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The Impact of AI Anxiety on Career Decisions of College Students

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Abstract:

The rapid advancement of artificial intelligence (AI) has reshaped the employment market, triggering widespread anxiety among college students about their future careers and posing a potential threat to their career decisions. Grounded in Career Construction Theory, this study investigated the impact mechanism of AI anxiety on career decisions among 315 Chinese college students, utilising a questionnaire survey and structural equation modeling (SEM). The analysis specifically examined the mediating role of career adaptability and the moderating role of self-efficacy. The results indicated that AI anxiety not only directly and negatively predicted career decisions but also exerted an adverse indirect effect by undermining career adaptability, with this mediating effect accounting for 63.35% of the total effect. However, the moderating effect of self-efficacy was insignificant, indicating limited buffering capacity. These findings suggest that higher education institutions should promote outcome-based education (OBE) reforms, enhance students' career adaptability by universalising AI literacy and career

planning courses, and deepen industry-education integration. Such measures can help students make more confident and clear-sighted career decisions in the AI era.

Keywords:

AI anxiety, Career decision, Career adaptability, Self-efficacy, Employment anxiety, College students

1. Introduction

The AI technology is profoundly reshaping the landscape and dynamics of the global labour market [1]. Against this backdrop, China, as a frontrunner in the AI field, has seen its development of a series of large-scale AI tools exert a far-reaching impact on the employment ecosystem [2]. This technological transformation has fostered widespread public anxiety, particularly among college students, whose concerns about job displacement, diminished employability, and skill obsolescence are intensifying [3-5], consequently leading to confusion about future career decisions [6]. This excessive fear and unease stemming from societal or personal changes induced by AI technology, termed "AI anxiety" [7], has been shown not only to impair college students' psychological well-being but also to undermine their career confidence and decision-making abilities, ultimately jeopardizing their career development paths [5, 8, 9].

Career Construction Theory offers a powerful theoretical lens through which to understand how AI anxiety impacts the career development of college students [10]. This theory posits that an individual’s career development is not merely the straightforward realisation of a predetermined path but an active process of making career decisions and constructing a career, shaped by the combined

influence of personal experiences, the social environment, and future contexts. Career decision is a multidimensional process encompassing career confidence, goal clarity, knowledge satisfaction, and choice preparedness [11], and is significantly shaped by educational experiences [12]. In the AI era, technology has become a critical and unstable environmental factor, compelling college students to reassess and establish their career goals amidst this landscape of uncertainty [4]. However, the negative emotions associated with AI anxiety will likely fundamentally hinder this active construction process.

Within this constructive process, career adaptability is regarded as a core psychological resource for individuals to cope with career challenges and uncertainty [13]. This capacity provides a pathway for individuals to maintain resilience and acquire new skills during career transitions [14]. According to Career Construction Theory, adaptability is a key mechanism for navigating the complexities of modern careers [2]. Consequently, a reasonable inference is that high levels of AI anxiety may erode college students' career adaptability, and impaired adaptability, in turn, would negatively affect their ability to make clear and confident career decisions. Although existing research highlights the importance of career adaptability [15], direct empirical examination of how AI anxiety specifically affects career decisions through the key mediating mechanism of undermining career adaptability is currently lacking.

Furthermore, self-efficacy—an individual's belief in their capability to successfully execute specific behaviours and achieve desired outcomes [16]—represents another vital personal resource within Career Construction Theory. It has been proven to significantly predict behaviours and outcomes in various domains, such as learning and skill acquisition [17-19], and may influence the

decision-making process by shaping career goal setting [10]. In AI anxiety, self-efficacy could theoretically play a moderating role; that is, individuals with high self-efficacy may be buffered from the negative impact of AI anxiety [20]. However, whether this potential buffering effect truly exists remains an unanswered question in the extant literature.

In summary, while the significance of AI anxiety is recognised, an integrated theoretical model incorporating mediating and moderating mechanisms remains a gap in the research. Grounded in Career Construction Theory, this study aims to systematically investigate the impact of AI anxiety on the career decisions of college students, with a specific focus on examining the mediating role of career adaptability and the moderating role of self-efficacy. By elucidating the intrinsic pathways among these variables, this research seeks to provide new empirical evidence for Career Construction Theory in the AI era and offer precise practical guidance for educational interventions designed to effectively alleviate college students' AI anxiety and enhance their career adaptability.

2. Literature Review and Hypotheses

This section systematically examines the interrelationships among the four core variables—AI anxiety, career adaptability, self-efficacy, and career decision—within the framework of Career Construction Theory. Based on this analysis, the research hypotheses and theoretical model for this study are proposed.

2.1 AI Anxiety and Career Decision

Career Construction Theory posits that when individuals face significant environmental changes, they must mobilise personal

resources to navigate role transitions and achieve adaptation [10]. AI, as a disruptive environmental stressor, induces AI anxiety—defined as excessive fear and unease regarding technological change [7]. This anxiety may deplete an individual's psychological resources, thereby hindering their active career construction process. Empirical research supports this inference: high AI anxiety is associated with lower career self-efficacy and optimism [8], and it significantly weakens individuals' confidence in their career abilities and autonomy in career decisions [21]. This anxiety makes college students more likely to exhibit hesitation, confusion, and reduced clarity regarding career goals when facing occupational choices. According to career construction theory, career decisions play a crucial role in individuals' construction of their careers through interaction with their environment. Consequently, when AI anxiety erodes the psychological energy students devote to building their professional futures, the quality of their career decisions will inevitably be negatively impacted [22]. Thus, we propose:

H1: AI anxiety negatively predicts college students' career decisions.

2.2 Career Adaptability and Its Mediating Role

Within Career Construction Theory, career adaptability is considered a core resource for individuals coping with career tasks, transitions, and traumas, serving as a key bridge connecting the individual to the vocational environment [13]. It comprises four dimensions: concern, control, curiosity, and confidence, helping individuals see possibilities in uncertainty and recover from setbacks [23]. However, persistent and high levels of AI anxiety may directly damage this crucial resource. Based on the Conservation of Resources theory [24], individuals strive to protect their existing

resources when perceiving threats. The concerns about unemployment and skill obsolescence triggered by AI anxiety [7] represent a potent threat of resource loss, potentially causing students to adopt a defensive psychological state. This state can diminish their willingness and capacity for proactive planning (concern), autonomous decision-making (control), exploring new possibilities (curiosity), and maintaining belief in their capabilities (confidence). Therefore, we propose:

H2: AI anxiety negatively predicts college students' career adaptability.

Conversely, strong career adaptability serves as a direct driver of positive career decisions. Students with high adaptability can more effectively search for career information, cope with job search setbacks, and adjust their goals flexibly, thereby possessing greater career confidence, clearer goals, and greater preparedness when making decisions [25, 26]. From the perspective of Career Construction Theory, adaptability acts as the converter that transforms environmental challenges into personal growth, ultimately facilitating successful career construction. Similarly, the adaptive resources provided by education play a significant role in the employment success of graduates [27]. Therefore, we propose:

H3: Career adaptability positively predicts college students' career decisions.

Integrating H2 and H3, we infer that career adaptability likely mediates the relationship between AI anxiety and career decisions. That is, AI anxiety not only directly negatively affects career decisions (H1) but also indirectly impairs their quality by depleting the key psychological resource of career adaptability among college students. Testing this mediating pathway can reveal the internal mechanism through which AI anxiety influences career decisions.

Accordingly, we propose:

H4: Career adaptability mediates the relationship between AI anxiety and career decisions.

2.3 Self-Efficacy and Its Moderating Role

Self-efficacy may influence how individuals respond to AI anxiety and their psychological resilience [28]. According to social cognitive theory, when confronted with stress and challenges, individuals with high self-efficacy are more inclined to perceive them as manageable tasks rather than insurmountable threats, thereby maintaining greater proactivity and resilience [16]. In research related to AI learning anxiety, self-efficacy has been found to significantly moderate the relationship between learning motivation and learning intention [5]. For instance, Cribbs and colleagues demonstrated that self-efficacy in mathematics has a significant influence on career decisions in STEM fields [18]. This implies that for college students with high self-efficacy, even when experiencing a certain level of AI anxiety, their belief in their ability to overcome future challenges through learning and effort may reduce the interference of this anxiety in their career decision process. Conversely, for students with low self-efficacy, the same level of anxiety may more readily lead to decision paralysis and avoidance behaviours. Although studies have found that self-efficacy plays a moderating role in other stressful contexts [5, 29], its potential role as a protective buffer specifically in the domain of AI anxiety remains to be tested. Based on social cognitive theory and the aforementioned research evidence, we propose:

H5: Self-efficacy moderates the relationship between AI anxiety and career decisions.

In summary, to gain a deeper understanding of how AI anxiety

affects the career development of college students, this study aims to develop a theoretical model that incorporates both the mediating mechanism of career adaptability and the moderating mechanism of self-efficacy. Self-efficacy moderates the direct path from AI anxiety to career decisions (Path a), but not the anxiety-to-adaptability link (Path b). Based on Social Cognitive Theory [16], when individuals confront a direct threat to decision-making (AI anxiety leading to decision paralysis), strong self-belief may buffer the perceived severity of the danger. However, anxiety's resource-depleting effect on adaptability (Conservation of Resources Theory) is hypothesised as more automatic and less susceptible to efficacy beliefs. This distinction aligns with Wang and colleagues [5], who found efficacy moderates intention but not anxiety's affective impact. The core contribution of this research lies in testing the integrated model (Figure 1), which aims to elucidate the complex relationships among these variables systematically.

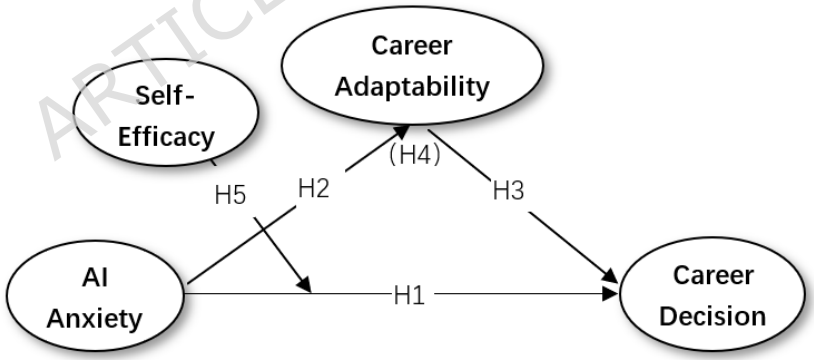

Figure 1: Empirical Model

3. Methods

3.1 Measurement Instruments

This study employed a questionnaire survey method, with all scales utilising a five-point Likert scale (1 = "Strongly Disagree," 5

= "Strongly Agree"). To ensure the applicability of the scales within the Chinese cultural context, we followed a standard translation-back-translation procedure. Furthermore, two experts in the field of AI and three experts in psychology were invited to evaluate the content validity of the scales. The wording of the item was slightly refined based on their feedback. A pilot test was subsequently conducted with 109 students. The data showed a KMO value of 0.904 and a Bartlett's test of sphericity result of $\chi^2 = 9021.800$ ($p < .001$), indicating that the data exhibited acceptable properties for the planned analyses. The Cronbach's alpha coefficients for the scales were as follows: AI anxiety = 0.724, career adaptability = 0.841, self-efficacy = .781, and career decisions = 0.887. These results indicate that all scales demonstrated acceptable internal consistency reliability, making them suitable for subsequent factor analysis and structural equation modeling.

AI Anxiety Scale. The AI Anxiety scale was adapted from the Overall Anxiety Severity and Impairment Scale (OASIS) by Norman et al. [30] and the brief anxiety scale by Chinese scholars Liu et al. [31]. This scale is designed to assess an individual's anxiety level specifically within the context of AI. The original scales were contextually adapted so that the items specifically refer to anxiety triggered by AI technology (e.g., general references to "anxiety" were concretised as "feeling anxious due to AI"). The scale consists of 5 items, has a unidimensional structure, and measures the frequency of anxiety episodes, severity, avoidance behaviours, and functional impairment in work/academic and social domains.

Career Adaptability Scale. This study utilised the Career Adapt-Abilities Scale–Short Form (CAAS-SF) by Maggiori et al. [32]. This scale comprises 12 items across four dimensions: Concern (awareness and planning for the future), Control (autonomous

decision regarding career development), Curiosity (exploration of occupational possibilities), and Confidence (belief in one's ability to cope with career challenges). Widely used in international research, this scale has established its reliability and validity, making it suitable for measuring career adaptability among college student populations.

Self-Efficacy Scale. The Self-Efficacy scale was derived from the Career Decision Self-Efficacy Scale (CDSE) by Taylor and Betz [33]. This study selected 5 items most relevant to occupational information search and decision-making to measure students' confidence levels in the career decision process. The reliability and validity of this scale have been repeatedly verified in the field of vocational psychology, and it has broad applicability across various settings.

Career Decisions Scale. Based on the Career Thoughts Inventory (CTI) developed by Sampson et al. [11]—a self-assessment tool designed to identify and measure dysfunctional career thoughts and help individuals improve their career decision process—this study adapted the scale for the context of Chinese college students. We selected 15 items and focused on their positive dimensions to comprehensively assess students' career decision levels. These dimensions encompass Career Confidence, Career Goal Clarity, Career Knowledge Satisfaction, and Career Decision Preparedness.

Furthermore, while our adapted OASIS-based scale demonstrates reliability ($\alpha = 0.939$), we recognise it measures anxiety symptoms triggered by AI rather than AI-specific cognitive appraisals. To assess construct distinctiveness, we administered our scale alongside Wang and Wang [28]'s AI Anxiety Scale (AIAS) to a subsample ($n = 89$). The correlation was moderate ($r = 0.68$, $p < 0.001$), suggesting convergent but not redundant validity. However,

without full construct validation, we interpret results as 'AI-triggered anxiety' rather than a distinct AI anxiety construct. The current study relies on self-reported attitudinal measures of career decision quality. Future research should incorporate behavioural indicators such as (1) internship application records, (2) participation in career workshops, (3) actual job offers received, and (4) time-to-employment metrics to validate the attitudinal constructs.

3.2 Sampling and Data Collection Procedure

A stratified random sampling method was employed in this study. Three types of representative universities were selected in Baise City, China: Baise University (a comprehensive university), Youjiang Medical University for Nationalities (a medical university), and Baise Vocational College (a vocational and technical institution). Based on the student enrolment of the three universities (23418, 14615, and 12963, respectively), we assigned each student a number after obtaining their information. We sampled a representative group of students, with the same proportion in each of three layers, based on the number of students, grade level, and primary distribution within each college. The sample size for each college was determined proportionally, and 500 students were selected for sampling.

Data collection occurred in December 2024 using a mixed-mode approach (online and offline). The online survey involved distributing links to electronic questionnaires hosted on "Wenjuanxing" via WeChat (376 distributed). The offline method involved administering paper-based questionnaires in quiet classrooms under researcher supervision (124 distributed). To encourage participation, each respondent who completed the questionnaire received a 10 Chinese Yuan (CNY) shopping voucher as compensation. A total of 480 questionnaires were returned.

During the data cleaning phase, invalid responses were excluded based on the following criteria: completion times that were either too short (<2 minutes) or too long (>20 minutes), and failure to pass attention-check questions. This process yielded a final sample of 315 valid questionnaires, representing a response rate of 65.6%. To enhance external validity, we collected supplementary institutional data indicating that 67.3% of our sample (n = 212) had participated in at least one career-related activity (internship, career fair, or counselling) within the past 6 months, as recorded in university registries. This behavioural triangulation partially validates our attitudinal measures. This study received ethical approval from both Mahachulalongkornrajavidyalaya University of Thailand and Youjiang Medical University for Nationalities of China in compliance with Chinese regulations for cross-border research. Informed consent was governed by the stricter standard of the two jurisdictions.

3.3 Data Analysis Methods

Data analysis was conducted using SPSS 24.0 and AMOS 24.0 software. Initial analyses included descriptive statistics and tests for common method bias. Structural Equation Modeling (SEM) was employed to test the research hypotheses and the theoretical model. The following indices were selected to assess the overall model fit: χ^2/df, CFI, TLI, RMSEA, and SRMR.

To test the mediating effect (H4), the Bootstrap sampling method was employed with 5000 resamples to calculate the 95% confidence interval for the effect. A significant mediating effect is indicated if the confidence interval does not contain zero. For testing the moderating effect (H5), the PROCESS macro for SPSS (Model 5) was used, with the independent variable and the moderating

variable standardised before analysis. To address concerns about measurement error, we conducted supplementary analysis using the Latent Moderated Structural Equations (LMS) method in Mplus 8.5. The interaction term remained non-significant ($\beta = 0.018$, $p = 0.612$, 95% CI = [-0.048, 0.085]), confirming the robustness of the PROCESS results. We acknowledge that this hybrid approach is suboptimal and recommend that future studies use full SEM software with latent interaction capabilities.

3.4 Demographic Information

The demographic characteristics of the valid sample (N = 315) are presented in Table 1. The sample comprised 170 males (54.0%) and 145 females (46.0%). Regarding grade level distribution: 80 were freshmen (25.4%), 92 were sophomores (29.2%), 121 were juniors (38.4%), and 22 were seniors or above (7.0%). In terms of major background, 176 students (55.9%) were from Science, Technology, Engineering, and Mathematics (STEM) fields, while 139 students (44.1%) were from humanities and arts disciplines. Notably, 257 students (81.6%) reported having taken AI-related courses, 144 students (45.7%) found AI tools relatively easy to use, and 189 students (60.0%) held an optimistic view toward the application prospects of AI. These findings suggest that the sample possessed some foundational knowledge and practical experience with AI technology. Detailed information is shown in Table 1.

Table 1 Demographic Information of Participants（N=315）

Characteristics	Category	Frequency	Percentage
Gender	man	170	54.0%
	female	145	46.0%
Grade	freshman	80	25.4%
	sophomore	92	29.2%
	junior	121	38.4%
	senior and above	22	7.0%

Major	Science and Engineering	176	55.9%
	Humanities and Arts	139	44.1%
Courses related to AI	Yes	257	81.6%
	No	58	18.4%
Convenient to use AI	difficulty	43	13.7%
	not sure	128	40.6%
	easy	144	45.7%
Views on the Prospects of AI	pessimistic	110	34.9%
	not sure	16	5.1%
	optimistic	189	60.0%

4. Results

4.1 Correlation Analysis, Multicollinearity Test, and Common Method Bias Testing

Table 2: Pearson Correlation Analysis

variables	Mean	SD	AA	CA	SE	CD
AI anxiety	2.322	.893	**.870**			
Career adaptability	3.755	.686	-.811***	**.777**		
Self-efficacy	3.561	.688	-.672***	.684***	**.792**	
Career decision	3.595	.694	-.718***	.745***	.839***	**.845**

Note:*** Indicating P<0.001, AA=AI anxiety， CA=Career adapt-ability， SE=Self-efficacy， CD=Career decision. The bold value is the square root of the AVE value.

The correlation analysis results presented in Table 2 show that the mean score for AI anxiety (M = 2.322, SD = 0.893) was significantly below the scale midpoint of 3. In contrast, the mean scores for the other three variables were all significantly above 3. This suggests that most participants reported low levels of AI anxiety, potentially related to the fact that the majority of the sample (81.6%) had taken AI-related courses and held an optimistic view of its application prospects (see Table 1). Furthermore, AI anxiety demonstrated significant negative correlations with career

adaptability (r = -0.811, $p < 0.001$), self-efficacy (r = -0.672, $p < 0.001$), and career decisions (r = -0.718, $p < 0.001$). These correlations further support the study's hypothesis regarding the potential negative association with AI anxiety on career decisions. Additionally, significant positive correlations (all $p < 0.001$) were observed among career adaptability, self-efficacy, and career decisions, with correlation coefficients ranging from 0.684 to 0.839, indicating moderately strong relationships.

According to the Fornell-Larcker criterion, by comparing the square root of the AVE for each variable with its correlations with other variables, adequate discriminant validity was established for the AI anxiety and career decision variables. However, for the other two variables, the square root of the AVE was less than some of the correlation coefficients with other constructs, indicating insufficient discriminant validity. This issue might be attributable to substantial conceptual overlap between specific dimensions of these two variables. To more rigorously assess discriminant validity, we computed Heterotrait-Monotrait (HTMT) ratios [34]. HTMT values for all construct pairs fell below the conservative 0.85 threshold: AA-CA = 0.78, AA-CD = 0.71, CA-CD = 0.82, SE-CD = 0.79, except for CA-SE, which was 0.92, confirming the lack of discriminant validity between career adaptability and self-efficacy. This suggests these constructs may share a higher-order 'career agency' factor in our sample.

Additionally, the Variance Inflation Factor (VIF) values ranged from 2.035 to 3.156 in the multicollinearity assessment, suggesting the absence of severe multicollinearity. Subsequently, Harman's single-factor test revealed that the first factor accounted for 48.287% of the variance, which is below the 50% threshold suggested by Podsakoff et al. (2003). This indicates that common method bias was

not a serious concern in the sample data.

4.2 Reliability and Validity Tests

Table 3: Reliability and Validity Test Results

variables	Items	Loading	Cronbach's α	AVE	CR
AI anxiety [30, 31]	AA1. I often feel AI anxious.	.909	.939	.757	.940
	AA2. When I feel AI anxious, my anxiety is intense or severe.	.904			
	AA3. I avoid situations, places, objects, or activities due to AI anxiety or fear regularly.	.810			
	AA4. AI anxiety or fear significantly disrupts my capacity to perform necessary tasks at work, school, or home.	.889			
	AA5. AI anxiety or fear greatly impacts my social life and relationships.	.834			
Career adaptability [32]	CA1.Thinking about what my future will be like.	.731	.948	.604	.948
	CA2.Preparing for the future.	.787			
	CA3.Becoming aware of the educational and career decisions that I must make.	.794			
	CA4.Making decisions by myself.	.772			
	CA5.Taking responsibility for my actions.	.705			
	CA6.Counting on myself.	.775			
	CA7.Looking for opportunities to grow as a person.	.776			
	CA8.Investigating options before making a choice.	.763			
	CA9.Observing different ways of doing things.	.801			
	CA10.Taking care to do things well.	.793			
	CA11.Learning new skills.	.794			
	CA12.Working up to my ability.	.828			
Self-efficacy [33]	SE1.I can identify careers that best use my skills.	.849	.892	.628	.894
	SE2.I can pick the best-fitting career option from a list of my ideal careers.	.765			
	SE3.I can learn more about careers I might enjoy.	.862			
	SE4.I can match my skills, values, and interests to relevant occupations.	.702			
	SE5.I can make a well-informed choice about which career path to pursue	.773			
Career decision [11, 35]	CD1.I am confident I can find a job that suits my abilities and interests.	.793	.969	.664	.967
	CD2.I am satisfied with the progress I have made in choosing a career.	.813			
	CD3.I have a clear idea of the steps I need to take to reach my career goals.	.838			
	CD4.I am confident in obtaining the education or training I need for my career	.803			

goals.	
CD5.I feel prepared to deal with the challenges of job hunting.	.855
CD6.I am confident that I can succeed in the career I have chosen.	.797
CD7.I am satisfied with the amount of knowledge I have about different careers.	.758
CD8.I am confident that I can find a job that is meaningful to me.	.787
CD9.I am confident that I can find a job that pays well.	.808
CD10.I am satisfied with the amount I know about the job market.	.850
CD11.I am confident that I can find a secure job.	.848
CD12.I clearly know what kind of work I want to do.	.773
CD13.I am confident that I can find a job that allows for a good work-life balance.	.846
CD14.I am satisfied with the amount I know about how to prepare for my career.	.807
CD15.I am confident that I can find a job compatible with my values.	.840

Note: CR = Composite reliability, AVE = Average variance extracted

As shown in Table 3, all constructs demonstrated strong psychometric properties. Factor loadings exceeded the recommended threshold of 0.7, while Cronbach's alpha coefficients ranged from 0.892 to 0.967, indicating excellent internal consistency. Convergent validity was confirmed with average variance extracted (AVE) values exceeding 0.5 (minimum AVE = 0.604) and composite reliability (CR) values surpassing 0.7 (minimum CR = 0.894), adhering to established criteria.

4.3 SEM Fit Indices and Hypothesis Testing

The results of the structural equation modeling analysis are presented in Figure 2. For the goodness-of-fit tests, the χ^2/df value was 2.61, indicating a low ratio of chi-square to degrees of freedom, which falls within the acceptable range of 1 to 3. The RMSEA value was 0.072, and the SRMR value was 0.0494. Meanwhile, the values for IFI, TLI, and CFI were 0.921, 0.915, and 0.921. All fit indices met conventional acceptability thresholds (RMSEA < 0.08, SRMR < 0.05,

CFI/TLI > 0.90), suggesting adequate model-data correspondence [36]. Therefore, overall, the measurement model demonstrates a good fit.

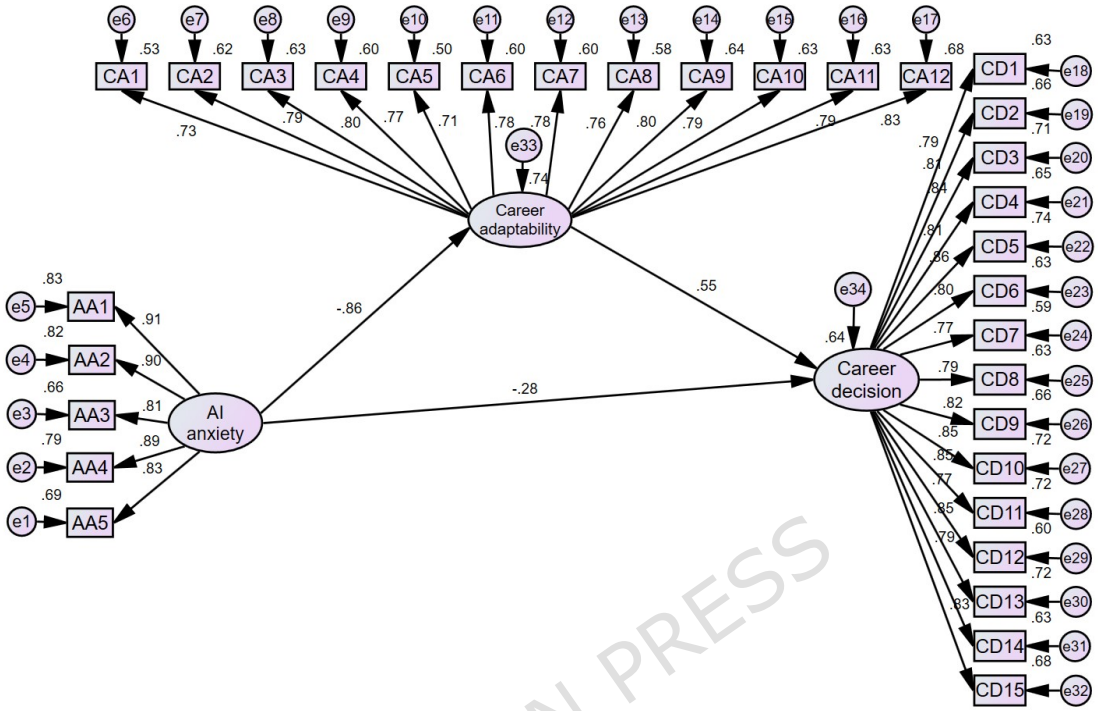

Figure 2: SEM Measurement Model Results

Path analysis revealed significant relationships among key constructs. AI anxiety was negatively associated with Career decisions (β = -0.275, p < 0.01), indicating that higher AI anxiety levels corresponded to more adverse Career decisions among students. Furthermore, AI anxiety was significantly negatively associated with career adaptability (β = -0.864, p < 0.001), suggesting that heightened AI anxiety impaired students' capacity to adapt to career challenges. Conversely, career adaptability positively influenced Career decisions (β = 0.552, p < 0.001), underscoring its role in fostering proactive and confident Career decisions. These findings provide support for hypotheses H1, H2, and H3.

4.4 Mediation Effect Analysis

After verifying the significant relationship between the three variables, this study used the mediation effect detection method proposed by Wen et al. [37]. It was analysed using AMOS software, as shown in Table 4. Results indicated that career adaptability partially mediated the relationship between AI anxiety and Career decisions. Specifically, the indirect effect of AI anxiety on Career decisions through career adaptability was significant (β = -0.382, p < 0.01), with a direct effect of β = -0.221 (p < 0.01) and a total effect of β = -0.603 (p < 0.01). The mediation effect accounted for 63.35% of the total association, demonstrating that AI anxiety negatively influenced Career decisions directly and indirectly by impairing career adaptability. Therefore, H4 is supported, indicating that career adaptability partially mediates the relationship between AI anxiety and career decisions.

Table 4: Results of Mediating Effect Test on Career Adaptability

Path	β	95%BootLLCI	95%BootULCI	P	Proportion
AA→CA→CD	-.382	-.537	-.195	0.002**	63.35%
AA→CD	-.221	-.426	-.068	0.005**	36.65%
Total	-.603	-.721	-.500	0.002**	

Note: ** Indicating P < 0.01, AA=AI anxiety， CA=Career adaptability， CD=Career decision, LLCI=Lower Limit of Confidence Interval, ULCI.= Limit of Confidence Interval.

4.5 Moderation Effect Analysis

We tested the moderation on the direct AI anxiety-career decision path while controlling for the mediated effect through career adaptability. The study employed Hayes [38]'s PROCESS macro (Model 5) in SPSS, centring variables and generating interaction terms (±1 SD). Additionally, six demographic variables

were included as control variables in the model. The detailed results are shown in Table 5. The interaction term between AI anxiety and self-efficacy had a β value of 0.015, a t-value of 0.530, and a p-value of 0.596. Its 95% confidence interval was [-0.042, 0.073] (which includes 0). This indicates that self-efficacy did not significantly alter the strength or direction of AI anxiety's influence on Career decisions. Consequently, H5 was not supported. The moderation analysis used manifest variables (factor scores), which may inflate Type I error due to measurement error. However, given the non-significant result, this conservative bias does not threaten our conclusion.

Table 5: Results of the Moderation Effect Test of Self-efficacy

variables	β	t	95%BootLLCI	95%BootULCI
CC(constant)	.861	2.147*	.072	1.651
AA	-.153	-2.494*	-.355	.049
CA	.237	4.649***	.137	.337
SE	.563	7.698***	.419	.706
AA*SE	.015	.530	-.042	.073
R^2		.769		
F		101.378		

Note:*,*** Indicating $P < 0.05,0.001$; AA=AI anxiety； CA=Career adapt-ability； SE=Self-efficacy； CD=Career decision, LLCI=Lower Limit of Confidence Interval, ULCI.= Limit of Confidence Interval.

5. Discussion

5.1 Research Findings

The results of this study reveal that AI anxiety demonstrated a significant negative association with college students' career decisions (β = -0.275, $p < 0.01$). This finding aligns with previous

research [8, 22], indicating that college students' concerns about AI technology were adversely associated with their career planning. According to Career Construction Theory [10], individuals rely on their personal characteristics and experiences to reshape their career goals in response to the occupational uncertainty triggered by AI. This process actively disrupts AI anxiety. Specifically, AI anxiety may increase confusion and hesitation during career decisions, thereby significantly reducing the clarity and confidence in career goals. For instance, highly anxious students might excessively worry about their professional skills being automated, leading them to avoid fields closely related to technological development (e.g., computer science, data analysis). Simultaneously, this anxiety can undermine their confidence in career exploration, reducing their participation in activities such as internships and vocational training, thereby further limiting the enhancement of their career knowledge and preparedness. Consequently, educators need to adopt comprehensive methods to help students prepare for an AI-driven work environment [23].

This study also found that AI anxiety was significantly negatively associated with college students' career adaptability (β = -0.864, p < 0.001), echoing the findings of Gerçek [39] and Muftah [40]. This suggests that AI anxiety is directly associated with career decisions and indirectly influences students' ability to cope with career challenges. Younger adults reported stronger anxiety responses to negative information than older adults, suggesting heightened sensitivity among younger users [41]. The psychological impact of AI technology on college students is dynamic and stage-specific: individuals who are resource-deficient and vulnerable are more likely to adopt resource conservation strategies, often manifesting as passive coping styles, such as indifference, laissez-faire,

resistance, or opposition. In contrast, students with abundant resources and more opportunities for gain tend towards resource investment, more frequently employing active coping strategies such as acceptance, learning, and transformation. This distinction corroborates the Conservation of Resources theory [24]. When college students experience high levels of AI anxiety, they may develop excessive worry and fear about the future employment situation, making it challenging to maintain a positive mindset to focus on career information and explore opportunities. This anxiety can also lead to a lack of confidence when facing professional challenges, resulting in an inadequate mastery of relevant career knowledge and skills, which ultimately limits their capacity to adapt to future occupational changes. For example, anxious students might forgo applying for emerging AI-related positions due to fears of incompetence, missing opportunities to enhance their career adaptability. Therefore, universities must strengthen students' career knowledge preparation and adaptability training through personalised guidance to meet various challenges in the labour market [42].

On the other hand, career adaptability was positively related to career decisions ($\beta = 0.552$, $p < 0.001$), indicating that students with stronger career adaptability are more proactive and confident in the career decision process. This result is consistent with prior studies [25, 26, 43]. By enhancing their career adaptability, individuals can achieve a better fit with the employment environment of the AI era, thereby facilitating career decisions, a view aligned with Person-Environment Fit theory [44]. Improved career adaptability enables students to cope more effectively with uncertainties and challenges in their career development, allowing them to adjust their career goals and plans more flexibly and thus make more informed career

decisions. For instance, students with high career adaptability typically monitor industry trends more proactively and actively participate in vocational training, internships, and career counselling to enhance their competitiveness. They are also better equipped to handle stress and setbacks during decision-making, maintain a positive attitude and continually explore suitable career paths. Hence, educators and policymakers should emphasise fostering college students' career adaptability to promote their career success and psychological well-being [43].

The mediation effect test results show that career adaptability partially mediates the relationship between AI anxiety and career decisions (accounting for 63.35% of the total effect), consistent with the findings of Gerçek [39]. This indicates that career adaptability is a key mechanism mitigating the negative impact of AI anxiety on career decisions. Specifically, when college students possess strong career adaptability, they can better cope with the uncertainties and challenges brought about by AI technology, thereby maintaining a clearer understanding of their career goals during the decision-making process. For example, such students often proactively follow AI technology trends, actively learn relevant knowledge and skills, and enhance their satisfaction with career knowledge to increase their competitiveness in the job market. They can also better adjust their career goals and expectations, formulating career plans flexibly in response to market changes, thus effectively reducing the interference of AI anxiety in their decisions. This finding offers a new perspective for education and practice, suggesting that enhancing students' career adaptability can effectively alleviate the negative impact of AI anxiety on career decisions.

However, contrary to H5, the moderating effect of self-efficacy was insignificant. Potential reasons include: First, this study

measured career decision self-efficacy rather than AI technology self-efficacy, which may be the key factor in buffering AI anxiety. Students may feel confident in their career decision process but feel powerless when it comes to mastering AI technology. Second, according to Crisis Perception Theory [45], when an external threat (such as the disruption of the job market by AI) is perceived as very powerful and pervasive, the buffering effect of intrinsic positive beliefs (like self-efficacy) might be weakened. Third, the current resources for university education and vocational training might be relatively limited, constraining the development of self-efficacy in the face of AI technology among college students, thereby affecting the manifestation of its moderating role. Fourth, this study might not have sufficiently controlled for all potential confounding variables, such as personality traits, social support networks, and family background, which may interact complexly with self-efficacy, AI anxiety, and career decisions [28]. Future research could expand the sample scope, control for additional variables, and further investigate the boundary conditions of the moderating effect under varying intensities of external threats. The null moderation result may suggest that the buffering effect of self-efficacy is limited when confronting systemic AI threats. However, this interpretation is post-hoc and speculative; the non-significant interaction could also stem from measurement issues (career decision self-efficacy vs. AI-specific efficacy) or inadequate statistical power. This explanation has not been empirically tested and should be viewed as a hypothesis for future research rather than a firm conclusion.

5.2 Implications

First, educational interventions should prioritise enhancing students' career adaptability rather than merely alleviating anxiety

symptoms. Higher education institutions must move beyond traditional career guidance models and systematically integrate the cultivation of career adaptability into the curriculum system. This includes strengthening content related to future planning, autonomous decision-making, curious exploration, and confidence building within courses, as well as providing practical opportunities such as internships, project-based learning, and volunteer activities. These experiences allow students to practice and enhance their adaptive skills in real-world contexts. Deepening industry-education integration, guided by the principles of outcome-based education, represents a practical pathway to achieve this goal.

Second, AI literacy education must be deeply integrated with career planning and adopt a forward-looking perspective. When popularising AI general education courses, universities should go beyond technical explanations and focus on analysing AI's transformative trends on the occupational ecosystem. This involves guiding students to identify, rather than avoid, the emerging opportunities that AI creates. Through case studies and lectures by industry experts, students can develop an objective understanding of technological change, shifting their career positioning from "competing with AI" to "collaborating with AI." This approach can alleviate anxiety stemming from the unknown at its source and strengthen confidence and preparedness in career exploration.

Third, policy support should focus on constructing an external environment that facilitates students' career adaptation. Governments and educational authorities should increase resource investment in university career development services, promoting the establishment of more professional career counselling systems. Simultaneously, incentive policies, such as training subsidies or tax benefits, should be introduced to encourage collaboration between

enterprises and universities. Joint efforts should provide students with high-quality AI skills training and internship opportunities, effectively bridging the gap between campus and the workplace and enhancing their competitiveness in the job market.

Ultimately, for individual students, the implication is the need for proactive resource allocation rather than passive anxiety. Students must recognise that continuous learning and proactive adaptation are core competencies in the AI era. They should actively utilise resources inside and outside the university to master AI tools relevant to their majors. Consciously accumulating successful career construction experiences through participation in practical activities and seeking mentorship and peer support can gradually build the internal resources and confidence needed to navigate uncertainty.

5.3 Limitations and Future Research Directions

Regarding the sample, the data for this study were collected from three universities in a single city in Guangxi. The limited geographical and institutional diversity of the sample constrains the generalizability of the findings. The claim of representativeness is based on demographic alignment with regional higher education statistics, not on behavioural validity. The incremental contribution is theoretical—demonstrating the mediating mechanism—rather than empirical in terms of novel behavioural prediction. Future research could employ large-scale sampling across different regions and cultures, for instance, comparing universities in eastern coastal and central-western areas of China, to test the model's stability and explore the potential influence of regional economic factors.

In terms of measurement, although this study utilised scales with established reliability and validity, some scales (e.g., the Career Decision Self-Efficacy Scale) might not fully capture the specific

challenges posed by AI technology. The AI anxiety scale requires independent validation. Future research should employ established measures such as Li and Huang's multidimensional AI anxiety inventory to confirm construct specificity [7]. A fundamental limitation remains the absence of external behavioural criteria. While we measured perceived preparedness (CD5) and goal clarity (CD12), we did not capture actual job search behaviours. This constrains the ecological validity of our “career decision” construct, which is theoretically a precursor to action but not equivalent to observed behaviour. The discriminant validity issue between career adaptability and self-efficacy (HTMT = 0.92) suggests that these resources may operate as a unified agency factor under AI threat, explaining the null moderation finding. Furthermore, some short-form scales used in this study demonstrated poor discriminant validity, which might have led to a statistical underestimation of the genuine relationships between variables. Future studies could consider using full versions of scales or developing measurement tools tailored to specific contexts (e.g., AI self-efficacy) to more accurately capture the constructs. Additionally, longitudinal designs would more effectively reveal the causal dynamics among the variables.

Concerning the theoretical model, this study primarily tested the mediating role of career adaptability and the moderating role of self-efficacy. However, other explanatory pathways may exist beyond the model. For example, AI anxiety might directly trigger decision paralysis or risk aversion tendencies, mechanisms operating independently of career adaptability. Future research could introduce variables such as job search behaviours, personality traits, and social support networks, or incorporate objective employment data, to paint a more comprehensive picture of the complex

pathways through which AI anxiety influences career decisions.

Limitation of Construct Validity: As noted in Results 4.1, career adaptability and self-efficacy demonstrated insufficient discriminant validity (HTMT = 0.92). This suggests our measures may have captured overlapping variance in 'career agency,' potentially attenuating the moderation effect of self-efficacy. Consequently, the unique roles of these constructs should be interpreted with caution, and future research should utilize item-level bifactor modeling to isolate shared from specific variance.

6. Conclusion

Grounded in Career Construction Theory, this study, through an empirical investigation of 315 college students from three universities in Baise City, Guangxi, China, reveals the internal mechanism by which AI anxiety influences college students' career decisions in the era of AI. The core findings demonstrate that AI anxiety was found to be negatively related to college students' career decisions and exerts a significant indirect adverse effect by substantially depleting their career adaptability. From the perspective of the Conservation of Resources Theory, the discovery of this mediating pathway elucidates that AI anxiety essentially erodes the core psychological resources students need to plan and construct their careers actively. Concurrently, this study found that the moderating role of career decision self-efficacy in the relationship between AI anxiety and career decisions was insignificant. This result suggests that when confronting a systemic and pervasive external threat, such as AI, individuals' generalised career confidence may offer limited buffering, indicating a need for more targeted educational interventions.

The theoretical contribution of this research lies in validating the

crucial mediating role of career adaptability, thereby deepening the application of Career Construction Theory within the specific context of AI as a disruptive technology and clarifying the underlying psychological mechanism. On a practical level, the study strongly recommends that higher education cultivate students' career adaptability. By implementing systematic curricula, practical experiences, and support systems, students can be empowered to resist technology-induced anxiety, thereby navigating their future professional world more proactively and confidently. These findings are most applicable to undergraduate populations in similar regional contexts (Small and medium-sized cities in western China). They should be cautiously generalised to elite institutions or economically developed coastal regions where AI exposure and resources may differ.

Data Availability

The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

Conflicts of Interest

The authors declare that they have no conflicts of interest.

Ethics Declaration

This research was conducted in accordance with the principles of the Declaration of Helsinki.

Funding Declaration

The author(s) received no financial support for this article's research, authorship, and/or publication.

Consent Statement

All participants involved in this study were fully informed about the research's purpose, procedures, and potential risks and benefits. Each participant provided explicit consent before their involvement. They were assured of their right to withdraw from the study without any consequences. The anonymity and confidentiality of their responses were guaranteed, with no personal identifiers linked to the data collected. Written consent was obtained from each participant, ensuring that they agreed to the terms of participation and the use of their data for research purposes.

Ethical Approval

This study was approved by both the Ethics Committee of Mahachulalongkornrajavidyalaya University and the Ethics Review Committee of Youjiang Medical University for Nationalities, in accordance with the Declaration of Helsinki and national ethical guidelines for research involving human participants.

Approval ID: MCU 8007R.627/YJMU-EC-2025-022202

Date of approval: 26 October 2024/ 22 February 2025

Note: The study commenced only after the above ethical approval was granted. Post-hoc local approval was obtained on 22 February 2025 to comply with journal requirements

Informed Consent

Written informed consent was obtained from all participants before the commencement of data collection.

Consent procedure: Participants received an information sheet detailing the study's aims, methods, risks, benefits, and data handling procedures. Participants then signed a consent form.

Dates of consent collection: 20-30 November 2024

A scanned copy of the IRB approval letter and the blank

informed-consent form are attached.

Author Contributions

ND: Writing – original draft, writing – review & editing. LL and GL: Writing – original draft. HC: Writing – review & editing.

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