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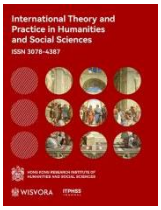

Can We 'Take Off Confucian Robes'? - A Study on the Impact of AI on Employability Among College Students in Shanghai

Shubo Yang[1], Peng Yang[2],Xiaojun Yang[3]

[1]*Department of Biomedical Engineering, University of Shanghai for Science and Technology, Shanghai, China*

[2]*Department of Computer Science and Technology, University of Shanghai for Science and Technology, Shanghai, China*

[3]*Department of Material Forming & Control Engineering, University of Shanghai for Science and Technology, Shanghai, China*

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Corresponding Author

Shubo Yang

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Abstract

With the rapid development of science and technology, artificial intelligence(AI) technology has gradually penetrated into various fields, having a profound impact on the global economy, society and personal life. In this context, college students as the future pillars of the country, their employment problem has always been the focus of social attention. This paper aims to explore the influence of artificial intelligence on the employment ability of college students, analyze the opportunities and challenges faced by college students in the era of artificial intelligence, and provide useful reference for higher education and talent training in China.As future contributors to national development, college students and their employability are now a pressing social concern. This study investigates how AI influences students'readiness for the workforce, highlighting both the potential opportunities and significant challenges they encounter. From the perspectives of artificial intelligence quotient(AIQ),college students' employment ability, self-acceptance and improvement ability,the research offers practical insights for improving education and talent cultivation in China, aiming to better equip students for an AI-driven future.

1. Introduction

The rapid development of artificial intelligence (AI) is reshaping industries worldwide, profoundly influencing the global economy, societal structures, and individual lives. Since the breakthrough of deep learning algorithms in 2006, AI has undergone significant advancements, becoming a core driver of technological progress and economic growth. By 2022, global investments in AI-related technologies reached $128.8 billion, highlighting the strategic importance of AI across sectors. In China, AI is a national priority, with government-led initiatives promoting integration into industries through the "AI+" strategy, aiming to enhance global competitiveness and foster innovation.

This transformative wave of AI brings both unprecedented opportunities and formidable challenges to college students, who represent the backbone of the future workforce. In recent years, the number of college graduates in China has reached record levels, with 11.79 million expected to graduate in 2024. This surge in graduates, coupled with structural economic adjustments and global uncertainties, has intensified competition in the job market.

The increasing adoption of AI technologies in industries further exacerbates these challenges. In earlier technological progress, such as the development of automation, it mainly replaced some simple, repetitive manual labor jobs, and its transformation scope was relatively narrow. However, in the era of artificial intelligence, not only does artificial intelligence impact some regular jobs, but it also creates numerous interdisciplinary new jobs, like artificial intelligence algorithm engineers, data annotators, and artificial intelligence ethics examiners,etc.The diversity and interdisciplinarity of jobs are more prominent, and the span of employment influence is wider. As automation threatens traditional roles, it demands that graduates master new skills such as AI application, data analysis, and machine learning.

This study delves into the effects of AI on college students'employability and explores how this technological revolution has changed the way college students are employed. By identifying key factors, such as AI quotient, self-regulation, and adaptability, that influence employability, the research provides actionable insights for students, educators, and policymakers. Ultimately, it aims to offer guidance on enhancing employment readiness in an AI-driven world, paving the way for high-quality career development.

2. Literature Review

2.1 AI's Impact on Employment and Skills

This section examines key literature shaping this study, focusing on both global and Chinese perspectives regarding artificial intelligence (AI) and its role in employment trends and higher education. On a global scale, the concept of employability has undergone significant evolution, expanding beyond technical skills to encompass critical soft skills such as communication, adaptability, problem-solving, and teamwork. Harvey identified these competencies as essential for navigating the modern job market, arguing that employability requires the integration of technical expertise with professional and interpersonal capabilities. This perspective underscores the importance of higher education institutions in fostering a holistic approach to student development,preparing them to meet the demands of a rapidly changing workforce(Harvey,2001).

In China, researchers have built on global frameworks while emphasizing localized challenges and opportunities.The primary challenges faced by Chinese graduates include the misalignment between education and market demand, regional development imbalances (particularly in emerging industries), degree inflation, cultural constraints on career choices, and the influence of policy directives. These obstacles make their employability in the context of artificial intelligence (AI) more limited compared to their global counterparts.

ZhengXiaoming’s studies highlighted the growing importance of interdisciplinary knowledge, particularly in AI, for graduates to remain competitive. His work stresses that students must develop AI literacy, including basic knowledge of algorithms and practical skills in data analysis, to bridge the gap between theoretical learning and real-world applications. Additionally, with the growing prevalence of automation in China's job market, there is an intensified demand for graduates who are proficient not only in their specific fields of study but also in cross - disciplinary problem - solving. As Artificial Intelligence (AI) continues to evolve, there is an increasing necessity not only for mastery in professional expertise but also, to a certain degree, a drive towards the requirement for interdisciplinary competencies, transcending mere optimization

of automated workflows. AI enhances decision-making through algorithmic processes and data analytics, a technological attribute that reconfigures the skillset demands in the employment market(Zheng Xiaoming,2002).

Empirical studies also reflect the critical role of higher education in equipping students with the tools necessary to thrive in an AI-driven world. For instance, Tao Aixian and colleagues (2007) identified the shifting expectations of employers, who now prioritize candidates capable of continuous learning and innovation. These findings are consistent with the broader need for higher education reforms to integrate AI-related subjects into traditional curricula, offering students opportunities to apply theoretical knowledge through hands-on training and projects. Together, these global and Chinese perspectives provide a comprehensive understanding of the evolving landscape of employability in the age of AI, setting the stage for this study's exploration of its impacts on college students(Tao Aixian,2007).

In 2024, S. Lakshmi Devi1, Simanchala Das1 et al. collected data through a questionnaire survey to investigate the impact of artificial intelligence on skill development programs and its impact on employability in Andhra Pradesh, India. The findings of this study have implications for skill development programs and the application of artificial intelligence in employability(Das Simanchala,2024).

2.2 Implications for Higher Education and Policies

In China, the increasing integration of artificial intelligence (AI) into industries has sparked a growing demand for higher education reforms aimed at enhancing students'employability. Zhou Guifeng and Li Lin underscore the importance of self-regulation and lifelong learning as essential tools for students to adapt to the rapid advancements of AI. They highlight the need for universities to implement policies that prioritize the inclusion of AI-related subjects in academic programs, integrate practical training opportunities, and provide structured career planning support. These reforms are intended to bridge the gap between theoretical education and the practical skills required in an AI-driven job market(Zhou Guifeng&Li Lin,2023).

Moreover, their findings align with global research trends, which emphasize that AI literacy, critical thinking, problem-solving abilities, and a commitment to lifelong learning are vital for success in modern industries. In particular, graduates must be equipped not only with technical expertise but also with the ability to leverage AI tools in dynamic and interdisciplinary contexts. Such insights underline the urgent need for innovative and flexible approaches in higher education to meet the evolving demands of the labor market. This research builds upon these perspectives, offering a deeper examination of AI's influence on the employability of college students in China and beyond.

3. Methodology and Procedures

3.1 Research Objectives

This study aims to deeply analyze the employment status of college students in the AI era, objectively evaluate the impact of AI on the employment market and the challenges to college students' employability. Furthermore, we will explore the key factors affecting college students' employability in the wave of AI and reveal possible paths to enhance their employment competitiveness. Ultimately, the research results aim to improve college students' employability and provide clear guidance directions for their career development, as well as formulate strategies and suggestions for national social development and the education industry.

3.2 Research Subjects

This study focuses on the influencing factors of the employability of undergraduates and postgraduates in 41 undergraduate colleges and universities in Shanghai in the AI era. To fully reflect this issue, the research sample covers undergraduates and postgraduates who are about to enter the job market, including provincial key universities and ordinary universities, including liberal arts, Science and Engineering, and art - related majors.The basic information analysis of the study reveals data distributions in terms of gender, age, major category, and future plans. Through these data, this study aims to deeply understand the impact of AI on college students' employability and provide empirical support for national education and social development.

Table 1 ： Gender ratio

name	options	frequency	Percentage (%)	Cumulative percentage (%)
genders	male	215	59.07	59.07
	female	149	40.93	100
add up the total		364	100	100

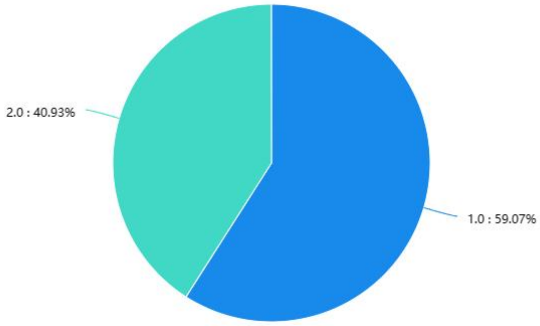

Chart 1： Round pie chart of the sex ratio

Table 2 ： Age ratio

name	options	frequency	Percentage (%)	Cumulative percentage (%)
grade	undergraduates	332	91.21	91.21
	postgraduates	32	8.79	100
add up the total		364	100	100

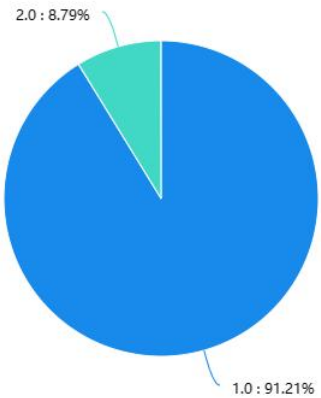

Chart 2 ： Grade scale round cake chart

Table 3 ： Proportion of professional categories

name	options	frequency	Percentage (%)	Cumulative percentage (%)
Professional category:	liberal	191	52.47	52.47
	Science and Engineering	107	29.4	81.87
	art	66	18.13	100
add up the total		364	100	100

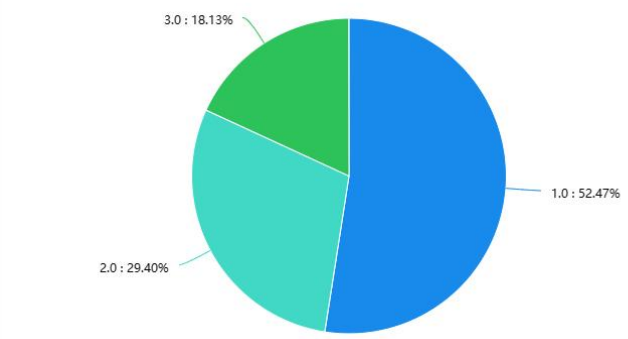

Chart 3： Professional category round cake chart

Table 4 ： Future planning table

name	options	frequency	Percentage (%)	Cumulative percentage (%)
future planning:	pursue one's studies	50	13.74	13.74
	employment	142	39.01	52.75
	entrepreneurship	156	42.86	95.6
	other	16	4.4	100
add up the total		364	100	100

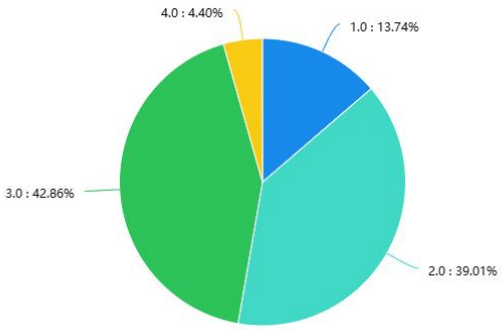

Chart 4 ： Future planning round pie chart

Among gender ratio, men account for 59.07% and 40.93% female; in age distribution, most of the graduating grades, accounting for 91.21%, while graduate students account for 8.79%; in the professional category, liberal arts account for 52.47%, Science and Engineering for 29.4%, art for 18.13%; in the future planning, 42.86% plan to continue their study, 39.01% plan to find jobs, 13.74% plan to start businesses, and 4.4% plan others.

3.3 Research Methods

Questionnaires were created using the Wenjuanxing platform, and data was collected through the distribution of questionnaires with numerous targeted questions for investigation and analysis.

3.4 Questionnaire Design

3.4.1 Artificial Intelligence Quotient (AIQ)

Inspired by the new concept of "Artificial Intelligence Quotient" proposed by Professor Qin Xin's team at Sun Yat - sen University Business School and Professor Jackson Lu's team at the Massachusetts Institute of Technology (MIT) and their empirical evidence and measurement tools, combined with the employment situation of college students and the theme of this paper "the impact of artificial intelligence on college students' employability", the content of our questionnaire mainly focuses on the construction of AIQ(Qin, X., Lu, J. G., Chen, C., Zhou, X., Gan, Y., Li, W., & Song, L. L,2024).

This study is based on the theoretical framework of Artificial Intelligence Quotient (AIQ) and integrates the characteristics of college students' employability to propose a distinction between AI-related skills and soft skills. AI-related skills primarily reflect students' mastery of AI knowledge and tools, as well as their application capabilities (such as learning ability and problem-solving skills). In contrast, soft skills emphasize students' interpersonal interactions, innovative thinking, and cross-disciplinary knowledge integration.By integrating the dimensions of AIQ, self-regulation, and employability, we have constructed a multi-level framework to explain the comprehensive impact of artificial intelligence on college students' employability.

The questionnaire questions are divided into the AIQ dimension, which is further divided into two secondary dimensions: knowledge acquisition and skill application ability, and innovation and communication ability. Each secondary dimension corresponds to two tertiary dimensions, and two questions are designed for each tertiary dimension. Knowledge acquisition and skill application ability focus on college students' mastery and application ability of AI knowledge; innovation and communication ability focus on college students' innovative thinking and communication skills.(Wang, S., Sun, Z., & Chen, Y,2023).

For the convenience of later data analysis, the four tertiary dimensions of learning ability, ability to solve problems using AI, creativity, and communication ability are named LL, AI, CR, and CC respectively,As shown in the following table:

Table 5 ： Artificial Intelligence Quotient Questionnaire

The first dimension	The second dimension	Three dimensions	Questionnaire questions	Competencies of interest for design issues
artificial intelligence quotient (AIQ)	Ability to acquire knowledge and apply skills	learning ability(LL)	You regularly learn about artificial intelligence You are familiar with AI-related tools and techniques and can effectively utilize them to solve problems	Focus on college students' ability to acquire and apply knowledge of artificial intelligence
		Problem solving capabilities using artificial intelligence(AI)	You are able to assess the accuracy and reliability of results when using artificial intelligence to solve problems. In the school curriculum, you can solve curriculum-related problems reliably without using artificial intelligence.	

Innovation and communication skills		creativity(CR)	You often have innovative ideas You often use artificial intelligence to design innovative problems	Focusing on university students' abilities in creative thinking and communication
		communicative(CC)	You are able to express your ideas and opinions clearly in a team environment. When in disagreement with others, how do you usually communicate to reach a consensus?	

3.4.2 Self - regulation

Self - regulation refers to the ability of an individual to adjust his or her behavior, emotion, and cognitive state through internal processes when facing various pressures, challenges, or changes to achieve personal goals or adapt to environmental changes. Therefore, the content of our questionnaire mainly focuses on the construction of self - regulation. The questionnaire questions are divided into the self - regulation dimension, which is further divided into one secondary dimension of cognitive and adaptation ability. Each secondary dimension corresponds to two tertiary dimensions, and two questions are designed for each tertiary dimension. Cognitive and adaptation ability focus on college students' cognitive level of AI and their attitude and adaptation ability to the development of AI technology. For the convenience of later data analysis, the two tertiary dimensions of cognitive understanding and self - improvement are named CA and SA respectively,As shown in the following table:

Table 6 Self-regulation questionnaire form

The first dimension	The second dimension	Three dimensions	Questionnaire questions	Competencies of interest for design issues
self-regulation	Cognitive and adaptive capacity	cognitive understanding(CA)	You are confident to face the impact of AI updates and iterations on the industry Do you think your major is more relevant to AI?	Focus on college students' level of awareness of AI and their attitudes and adaptability to AI technology
		Self-improvement(SA)	You have the ability to learn and update yourself with the times. You are able to cope with the application of artificial intelligence to real-life situations	

3.4.3 Employability

In the context of AI, college students' employment is different from other periods, with stricter requirements for us to enhance the soft power that distinguishes us from machines. Therefore, the content of our questionnaire mainly focuses on the construction of employability. The questionnaire questions are divided into the employability dimension, which is further divided into two secondary dimensions: teamwork and execution ability, and professional ability and interdisciplinary ability. Each secondary dimension corresponds to two tertiary dimensions, and two questions are designed for each tertiary dimension. Teamwork and execution ability focus on college students' ability in teamwork and task execution; professional ability and interdisciplinary

ability focus on college students' ability in professional learning and interdisciplinary knowledge(Toma, S. G., & Hudea, O. S,2024).

For the convenience of later data analysis, the four tertiary dimensions of teamwork ability, execution ability, professional discipline ability, and interdisciplinary ability are named TC, EC, SC, and IC respectively,As shown in the following table:

Table 7 ： Employability Questionnaire

The first dimension	The second dimension	Three dimensions	Questionnaire questions	Competencies of interest for design issues
Employability	Teamwork and execution skills	cooperativeness(TC)	You can be an active participant in teamwork, agreeing with team members and solving problems. You believe you are good at mobilizing the team atmosphere and keeping team members actively involved in teamwork.	Focus on the ability of university students to work in teams and perform tasks
		enforceability(EC)	You have the ability to plan your time and set goals for your studies and life. You have the ability to carry out and complete study and life plans and tasks effectively.	
	Professional and interdisciplinary competencies	Competence in specialized disciplines(SC)	You are proficient in the acquisition and application of core knowledge and skills in the professional discipline you are studying You are actively involved in the study and research of your professional discipline	Focus on university students' competence in professional learning and interdisciplinary knowledge
		Cross-disciplinary capacity(IC)	You see a high degree of correlation between most industries and AI in the future You have the ability to link knowledge from other disciplines related to artificial intelligence	

3.5 Questionnaire Reliability and Validity Tests

3.5.1 Validity and Reliability Test of AIQ Indicator System

For the reliability test of the AIQ questionnaire questions, the Cronbach reliability analysis method was selected to ensure that the questions designed under the AIQ dimension can effectively reflect the impact of AIQ on college students' employability(Toma, S. G., & Hudea, O. S,2024).

Table 8 ： Cronbach Reliability Analysis Table for Artificial Intelligence Quotients

Name	The total correlation of correction item(CITC)	The α factor for which the item has been removed	Cronbach's alpha coefficient
LL1	0.498	0.713	
LL2	0.464	0.721	
CR1	0.447	0.724	0.75
CR2	0.532	0.708	
CC1	0.396	0.733	

CC2	0.389	0.734
AI1	0.446	0.724
AI2	0.387	0.734

Source of Data：Questionnaire Investigation

After the Cronbach reliability analysis, the Cronbach α coefficient of AIQ was found to be 0.75, which is in the range of 0.7 - 0.8, indicating that the scale has good consistency. In conclusion, the reliability coefficient of AIQ is higher than 0.7, indicating that the data has high reliability quality, providing a reliable basis for subsequent analysis.

For the validity test of the AIQ questionnaire questions, the KMO and Bartlett's sphericity test methods were selected to ensure that the questions set under the AIQ dimension can effectively reflect the impact of AIQ on college students' employability.

Table 9 ： The KMO and Bartlett's test table of the artificial intelligence quotient

The KMO value		0.845
The Bartlett's Sphericity Test	The approximate chi-square	460.218
	df	28
	The p -value	0

Source of Data：Questionnaire Investigation

After the KMO and Bartlett's sphericity test, the KMO value of AIQ was found to be 0.845, which is greater than 0.8, indicating that the research data is very suitable for factor analysis to extract information. Moreover, the approximate chi - square value of the Bartlett's sphericity test is 460.218, the degree of freedom is 28, and the p - value is 0, with an extremely low significance level, further verifying that the data has good validity.

3.5.2 Validity and Reliability Test of Self - acceptance and Self - regulation Indicator System

For the reliability test of the self - regulation questionnaire questions, the Cronbach reliability analysis method was selected to ensure that the questions set under the self - regulation dimension can effectively reflect the impact of self - regulation on college students' employability.

Tanble 10 ： The Self-Regulated Cronbach's Alpha Reliability Table

Name	The total correlation of correction item(CITC)	The α factor for which the item has been removed	Cronbach's alpha coefficient
CA1	0.478	0.601	0.678
CA2	0.487	0.595	
SA1	0.397	0.652	
SA2	0.48	0.6	
The Standardizing Cronbach's α Coefficient : 0.678			

Source of Data：Questionnaire Investigation

After the Cronbach reliability analysis, the Cronbach α coefficient value of self - regulation was found to be 0.678, which is greater than 0.6, indicating that the reliability quality of the research data is acceptable. In conclusion, the reliability coefficient value of the self - regulation research data is higher than 0.6, indicating that the data has acceptable reliability quality.

For the validity test of the self - regulation questionnaire questions, the KMO and Bartlett's sphericity test methods were selected to ensure that the questions set under the self - regulation dimension can effectively reflect the impact of self - regulation on college students' employability.

Table 11 ： The Self-regulating KMO and Bartlett's Test Table

The KMO Value		0.733
The Bartlett's Sphericity Test	Approximate chi-squared	208.17
	df	6
	The p -value	0

Source of Data：Questionnaire Investigation

After the KMO and Bartlett's sphericity test, the KMO value of self - regulation was found to be 0.733, between 0.7 and 0.8, indicating that the research data is suitable for factor analysis to extract information. The approximate chi - square value of the Bartlett's sphericity test is 208.17, the degree of freedom is 6, and the p - value is 0, further verifying that the data has good validity.

3.5.3 Validity and Reliability Test of College Students' Employability Indicator System

For the reliability test of the employability questionnaire questions, the Cronbach reliability analysis method was selected to ensure that the questions set under the employability dimension can effectively reflect the impact on college students' employability.

Table 12 ： The Cronbach's Alpha Coefficient Table of Employability

Name	The total correlation of correction item(CITC)	The α factor for which the item has been removed	Cronbach's alpha coefficient
TC1	0.547	0.859	0.868
TC2	0.553	0.858	
EC1	0.586	0.856	
EC2	0.561	0.858	
SC1	0.583	0.856	
SC2	0.506	0.862	
IC1	0.573	0.857	
IC2	0.545	0.859	

The Standardizing Cronbach's α Coefficient：0.869

Source of Data： Questionnaire Investigation

After the Cronbach reliability analysis, the Cronbach α coefficient of employability was found to be 0.868, which is higher than 0.8, indicating that the research data has high reliability quality and is suitable for further analysis.

For the validity test of the employability questionnaire questions, the KMO and Bartlett's sphericity test methods were selected to ensure that the questions set under the employability dimension can effectively reflect the impact of employability on college students' employability.

Table 13 ： The Employability KMO and Bartlett's Test Table

The KMO Value		0.95
The Bartlett's Sphericity Test	Approximate chi-squared	3602.857
	df	435
	The p -value	0

Source of Data： Questionnaire Investigation

After the KMO and Bartlett's sphericity test, the KMO value of employability was found to be 0.950, which is much higher than 0.8, indicating that the research data is very suitable for factor analysis to extract information, thus indirectly reflecting that the data has good validity.

3.6 Theoretical Analysis and Hypothesis Generation

This study intends to use rational choice theory and social learning theory as entry points, combined with the research results of past relevant scholars, to explore the relationships among AIQ, self - regulation, and college students' employability, and analyze the influencing factors of college students' employability.

Based on Coleman's rational choice theory and combined with the research content, the following assumptions are made:

Hypothesis A1 is proposed: AIQ has a positive promoting effect on college students' employability.

Furthermore, based on the investigations of relevant scholars on the current social situation and our analysis, the following hypotheses are proposed:

Hypothesis A1a: Learning ability has a positive promoting effect on college students' employability;

Hypothesis A1b: The ability to solve problems using AI has a positive promoting effect on college students' employability;

Hypothesis A1c: Creativity has a positive promoting effect on college students' employability;

Hypothesis A1d: Communication power has a positive promoting effect on college students' employability.

Furthermore, through the research of relevant scholars, college students will instinctively give a series of responses to the external environment of the AI era for adaptation and survival, which is self - regulation.Therefore,based on social learning theory, this study proposes the following hypotheses:

Hypothesis A2: Self-regulation has a positive promoting effect on college students' employability.

Furthermore, combined with relevant research and social learning theory, self - regulation is

divided into cognitive understanding and self - improvement ability. Whether it is cognitive understanding and self - improvement ability of society and oneself, they are specific forms of self - regulation. In the face of the impact of the AI era on employment, they can be recognized, processed, and regulated by the acting individual according to social learning theory. Therefore, the following assumptions are made:

Hypotheses A2a: Cognitive understanding ability has a positive promoting effect on college students' employability

Hypotheses A2b: Self-improvement ability has a positive promoting effect on college students' employability.

Through the above discussion, self - regulation is a process that has an impact on both the action purpose and the action process. Therefore, the discussion of the impact path of AIQ on college students' employability is also very important. Hence, the following assumptions are made:

Hypothesis A3 is proposed: Self - regulation can regulate the impact of AI on college students' employability.

3.7. Results and Discussion

- **Descriptive Statistical Analysis of Survey Data**

Descriptive analysis, also known as descriptive statistics, is a data analysis method. It describes the overall situation of data by means of average or median and describes the basic characteristics of data. Through the questionnaire survey, we obtained the following missing analysis table:

Table 14 : Descriptive Statistical Table

Name	Sample volume	Absent sample size	Minimum value	Maximum value	The average value	Standard deviation	Median	Whether the number is constant
LL1	364	0	1	5	3.5	1.293	4	No
LL2	364	0	1	5	3.563	1.302	4	No
CR1	364	0	1	5	3.67	1.141	4	No
CR2	364	0	1	5	3.621	1.154	4	No
CC1	364	0	1	5	3.527	1.167	4	No
CC2	364	0	1	5	3.695	1.035	4	No
AI1	364	0	1	5	3.522	1.104	3	No
AI2	364	0	1	5	3.201	1.089	3	No
CA1	364	0	1	5	3.53	1.252	4	No
CA2	364	0	1	5	3.563	1.212	4	No
SA1	364	0	1	5	3.503	1.191	4	No
SA2	364	0	1	5	3.632	1.174	4	No
TC1	364	0	1	5	3.621	1.108	4	No
TC2	364	0	1	5	3.434	1.123	4	No

EC1	364	0	1	5	3.456	1.138	3	No
EC2	364	0	1	5	3.503	1.198	4	No
CR1	364	0	1	5	3.407	1.208	3	No
CR2	364	0	1	5	3.462	1.179	3	No
SC1	364	0	1	5	3.497	1.154	3	No
SC2	364	0	1	5	3.401	1.281	4	No
SP1	364	0	1	5	3.665	1.243	4	No
SP2	364	0	1	5	3.456	1.193	4	No
IC1	364	0	1	5	3.563	1.224	4	No
IC2	364	0	1	5	3.566	1.085	4	No

As can be seen from the above table:the current data has no abnormal values and can be used for research.

- **Principal Component Analysis**

Principal component analysis is a data - dimension - reduction algorithm. Dimension reduction is to retain the most important features of high - dimensional data, remove noise and unimportant features, thereby achieving the purpose of improving the data processing speed. Here, we will use principal component analysis to conduct principal component analysis on AIQ, self - regulation, and college students' employability.

artificial intelligence quotient (AIQ):

Table 15 ： Linear combination coefficients and weighting results - AI quotient

name	Principal Component 1	Principal Component 2	Principal Component 3	Composite score factor	weight
characteristic root	2.43	0.953	0.751		
variance explained rate	40.50%	15.88%	12.51%		
LL1	0.4395	-0.3571	-0.0721	0.1629	10.92%
LL2	0.429	-0.3083	0.4255	0.2584	17.32%
CR1	0.4098	0.0478	-0.4248	0.1748	11.72%
CR2	0.4545	-0.3081	-0.1319	0.1722	11.55%
CC1	0.3484	0.6232	-0.4316	0.2701	18.11%
CC2	0.3563	0.5402	0.6554	0.1836	12.32%
AI1	0.3242	0.3421	0.335	0.1561	10.47%
AI2	0.3524	0.5643	0.463	0.1134	7.61%

self-regulation：

Table 16 ： Linear combination coefficients and weights results table - Self-regulation, Improvement

name	Principal Component 1	Principal Component 2	Composite score factor	weight
characteristic root	2.04	0.735		
variance explained rate	50.99%	18.38%		
CA1	0.5117	-0.1895	0.3259	21.78%
CA2	0.5188	-0.3954	0.2765	18.48%
SI1	0.4533	0.8789	0.5661	37.84%
SI2	0.5134	-0.1877	0.3276	21.90%

Employability of university students：

Table 17 ： Linear combination coefficients and weights results table - Employability of college students

name	Principal Component 1	Principal Component 2	Principal Component 3	Principal Component 4	Composite score factor	weight
characteristic root	3.535	0.824	0.688	0.652		
variance explained rate	44.18%	10.30%	8.60%	8.15%		
TC1	0.3601	-0.3891	0.2049	-0.4795	0.137	7.77%
TC2	0.3466	0.41	0.2098	-0.1101	0.287	16.29%
EC1	0.3696	0.1598	-0.447	-0.3162	0.1622	9.20%
EC2	0.3547	-0.1738	-0.6572	0.1359	0.131	7.43%
SC1	0.3553	0.2005	0.1735	0.7173	0.3523	19.99%
SC2	0.3327	0.5392	0.0359	-0.1443	0.2721	15.44%
IC1	0.3599	-0.2118	0.5009	-0.0962	0.2421	13.74%
IC2	0.3483	-0.499	-0.0058	0.308	0.1784	10.13%

● Correlation Analysis

We first analyzed the correlation between college students' AIQ and their employability,the results are shown as follows:

Table 18 ： Pearson's correlation coefficient

norm	Employability of university students
artificial intelligence quotient	0.526**
Self-regulation skills	0.738**
learning ability	0.394**
creativity	0.404**
communicative	0.419**
Artificial Intelligence Solution Capabilities	0.388**
cognitive understanding	0.630**
Capacity for self-improvement	0.664**
* p<0.05 ** p<0.01	

In this study, correlation analysis was used to explore the relationship between employment ability and various potential influencing factors. Specifically, we analyzed the correlation between college students' employment ability and eight factors: artificial intelligence quotient, self-regulation ability, learning ability, creativity, communication ability, artificial intelligence solving ability, cognitive understanding, and self-improvement ability. The Pearson correlation coefficient was used to quantify these relationships and was tested for significance.

The results showed that there is a significant positive correlation between college students' employability and AIQ (correlation coefficient is 0.526, $p < 0.01$). Similarly, there are also significant positive correlations between college students' employability and self - regulation ability (correlation coefficient is 0.738, $p < 0.01$), learning ability (correlation coefficient is 0.394, $p < 0.01$), creativity (correlation coefficient is 0.404, $p < 0.01$), communication ability (correlation coefficient is 0.419, $p < 0.01$), AI - solving ability (correlation coefficient is 0.388, $p < 0.01$), cognitive understanding (correlation coefficient is 0.630, $p < 0.01$), and self - improvement ability (correlation coefficient is 0.664, $p < 0.01$). These findings reveal the close connections between college students' employability and the various abilities investigated, providing an important basis for further research on the influencing mechanism of college students' employability.

- **Confirmatory Factor Analysis**

To further test the rationality of the model of the impact of AIQ on college students' employability, we need to use discriminant validity to measure the correlations among models.

Table 19 ： Pearson Correlation and AVE Square Root Values Table - AI Quotient Table

	learning ability	creativity	communicative	Artificial Intelligence Solution Capabilities
learning ability	0.604			
creativity	0.533	0.568		
communicative	0.321	0.374	0.551	
Artificial Intelligence Solution Capabilities	0.412	0.433	0.397	0.471

Analyzed by discriminating validity, for learning power, its AVE square root value was 0.604, which is greater than the maximum value of the absolute inter-factor correlation coefficient of 0.533, indicating a good discriminative validity. For creativity, the AVE square root value is 0.568, which is greater than the maximum of 0.533 for the absolute inter-factor correlation coefficient, indicating good discriminatory validity. For the communication force, the AVE square root value is 0.551, which is greater than the maximum value of 0.397 for the absolute inter-factor correlation coefficient, implying good discriminatory validity. For the AI solution capability, the AVE square root value is 0.471, which is greater than the maximum value of the absolute correlation coefficient between factors of 0.433, reflecting its good discriminatory validity. Therefore, the ability assumed in the artificial intelligence quotient has a positive impact on the employment of college students.

As can be seen from the above, we assume the influence of self-regulation on the path between artificial intelligence quotient and the employment ability of college students. For the construction of this model, we should also verify its rationality, and also use the differentiation validity to test the correlation.

Table 20 ： Pearson Correlation and AVE Square Root Values Table-College Employment Table

	Cognitive Acceptance	Capacity for self-improvement

Cognitive Acceptance	0.63	
Capacity for self-improvement	0.502	0.568

By analyzing the discriminatory validity, for cognitive acceptance, the AVE square root value was 0.630, which is greater than the maximum value of the absolute correlation coefficient between the factors of 0.502, reflecting its good discriminatory validity. For self-improvement ability, the AVE square root value was 0.568, which is greater than the maximum value of 0.502 for the absolute value of the inter-factor correlation coefficient, reflecting its good discriminatory validity.

Furthermore, for the structural composition of self-improvement capacity, we will construct using principal component analysis.KMO test was first performed, as follows:

Table 21 ： KMO test table for self-improvement ability

KMO value		0.733
Bartlett Sphericity Check	approximate chi-square	208.17
	df	6
	p value	0

For the employment power of college students, as shown in the following table:

Table 22 ： Pearson Correlation and AVE Root Values Table - College Student Employability

	Teamwork skills	Executive ability	Professional Disciplinary Capacity	Interdisciplinary Capacity
Teamwork skills	0.588			
Executive ability	0.534	0.651		
Professional Disciplinary Capacity	0.514	0.513	0.603	
Interdisciplinary Capacity	0.55	0.515	0.494	0.62

Remarks: The blue numbers on the diagonal represent the square root values of AVE.

By analyzing the discriminatory validity, the AVE square root value is 0.588, which is greater than the maximum value of the absolute correlation coefficient of 0.550, reflecting its good discriminatory validity. For execution, the AVE square root value is 0.651, which is greater than the maximum 0.534 of the absolute inter-factor correlation coefficient, implying good discriminative validity. For professional discipline competence, the AVE square root value is 0.603, which is greater than the maximum value of the absolute value of the correlation coefficient of 0.514, reflecting its good discriminatory validity. For interdisciplinary ability, the AVE square root value is 0.620, which is greater than the maximum value of 0.550 of the absolute interfactor correlation coefficient, reflecting its good discriminatory validity. So the model has a good rationality, and the assumption is true.

- **Structural Equation**

When applying the structural equation to verify the model, a good model adaptation is the

premise of analysis, so we first analyze the credibility of the model, so as to explore whether the results of the model are reliable.

Table 23 ： The Fit Table of SEM Structural Equation Model

Frequently Used Indicators	χ2	df	p	Chi-square degrees of freedomχ2/df	GFI	RMSEA	RMR	CFI	NFI	NNFI
Judgment Criterion	-	-	>0.05	<3	>0.9	<0.10	<0.05	>0.9	>0.9	>0.9
Value	199.378	151	0.005	1.32	0.947	0.03	0.052	0.973	0.898	0.966
Other indicators	TLI	AGFI	IFI	PGFI	PNFI	PCFI	SRMR	RMSEA 90% CI		
Judgment Criteria	>0.9	>0.9	>0.9	>0.5	>0.5	>0.5	<0.1	-		
Value	0.966	0.926	0.973	0.681	0.714	0.773	0.038	0.017 ~ 0.040		

On this simulated fitting index table, we analyzed as many metrics as possible. Among these indicators, RMR value of 0.052 greater than 0.05, NFI value of 0.0947 greater than 0.9, GFI value of 0.0947 greater than 0.9, RMSEA value of 0.03 less than 0.10, CFI value of 0.973 greater than 0.9, NNNFI value of 0.966 greater than 0.9, the difference from the standard value, the model is good and meets our audit conditions, so the results obtained are of high confidence.

Table 24 ： Path Table of Structural Equation Model (SEM)

X	→	Y	Non-standard Regression coefficient	SE	z (CRValue)	p
Learining capacity	→	Employability of college students	0.203	0.483	0.421	0.016**
Creative ability	→	Employability of college students	1.217	7.378	-0.165	0.018**
Communicative ability	→	Employability of college students	0.222	0.233	0.954	0.034**
The solving ability of artificial intelligence	→	Employability of college students	0.298	3.871	0.077	0.019**
Cognitive acquaintance capacity	→	Employability of college students	0.05	0.745	0.067	0.019**
Self-improvement Capacity	→	Employability of college students	1.09	1.076	1.013	0.013**

* p<0.05 ** p<0.01

In the principal component analysis, correlation analysis, validation factor analysis, the analysis of structural equation model, the A1a, A1b, A1c, A2a, A2b hypothesis are established, therefore, learning for college students 'employment, creativity for college students' employment, communication force for college students 'employment force, artificial intelligence ability for college students' employment force, cognitive understanding ability for college students

'employment, self-improvement ability for college students' employment force. In particular, creativity and self-improvement ability promote the employment; learning, communication and artificial intelligence solutions; cognitive understanding.

Therefore, it can also be considered that the employment influence factor model of college students has a good fit. Our assumptions and conclusions have a good rationality to support.

- **Regulatory effect**

For hypothesis A3, this paper will build a multilayer multiple regression model, the college students' employment force as the dependent variable Y, in turn, in the age, professional, future planning, artificial intelligence quotient, self regulation, improvement, which add artificial intelligence quotient not join the self regulation model called model 1, join self-regulation, improvement effect not add self regulation, improvement * artificial intelligence quotient interaction model called model 2, add self-regulation, improvement * artificial intelligence quotient interaction model called model 3, the results are as follows:

Table 25 ： Table of Regression Results for Adjustment Effects

	Model1		Model2		Model3	
	B	p	B	p	B	p
Constant	3.572	0.000**	3.571	0.000**	3.571	0.000**
SEX	-0.004	0.969	0.021	0.829	0.021	0.832
GRADE	-0.134	0.499	-0.181	0.337	-0.179	0.35
Professional	0.117	0.109	0.102	0.138	0.103	0.141
FP	-0.045	0.408	-0.028	0.585	-0.029	0.584
Artificial Intelligence Quotient	0.439	0.000**	0.284	0.001**	0.282	0.002**
Self-regulation ability			0.26	0.001**	0.259	0.001**
Artificial Intelligence Quotient*Self-regulation ability					0.005	0.019*
R^2	0.297		0.374		0.564	
Adjustment R^2	0.26		0.334		0.536	

Based on the analysis above the table, the constant terms of all models are significant ($p < 0.001$), indicating that employment power is related to other variables in the model. The AI quotient was significant in all models ($p < 0.001$), indicating that the AI quotient had a significant positive effect on employment power. In Model 3, the coefficient of AI quotient * self-regulation ability is 0.005, which means that the positive effect of AI quotient on employment power increases when self-regulation capacity increases.

Table 26 ： Research Hypothesis Validation Table

Verification Method	Null Hypothesis	Result
Regression Analysis	SupposeA1: Artificial Intelligence Quotient (AIQ) has a positive impact on college students' employability.	Establishment
	SupposeA2: Self-regulation exerts a positive facilitating effect on the employability of college students.	Establishment
	SupposeA3: Self-regulation can regulate the impact of artificial intelligence on college students' employability.	Establishment

	SupposeA1a： Learning ability has a positive impact on college students' employability.	Establishment
	SupposeA1b： The ability to solve problems using artificial intelligence has a positive impact on college students' employability.	Establishment
Structural Equation Modeling	SupposeA1c： Creativity has a positive effect on promoting the employment force of college students	Establishment
	SupposeA1d： Communication power has a positive effect on promoting the employment force of college students	Establishment
	SupposeA2a： Cognitive understanding ability has a positive impact on college students' employability.	Establishment
	SupposeA2b： Self-improvement ability has a positive impact on college students' employability.	Establishment

4. Results and Discussion

The survey data was analyzed using statistical methods, including principal component analysis (PCA) and structural equation modeling (SEM), to explore the relationship between AI competencies and college students' employability. These methods allowed for an in-depth examination of key variables such as AI quotient (AIQ), self-regulation, creativity, and interdisciplinary skills, which are critical in an AI-driven workforce.

The results reveal a significant positive correlation between AI-related skills and employability. Specifically, students with higher AIQ—measured by their ability to apply AI tools, analyze data, and innovate—demonstrated better employability outcomes. For instance, the Cronbach's alpha for the AIQ-related questions was 0.75, indicating high internal consistency, while the KMO value of 0.845 confirmed the suitability of the data for factor analysis. PCA further identified four major dimensions of AIQ: knowledge acquisition, problem-solving, creativity, and communication skills, all of which significantly contribute to employability.

Additionally, SEM analysis validated several hypotheses. It was found that self-regulation, encompassing cognitive adaptability and proactive learning, plays a moderating role in enhancing the impact of AI skills on employability. For example, students who reported higher self-regulation scores were better equipped to navigate the challenges posed by AI-driven changes in the labor market. The results also show that creativity and interdisciplinary problem-solving are particularly valued by employers, as these skills are less likely to be automated and are essential for integrating AI technologies into complex, real-world scenarios.

The survey also highlighted key disparities among participants. For instance, students from science and engineering backgrounds scored significantly higher in AIQ than those in the arts, reflecting differences in exposure to AI-related curricula. This underscores the importance of expanding AI education across disciplines to ensure all students are equipped with foundational competencies. Moreover, students who participated in AI-related internships or training programs displayed higher employability scores, emphasizing the need for practical experience in complementing theoretical knowledge.

The study also shows that traditional industries and emerging industries are different in terms of AI-related skills requirements. The degree of cross correlation between traditional industries and emerging industries is different. In the traditional industries, representative medical care and manufacturing, AI is used in processes and decision-making, such as medical imaging diagnosis, manufacturing intelligent quality inspection, take into account the integration of the original system and new technology; IT and financial technology and other emerging industries, AI promotes business model innovation, such as intelligent programming of IT industry, financial industry, higher requirements for cutting-edge technology mastery and rapid iteration, under the wave of artificial intelligence.

These findings highlight the urgent need for higher education reforms to address skill gaps. Universities must prioritize interdisciplinary learning, practical training in AI applications, and fostering soft skills such as creativity and communication. Policymakers, too, must play a role by incentivizing AI education and ensuring equitable access to resources that prepare students for the demands of an AI-driven job market.

5. Conclusion and Suggestion

This study underscores the transformative impact of artificial intelligence (AI) on employability, highlighting the importance of equipping students with both technical and soft skills. To thrive in the AI-driven job market, students must develop AI literacy, creativity, problem-solving abilities, and self-regulation, which collectively enable them to adapt to the rapidly evolving demands of employers.

To address the challenges and opportunities posed by AI, tailored recommendations are proposed for key stakeholders:

1. Government: Policymakers should prioritize integrating AI-focused education into national curricula and supporting interdisciplinary programs. Initiatives such as subsidies for AI training and incentives for university-industry collaboration can enhance practical learning opportunities. Moreover, policies should aim to reduce skill disparities by providing access to AI learning resources for students from diverse backgrounds.
2. Educational Institutions: Universities must redesign their curricula to emphasize interdisciplinary learning and practical applications of AI, alongside fostering transferable skills like teamwork and adaptability. Practical initiatives such as AI-focused internships, hands-on workshops, and career guidance programs should be embedded into academic structures. Additionally, institutions should invest in AI labs and platforms to enable students to engage with real-world applications.
3. Students: To remain competitive, students must adopt a proactive and lifelong learning mindset. Engaging in internships, AI-related certification courses, and skill-building workshops is crucial for enhancing employability. Moreover, students should focus on self-regulation and adaptability to effectively navigate AI-driven transformations and leverage their interdisciplinary knowledge.

By fostering collaboration between governments, educational institutions, and students, these measures can collectively address the skill gaps in the AI era. Preparing students with relevant technical and interpersonal skills will ensure their resilience and success in the evolving job market, enabling them to capitalize on the opportunities created by AI technologies.

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