

# The Impact of Generative AI on the Career Path Choices of Undergraduate Students

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**Abstract.** With the rapid and widespread application of generative AI, this technology has emerged as a vital tool in recent years, influencing not only industries but also education. For undergraduate students, generative AI has become an important factor in shaping their career path choices. This article examines the impact of generative AI on students' employment confidence and expectations by adopting a literature review methodology. Previous empirical studies reveal both positive and negative consequences. On the one hand, generative AI creates opportunities by offering personal career advice and job-hunting guidance. On the other hand, it also brings challenges as students show fear of replacement and heightened competition. Findings consistently suggest that students who develop a more comprehensive understanding of generative AI demonstrate stronger employment confidence and maintain more realistic expectations. Therefore, adopting a balanced and thorough view of generative AI can help students reduce anxiety and uncertainty in career decision-making.

**Keywords:** Generative AI, Career Path Choices, Undergraduate Students.

## 1. Introduction

Since ChatGPT was released in November 2022, this generative AI has become one of the most popular AI tools. According to a UBS study released on Wednesday, ChatGPT, the well-known chatbot from OpenAI, is the fastest-growing consumer application in history, with an estimated 100 million monthly active users in January, just two months after launch [1].

In recent years, generative AI has revolutionized various aspects of society. On the one hand, in higher education, according to Grassini's article from 2023, integrating ChatGPT and other AI applications into educational settings can greatly improve students' learning experiences and boost academic research engagement and publication around the clock [2]. Conversely, the integration of generative AI in higher education introduces significant risks, most notably by challenging the foundations of academic integrity. According to a survey of US college students, roughly one-third have used AI chatbots like ChatGPT to finish written homework assignments; 60% of them use the program for more than half of their assignments [3].

For students in higher education, employment is a concern. Due to changes in occupational structure, AI exposure has increased since 2017. Henseke et al pointed out that after ChatGPT was released, job postings decreased; in 2025-Q2, they were 5.5% fewer than they would have been had pre-GPT hiring practices continued in the UK [4]. Additionally, according to the research, the demand for highly exposed jobs has decreased since ChatGPT was released, and the wage premium for tasks involving AI has decreased. With the job exposure to generative AI, students' career path decisions may be influenced by generative AI.

It is significant to reveal the connection between generative AI and students' career path decisions. This research will employ a literature review methodology, concentrating on the impact of generative artificial intelligence on undergraduate students' career decision-making processes. The paper will synthesize existing findings and critically analyze the limitations identified in prior studies.

This study employs a narrative literature review to synthesize existing research on the impact of generative AI on students' career path decisions. The methodology involved a systematic process: first, establishing clear search terms and screening criteria; next, conducting comprehensive searches across reputable academic databases; and finally, performing a thematic analysis and critical evaluation of the selected literature to draw a thorough conclusion. The article first introduces how

students decide career paths before the AI age, and it will introduce the effects of AI on students' employment confidence and employment expectations.

## **2. The career path decision-making before the AI age**

Students in previous generations frequently chose their career paths based on a mix of parental guidance and personal considerations. Grades, personal interests, and innate abilities were important personal factors. When thinking about long-term objectives, students frequently assess both their academic performance and personal skills. However, according to various research studies, individual preferences and intrinsic motivations have a greater impact than academic performance or technical competencies in shaping career decision-making. Over 50% of young people report that they choose their future careers primarily based on their interests [5]. This demonstrates how students' decisions about their futures are heavily influenced by their sense of personal fulfillment and intrinsic motivation.

However, parental intervention also has a significant role, albeit one that varies depending on the cultural setting. Parents are more likely to place an emphasis on economic productivity, family expectations, and responsibility in collectivist societies, like many in Asia. Even if these are not their children's first personal choices, they may steer them toward career paths that guarantee stability and financial security. Conversely, parents from individualistic societies, exemplified by the United States and many Western nations, tend to prioritize their child's personal fulfillment and happiness. Instead of emphasizing family responsibilities, they support occupations that are in line with personal interests and fulfillment [6]. This cultural difference demonstrates how parental influence can have varying effects on career choices in different societies.

Teachers and other educators have the power to affect students' career decisions. However, studies reveal that their influence is typically less than that of parents. According to a Gallup poll, teachers have less of an impact on Generation Z students than parents do. Only 54% of students said they trusted their teachers' career advice, while over 90% of Gen Z students said their parents gave them more thorough guidance on what to do after high school. These results emphasize that although teachers can offer guidance to students, the advice they give is less reliable and effective than that which parents provide.

This conclusion is also supported by official data from Japan's Ministry of Economy, Trade, and Industry in 2016. The results showed that parents had a bigger impact on students' career choices when they were undergraduates than did teachers or peers. The influence of parents was found to be about 10% greater than that of instructors or peers. According to this data, parents' expectations and career guidance are very important, particularly when a student is first starting college. Collectively, these research findings illustrate that an optimal equilibrium between parental engagement and individual aspirations predominantly influences students' vocational decision-making, with parental guidance serving as the primary determinant.

## **3. The connection between employment confidence and generative AI**

The students' employment confidence is highly associated with their career path decisions. Students are more likely to select the ability-contingent wage plan when their confidence levels rise [7].

The following three studies show the negative impact of AI on students' employment confidence. The research conducted by Thomson focused on the impact of AI on education and career, using quantitative and qualitative methods [8]. The quantitative part of the research is an online survey; the subjects consisted of 453 college students. The students were required to answer a questionnaire consisting of 33 questions. This survey mainly concentrates on how familiar students are with AI. Nearly 95% of students think they are familiar with AI, and the most popular AI is ChatGPT. The qualitative part of the research is five semi-structured in-person focus groups. Every participant was an undergraduate psychology student in their first or second year. In the focus groups, the students expressed their concern about AI technology. Some students expressed concerns that artificial intelligence poses a threat to employment, leading to job displacement. Conversely, others view AI

as an auxiliary tool that complements human labor rather than replacing it. Nonetheless, none of the participants believed that AI would diminish in strategic importance within the industry.

Into the details of the connection between employment confidence and the rise of AI, students in different nations, colleges, majors, and genders may have different opinions and attitudes.

Hirabayashi et al. polled 273 Harvard students to find out how they felt about AI in the workplace and education [9]. The results demonstrated how deeply AI tools have permeated students' academic lives, with nearly 90% of participants reporting using AI in some capacity during their educational journey. Simultaneously, the survey revealed that approximately 55% of the students had a negative opinion regarding the prospect of AI taking the place of humans in the workforce. This implies that many people are worried about how AI will affect job security in the long run.

The results indicated that students' educational backgrounds were a significant differentiating factor, with notable variations observed across different groups. Compared to students in other fields, computer science majors typically thought that AI would replace humans as employees much sooner. Furthermore, students who had taken AI-related courses were more likely to believe that AI will soon surpass humans in capability. Many of these students even highlighted the need for caution by drawing comparisons between the possible dangers of AI and more serious problems like nuclear technology. Further highlighting the need for education on this subject, over half of the respondents said Harvard should launch a new course that focuses exclusively on the ethical and societal implications of generative AI.

There is a growing apprehension among students in China regarding potential job displacement due to technological advancements. According to survey results, over half of undergraduate students think artificial intelligence will likely replace them in their future careers [10]. This view reflects the vulnerability that many students experience as they get ready to enter increasingly competitive career fields and emphasizes the growing awareness of technological disruption in the labor market. Crucially, not every student group experiences the same level of concern.

There are notable differences in the degree of anxiety regarding AI replacement by gender and academic major. Higher levels of insecurity about their job prospects are typically reported by female students and students in fields more closely related to social science studies.

This study reveals a more complex reality beyond the common narrative of anxiety. A deeper comprehension of artificial intelligence among students correlates with greater optimism regarding its development. Rather than focusing solely on displacement risks, these students recognize AI's wider transformative potential, including its capacity to reshape entire economic sectors. There is an explanation about the connection between the concern of employment confidence and the rise of AI technology. Students who are more worried about their major will be replaced by AI, more likely to believe that such concerns will affect their career choices. In that circumstance, AI has become an important factor for undergraduate students making career path decisions [11].

Oppositely, the research conducted by Xiao et al. indicates the positive impact on students' employment confidence. It improved the relationship between using ChatGPT and employment confidence differently [12].

It is suggested that ChatGPT can not only give advice on academic matters, but also can provide personal job-hunting skills, career paths plan, and further development [13]. This study tried to reveal how ChatGPT usage influenced students' employment confidence and how it functions for students in various academic levels and majors. To find out those results, the researchers use the quantitative method. The subjects contained 23000 university students average age of around 23 years, answering a 42-question survey.

The results show that the frequency of ChatGPT usage has a positive connection with bachelor students' employment confidence, supporting the conclusion of Nie's study. In addition, the ChatGPT usage experience mediates the relationship between ChatGPT use and students' employment confidence, indicating that students who have more positive interactions with ChatGPT may have stronger employment confidence. However, for master's and doctoral students, there is no apparent relationship between the frequency of ChatGPT usage and employment confidence. For this situation,

the researchers argue that it proves the limitation of ChatGPT's performance on advanced and detailed academic needs. Additionally, other researchers argue that Postgraduates and PhD students have a higher demand and preference for job stability, major-oriented, and salary [14,15]. It proves that the undergraduate students may be influenced by AI cause to low demand and lack of goals.

While these four studies collectively address the concept of AI's influence on employment confidence, their findings are divergent. The first two studies establish a baseline by reporting the percentage of students who utilize AI in their education; however, they do not empirically demonstrate a causal link between AI usage or understanding and any reduction in students' confidence. In contrast, the other two studies provide a more direct connection, revealing that a deeper understanding of AI is instrumental in sustaining students' confidence about their future employment prospects. In conclusion, generative AI influenced students in how students understand generative AI and the frequency of usage. The university can help students build employment confidence and reduce employment anxiety by publishing generative AI usage policies or setting up courses focusing on generative AI.

#### **4. The connection between expectation and generative AI**

A person's desire or aspiration for a particular profession is known as their career expectations. They serve as both the internal motivator behind a person's career decisions and the outward expression of their inner professional values. Using the principal component analysis method, the employment expectation can be divided into three parts: stability factor, intrinsic value factor, and extrinsic value factor. The main components of the stability factor are the social status and prestige that the job can offer. The intrinsic value of work indicates the opportunity to express one's talent, the satisfaction provided for the employee, etc. The last part of employment expectation means the direct compensation and chances for advancement and growth [16].

The research conducted by Huseynov was trying to reveal the relationship between information about AI and the students' expected earnings [17]. The expected earnings the part of the extrinsic value factor of employment expectations.

The subjects of study are 716 students, 35% of subjects major in STEM, and the average GPA of the subjects is nearly 3.5. To test the expected salary at the beginning of study, the researchers first clarify a statement published by Forbes: In the United States, the median starting salary for college graduates is \$59,600 annually, according to data from the National Center for Education Statistics. The researchers calculated the evaluated likelihood that the subjects' starting salaries would surpass \$59,600 following graduation, as well as the likelihood that the median starting salary of students pursuing the same major would surpass \$59,600 following graduation. Lastly, the participants provided their anticipated beginning salaries.

After that, the researchers separated subjects into two groups and gave them positive or negative information and news about generative AI. Both groups contained students in STEM and non-STEM majors. To observe how information about generative AI impacts subjects from different majors, the researchers targeted the information. They show the students how Generative AI, like ChatGPT, potentially influences the labor market. The first group of subjects was exposed to the positive news (GoodNews), while the second group was exposed to the negative news (BadNews).

The result of the survey shows that the average value of reported individual probabilities of ranking in the top 50% of the earnings distribution after graduation is decreased by the BadNews. To the subjects who study in non-STEM majors, exposure to BasNews may apparently increase their chance to discuss AI negatively, and the possibility is higher than for subjects who study in STEM majors. The researchers also pointed out that male subjects are influenced less when they are reading BadNews. In conclusion, students' expected earnings may decrease if they are exposed to unfavorable assessments of AI.

The study conducted by Prohorovs et al was aimed at looking at how students perceive employers' expectations for their capacity to choose and use generative AI products [18].

This expectation is based on the second part of employment expectations: the intrinsic value factor.

This study, based on a survey, included 689 bachelor's or master's program students in Ukraine. From the students' perspective, 54.3% of students think that employers hope the employees can master generative AI practice skills in a short time. When it comes to students in different stages and majors, the majority of students in the master's program think that employers want students can select or use generative AI. The second is the students from the computer and information technology department. The third is the students from the Faculty of Economics and Management department.

Researchers also looked at how frequently students used generative AI tools in their coursework in this survey. The findings indicate that 78.7% of students reported using generative AI tools, such as ChatGPT, at some point in their education. This suggests that students' academic routines are increasingly incorporating AI technologies. Additionally, the results showed that students who used generative AI more often were also more likely to think that hiring managers value AI-related skills. This implies a direct link between how students view the labor market and how they personally use AI. A key conclusion drawn from these observations is the pedagogical importance of students developing practical skills and an understanding of the value of generative AI. They contended that undervaluing AI could restrict students' access to future employment options and their capacity to make informed decisions about their career paths.

These two studies demonstrate how important generative AI is in influencing students' expectations for their future careers. Because both surveys considered the differences between students from different majors, it became more evident how perceptions are influenced by academic background. According to the findings, students majoring in computer science or other STEM-related subjects are more likely than non-STEM majors to anticipate being employed in the era of artificial intelligence. This suggests that, given the quick adoption of AI in professional industries, students pursuing technical fields might feel more assured about their employability.

In the meantime, research conducted by Huseynov et al suggests that the non-male students are more likely to lower their expected salary due to AI. Before the AI age, Li et al argue that poor performance and weak response in physics class can change the career paths decision-making of female students. It is important to reveal the connection between AI practice skills and understanding of AI with gender differences [19].

## 5. Conclusion

The reviewed literature consistently shows that students' decision-making regarding their career paths is significantly impacted by generative AI. This influence is not consistent. It varies significantly among academic fields, genders, and educational levels, illustrating the nuanced ways in which AI engages with personal identities and educational settings. Students who have a more comprehensive understanding of AI may feel more confident about the influence of AI on the job market and be able to set more reasonable expectations for their future careers.

At the same time, this study emphasizes how important it is to balance the transformative effects of AI with students' self-defined career aspirations. As more and more occupations become directly or indirectly influenced by AI technologies, the question is not whether AI will affect job prospects, but rather how students can position themselves about it. For colleges and educators, by recognizing students' growing interest in AI-related courses and incorporating such content into curricula, universities can give students a more thorough and balanced understanding of AI. Particularly for undergraduate students, the careful incorporation of generative AI into the classroom may enhance their technical proficiency while also promoting flexibility and resilience in a changing labor market. This gives students the ability to navigate the uncertainties of AI-driven labor markets while maintaining agency over their career choices.

Nevertheless, current research on the intersection of generative AI and career planning is still limited in scope. Students' viewpoints from a variety of demographic and cultural backgrounds are

frequently lacking. Closing these gaps would help educators and policymakers create more equitable and successful interventions, while also offering a more inclusive and global perspective on AI's influence on career expectations.

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