosion. It is necessary to continuously promote the deepening of applied technologies and the construction of intergenerational collaboration mechanisms to transform population challenges into innovation dividends. All in all, this project leveraged artificial intelligence to address the employment difficulties of college students in an aging society, precisely targeting the triple challenges of national aging, youth employment, and technological transformation. It combined policy foresight and the promotion of practical value. It provided a demonstrative solution for national universities to tackle employment issues against the background of delayed retirement and promote the transformation from "talent dividend" to "innovation dividend."

Keywords. Artificial Intelligence, Delayed Retirement, University Student Employment, Structural Employment Mismatch, Technology-Driven Solutions

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1. Introduction

Amid accelerating population aging globally, over 31 Chinese provinces have implemented delayed retirement policies (e.g., extending male retirement to 63 years by 2040), which has exacerbated youth unemployment pressures. The AI revolution—driven by national strategies like the New Generation AI Development Plan—is also reshaping labor markets, creating both opportunities and disruptions. University graduates now face a dual crisis: intergenerational job competition from retained senior workers and structural skill mismatches as AI redefines 65% of traditional roles [1]. This has manifested acutely in China, as youth unemployment reached 21.3% in 2023 [2], while AI-related vacancies grew by 140%. This mismatch highlights a critical tension between labor supply and demand. This project therefore reviewed AI job requirements and provides suggestions on the job opportunities and skills required for students to equip themselves for AI evolution in the job market.

The remainder of this paper is organized as follows: Section 2 discusses the AI-enabled solutions for youth employment amid delayed retirement and skill mismatches. Sections 3 and 4 discuss the research methods and results, respectively. Section 5 presents the results, and Section 6 concludes this study.

2. Literature Review

The implementation of delayed retirement policies [3] has exacerbated youth unemployment pressures [2], while the AI revolution, driven by national strategies like China's New Generation AI Development Plan, is reshaping labor markets, creating both opportunities and disruptions. University graduates now face a dual crisis: intergenerational job competition from retained senior workers and structural skill mismatches as AI redefines 65% of traditional roles [1]. This dual crisis and the resulting mismatch between youth employment and AI-related job vacancies underscores a critical imbalance between labor supply and demand [4]. This study bridges the gap by investigating AI-enabled solutions to reconfigure youth employment pathways under delayed retirement constraints. It proposes a technology-driven framework that includes dynamic skills mapping using AI algorithms [5].

The scale of enrollment in undergraduate and postgraduate programs has been continuously expanding in recent years, and the number of highly educated people has been growing steadily [4]. However, the supply of talent has exceeded market demand, and the advantage of academic qualifications has weakened. The devaluation of academic qualifications has therefore become an increasingly prominent problem [6]. The innovation of this study lies in proposing a solution focused on collaboration among AI, industry, and academia (e.g., smart training bases) to bridge gaps through technology, thus offering new pathways for educational alignment theories [7].

3. Research Method

This study used interview method for data collection. Five recruitment experts were interviewed and the results are summarized below. The inclusion criteria were that the interviewee must have at least 10 years recruitment experience or be in a management

position. Individuals with less than 10 years' experience or had no management or recruitment experience were excluded. The following questions were applied in the focus group discussion:

(1) From the perspective of an employer, what are your core criteria for talent recruitment, especially when there are more candidates as a result of the postponed national retirement age?
(2) As a recruitment expert, how do you think universities should optimize their programs to better prepare their students for the job market amid rapid development of AI technology?
(3) As new positions emerge as result of the rise of AI technology, how do you identify graduate candidates with the right AI skills in an efficient manner?
(4) As AI technology threatens to replace humans in many positions, what is your advice to university graduates to handle a more competitive environment through better personal development planning?
(5) What university subjects and job positions do you think will become the most popular in the next decade, considering both the postponed national retirement age and the rise of AI technology?

4. Result

The results of the interview with five managers are summarized in appendix. To tackle the challenges of this shifting landscape, graduates should integrate domain expertise with AI proficiency, while universities and policymakers need to align educational strategies with labor market demands [8].

4.1. Artificial Intelligence and College Students' Employment

Technology is evolving rapidly, and the knowledge and skills required to engage with this technology are changing frequently. If college students do not keep learning [9], they may have outdated knowledge and skills, which can lead to difficulty adapting to employment. The requirements for comprehensive abilities have also increased. More than professional skills are needed; qualities such as communication, collaboration, and innovation are also necessary to meet the demands of cross-disciplinary cooperation [10]. AI-related majors are also highly sought after, with many students flocking in, thus making the employment competition even fiercer. Even students from non-AI majors have crossed over to join, further intensifying the competition.

4.2. The Development of AI Technology Has Provided Jobs

The development of AI technology has, however, created abundant employment opportunities for college students [11]. New occupations such as AI algorithm engineers and data scientists have emerged, and there is an urgent need for professional college students to fill the job vacancies. PwC's report notes AI exposed roles (e.g., algorithm engineers) grew by 38% [12]. The integration of AI with traditional industries such as healthcare and finance is also promoting their digital transformation. The combination of AI and traditional technologies, as well as cross-border integration, has become an important economic avenue, giving rise to new products and industries such as

unmanned aerial vehicles, intelligent medical diagnostic products, intelligent robots, and machine translation products, thereby increasing related job opportunities [13]. College students can also use AI to optimize business processes and create more job opportunities [14], because AI lowers the threshold and cost of starting a business. This could allow college graduates to carry out entrepreneurial projects and develop new products and services with innovation and technology.

4.3. Challenges Brought in the AI Era

The rapid development of AI has stimulated the social demand for versatile talents [11]. The demand for experts in the field of AI has increased around the world, and the competition for versatile talents has become increasingly fierce. Competitive pressure among college students is increasing [15]. The combination of AI and traditional industries has brought about a new industrial revolution, creating new types of jobs. However, the demand for the newly added positions is insufficient to make up for the demand of the replaced positions. The application of AI technology has accelerated the replacement of human workers, and in many fields, AI will replace assembly line jobs. The use of AI technology can save a large amount of money for workers' wages and manufacturing costs. Enterprises are thus likely to lay off a large number of workers, which would increase the number of unemployed and affect social stability [16]. The re-employment of these unemployed people poses a threat to the employment of college students, just as the emergence of the AI industry has raised the requirements for the employability of college students.

From the perspective of college students themselves, Harvey believes that the employability of college students includes six aspects: professional knowledge, learning willingness, self-management, communication, teamwork, and ability to handle interpersonal relationships. This definition comprehensively summarizes all aspects of skills that college students need to cultivate to achieve employment. College student employability not only refers to their ability to obtain jobs [17], but more importantly, to the ability to maintain employment commensurate with their educational qualifications after finding a job. This definition implies the importance of college students' perception of their own employability and puts forward higher requirements for that employability.

The core of talent development lies in establishing a systematic training mechanism based on strategic guidance, focusing on the dynamic adaptation to improve individual ability while meeting organizational needs. Its core elements cover multiple dimensions such as strategic planning, continuous learning, innovation incentives, person–position matching, and institutional guarantees to achieve the coordinated development of individuals and organizations. In conclusion, to better address employment challenges in the AI era, college students should prepare in advance by, for example, focusing on the study of professional knowledge, strengthening the cultivation of comprehensive abilities, actively participating in practical projects, and keeping an eye on industry trends to enhance their competitiveness and seize the opportunities created in the AI era.

5. Discussion

After collecting the opinion from recruitment experts, several suggestions can be made for college students to equip themselves for the AI revolution [11]. Talent development

needs to establish a strategic-guided systematic training mechanism focused on the dynamic adaptation between enhancing individual abilities and meeting organizational needs. The core elements of such enhancement encompass multiple dimensions—strategic planning, continuous learning, innovation incentives, person–position matching, and institutional guarantees—with the aim of promoting coordinated development between individuals and organizations [18]. Universities should offer AI courses, including core subjects like machine learning, deep learning, natural language processing, and computer vision, to satisfy the market's demand for AI talents. These courses would not only teach students the latest AI technologies but also enhance their practical skills and innovative thinking.

6. Conclusions

The core concept of this project was AI empowerment, and it successfully demonstrated the effectiveness of technological solutions in resolving intergenerational employment conflicts. The research outcomes not only address the original intention of mitigating the employment pressure on college graduates caused by delayed retirement policies, but also innovatively prove that in an era of dramatic demographic shifts and technological explosion [19], AI is not a "job displacer" but rather a "bridge builder" for youth to break through to new careers [20, 21]. In the future, it is necessary to continuously promote the application new technologies and the construction of intergenerational collaboration mechanisms to transform population challenges into innovation dividends.

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Appendix