

Development and Growth of College Students' Career Planning Awareness under the Context of Flexible Employment: An Analysis of Career Maturity, Decision-Making, and Exploration Behaviors

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Abstract: In the context of a rapidly growing number of university graduates, traditional employment opportunities have become more saturated, leading many students to explore flexible employment options. However, a lack of career planning awareness may hinder students from engaging successfully in flexible employment. This study examines the career planning awareness of 200 university students through three aspects: career maturity, career decision-making, and exploration behavior. The findings show that students demonstrate moderate levels of career maturity and decision-making, while their career exploration remains at a relatively low level. Gender does not have a significant impact on career maturity, decision-making, or exploration behavior, although factors such as academic year, major, and household registration location do have a notable influence on these dimensions. Based on these results, the study suggests specific strategies to strengthen career planning awareness among students and improve their chances of succeeding in flexible employment.

Keywords: flexible employment; career maturity; career decision-making; career exploration behavior

1. Introduction

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With the widespread expansion of higher education, the number of university graduates has been continuously increasing, and the job market is gradually approaching saturation, making employment an increasingly serious challenge for graduates [1]. Data released by MyCOS indicate that the unemployment rate among the 2022 graduates reached 22% within six months of graduation (MyCOS Institute, Chinese 4-Year College Graduates' Employment Annual Report, 2023). A survey involving 8,417 university graduates found that the employment placement rate of the 2022 cohort decreased by 7.01% compared to that of the 2018 cohort. In this context, flexible employment has emerged as an important channel to alleviate employment pressure. By 2021, the number of individuals engaged in flexible employment in China had exceeded 200 million, accounting for more than one-quarter of the working-age population, which became a key means of stabilizing employment. However, flexible employment alone cannot fundamentally resolve the employment challenges faced by university graduates. Research conducted on 2,260 university students graduating between 2017 and 2023 revealed that 39.33% of students perceived engaging in flexible employment as highly stressful, indicating that such employment also entails significant pressures [2]. Accordingly, employment difficulties among college students remain a prominent issue and have been widely discussed in existing studies [3].

Flexible employment can help alleviate employment difficulties among Chinese university students and reduce employment pressure. Nevertheless, some students intending to pursue flexible employment encounter obstacles, which may stem from a lack of career planning awareness. Career planning is a widely recognized concept in modern society and is of significant value for individual career development. Effective career planning not only assists students in accurate self-assessment but also helps them clarify career goals and make corresponding plans and preparations [4]. For students who have not yet entered the workforce, career planning provides direction for both academic development and lifelong career growth [5]. Layton found that university career planning courses can effectively enhance students' career readiness, positively contributing to the development of career maturity, career decision-making, career identity, and professional thinking [6,7].

Career planning awareness is defined as an attitude in which individuals assess their own knowledge, abilities, and career planning methods to formulate future action plans. Developing effective career planning awareness requires deep self-understanding, selecting suitable career paths based on interests and strengths, and actively exploring the external environment, including industry trends, career development paths, and job requirements. This process helps individuals establish clear directions and actionable plans for future employment [8].

An individual's internal preparedness, namely career maturity, is a crucial factor influencing the formation of career planning awareness. Zhang defines career maturity as the extent to which individuals possess and utilize information appropriate to their career development stage, reflecting the degree of preparation and decision-making for career development [9]. Career maturity refers to an individual's understanding of relevant employment information and the psychological readiness it fosters for the job-seeking process. Individuals with high career maturity can accurately self-assess and establish appropriate career goals, thereby demonstrating stronger career planning abilities and exerting a significant influence on the formation of career planning awareness [10].

The core purpose of career planning awareness is to guide individuals to take action, which is manifested through career decision-making. Career decision-making refers to choices made by individuals based on existing career-related resources or information [11]. This process represents the first step for students transitioning from campus to the workplace and constitutes a key task in overall career development. The career choices made during this stage have long-term implications for professional trajectories [12]. Students with high career decision-making abilities exhibit broader thinking and greater accuracy in career positioning, allowing them to make informed choices during the job-seeking process, plan and adjust their career paths effectively, and facilitate the development of career planning awareness. Therefore, a high level of career decision-making is critical for cultivating effective career planning awareness.

Moreover, effective career planning awareness requires a solid information foundation. Werbel categorizes career exploration behaviors into self-exploration and environmental exploration [13]. Environmental exploration refers to the collection of employment-related information to achieve a clearer understanding of potential careers. For example, students may engage in various part-time jobs to acquire knowledge about the labor market, enhancing both self-awareness and understanding of work environments. This process not only accumulates valuable information for career planning but also helps individuals establish clearer career positioning. Strong career exploration behaviors increase the likelihood of acquiring relevant knowledge, thereby providing a robust foundation for the formation of career planning awareness [14].

In summary, career maturity, career decision-making, and career exploration behavior constitute three critical components of career planning awareness. The development of these dimensions significantly influences the level of career planning awareness. Given the challenging employment market, cultivating effective career planning during university is essential for enhancing graduates' competitiveness.

Individuals with higher career planning awareness are better equipped to pursue and succeed in flexible employment. Conversely, insufficient career planning may lead to a lack of relevant skills, unclear self-awareness, and ambiguous career goals, resulting in blind career values. Therefore, analyzing and improving career maturity, decision-making, and exploration behaviors can provide substantial support for enhancing career planning awareness among university students. Based on this premise, the present study investigates these three dimensions from the perspective of flexible employment and proposes strategies to promote the development of career planning awareness, providing both scientific guidance and practical measures to facilitate effective flexible employment.

2. Theoretical Background

2.1. Flexible Employment Expands Employment Opportunities for University Students

Flexible employment refers to a mode of employment in which individuals, based on their own employment preferences and in compliance with relevant legal regulations, choose one or more forms of employment that align with the policies of the employer. This type of employment allows individuals to exercise autonomy over work time, work content, work format, and income, while optimizing the allocation of their working hours and skills to secure necessary living resources. The concept of flexible employment originally evolved from the International Labour Organization's (ILO) notion of informal employment and has since been extended and developed further. The ILO defines flexible employment as any form of work that does not conform to traditional full-time, long-term contracts (International Labour Office, 2017, *Non-standard employment around the world: Understanding challenges, shaping prospects*). Compared to conventional employment, flexible employment is characterized by greater instability, encompassing employment in the informal sector as well as employment in the formal sector that lacks formal and stable labor relations. The latter includes work without labor contracts, social security, or adequate health and safety protections. Consequently, flexible employment often cannot guarantee stable income, yet it provides workers with greater flexibility in working hours. It is further described as part-time, temporary, periodic work with elastic working hours, existing across both informal and formal sectors, and distinguished from traditional formal employment [15].

At present, the number of university students continues to rise, while the development of the job market remains relatively sluggish. Given the high demand for employment, the market cannot always provide matching positions, particularly in high-paying jobs with favorable benefits, where competition is especially intense. This has led to the phenomenon of "delayed employment" among graduates, which has gradually become a common pattern and attracted widespread attention. In this context, flexible employment, as an emerging form of work, offers new opportunities for university graduates and has become an important pathway to alleviating employment difficulties [16]. Its characteristics—flexible employment relationships, fragmented work content, and flexible work arrangements—align well with the psychological and professional expectations of recent graduates. If graduates can engage in flexible employment positions that match their skills and personal strengths, they can not only broaden their employment channels but also improve employment quality [17].

However, while flexible employment provides more opportunities, it also brings additional uncertainties and risks. For instance, individuals engaged in flexible employment often bear higher social insurance contributions and receive lower and less comprehensive coverage. For recent graduates entering the workforce, this constitutes a significant source of pressure [18].

Therefore, for university students, flexible employment simultaneously expands employment opportunities and introduces challenges. In this context, effective career planning during university becomes essential for successful employment. From the moment they enter university, students should rationally analyze and study the prospects

of their chosen major in light of social development trends, and formulate career plans early. Career planning should not be confined to the student's current major but should aim to identify careers that truly align with individual interests and abilities. Students should also adjust and refine their career plans in response to personal growth and labor market dynamics to maximize their potential [19].

Moreover, students should orient themselves toward career ideals and establish a scientific understanding of employment choices. When facing unfamiliar forms of employment that differ from traditional patterns, students should adopt a positive mindset, adapt to changes in social status and environment, and conduct careful analysis and in-depth exploration of industry development prospects to form objective and accurate perceptions. Students should also prepare comprehensively in terms of mindset, knowledge, psychological readiness, job-seeking skills, and information acquisition. Additionally, participation in part-time work can help students explore suitable employment directions and positions, laying a foundation for future engagement in flexible employment [20].

2.2. *Career Planning for University Students Facing Flexible Employment*

Career planning refers to the process by which individuals explore themselves and the external environment, comprehensively analyze and evaluate these factors, and make informed career choices. In this process, individuals formulate detailed steps and procedures to achieve their goals, making it a continuous process of self-assessment and goal-setting [21]. Career planning is defined as the preparation and planning an individual undertakes for their future career. Based on personal circumstances and external constraints, the individual determines the relevant actions, timelines, and strategies necessary to achieve career objectives. Fundamentally, career planning involves reflecting on career goals, strategizing direction, integrating plans with practical actions, and accurately assessing personal conditions and the external environment to maximize individual potential [22].

Effective career development requires a deep understanding of oneself and the external environment, along with objective and comprehensive self-assessment, goal setting, planning, and execution to achieve career objectives. Career maturity, as a key component, reflects an individual's grasp of career development goals appropriate to their current stage and indicates the level and characteristics of their vocational psychological development, serving as a measure of self-awareness [23]. Based on this self-understanding, individuals can make appropriate decisions. Career decision-making refers to the choices individuals make based on existing career-related resources or information, which depend on their initial cognitive understanding [11]. It encompasses not only the outcomes of pursuing and selecting a career but also the process of searching for and integrating relevant information [24]. Furthermore, Jordaan defines career exploration behavior as a purposeful psychological or physical activity, through which individuals seek to understand themselves or their environment, prepare for desired career fields, or gather evidence to support adjustments in career direction. These actions are aimed at making rational and effective career decisions. Collectively, career maturity, career decision-making, and career exploration behavior are essential components of career planning [25].

High levels of career maturity, decision-making ability, and exploration behavior significantly influence future employment outcomes. Career maturity is a strong indicator of career development and actions. During the exploration phase, individuals with a high degree of career maturity are more likely to identify future career paths and make sound decisions [26]. Consequently, students with better career maturity are more likely to secure employment and experience a closer alignment between their expected and actual job positions. Furthermore, individuals with higher career maturity tend to make more rational career choices, maintain a positive outlook on their careers, and reduce anxiety

[27]. The process of making career decisions also has substantial implications for personal finances, social connections, and mental health [28,29]. It not only directly impacts students' career choices but also enhances job satisfaction—the stronger the decision-making ability, the higher the expected satisfaction. In the career exploration phase, engaging in effective exploration increases self-awareness and provides a better understanding of the external environment, fostering career-related thoughts and behaviors [30]. Additionally, career exploration is an adaptive behavior: the more one explores, the more cohesive the career plan becomes, improving the likelihood of achieving desired career outcomes [31]. In conclusion, higher levels of career maturity, decision-making, and exploration behaviors have a more pronounced positive impact on employment results.

2.3. The Impact of Flexible Employment on Career Maturity, Decision-Making, and Exploratory Behavior

Career planning is a foundational step for successfully participating in flexible employment, and its elements are closely connected to pursuing such work arrangements. To begin with, career maturity indicates how well-prepared university students are to make suitable career decisions. Students with higher career maturity tend to have stronger abilities in career selection and planning, which is essential for accessing diverse employment opportunities. In essence, individuals who have adequate knowledge and skills are better equipped to choose jobs that align with their interests and competencies, especially in non-traditional labor markets [32]. Moreover, career maturity has a positive influence on career values; students with greater career maturity tend to be more accepting of various employment forms. Thus, university students with elevated career maturity typically exhibit more openness and adaptability toward flexible employment [33].

Second, career decision-making is an essential step for students entering society and marks the beginning of career development. The quality of career decisions directly influences future career trajectories. With the continuous emergence of new industries in the employment market, students with strong career decision-making abilities are better positioned to identify suitable roles and reduce the prevalence of delayed employment [34]. Moreover, possessing the ability to handle conflicts, contradictions, and negative emotions during the job-seeking process can significantly alleviate employment pressure. Conversely, individuals who experience difficulties in career decision-making may fail to make timely and correct choices, resulting in increased employment-related anxiety, which negatively impacts engagement in flexible employment [35].

Finally, engaging in targeted career exploration behaviors enables individuals to access more employment opportunities indicates that the range of informal employment options is influenced by the scale of social capital [36]. During career exploration, students can expand their social networks to acquire a wealth of employment-related information and opportunities. Career exploration plays a crucial role in promoting flexible employment, and conversely, flexible employment creates valuable opportunities for individuals to engage in career exploration. Through flexible work arrangements, university students gain access to a variety of professional experiences and chances to develop their skills. This process not only strengthens their self-awareness regarding personal growth but also highlights the beneficial effects of flexible employment on career advancement, ultimately boosting their motivation to pursue such work opportunities [37]. Conversely, insufficient career exploration may result in inadequate awareness of flexible employment and difficulty finding suitable positions. Therefore, active career exploration is essential not only for adapting to new employment markets but also for enhancing individual flexibility and career development potential [38].

3. Method

3.1. Participants

This study utilized a questionnaire survey to examine the career maturity, career decision-making, and career exploration behaviors of university students, and the impact these factors have on flexible employment. The survey participants were first- to fourth-year students from Quzhou University. The survey was administered online via the "Questionnaire Star" platform, with data collection taking place from June 15 to June 28, 2025, over a two-week period. A total of 200 valid responses were received.

In terms of gender, 51 participants were male (25.5%) and 149 were female (74.5%). Regarding academic year, 44 were first-year students (22%), 88 were second-year students (44%), 45 were third-year students (22.5%), and 23 were fourth-year students (11.5%). As for academic disciplines, 46 participants (23%) were enrolled in science and engineering fields, while 154 participants (77%) were from the humanities and social sciences. Concerning their place of household registration, 34 participants (17%) were registered in provincial capitals, 70 (35%) in prefecture-level cities, and 96 (48%) in rural counties and towns. Detailed demographic data are shown in Table 1.

Table 1. Basic Characteristics of the Participants.

Variable	Category	N	Percentage (%)
Gender	Male	51	25.5
	Female	149	74.5
Year	First-year	44	22.0
	Second-year	88	44.0
	Third-year	45	22.5
	Fourth-year	23	11.5
Major	Science & Engineering	46	23.0
	Humanities & Social Sciences	154	77.0
Household Registration	Provincial Capital	34	17.0
	Prefecture-level City	70	35.0
	County/Town	96	48.0
Total		160	100

3.2. Instruments

This study's questionnaire comprised three sections: the Career Maturity Scale, the Career Decision-Making Scale, and the Career Exploration Behavior Scale, which are detailed in Table 2.

Table 2. Scales for Career Maturity, Career Decision-Making, and Career Exploration Behavior.

	Factor	Item Number	No. of Items	Cronbach's α	
Career Maturity	Self-awareness	1-5	5	0.838	0.9
	Career Planning	6-10	5	0.880	42
	Attitude toward Work	11-15	5	0.869	
Career Decision-Making	Career Confidence	1-2	2	0.861	0.9
	Career Indecision	3-18	16	0.928	40
Career Exploration Behavior	Environmental Exploration	1-5	5	0.839	0.9
	Self-exploration	6-10	5	0.875	51
	Purpose Exploration	11-14	4	0.857	

Information Acquisition	15-18	4	0.815
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The Career Maturity Scale, created by the Korean Educational Development Institute (Korea Education Termination Study (KELS) 2013 (V): Survey Overview Report, 2017), includes three sub-dimensions: self-awareness (5 items), career planning (5 items), and attitude toward work (5 items), for a total of 15 items. Participants rated each item on a 5-point Likert scale, from "strongly disagree (1)" to "strongly agree (5)," with higher scores indicating greater career maturity. The Cronbach's α values were 0.838 for self-awareness, 0.880 for career planning, 0.869 for attitude toward work, and 0.942 overall.

The Career Decision-Making Scale was initially developed by Osipow, Carney, and Barack, translated by Koghenja, and later re-translated into Chinese by Liu [39,40]. This scale includes two sub-dimensions: career confidence (2 items) and career indecision (16 items), totaling 18 items. Each item was rated on a 5-point Likert scale, from "strongly disagree (1)" to "strongly agree (5)," with higher scores reflecting better career decision-making. The Cronbach's α values were 0.861 for career confidence, 0.928 for career indecision, and 0.940 overall.

The Career Exploration Behavior Scale was first developed by Stumpf et al. and later adapted by Xu for Chinese university students [41]. It consists of four sub-dimensions: environmental exploration (5 items), self-exploration (5 items), purpose exploration (4 items), and information acquisition (4 items), for a total of 18 items. Items were rated on a 5-point Likert scale, from "strongly disagree (1)" to "strongly agree (5)," with higher scores indicating greater career exploration behavior. The Cronbach's α values were 0.839 for environmental exploration, 0.875 for self-exploration, 0.857 for purpose exploration, 0.815 for information acquisition, and 0.951 overall.

3.3. Procedure

To meet the goals of this study, data were processed and analyzed using SPSS 25.0. Initially, frequency analysis was performed to assess the general characteristics of the participants. Next, Cronbach's α values were calculated to evaluate the reliability of the scales used and verify their internal consistency. Descriptive statistics were then conducted for the three main variables, including the calculation of means, standard deviations, skewness, and kurtosis.

Following this, differences between groups were analyzed. Independent-samples t-tests were used to determine whether there were significant differences in career maturity, career decision-making, and career exploration behavior based on gender and major. One-way ANOVA was applied to explore whether students from different academic years and household registration locations exhibited significant differences in these three variables.

Due to the large number of sub-dimensions within each variable, the analyses concentrated on the overall scores of the variables to ensure the consistency and stability of the results.

4. Results

4.1. Comprehensive Statistical Analysis

Descriptive statistical analyses were carried out on the sub-dimensions of career maturity, career decision-making, and career exploration behavior. For each sub-dimension, the mean, standard deviation, skewness, and kurtosis were computed, as presented in Table 3.

Table 3. Comprehensive Statistical Analysis of Career Maturity, Career Decision-Making, and Career Exploration Behavior.

Variable	Minimum	Maximum	Mean	Standard Deviation	Skewness	Kurtosis
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Career Maturity	1.13	5.00	3.73	0.756	-1.285	2.245
Career Decision-Making	1.00	4.67	3.39	0.719	-0.927	1.663
Career Exploration Behavior	1.17	5.00	3.09	0.846	-0.434	-0.448

The mean and standard deviation for career maturity were 3.73 and 0.756, respectively. For career decision-making, the mean and standard deviation were 3.39 and 0.719, respectively. For career exploration behavior, the mean and standard deviation were 3.09 and 0.846, respectively. According to Kline, a variable is considered approximately normally distributed if the absolute value of skewness is less than 2 and the absolute value of kurtosis is less than 7 [42]. In this study, the absolute values of skewness for all variables were under 2, and the absolute values of kurtosis were under 7, indicating that the data followed a normal distribution.

4.2. Difference Analysis

To assess group differences in career maturity, career decision-making, and career exploration behavior, independent-samples t-tests were performed for gender and major, while one-way ANOVA was used for academic year and household registration location. The results are shown in Table 4.

Table 4. Difference Analysis.

Factor		Career Maturity (M ± SD)	Career Decision-Making (M ± SD)	Career Exploration Behavior (M ± SD)
Gender	Male(N=51)	3.72±0.70	3.52±0.72	2.96±0.84
	Female(N=149)	3.73±0.78	3.35±0.72	3.14±0.85
	t	-0.095	1.491	-1.284
	p	0.925	0.138	0.201
Academic Year	Freshman(N=44)	3.15±0.78	3.13±0.78	2.71±0.91
	Sophomore(N=88)	3.60±0.67	3.20±0.65	2.98±0.80
	Junior(N=45)	4.12±0.40	3.65±0.53	3.42±0.72
	Senior(N=23)	4.51±0.41	4.08±0.56	3.60±0.70
Major	F	31.812	15.917	9.435
	p	<0.001	<0.001	<0.001
	Science and Engineering(N=46)	3.73±0.87	3.62±0.84	2.80±0.65
	Humanities and Social Sciences(N=154)	3.72±0.72	3.32±0.66	3.18±0.88
Household Registration Location	t	0.070	2.549	-3.185
	p	0.944	0.012	0.002
	Provincial capital city(N=34)	3.89±0.68	3.64±0.71	3.49±0.79
	Prefecture-level city(N=70)	3.74±0.69	3.4±0.66	3.11±0.87

County and township(N=96)	3.65±0.82	3.3±0.75	2.94±0.81
F	1.262	2.875	5.555
p	0.285	0.059	0.004

The findings indicated that gender had no significant effect on career maturity, career decision-making, or career exploration behavior ($p > 0.05$). In contrast, academic year, major, and household registration location showed significant associations with at least one of the three variables.

With respect to academic year, significant differences were observed in career maturity ($F = 31.812, p < 0.001$), career decision-making ($F = 15.917, p < 0.001$), and career exploration behavior ($F = 9.435, p < 0.001$). The results demonstrated a clear increasing trend across academic years. Senior students reported the highest levels of career maturity ($M = 4.51$), career decision-making ($M = 4.08$), and career exploration behavior ($M = 3.60$), whereas freshmen reported the lowest levels on all three variables.

Regarding major, no significant difference was observed in career maturity ($p > 0.05$). However, significant differences were found in career decision-making ($t = 2.549, p < 0.05$) and career exploration behavior ($t = -3.185, p < 0.01$). Students majoring in science and engineering had higher career decision-making scores ($M = 3.62$) compared to those in humanities and social sciences ($M = 3.32$). On the other hand, students in humanities and social sciences exhibited higher career exploration behavior ($M = 3.18$) than their peers in science and engineering ($M = 2.80$).

As for household registration location, no significant differences were found in career maturity or career decision-making ($p > 0.05$). However, a significant difference was noted in career exploration behavior ($F = 5.555, p < 0.01$). Specifically, students from provincial capital cities reported the highest career exploration behavior ($M = 3.49$), followed by those from prefecture-level cities ($M = 3.11$), while students from counties and townships showed the lowest scores ($M = 2.94$).

5. Conclusion

Against the backdrop of widespread flexible employment and increasing challenges in securing jobs, this study examined the basic conditions of college students from three perspectives: career maturity, career decision-making, and career exploration behavior. Based on the findings, strategies were proposed to enhance college students' career planning awareness. An online survey was conducted, and a total of 200 valid responses from college students were gathered. The data were then subjected to descriptive statistical analysis and difference analysis.

The descriptive statistical analysis revealed that career maturity and career decision-making were moderately high, while the level of career exploration behavior was relatively low. This suggests that while college students' awareness of career planning has received more attention, particularly at the theoretical level, practical career exploration behavior still requires more focus. This could be due to the fact that practical exploration is more challenging for college students and is subject to numerous constraints during implementation.

In the difference analysis, no significant differences were observed between gender and career maturity, career decision-making, or career exploration behavior. However, academic year, major, and household registration location had significant effects on these three factors. First, regarding academic year, senior students exhibited higher levels of career maturity, career decision-making, and career exploration behavior compared to freshmen, with all three factors showing a significant upward trend from the first to the final year of college. This suggests that as students progress academically, their ability to plan for their careers improves. A possible explanation is that as students advance in their academic studies and complete more specialized courses, they gain a clearer understanding of themselves and their career aspirations, resulting in better career

decisions. Furthermore, with graduation approaching, the pressure of employment motivates students to engage more actively in career exploration behaviors.

Second, regarding major differences, no significant difference was found in career maturity. However, students majoring in science and engineering ($M = 3.62$) showed higher levels of career decision-making than students majoring in humanities and social sciences ($M = 3.32$). This could be because science and engineering fields generally offer more specialized and clearly defined career paths, which makes career decision-making easier. In contrast, students in the humanities and social sciences often face a broader range of career options and greater uncertainty, making decision-making more difficult. Regarding career exploration behavior, the opposite trend was observed: students majoring in humanities and social sciences ($M = 3.18$) engaged in more career exploration behaviors than their counterparts in science and engineering ($M = 2.80$). Humanities and social science students are more likely to participate in activities like information searching, part-time work, and other means of exploring diverse career opportunities.

Lastly, when considering household registration location, no significant differences were found in career maturity or career decision-making. However, significant differences were observed in career exploration behavior. Students with household registration in provincial capital cities ($M = 3.49$) exhibited the highest levels of career exploration behavior, followed by those from prefecture-level cities ($M = 3.11$), and those from counties and townships ($M = 2.94$) had the lowest levels. This can likely be attributed to the greater access to employment information and more opportunities for career exploration in provincial capitals, compared to students from less urbanized areas.

Based on the findings, this study suggests various strategies to improve college students' career planning awareness. For career maturity, universities should offer career planning courses early in students' academic journeys to help them define their future employment goals and directions, taking into account their abilities and interests. Simultaneously, students should be guided to develop a correct understanding of the evolving job market and flexible employment opportunities, helping them form a more scientific and rational view of employment.

For career decision-making, when students face difficulties in making career choices due to a lack of career planning awareness, teachers and parents should leverage their experiences and available resources to provide appropriate guidance. Moreover, students should be encouraged to break down long-term career goals into manageable short-term stages, which will help them make sound decisions at each critical stage.

As for career exploration behavior, it is essential to eliminate regional limitations and information barriers, enhance the flow of resources and information, and provide college students with more opportunities to explore. Students should be encouraged to engage in career experience-sharing sessions or search for relevant literature and reports online. By learning from others' experiences and reflections, students can stay informed about employment trends and gather valuable insights for their own career planning. Additionally, students should be motivated to take the first step in their career journey and accumulate experience through practice.

Given the comprehensive data analysis, freshmen majoring in humanities and social sciences from counties and townships showed the weakest career planning awareness. For this group, efforts should be made to enhance their career maturity, career decision-making, and career exploration behavior. Targeted career planning courses should be offered to help students better understand their strengths and the employment landscape. Personalized career guidance based on students' true aspirations should be provided to help them make informed career decisions. Students should also be encouraged to seek part-time work in economically developed areas and gradually identify career paths that match their interests through hands-on experiences.

By analyzing the basic conditions of college students' career maturity, career decision-making, and career exploration behavior, this study proposes strategies aimed at enhancing career planning awareness and facilitating flexible employment. However,

several limitations must be acknowledged. First, the small sample size may affect the accuracy of the data analysis. Second, career planning awareness is influenced by various factors, and this study focused on only three variables: career maturity, career decision-making, and career exploration behavior. As such, important factors may have been overlooked, potentially introducing bias in the conclusions. Future research should expand the sample size, include a broader range of influencing factors, and investigate more effective strategies to improve college students' career planning awareness.

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References

1. W. K. Chan, "Higher education and graduate employment in China: Challenges for sustainable development," *Higher Education Policy*, vol. 28, no. 1, pp. 35–53, 2015. doi: 10.1057/hep.2014.29.
2. T. Liu, Q. Liu, and D. Jiang, "The influence of flexible employment on workers' wellbeing: Evidence from Chinese general social survey," *Frontiers in Psychology*, vol. 13, p. Art, 2022. doi: 10.3389/fpsyg.2022.771598.
3. H. Sun, Y. Wei, G. Dong, and R. Yang, "Countermeasures and some prominent problems affecting the employment of college students," In *2018 2nd International Conference on Management, Education and Social Science (ICMESS 2018)*, 2018, pp. 616-619. doi: 10.2991/icmess-18.2018.136.
4. J. Zhang, M. A. Talib, J. Wang, C. Jiang, and S. Xia, "Effects of career planning education on career readiness among undergraduates based on social learning theory," *Jurnal Pendidikan Bitara UPSI*, vol. 16, pp. 93–99, 2023. doi: 10.37134/bitara.vol16.sp2.9.2023.
5. E. Grigoroudis, and Y. Siskos, "Preference disaggregation for measuring and analyzing customer satisfaction: The MUSA method," *European Journal of Operational Research*, vol. 143, pp. 148-170, 2002. doi: 10.1016/S0377-2217(01)00332-0.
6. R. L. Layton, V. S. H. Solberg, A. E. Jahangir, J. D. Hall, C. A. Ponder, K. J. Micolli, and N. L. Vanderford, "Career planning courses increase career readiness of graduate and postdoctoral trainees," *F1000Research*, vol. 9, p. Art, 2020. doi: 10.12688/f1000research.26025.2.
7. B. Folsom, and R. Reardon, "College career courses: Design and accountability," *Journal of Career Assessment*, vol. 11, no. 4, pp. 421-450, 2003. doi: 10.1177/1069072703255875.
8. Y. Li, "Analysis of employment status and countermeasures of contemporary college students," In *2019 International Conference on Advanced Education, Service and Management*, 2019, pp. 137-140.
9. Y. Z. Zhang, "The impact of career maturity and locus of control on vocational selection anxiety of undergraduate," *Chinese Journal of Clinical Psychology*, vol. 20, no. 01, pp. 99-101, 2012.
10. T. Li, H. L. S. Tien, J. Gu, and J. Wang, "The relationship between social support and career adaptability: The chain mediating role of perceived career barriers and career maturity," *International Journal for Educational and Vocational Guidance*, vol. 23, no. 2, pp. 319-336, 2023. doi: 10.1007/s10775-021-09515-x.
11. D. A. Jepsen, and J. S. Dilley, "Vocational decision-making models: A review and comparative analysis," *Review of Educational Research*, vol. 44, no. 3, pp. 331-349, 1974. doi: 10.3102/00346543044003331.
12. H. Xu, and C. H. Bhang, "The structure and measurement of career indecision: A critical review," *The Career Development Quarterly*, vol. 67, no. 1, pp. 2-20, 2019. doi: 10.1002/cdq.12159.
13. J. D. Werbel, "Relationships among career exploration, job search intensity, and job search effectiveness in graduating college students," *Journal of Vocational Behavior*, vol. 57, no. 3, pp. 379-394, 2000. doi: 10.1006/jvbe.2000.1746.
14. A. Yaghi, and N. Alabed, "Career decision-making difficulties among university students: Does employment status matter? Higher Education, Skills and Work-Based Learning, 11(5), 1143-1159," 2021. doi: 10.1108/HESWBL-07-2020-0149.
15. T. Liu, Q. Liu, and D. Jiang, "The influence of flexible employment on workers' wellbeing: Evidence from Chinese general social survey," *Frontiers in Psychology*, vol. 13, p. 771598, 2022. doi: 10.3389/fpsyg.2022.771598.
16. Q. Guo, B. Yang, G. Su, and J. Zhang, "Slow employment' phenomenon among college students and countermeasures," In *2024 9th International Conference on Modern Management, Education and Social Sciences (MMET 2024)*, 2024, pp. 491-499. doi: 10.2991/978-2-38476-309-2_60.
17. X. Peng, "Study on the innovation of college career planning education from the perspective of 'integration of innovation & entrepreneurship and specialty education'," *Advances in Educational Technology and Psychology*, vol. 4, no. 1, pp. 141-148, 2020. doi: 10.23977/aetp.2020.41021.
18. S. Wu, Z. Jiao, X. Li, and C. Hu, "Flexible employment of university students under the innovation and entrepreneurship education system," *International Journal of New Developments in Education*, vol. 5, no. 18, 2023. doi: 10.25236/IJNDE.2023.051802.
19. X. Li, and Y. Zeng, "Research on the phenomenon of 'slow employment' of Chinese college students," *Economics & Management Information*, pp. 1-15, 2025. doi: 10.62836/emi.v4i6.541.

20. Z. Wang, and Q. Samu, "Research on the countermeasures to improve the employment ability of students in higher vocational colleges," In *2023 7th International Seminar on Education, Management and Social Sciences (ISEMSS 2023)*, 2023, pp. 1872-1880. doi: 10.2991/978-2-38476-126-5_214.
21. M. K. Kleinknecht, and E. A. Hefferin, "Assisting nurses toward professional growth: A career development model," *JONA: The Journal of Nursing Administration*, vol. 12, no. 7, pp. 30-36, 1982.
22. M. G. Haviland, and L. A. Gohn, "Career planning needs of college students," *NASPA Journal*, vol. 20, no. 4, pp. 28-33, 1983. doi: 10.1080/00220973.1983.11071855.
23. Y. Liu, K. Peng, and C. S. Wong, "Career maturity and job attainment: The moderating roles of emotional intelligence and social vocational interest," *International Journal for Educational and Vocational Guidance*, vol. 14, no. 3, pp. 293-307, 2014. doi: 10.1007/s10775-014-9271-5.
24. S. Zhang, J. Si, Z. Zong, and J. Dong, "Effects of need for cognitive closure and anticipated regret on individuals' processing of career decision-making," *Journal of Psychological Science*, vol. 40, no. 5, p. 1182, 2017.
25. J. P. Jordaan (1963). *Exploratory behavior: The formation of self and occupational concepts*. In D. E. Super, R. Starishevsky, N. Matlin & J. P. Jordaan (Eds.), *Career Development: Self-Concept Theory* (pp. 42-78). College Entrance Examination Board, New York.
26. J. O. Crites, "Career counseling: A comprehensive approach," *The Counseling Psychologist*, vol. 6, no. 3, pp. 2-12, 1976. doi: 10.1177/0011100007600600302.
27. D. D. Nevill, and D. E. Super, "Career maturity and commitment to work in university students," *Journal of Vocational Behavior*, vol. 32, no. 2, pp. 139-151, 1988. doi: 10.1016/0001-8791(88)90011-5.
28. D. L. Blustein, "The role of work in psychological health and well-being: A conceptual, historical, and public policy perspective," *American Psychologist*, vol. 63, no. 4, p. 228, 2008. doi: 10.1037/0003-066X.63.4.228.
29. N. A. Fouad, and J. Bynner, "Work transitions," *American Psychologist*, vol. 63, no. 4, p. 241, 2008. doi: 10.1037/0003-066X.63.4.241.
30. D. L. Blustein, "Applying current theory and research in career exploration to practice," *The Career Development Quarterly*, vol. 41, no. 2, pp. 174-183, 1992. doi: 10.1002/j.2161-0045.1992.tb00368.x.
31. Y. Wang, "Employment difficulties of college students in ethnic minority areas and countermeasures," In *Social and economic stimulating development strategies for China's ethnic minority areas*, 2023, pp. 169-216. doi: 10.1007/978-981-19-5504-4_6.
32. Y. Yang, "Research on college students' career planning and employment guidance strategies from the perspective of new quality productivity," *Contemporary Education Frontiers*, vol. 3, no. 2, pp. 121-131, 2025. doi: 10.18063/cef.v3i2.732.
33. D. Spurk, A. Hofer, A. Hirschi, N. De Cuyper, and H. De Witte, "Conceptualizing career insecurity: Toward a better understanding and measurement of a multidimensional construct," *Personnel Psychology*, vol. 75, no. 2, pp. 253-294, 2022. doi: 10.1111/peps.12493.
34. X. Peng, H. Shang, K. Bai, and M. Fang, "Research on the current situation and countermeasures of employment psychology for college students in the new situation," *Frontiers in Educational Research*, vol. 6, no. 30, 2023. doi: 10.25236/FER.2023.063012.
35. J. Wang, R. Guo, M. Liu, X. Zhang, L. Ren, M. Sun, and S. Tang, "Career decision-making self-efficacy and professional commitment among master nursing students," *Western Journal of Nursing Research*, vol. 40, no. 3, pp. 327-345, 2018. doi: 10.1177/019394591668223.
36. D. S. Whitman, D. L. Van Rooy, and C. Viswesvaran, "Satisfaction, citizenship behaviors, and performance in work units: A meta-analysis of collective construct relations," *Personnel Psychology*, vol. 63, no. 1, pp. 41-81, 2010. doi: 10.1111/j.1744-6570.2009.01162.x.
37. A. Alkhaldi, S. Malik, R. Alhaimer, A. Alshaheen, and M. D. Lytras, "Translating a value-based framework for resilient e-learning impact in post COVID-19 times: Research-based evidence from higher education in Kuwait," *Helijon*, vol. 10, no. 2, 2024. doi: 10.1016/j.helijon.2024.e24271.
38. S. H. Osipow, C. G. Carney, and A. Barak, "A scale of educational-vocational undecidedness: A typological approach," *Journal of Vocational Behavior*, vol. 9, no. 2, pp. 233-243, 1976. doi: 10.1016/0001-8791(76)90081-6.
39. Y. Zhang, X. Tian, and M. T. Sohail, "Analysis of the factors influencing the college students' employment willingness under the strategy of 'strengthening the provincial capital,'" *PLOS ONE*, vol. 17, no. 12, p. e0278164, 2022. doi: 10.1371/journal.pone.0278164.
40. Y. Chen, "A survey and research on the employment awareness of vocational college students," *Academic Journal of Humanities & Social Sciences*, vol. 7, no. 1, pp. 36-43, 2024. doi: 10.25236/AJHSS.2024.070106.
41. S. A. Stumpf, S. M. Colarelli, and K. Hartman, "Development of the career exploration survey (CES)," *Journal of Vocational Behavior*, vol. 22, no. 2, pp. 191-226, 1983. doi: 10.1016/0001-8791(83)90028-3.
42. T. Kline, "Psychological testing: A practical approach to design and evaluation," *Sage*, 2005. ISBN: 9781412905442.

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