

Research Article

The influence of university students' perceived teacher support on career decision-making self-efficacy: The moderating role of proactive personality

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This study aims to explore how perceived teacher support influences university students' career decision-making self-efficacy. To this end, a moderating model with proactive personality as a moderating variable was proposed. Data from 753 university students in Chinese universities were analyzed. The results show that teacher support significantly and positively influenced university students' career decision-making self-efficacy, and proactive personality played a moderating role between teacher support and career decision-making self-efficacy. This study not only underscores the importance of teachers in the career development of university students but also highlights the crucial role of proactive personality in enhancing career decision-making self-efficacy. Importantly, this study contributes to the literature by examining these relationships within the context of China's collectivist culture, highlighting cultural nuances in teacher support and proactive personality effects. The findings provide new empirical support for career guidance and planning education in Chinese higher education, suggesting that educators should not only offer informational and emotional support but also focus on cultivating students' proactive personality traits to foster the comprehensive development of their career decision-making abilities.

Keywords: Career decision-making self-efficacy; Proactive personality; Teacher support

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1. Introduction

University students' employment and career development are critical issues of concern to all sectors of society, closely linked to graduates' personal development, family well-being, and the stable development of institutions and society (Zhang et al., 2023). In reality, whether in China or other countries, it is not easy for university graduates to choose careers that align with their talents, beliefs, interests, and abilities (Yunusa et al., 2021). Undergraduates' lack of awareness or insufficient understanding of career options is a key factor leading to erroneous career decisions, resulting in career dissatisfaction, poor performance, withdrawal, frustration, and psychological issues (Adeyanju et al., 2020). Ideal career decision-making occurs when an individual recognizes the need and is prepared and capable of making the right choice (Hana et al., 2022; Perez & Gati, 2017). University graduates typically enter the workforce in June and July each year, facing a complex employment landscape where they must contend with significant changes in the global

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economic environment and intense competition for limited positions (Wang et al., 2023). However, Chinese higher education still faces certain limitations in career development education. Career planning courses and practical opportunities are relatively scarce, and students often lack systematic guidance for career exploration (Xie et al., 2019). In addition, the educational model emphasizes academic performance over the cultivation of career-related competencies, making it difficult for students to independently make optimal career decisions (Huang et al., 2024). Against this serious backdrop, career decision-making self-efficacy [CDSE] may play an increasingly prominent role in human efficacy (Bandura, 1982; Zhang et al., 2023), as it reflects an individual's confidence, beliefs, and judgment.

Previous studies have consistently demonstrated the positive impact of career decision-making self-efficacy on career decision outcomes, including career exploration, commitment, and satisfaction (Lee et al., 2022). Students with low career decision-making self-efficacy lack motivation to explore and plan for the future, which affects their ability to overcome career obstacles and engage in career planning (Chan, 2020). Career decision-making self-efficacy is recognized as a primary factor in adolescents' career choice interests, goals, selections, experiences, and performance (Jo et al., 2016). Individuals with CDSE gather information related to ideal careers and can select goals to achieve by considering their capabilities (Nabila, 2024; Taylor & Betz, 1983). Adolescents with high levels of CDSE prefer more challenging and complex decisions (Tabernero & Wood, 2009) and are more motivated to seek as much information as possible when engaging in these decision-making processes (Seijts et al., 2004; Turda, 2024). Compared to other forms of self-evaluation (such as self-esteem) and career decision-making strategies, CDSE is not considered a stable disposition but rather a construct that can be influenced by career interventions (Lent & Brown, 2020; Levin et al., 2024; Rossier et al., 2022; Whiston, 2021). CDSE represents an individual's self-assessment of their ability to handle career choice tasks, which may be influenced by actual capabilities or by difficulties experienced during the process (Betz et al., 1996; Lent & Brown, 2020; Lent et al., 1994; Levin et al., 2024; Whiston, 2021). Therefore, it is imperative to uncover the mechanisms influencing CDSE to provide targeted intervention strategies.

Wang et al. (2024) found that family support, friend support, and teacher support directly or indirectly affect adolescents' career adaptability through CDSE, with teacher support having a greater impact on career adaptability than family and friend support. Teacher support is more conducive to adolescents' career development than family and friend support, enabling them to be decisive in career decisions and build confidence for the future. This finding aligns with previous research indicating that teacher support is more strongly associated with students' career development and outcomes than parental and peer support (Kenny & Bledsoe, 2005; Zhang et al., 2018). Zhang et al. (2021) also noted that teacher support is crucial for students' career preparation and planning, yet few instruments exist to assess teachers' career-related support. Given the scarcity of research exploring teacher support in career development contexts (with even fewer studies investigating such support for disadvantaged or at-risk students), it is valuable to examine the current dimensions of career-related teacher support from the perspective of Chinese technical education students (Zhang et al., 2020).

The findings of Wang et al. (2023) indicate that when confronted with environmental influences, proactive individuals are more likely to take action to scan for opportunities and alter their environment. In career contexts, individuals with higher proactive personality are more inclined to adopt proactive behaviors (such as learning vocational skills, gathering career information, seeking self-improvement opportunities, etc.) when facing career challenges or even crises, thereby attaining higher CDSE. This result aligns with previous research (Hirschi et al., 2013; Hou et al., 2010; Xin et al., 2020). Additionally, studies have found interactive effects between proactive personality and the aforementioned variables. Xia et al. (2020) noted that proactive personality plays a moderating role between career adaptability and employability. Sheng and Caiga (2024) identified significant correlations among autonomous personality, career social support, and career decision-making self-efficacy. Students with stronger autonomous personality and greater

career social support exhibit stronger career decision-making self-efficacy. Su et al. (2024) found that proactive personality in graduate students positively moderates the impact of the supervisor-student relationship on creative self-efficacy, which in turn influences their innovative behavior.

Analysis of the above research reveals that teacher support and proactive personality can independently predict career decision-making self-efficacy, yet research on career-related teacher support in China remains quite limited. Given the rapidly changing employment landscape in China's education sector, studying this topic by referencing pre-service teachers is considered particularly meaningful (Song et al., 2022). In addition, China is a collectivist-oriented country (Yang et al., 2024). Within the context of a collectivist culture, teacher support is not merely academic or career-related assistance but also carries greater authority and social recognition. In such a context, teachers are often regarded as important "authoritative figures," whose opinions and guidance influence not only students' academic choices but also profoundly shape their career cognitions and beliefs (Chen, 2015). Therefore, one of the innovations of this study is to examine teacher support within the context of China's collectivist culture. Concurrently, prior literature rarely examines the combined effects and relationships among all three variables, especially the role of proactive personality between teacher support and career decision-making self-efficacy. Therefore, further exploration into the impact of perceived teacher support on career decision-making self-efficacy and the role of proactive personality therein becomes a noteworthy issue.

Based on previous research findings, studies exploring perceived teacher support, proactive personality, and career decision-making self-efficacy consider the differential impacts of gender and academic year (age) (Anyango et al., 2024; Sheng & Caiga, 2024). In summary, this study has three objectives: first, to explore the impact of university students' perceived teacher support on career decision-making self-efficacy; second, to investigate the moderating role of proactive personality between perceived teacher support and career decision-making self-efficacy; and third, to examine differences across gender and academic year in each variable.

2. Literature Review and Research Hypotheses

2.1. The Relationship between Teacher Support and Career Decision-Making Self-Efficacy

Taylor and Betz (1983) defined career decision-making self-efficacy (CDSE) as an individual's belief in their ability to make career-related decisions. Findings from Jemini-Gashi et al. (2021) explain that social support from teachers and parents affects self-efficacy in career decision-making. Malecki et al. (2000) defined teacher support as a series of strategies and actions encompassing emotional support, instrumental support, informational support, and appraisal support. As a crucial element of social support, Social Cognitive Career Theory (Lent et al., 1994) highlights the importance of emotional support provided by teachers in enhancing students' career social adaptability. Renn et al. (2014) found that when mentors offer career support, they strengthen students' career self-efficacy, thereby motivating them to set challenging career goals and monitor their job-seeking behaviors in line with these goals. Research by Zhang et al. (2021) on a sample of 1,674 Chinese technical college students revealed a significant positive correlation between teacher support and career self-efficacy. The more teachers provide career-related support—encouraging students to identify their weaknesses, capabilities, strengths, values, and interests related to career paths, as well as their personal fit with teaching careers—the higher their career decisiveness becomes (Okolie et al., 2023). Wong et al. (2019), studying 402 Grades 10–12 high school students in Hong Kong, verified the role of career-related teacher support [CRTS] in reducing students' hopelessness and enhancing their career self-efficacy. Consistent with other studies, teachers' encouragement, affirmation, and support contribute to students forming positive self-evaluations, leading to higher levels of confidence and optimism in career decision-making (Angeline & Rathnasabapathy, 2021; Garcia et al., 2015; Metheny et al., 2008; Wang et al., 2024). When students perceive teacher support, they are more likely to face challenges with hope and believe in their ability to create a brighter future for themselves (Parola et al., 2024). Summarizing the above perspectives, the research hypothesis is proposed:

H1: Perceived teacher support has a significant positive impact on career decision-making self-efficacy among Chinese university students.

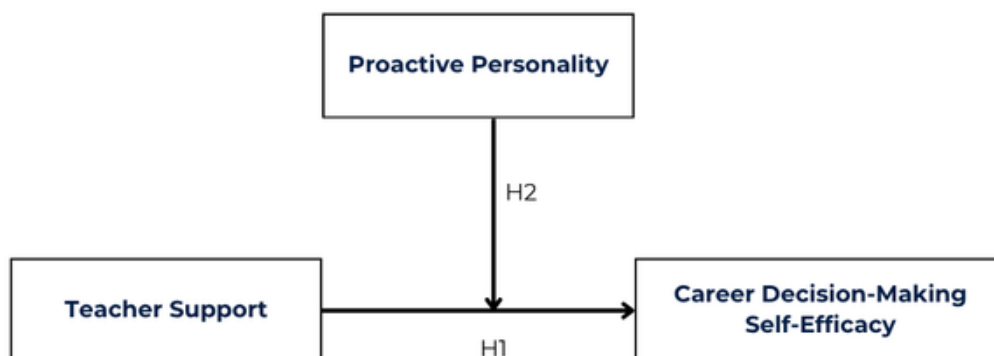
2.2. The Moderating Role of Proactive Personality

The concept of proactive personality, introduced by Bateman and Grant (1993), refers to the extent to which individuals take initiative to change or influence their environment. Proactive individuals exhibit initiative, adaptability, and goal-directed behavior, which contribute to career success (Chan, 2020; Ramadhani & Suharso, 2021). Given the societal concern over university graduates and employment challenges, proactive personality is particularly relevant in career decision contexts, as it enables individuals to identify and act on opportunities, including entrepreneurial pursuits (Hussain, 2018; Mustafa et al., 2016; Nabila, 2024). Prior research indicates that proactive personality is a strong predictor of career success and can enhance career decision-making self-efficacy both directly and by moderating the effect of social support (Brown et al., 2006; Zhao & Zhou, 2015). This study moves beyond the traditional linear explanatory framework of Social Cognitive Career Theory [SCCT] by introducing a moderating variable to construct a dynamic “environmental support-personality traits” model. The inclusion of proactive personality as a moderator helps reveal how individual differences influence the effectiveness of support systems, which may hold significant practical value for career guidance. Accordingly, the following hypothesis is proposed:

H2: Proactive personality plays a moderating role between perceived teacher support and career decision-making self-efficacy among Chinese university students.

Figure 1

Research Framework Diagram



3. Research Methodology

3.1. Research Design

This study employed a questionnaire survey method to investigate the effects of parental support and teacher support on the career decision-making self-efficacy of university students in Guizhou Province, China. The questionnaire survey method involves collecting data from a sample that represents the population in order to draw conclusions and, within the permissible limits of random error, infer the characteristics of the entire population. The advantages of this method include the ability to make inferences about a larger population using a relatively small group, as well as its low cost, high reliability and validity, and efficiency in data collection. In the first stage of this study, questionnaires were distributed to students, who completed measures assessing teacher support, career decision-making self-efficacy, and proactive personality. In the second stage, the collected data were analyzed using SPSS and AMOS, and the hypotheses were tested based on the proposed theoretical assumptions.

3.2. Participants

This study primarily targeted undergraduate students from four different types of universities in China. The criteria for participant selection in this study were as follows: First, the four universities included represent different types (medical, finance and economics, and comprehensive institutions), ensuring that the sample reflects variations in career decision-making among students from diverse disciplinary backgrounds and thereby enhancing the comprehensiveness of the results. Second, the sample covered all academic years, allowing the study to capture stage-specific differences in career decision-making self-efficacy (e.g., the adjustment period of freshmen versus the employment pressure faced by seniors).

A total of 753 valid questionnaires were obtained. Background information of university students was surveyed, including gender and academic year. The results showed that 24.436% of participants were male (184 individuals), and 75.564% were female (569 individuals). Among them, first-year undergraduates accounted for 38.911% (293 individuals), second-year undergraduates for 19.389% (146 individuals), third-year undergraduates for 14.343% (108 individuals), and fourth-year undergraduates for 27.357% (206 individuals).

3.3. Data Collection

3.3.1. Research procedure

Participants were invited to complete questionnaires through assistance from course instructors and counselors. To ensure the accuracy of formal questionnaire responses, the study's purpose was explained to participants before administration, ensuring their comprehension and emphasis on the questionnaire, while also highlighting the confidentiality of survey results. After obtaining informed consent, questionnaires were distributed via Questionnaire Star. Participants scanned QR codes or clicked links to complete electronic questionnaires, taking approximately 15–20 minutes.

3.3.2. Instruments

Career Decision-Making Self-Efficacy Scale. This study employed the "University Students' Career Decision-Making Self-Efficacy Scale" developed by Peng and Long (2001). The scale comprises five dimensions: self-evaluation, information gathering, goal selection, planning formulation, and problem solving. The scale consists of 39 items in total: 6 items for the self-evaluation subscale, 9 items for the information gathering subscale, 9 items for the goal selection subscale, 8 items for the planning formulation subscale, and 7 items for the problem solving subscale. The questionnaire uses a 5-point Likert scale. Respondents were asked to rate their actual situation according to five levels: "complete confidence", "relatively confident", "somewhat confident", "a little confident", and "no confidence", with scores ranging from 5 to 1 points respectively. Scores of the participants were then statistically analyzed. The reason for adopting this scale is that it was developed within the Chinese context and aligns with the actual circumstances of Chinese university students.

Teacher Support Scale. This study employed the 16-item Career-Related Teacher Support Scale [CRTSS] developed by Zhang et al. (2021) to measure students' perceived career-related teacher support. The scale comprises three subscales: self-exploration enhancement (6 items), informational support (5 items), and emotional support (5 items). A Likert-type 5-point scale was used, ranging from 1 (Never) to 5 (Always), for participants to rate their perceived career-related teacher support. Unlike other scales that are primarily designed for high school and vocational school students, this scale specifically measures university students, making it well-suited to the characteristics of the target population in this study. Therefore, it was adopted for measurement in this research.

Proactive Personality Scale. This study utilized the Proactive Personality Scale [PPS] compiled by Shang and Gan (2009) to assess proactive personality. The revised PPS is a unidimensional scale

containing 11 items. A Likert-type 5-point scale was adopted, with scores ranging from 1 (Not at all true) to 7 (Completely true). Compared with research instruments from Western countries, the Chinese version of the Proactive Personality Scale revised by Shang and Gan (2009) is more suitable for Chinese students, and previous studies have demonstrated its satisfactory reliability and validity.

3.4. Data Analysis

This study employed the statistical analysis software SPSS and AMOS to conduct descriptive analysis, confirmatory factor analysis, common method bias testing, difference analysis, correlation analysis, and regression analysis on the data.

3.5. Research Ethics

This study was conducted in accordance with Articles 20 and 21 of Section 3.2.2 in the National Policy and Guidelines for Human Research 2015 issued by National Research Council of Thailand [NRCT]. Throughout the research process, investigators strictly protected participants' personal information and privacy, ensuring all participation was based on voluntary principles.

4. Results

4.1. Descriptive Statistics

4.1.1. Analysis of the current status of teacher support among university students

Through descriptive statistical analysis, the means and standard deviations for the three dimensions of teacher support in this study are as follows: support in career exploration 3.453 (0.899), informational support 3.472 (0.962), and emotional support 3.625 (0.742). The overall mean and standard deviation of the scale are 3.513 (0.733). This indicates that university students perceive teacher support at a moderate to high level.

4.1.2. Analysis of the current status of proactive personality among university students

Through descriptive statistical analysis, the overall mean and standard deviation of the scale are 3.532 (0.657). This indicates that university students exhibit proactive personality at a moderate to high level.

4.1.3. Analysis of the current status of career decision-making self-efficacy

The means and standard deviations for the five dimensions of career decision-making self-efficacy in this study are as follows: self-evaluation 3.336 (0.717), information gathering 3.318 (0.857), goal selection 3.340 (0.856), planning formulation 3.286 (0.856), and problem solving 3.395 (0.814). The overall mean and standard deviation of the scale are 3.333 (0.689). This indicates that university students' career decision-making self-efficacy is at a moderate to high level.

4.2. Confirmatory Factor Analysis

4.2.1. Confirmatory factor analysis of the teacher support scale

In this study, confirmatory factor analysis was employed to assess the construct validity of the university students' teacher support scale. The scale comprises three dimensions with a total of 16 items. To this end, a structural equation model was constructed, explicitly reflecting the assumed relationships between these two dimensions. The CFA results show that $\chi^2/df = 2.884$, less than the reference value of 5; GFI = .954, AGFI = .937, NFI = .968, TLI = .975, CFI = .979, RFI = .962, IFI = .975, all approaching the reference value of .900, meeting the standard (McDonald & Ho, 2002). RMR = .031, SRMR = .031, less than the reference value of .080, meeting the standard (Hair et al., 2011). PNFI = .815, PGFI = .708, both greater than the reference value of .500, meeting the standard (Hair et al., 2011). In summary, the teacher support scale model in this study demonstrates good fit.

As shown in Table 1, the CFA results for the teacher support scale indicate: standardized factor loadings range between .657 and .890, all greater than .600, indicating good validity. The Cronbach's Alpha values for TS1-TS3 are .858-.938, exceeding the reference value of .700, meeting the standard, indicating good internal consistency and reliability of the teacher support scale. Composite reliability values range from .858 to .938, all greater than the reference value of .700, meeting the standard (Farmer et al., 1995). The average variance extracted [AVE] ranges between .549 and .751, exceeding the reference value of .500, meeting the standard.

Table 1

Results of Confirmatory Factor Analysis and Reliability Analysis for the Teacher Support Scale

<i>Dimension</i>	<i>Item</i>	<i>Factor Loading</i>	<i>Cronbach's Alpha</i>	<i>CR</i>	<i>AVE</i>
TS1			.933	.933	.699
	TS11	.784			
	TS12	.814			
	TS13	.865			
	TS14	.868			
	TS15	.872			
TS2	TS16	.810	.938	.938	.751
	TS21	.874			
	TS22	.879			
	TS23	.890			
	TS24	.859			
	TS25	.830			
TS3			.858	.858	.549
	TS31	.657			
	TS32	.765			
	TS33	.728			
	TS34	.787			
	TS35	.760			

Note. Dimensions TS1-TS3 represent the three dimensions of the teacher support scale. Items TS11-TS35 represent the 16 items of the teacher support scale.

4.2.2. Confirmatory factor analysis of the proactive personality scale

The analysis showed that the χ^2/df ratio was 5.035, which exceeds the reference value of 5. Hu and Bentler (1998) noted that when the sample size is large, the chi-square value tends to be significant; other fit indices can be referenced for judgment (if SRMR < .080 + CFI > .095, it is acceptable). GFI = .947, AGFI = .921, NFI = .948, TLI = .948, CFI = .958, RFI = .935, IFI = .958, all approaching the reference value of .900, meeting the standard (McDonald & Ho, 2002). RMR = .026, SRMR = .034, less than the reference value of .080, meeting the standard; PNFI = .759, PGFI = .632, both greater than the reference value of .500, meeting the standard (Hair et al., 2011). In summary, the proactive personality scale model in this study demonstrates good fit.

The CFA results for the proactive personality scale indicate: standardized factor loadings range between .662 and .782, all greater than .600, indicating good validity. The Cronbach's Alpha value for PPS is .920, exceeding the reference value of .700, meeting the standard, indicating good internal consistency and reliability of the proactive personality scale. The composite reliability value is .920, greater than the reference value of .700, meeting the standard (Farmer et al., 1995). The average variance extracted is .512, exceeding the reference value of .500, meeting the standard. Table 2 summarizes the analysis.

Table 2

Results of Confirmatory Factor Analysis and Reliability Analysis for the Proactive Personality Scale

<i>Dimension</i>	<i>Item</i>	<i>Factor Loading</i>	<i>Cronbach's Alpha</i>	<i>CR</i>	<i>AVE</i>
PPS			.920	.920	.512
	PPS1	.713			
	PPS2	.662			
	PPS3	.782			
	PPS4	.737			
	PPS5	.672			
	PPS6	.737			
	PPS7	.701			
	PPS8	.733			
	PPS9	.728			
	PPS10	.716			
	PPS11	.683			

Note. PPS1-PPS11 represent the 11 items of the proactive personality scale.

4.2.3. Confirmatory factor analysis of the career decision-making self-efficacy scale

Confirmatory factor analysis shows that $\chi^2/df = 2.996$, less than the reference value of 5; NFI = .916, TLI = .938, CFI = .942, RFI = .910, IFI = .942, all approaching the reference value of .900, meeting the standard. SRMR = .033, less than the reference value of .080, meeting the standard (Hair et al., 2011). PNFI = .855, PGFI = .772, both greater than the reference value of .500, meeting the standard (Hair et al., 2011). In summary, the career decision-making self-efficacy scale model in this study demonstrates good fit.

As shown in Table 3, the CFA results for the career decision-making self-efficacy scale indicate: standardized factor loadings range between .692 and .853, all greater than .600, indicating good validity. The Cronbach's Alpha values for CDSE1-CDSE5 are .866-.950, exceeding the reference value of .700, meeting the standard, suggesting good internal consistency and reliability of the parents support scale [Translator's note: context indicates this likely refers to the career decision-making self-efficacy scale]. Composite reliability values range from .866 to .951, all greater than the reference value of .600, meeting the standard (Anderson & Gerbing, 1988). The average variance extracted ranges between .518 and .681, exceeding the reference value of .500, meeting the standard (Fornell & Larcker, 1981).

4.3. Common Method Variance [CMV] Analysis

Formal data for this study were collected simultaneously from four schools. To eliminate the possibility that relationships among variables were inflated by common method bias, Harman's single-factor test was performed through factor analysis on the three variables. The results show that the first factor accounted for 32.590% of the total variance, not exceeding 50%, indicating that CMV issues are not severe (Podsakoff et al., 2003).

4.4. Analysis of Differences in Variables across Background Factors

4.4.1. Analysis of gender differences across variables

In this study, gender was used as a background variable, dividing university students into male and female groups to determine whether differences exist across variables. Independent samples t-tests were conducted to examine differences between the two groups. The results indicate significant differences between male and female university students in teacher support ($t = 2.456$, $p < .050$) and career decision-making self-efficacy ($t = 3.956$, $p < .050$), with males scoring higher than females. No significant difference was found in proactive personality ($t = -.207$, $p > .050$). Details are shown in Table 4.

Table 3

Results of Confirmatory Factor Analysis and Reliability Analysis for the Career Decision-Making Self-Efficacy Scale

<i>Dimension</i>	<i>Item</i>	<i>Factor Loading</i>	<i>Cronbach's Alpha</i>	<i>CR</i>	<i>AVE</i>
CDSE1			.866	.866	.518
	CDSE11	.692			
	CDSE12	.720			
	CDSE13	.725			
	CDSE14	.765			
	CDSE15	.705			
CDSE2	CDSE16	.711	.950	.951	.681
	CDSE21	.743			
	CDSE22	.811			
	CDSE23	.812			
	CDSE24	.841			
	CDSE25	.840			
	CDSE26	.849			
	CDSE27	.848			
	CDSE28	.848			
	CDSE29	.832			
CDSE3			.950	.950	.680
	CDSE31	.844			
	CDSE32	.812			
	CDSE33	.838			
	CDSE34	.849			
	CDSE35	.759			
CDSE3	CDSE36	.834	.950	.950	.680
	CDSE37	.853			
	CDSE38	.835			
CDSE4	CDSE39	.792	.939	.940	.662
	CDSE41	.853			
	CDSE42	.832			
	CDSE43	.784			
	CDSE44	.828			
	CDSE45	.829			
	CDSE46	.807			
	CDSE47	.788			
	CDSE48	.787			
CDSE5			.920	.920	.624
	CDSE51	.837			
	CDSE52	.817			
	CDSE53	.827			
	CDSE54	.762			
	CDSE55	.718			
	CDSE56	.748			
	CDSE57	.813			

Note. Dimensions CDSE1-CDSE5 represent the five dimensions of the career decision-making self-efficacy scale. Items CDSE11-CDSE57 represent the 39 items of the career decision-making self-efficacy scale.

Table 4

Analysis of Gender Differences across Variables among University Students (n=753)

Variable	Male		Female		<i>t</i>	<i>p</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
TS	3.628	0.729	3.476	0.731	2.456	.014
PPS	3.523	0.686	3.535	0.648	−0.207	.836
CDSE	3.506	0.650	3.277	0.692	3.956	<.001

Note. TS: Teacher support; PPS: Proactive personality; CDSE: Career decision-making self-efficacy; *M*: Mean; *SD*: Standard deviation

4.4.2. Analysis of grade differences across variables

This study divided university students into four groups based on academic year: first-year, second-year, third-year, and fourth-year, to determine whether differences exist across variables. One-way analysis of variance was conducted to test for differences. The results show no significant differences among students of different academic years in teacher support ($F = .804, p > .050$) or proactive personality ($F = .929, p > .050$). However, a significant difference was found in career decision-making self-efficacy ($F = 3.249, p < .050$). To further compare the differences, Scheffe's post-hoc test was applied to career decision-making self-efficacy, revealing that fourth-year students scored higher than first-year students. The results are shown in Table 5.

Table 5

Analysis of Differences across Academic Years among University Students (n=753)

Variable and Academic Year	<i>M</i>	<i>SD</i>	<i>F</i>	<i>p</i>	Difference Comparison
TS					
First-year	3.477	0.692	.804	.492	-
Second-year	3.592	0.786			
Third-year	3.520	0.708			
Fourth-year	3.503	0.765			
PPS					
First-year	3.577	0.618	.929	.426	-
Second-year	3.536	0.675			
Third-year	3.495	0.672			
Fourth-year	3.485	0.689			
CDSE					
First-year	3.242	0.670	3.249	.021	4>1
Second-year	3.346	0.648			
Third-year	3.387	0.706			
Fourth-year	3.427	0.722			

Note. TS: Teacher support; PPS: Proactive personality; CDSE: Career decision-making self-efficacy; *M*: Mean; *SD*: Standard deviation

4.5. Pearson Correlation Analysis

This study conducted correlation analysis on university students' parents support, teacher support, proactive personality, and career decision-making self-efficacy. The results indicate that parents support was significantly positively correlated with teacher support ($r = .615, p < .001$), proactive personality ($r = .471, p < .001$), and career decision-making self-efficacy ($r = .528, p < .001$). Teacher support was significantly positively correlated with proactive personality ($r = .552, p < .001$) and career decision-making self-efficacy ($r = .600, p < .001$). Proactive personality was significantly positively correlated with career decision-making self-efficacy ($r = .384, p < .001$) (see Table 6). Correlation coefficients ranged between .384 and .615, indicating no issues of high correlation or collinearity (Dormann et al., 2013).

Table 6

Correlation Analysis among Teacher Support, Proactive Personality, and Career Decision-Making Self-Efficacy in University Students

Variable	1	2	3
1. Teacher Support	-		
2. Proactive Personality	.552***	-	
3. Career Decision-Making Self-Efficacy	.600***	.384***	-

Note: *** $p < .001$

4.6. Regression Analysis

This study employed regression analysis, with gender and academic year as control variables, teacher support as the independent variable, career decision-making self-efficacy as the dependent variable, and proactive personality as the moderating variable (see Table 7).

The independent variable (teacher support) and moderating variable (proactive personality) were centered. Specific results show that Model 1 examined the effect of the independent variable (teacher support) on the dependent variable (career decision-making self-efficacy). Teacher support ($B = .557, p < .050$) indicates a significant positive impact on career decision-making self-efficacy, supporting Hypothesis 1. R^2 was .377, indicating Model 1 explains 37.700% of the variance in career decision-making self-efficacy. The F -value was 90.513, with $p < .001$, confirming the regression model is significant. Model 2 added the independent variable (teacher support) and moderating variable (proactive personality). R^2 was .383, indicating Model 2 explains 38.300% of the variance. The F -value was 77.233, with $p < .001$, confirming the model is significant. Model 3 added the interaction term of teacher support and proactive personality to Model 2. R^2 was .391, indicating Model 3 explains 39.100% of the variance. The F -value was 68.407, with $p < .001$, confirming the model is significant. The standardized coefficient of the interaction term was .112, with $p < .010$. Therefore, proactive personality plays a moderating role between teacher support and career decision-making self-efficacy, supporting Hypothesis 2.

Table 7

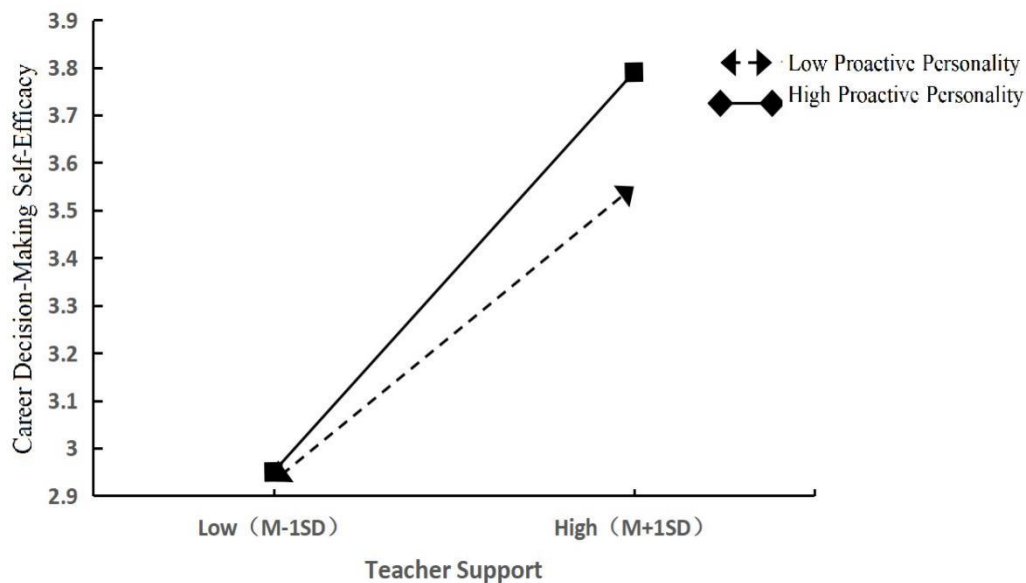
Analysis of the Moderating Role of Proactive Personality between Teacher Support and Career Decision-Making Self-Efficacy in University Students

Model	CDSE					
	Model 1		Model 2		Model 3	
	B	VIF	B	VIF	B	VIF
Constant	3.393***	-	3.395***	-	3.358***	-
Male	0.125**	1.029	0.132**	1.033	0.132**	1.033
First-year	-0.156**	1.496	-0.166**	1.504	-0.153**	1.515
Second-year	-0.115	1.395	-0.114	1.395	-0.108	1.396
Third-year	-0.051	1.306	-0.051	1.306	-0.045	1.307
TS	0.557***	1.012	0.508***	1.467	0.505***	1.469
PPS			0.097**	1.456	0.102**	1.459
TS*PPS					0.112**	1.010
R^2	.377		.383		.391	
Adjusted R^2	.373		.378		.386	
F -value	90.513***		77.233***		68.407***	

Note: TS: Teacher support; PPS: Proactive personality; CDSE: Career decision-making self-efficacy; M: Mean; SD: Standard deviation; ** $p < .010$, *** $p < .001$; With female and senior year as reference groups.

To clearly illustrate the moderating effect of proactive personality, a simple slope analysis plot was generated based on the moderation test results. The figure below shows that higher proactive personality strengthens the positive relationship between teacher support and career decision-making self-efficacy, indicating proactive personality plays a positive moderating role.

Figure 2
Moderating Effect Slope Plot



5. Discussion and Conclusion

Based on Social Cognitive Career Theory, this study explored the impact of teacher support on university students' career decision-making self-efficacy and further verified the moderating role of proactive personality. The findings indicate: First, teacher support significantly and positively predicted university students' career decision-making self-efficacy, consistent with prior research on the role of teachers in student career development (Wang et al., 2024; Zhang et al., 2018). Teacher support—covering career exploration, informational, and emotional support—significantly enhanced CDSE. Teachers provided career information, affirmed student capabilities, and offered emotional encouragement, thereby strengthening students' confidence in career decision-making (Garcia et al., 2015). Its influence even surpassed that of family and peer support (Wang et al., 2024). In the context of China's collectivist culture, teachers not only serve as providers of information and skills but also influence students' career decision-making self-efficacy through their authority and social recognition (Chen, 2015). This stands in sharp contrast to the teacher support emphasized in Western cultures, which is oriented toward individualism and autonomy, thereby extending the applicability of Social Cognitive Career Theory across different cultural contexts.

Second, proactive personality played a positive moderating role between teacher support and career decision-making self-efficacy, indicating that highly proactive individuals actively utilize teacher support resources—amplifying its effects through actions such as information seeking and skill enhancement (Bateman & Grant, 1993). This suggests that students with higher proactive personality benefit more actively from teacher support, further enhancing their career decision-making capabilities. Stronger autonomous personality and career social support correlate with stronger career decision-making self-efficacy and career planning abilities (Sheng & Caiga, 2024). This aligns with the conclusions of Xin et al. (2020). It further reveals the dynamic interaction between personality traits and environmental support, while also providing empirical support for the person-environment fit theory. It also validates the critical moderating function of individual traits in the social support-efficacy mechanism (Zhang et al., 2021). However, the expression of proactive personality in Chinese culture may differ from that in Western individualist cultures. In China's relational society, proactivity often manifests in serving group interests or maintaining relationships, rather than solely pursuing personal breakthroughs or self-actualization (Hu et al.,

2021; Liang et al., 2018). This exploration not only helps enrich the theoretical generalizability of proactive personality in cross-cultural contexts but also clarifies its function across different situational boundaries.

Additionally, gender and academic year showed differences in variable perception. Males scored significantly higher than females in teacher support and CDSE. This suggests that males are more inclined to express needs and seek guidance in educational interactions, possibly due to sociocultural expectations of male career dominance (Podsakoff et al., 2003). In traditional Chinese culture, men are generally expected to bear primary responsibilities in both family and career and are regarded as “career leaders” (Horta & Tang, 2023). Regarding academic year, senior students scored significantly higher in career decision-making self-efficacy than freshmen, reflecting the positive effects of accumulated career experience (Wang et al., 2023). This may also relate to their richer academic experience and heightened urgency regarding employment.

6. Limitations and Future Research

Although this study contributes to both theoretical and practical aspects, it still has certain limitations. First, the cross-sectional design employed in this study cannot reveal causal relationships between variables. Future research could integrate longitudinal studies to further validate the dynamic mechanisms of teacher support on CDSE (Wang et al., 2024). Second, the sample was drawn from four universities, with geographical and typological limitations, as it did not include economically developed regions in China or vocational education institutions, thereby restricting the generalizability of the conclusions. Additionally, the study’s variables were insufficiently comprehensive. It did not control for potential exogenous factors such as family socioeconomic status and academic discipline (e.g., the CDSE of liberal arts students may be influenced by the job market), which may have led to the omission of important moderating pathways.

Based on the above discussions and limitations, future research could expand in the following directions. First, a mixed-methods design combining quantitative and qualitative approaches is recommended to deeply explore the specific behavioral forms of teacher support and their mechanisms of influence on students’ career behaviors. Second, the scope of research subjects could be extended to students from universities in different provinces or of different types, comparing the differential effects of teacher support across diverse educational ecosystems. Third, further exploration of the moderating or mediating roles of other individual traits (e.g., self-determined motivation, psychological capital) in the impact of teacher support on career decision-making self-efficacy is needed to construct a more comprehensive theoretical model. Fourth, intervention research is recommended. Future studies could follow the same cohort at different stages—such as freshman year, after career planning courses in sophomore/junior years, and before entering the workforce in senior year—to track changes in teacher support, proactive personality, and CDSE.

Given the importance of teacher support for college students’ career decision-making self-efficacy, enhancing teachers’ support capabilities and establishing strategies to improve teacher support are crucial. As Parola et al. (2024) noted, the stronger teachers’ self-efficacy in their role as educators, the more they possess core competencies, enabling them to confidently support students in making appropriate career choices. Moreover, teachers with stronger self-efficacy in their own career choices can more confidently model behaviours, provide information, and maintain positive attitudes. These qualities transfer to students and support them in completing educational and training selection tasks. To this end, experts strongly advocate strengthening the role of career guidance and suggest the following measures: incorporating career education content into initial teacher training; providing suitable professional development training and curricular materials; implementing a whole-school career education system led by career advisors or counselors with expertise in career guidance; and adjusting system-level priorities and responsibilities (Fouad et al., 2008). Educational systems should establish structured career guidance programs and provide

relevant training for in-service teachers (Parola et al., 2024). It is also recommended that teachers be made aware of their critical role during training, such as by offering career-related emotional support during students' school-to-work transitions (Wang et al., 2024). Second, proactive personality cultivation programs should be developed. Given the effectiveness of career interventions on the career development self-efficacy of freshmen, intervention programs fostering proactive personality may also help freshmen and sophomores confidently pursue their careers (Quin et al., 2018). Cultivating proactive personality substantially promotes college students' career development, thereby offering more specific applications for higher education practices.

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Data availability: The availability of data can be obtained by requesting directly to the corresponding author.

Declaration of interest: The author declares that no competing interests exist.

Ethics declaration: This study was verified by the Ethics Committee of Dhurakij Pundit University, Thailand, which, based on the guidelines for research in behavioral sciences, social sciences, and humanities issued by the Thailand National Research and Innovation Office (NRIO) (Document No. 6309.FB 6.1/1/2564, Clause 3, 18 March 2021), determined that the research project falls under the exempt category of humanities and social sciences research and does not require a full ethical review.

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