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Predicting Career Adaptability among Higher Vocational College Students: The Roles of Proactive Personality, Career Decision-Making Self-Efficacy, and Social Support

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Abstract. This study examined how proactive personality, career decision-making self-efficacy, and social support influence career adaptability among higher vocational college students in Sichuan Province, China. Guided by Career Construction Theory and Social Cognitive Career Theory, the research addressed a critical gap in understanding the interplay of individual traits and contextual factors in shaping career readiness within Chinese vocational education. A cross-sectional survey was conducted with 382 students selected through proportional stratified random sampling across four institutions. Validated instruments were used to measure each construct, and data were analysed using Pearson correlation and multiple linear regression. The results showed that all three predictors were significantly and positively related to career adaptability: proactive personality ($\beta = .24$, $p < .001$), career decision-making self-efficacy ($\beta = .23$, $p < .001$), and social support ($\beta = .37$, $p < .001$). The full model accounted for 53% of the variance in career adaptability, with social support emerging as the strongest predictor. These findings reinforce the applicability of both Career Construction Theory and Social Cognitive Career Theory in non-Western, collectivist contexts and underscore the combined developmental and environmental influences on vocational students' career outcomes. Practically, the study highlights the need for integrated, student-centred interventions that strengthen proactive behaviours, enhance self-efficacy, and build supportive networks to promote adaptable and confident career transitions.

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1. Introduction

In the context of globalization and rapid technological advancement, the world of work is undergoing profound changes. Industrial restructuring, the diversification of employment forms, and increasing demand for high-level technical skills have reshaped career trajectories and expectations. As a result, higher vocational education has become a critical force in cultivating skilled labour and promoting regional economic development, particularly in developing economies like China (An & Abdrahim, 2024; Caves et al., 2021). However, in addition to technical training, vocational institutions must also develop students' psychological resources to enable them to navigate increasingly complex career environments.

One such resource is career adaptability, a psychosocial construct comprising concern, control, curiosity, and confidence—dimensions that reflect individuals' readiness to manage career-related tasks, transitions, and challenges (Savickas & Porfeli, 2012). Research has linked higher levels of career adaptability to greater employability, life satisfaction, and psychological well-being (Hirschi et al., 2015; Rudolph et al., 2017). Despite its recognised importance, career adaptability remains underdeveloped among higher vocational college students in China. In Sichuan Province, for example, many students face misalignments between training and employment, low starting salaries, and uncertain career paths (Sichuan Provincial Department of Education & Sichuan Higher Vocational Education Research Center, 2024).

Drawing on Career Construction Theory (Rudolph et al., 2017) and Social Cognitive Career Theory (Lent et al., 2018), this study investigates three key predictors of career adaptability: proactive personality, career decision-making self-efficacy (CDMSE), and social support. Proactive personality reflects a stable disposition to take initiative and seek opportunities (Hu et al., 2021), while CDMSE refers to one's confidence in making career choices, which reduces indecision and supports adaptive behaviour (Shin et al., 2019). Social support from family, peers, and institutions provides external resources and emotional encouragement to face career-related difficulties (Du et al., 2024; Hamzah et al., 2021). Although each factor has been examined separately, few studies have compared their relative predictive power within a unified framework—particularly in Chinese vocational settings.

This study aims to bridge that gap by integrating these variables to identify which factors most significantly influence career adaptability. It also examines whether differences in these predictors emerge across gender, grade level, and residential background, offering insights for more tailored and equitable career interventions. The findings contribute both to theory and to practice by informing the development of culturally appropriate and evidence-based strategies in vocational education.

1.1 Research Questions and Hypotheses

To address the identified gaps and achieve the study's objectives, the following research questions were formulated:

RQ1: Are there significant differences in proactive personality, career decision-making self-efficacy, social support, and career adaptability across gender, grade level, and residential background?

RQ2: What are the relationships between proactive personality, career decision-making self-efficacy, and social support with career adaptability?

RQ3: Which of these variables is the strongest predictor of career adaptability?

Based on these questions, the following alternative hypotheses were proposed:

Ha1: There are significant differences in the mean scores of proactive personality, career decision-making self-efficacy, social support, and career adaptability across gender, grade level, and residential background.

Ha2: Proactive personality, career decision-making self-efficacy, and social support are each significantly and positively correlated with career adaptability.

Ha3: Among the three predictors, at least one significantly predicts career adaptability among higher vocational college students in Sichuan Province.

2. Literature Review

2.1 Theoretical Framework

This study is grounded in Career Construction Theory (CCT) and Social Cognitive Career Theory (SCCT), both of which offer complementary perspectives on career development. CCT, proposed by Savickas (1997), conceptualises career adaptability as a psychosocial resource that helps individuals navigate career-related tasks, transitions, and challenges. It comprises four dimensions—concern, control, curiosity, and confidence (Šverko & Babarović, 2019)—and is shaped by both internal traits (e.g., proactive personality) and external factors such as social support (Rudolph et al., 2017; Ocampo et al., 2020).

In parallel, SCCT emphasises the interaction of personal, behavioural, and environmental influences on career behaviour. Its core constructs—self-efficacy, outcome expectations, and goals—affect interest development, decision-making, and persistence (Lent & Brown, 2019). Self-efficacy, particularly in the form of career decision-making self-efficacy (CDMSE), plays a pivotal role in shaping adaptive career outcomes (Stead et al., 2022), while social support serves as a contextual facilitator (Hlad'o et al., 2020). Together, CCT and SCCT provide an integrated theoretical lens for examining how proactive traits, confidence in decision-making, and support systems jointly influence career adaptability among vocational students in China.

2.2 Relationships among Variables

2.2.1 Proactive Personality and Career Adaptability

Proactive personality refers to a relatively stable disposition characterised by the tendency to take initiative, anticipate future challenges, and actively shape one's environment to achieve personal goals (Wang & Caiga, 2024). Proactive individuals tend to identify opportunities, solve problems independently, and persist in the face of obstacles, making them more capable of managing change and uncertainty (AlKhemeiri et al., 2021; Darmayanti & Salim, 2020).

This trait plays a crucial role in shaping career adaptability—defined by concern, control, curiosity, and confidence (Savickas & Porfeli, 2012)—especially in dynamic and unpredictable job markets. Individuals with high proactivity are more likely to engage in career planning, actively explore options, and respond flexibly to transitions (Fawehinmi & Yahya, 2018; Wen et al., 2022). Empirical studies confirm that proactive personality significantly predicts career adaptability across different student populations, including those in vocational education (Hu et al., 2021; Ling et al., 2022; He & Yu, 2022). Conversely, students with low proactivity often avoid challenges and struggle with transitions, underscoring the importance of fostering proactive behaviours in career development programmes (Hirschi et al., 2015; Wang et al., 2021).

2.2.2 Career Decision-Making Self-Efficacy and Career Adaptability

Career decision-making self-efficacy (CDMSE) refers to an individual's belief in their ability to complete tasks related to career decisions, including self-appraisal, information gathering, planning, and problem-solving (Taylor & Betz, 1983). Grounded in Bandura's (1977) self-efficacy theory, CDMSE functions as a self-regulatory mechanism that enhances motivation, coping, and strategic planning in complex career environments (Lent & Brown, 2020).

Students with high CDMSE are more confident in navigating career choices and are better equipped to handle uncertainty and transitions (Hamzah et al., 2021; Shin et al., 2019). In contrast, low CDMSE is linked to indecision and avoidance behaviours. This is particularly relevant in the Chinese vocational context, where students often lack sufficient career guidance and face limited access to reliable occupational information (Lim, 2024; Du et al., 2024).

Empirical studies across cultural settings have confirmed CDMSE as a strong predictor of career adaptability (Mahfud et al., 2022; Liu et al., 2023; Song et al., 2024). These findings suggest that enhancing CDMSE may be a key strategy in promoting adaptive career behaviours, especially in educational systems with structural uncertainties or evolving employment landscapes.

2.2.3 Social Support and Career Adaptability

Social support refers to the emotional, informational, and instrumental assistance individuals receive from family, peers, and institutions to help them cope with challenges and achieve goals (Hlad'o et al., 2020). In Social Cognitive Career Theory (SCCT), such environmental resources are seen as enablers that interact with individual agency to shape career-related behaviours and outcomes.

Empirical research consistently affirms that social support positively influences career adaptability by enhancing self-efficacy, reducing anxiety, and strengthening goal-directed behaviours (Dewani & Nuzulia, 2024; Xu et al., 2024).

Specifically, family support offers emotional reassurance and practical assistance, which are particularly critical for students from underprivileged backgrounds (Du et al., 2024). Peer support fosters curiosity and confidence through collaborative learning and shared exploration (Hlad'o et al., 2020), while teacher support—via mentoring and structured feedback—guides students in aligning career aspirations with competencies (Wang et al., 2023).

In the Chinese vocational education context, where collectivist values and relational norms shape students' decisions, social support serves not only as a psychological buffer but also as a culturally embedded motivational force (Han & Zhang, 2023; Xu et al., 2024). Therefore, based on the preceding literature review, an integrated conceptual framework is illustrated in Figure 1.

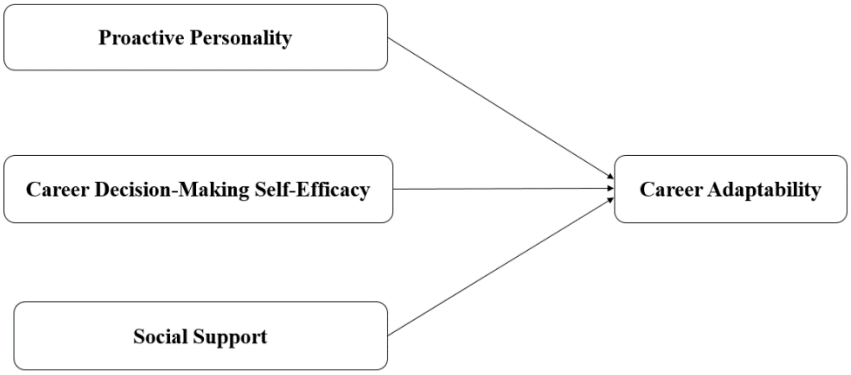

Figure 1: Research framework

3. Method

3.1 Participants

The participants of this study were drawn from four higher vocational colleges in Sichuan Province, China: Guang'an Vocational & Technical College, Chengdu Textile College, Luzhou Vocational and Technical College, and Sichuan College of Architectural Technology. These institutions were purposively selected to represent the eastern, western, southern, and northern regions of the province, thereby ensuring both institutional and geographical diversity. The target population consisted of all students enrolled at the four institutions (N = 59,005). Each student served as the unit of analysis. A proportional stratified random sampling method was employed based on four key demographic strata: institution, grade level (first-year, second year, and third year), gender (male, female), and residential background (urban, rural). This approach ensured that the sample reflected the population's demographic structure.

To calculate the required sample size, Cochran's formula for finite populations was used (Bartlett et al., 2001). The initial sample size for an infinite population was calculated as:

$$n_0 = \frac{(t^2)(p)(q)}{d^2}$$

Where n_0 is the required sample size, t is the critical value at the chosen level of significance (e.g., 1.96 for α = 0.05), p is the estimated proportion (e.g., 0.5), q = 1 – p, and d is the acceptable margin of error (e.g., 0.05). The adjusted sample size for a finite population was then calculated as:

$$n = \frac{n_0}{1 + \frac{n_0}{N}}$$

Where n is the adjusted sample size and N is the population size. This formula indicated that a minimum sample of 382 students would be sufficient to achieve a 95% confidence level with a ±5% margin of error.

To ensure data completeness and representativeness, an oversampling strategy was employed. A total of 528 responses were collected using Wenjuanxing, a widely used online survey platform in China. After data screening for completeness and alignment with stratification quotas, 382 valid responses were retained for analysis. The final sample demonstrated balanced representation across institutions, grade levels, gender, and residential backgrounds, thereby ensuring structural representativeness and statistical reliability for generalising the results to the broader population of higher vocational students in Sichuan Province.

3.2 Data Collection Procedure

Data were collected after obtaining formal approval from four higher vocational colleges in Sichuan Province, China. A self-administered online questionnaire was distributed via Wenjuanxing, a widely used Chinese survey platform. The survey began with a cover page explaining the study's purpose, ensuring confidentiality and anonymity, and stating that participation was voluntary and solely for academic research. Completion of the survey was treated as implied informed consent. Survey links were disseminated via official institutional channels, including WeChat. No personal identifiers were collected; only basic demographic information (institution, gender, grade level, and residential background) was recorded.

Data collection took place over approximately one month (May–June 2025). Upon completion, responses were screened for completeness and consistency. Incomplete or invalid entries were excluded, yielding a final dataset of 382 valid responses in alignment with the pre-defined stratified sampling framework. All data were securely stored and analysed following ethical guidelines for low-risk social science research.

3.3 Instruments

A structured self-administered questionnaire was used, consisting of two sections: Section A covered demographic information (gender, grade level, and residential background), while Section B included four validated scales measuring the key constructs: proactive personality, career decision-making self-efficacy (CDMSE), perceived social support, and career adaptability. All instruments were selected for their theoretical relevance, empirical reliability, and cultural suitability for Chinese vocational college students. A pilot study with 38 participants confirmed satisfactory internal consistency (Cronbach's α ranging from .748 to .978), validating the instruments for use in the main study.

Proactive Personality was measured using the 17-item Proactive Personality Scale (PPS) developed by Bateman and Crant (1993), with a Chinese version validated by Li (2023). Responses were rated on a 7-point Likert scale (1 = Strongly Disagree to 7 = Strongly Agree). The pilot study reported α = .837.

Career Decision-Making Self-Efficacy (CDMSE) was assessed using the revised 39-item CDMSE-R (Taylor & Betz, 1983), which has been validated for use with Chinese vocational students by Peng and Long (2001) and Yang (2018). Responses were captured on a 5-point Likert scale (1 = No Confidence at All to 5 = Full Confidence). Pilot reliability was excellent (α = .978).

Perceived Social Support was measured using the 12-item Perceived Social Support Scale (PSSS), adapted for Chinese populations by Huang et al. (1996) based on the original Multidimensional Scale of Perceived Social Support (MSPSS) developed by Zimet et al. (1988). The version used in this study was drawn from Qian (2024), who applied the scale in recent research with Chinese college students. The instrument consists of three subscales (family, friends, and significant others) and uses a 7-point Likert scale. The pilot study yielded α = .748. Career Adaptability was evaluated using the 12-item Career Adapt-Abilities Scale – Short Form (CAAS-SF) developed by Savickas and Porfeli (2012) and localized by Yu et al. (2020). It measures concern, control, curiosity, and confidence on a 5-point Likert scale (1 = Not Strong to 5 = Strongest). The pilot yielded α = .866.

All instruments have shown strong psychometric validity in both prior studies and the present pilot test, supporting their suitability for large-scale administration in the current study. Table 1 summarizes the characteristics and reliability coefficients of the instruments used.

Table 1: Summary of four instruments

Instrument	Number of items	Scale	Cronbach's α	Source
PPS	17	7-point Likert	.837	Li (2023)
CDMSE-R	39	5-point Likert	.978	Yang (2018)
MSPSS	12	7-point Likert	.748	Qian (2024)
CAAS-SF	12	5-point Likert	.866	Yu et al. (2020)

3.4 Statistical Analysis

Data were analysed using IBM SPSS Statistics 27. Initial screening ensured data completeness and accuracy. Descriptive statistics (means, standard deviations) summarized demographic characteristics and key variables. Pearson correlation analysis examined variable relationships, while multiple linear regression identified significant predictors of career adaptability.

4. Results

4.1 Descriptive Statistics

A total of 382 valid responses were retained for analysis. Of the respondents, 49.0% were male and 51.0% female. With respect to academic level, 33.5% were first-year students, 35.3% were second-year students, and 31.2% were third-year students. Regarding residential background, 78.3% of participants came from rural areas, while 21.7% were from urban areas.

4.2 Group Differences Based on Demographic Characteristics

In addition to examining overall levels and relationships among the key variables, this study explored whether proactive personality, career decision-making self-efficacy (CDMSE), social support, and career adaptability varied by demographic characteristics, namely gender, grade level, and residential background. Accordingly, independent samples t-tests and one-way ANOVA were performed to examine group differences. Tables 4.3 to 4.5 summarize the results.

4.2.1 Differences based on Gender

As shown in Table 2, there were no statistically significant gender differences across any of the four constructs. Male and female students reported similar levels of proactive personality (t (380) = 0.62, p = .53), CDMSE (t (380) = 1.42, p = .16), social support (t (367.89) = –0.89, p = .38), and career adaptability (t(360.31) = –0.37, p = .71). Effect sizes were negligible in all cases (Cohen's d = –0.09 to 0.15), indicating minimal practical differences. These results suggest that gender does not significantly influence the development of career adaptability or its associated psychological and environmental predictors in this population.

Table 2: Differences based on gender

Variable	Male (n = 187) (M±SD)	Female (n = 195) (M±SD)	t (df)	p	Cohen's d [95% CI]
Proactive Personality	82.13± 14.63	81.27± 12.33	0.62 (380)	.53	0.06 [–0.14, 0.26]
CDMSE	121.65± 35.38	116.76± 31.92	1.42 (380)	.16	0.15 [–0.06, 0.35]
Social Support	56.78± 12.89	57.88± 11.20	–0.89 (367.89)	.38	–0.09 [–0.29, 0.11]
Career Adaptability	42.81± 9.14	43.13± 7.52	–0.37 (360.31)	.71	–0.04 [–0.24, 0.16]

Note. Cohen's d and its 95% confidence interval (CI) indicate effect-size magnitude and precision. All values are rounded to two decimal places.

4.2.2 Differences based on Grade-Level

One-way ANOVA revealed no significant differences across grade levels (first-year, second year, and third-year students) for any of the four variables (see Table 3). Although CDMSE scores showed an increasing trend across academic years (M = 115.30, 118.42, and 124.14), the difference did not reach statistical significance, F (2, 379) = 2.19, p = .11. Similarly, no meaningful differences were observed for proactive personality (F = 1.68, p = .19), social support (F = 0.22, p = .81), or career adaptability (F = 0.35, p = .71). These findings indicate that students' perceptions of career resources and adaptability remain relatively stable throughout their academic progression.

Table 3: Differences based on grade level

Variable	First year (n = 128) (M ± SD)	Second-year (n = 135) (M ± SD)	Third year (n = 119) (M ± SD)	F	P
Proactive Personality	79.92 ± 10.64	82.44 ± 14.21	82.75 ± 15.22	1.68	.19
CDMSE	115.30 ± 28.81	118.42 ± 36.25	124.14 ± 35.21	2.19	.11
Social Support	57.01 ± 10.83	57.13 ± 12.79	57.94 ± 12.51	0.22	.81
Career Adaptability	42.62 ± 7.11	43.44 ± 8.80	42.83 ± 9.04	0.35	.71

Note. All values are rounded to two decimal places.

4.2.3 Differences based on Residential Background

As shown in Table 4, residential background had a statistically significant effect only on CDMSE. Rural students reported significantly higher CDMSE (M = 121.26, SD = 34.07) compared to urban students (M = 111.57, SD = 31.37), t (380) = –2.33, p = .02, with a small to moderate effect size (Cohen's d = –0.29). This suggests that rural students may feel more confident in making career-related decisions. One possible explanation is that students from rural areas are often more accustomed to navigating educational and career challenges with limited external resources, which may foster greater independence and decision-making confidence.

No significant differences were found for proactive personality (t = –0.36, p = .72), social support (t = –0.48, p = .64), or career adaptability (t = 1.16, p = .25). These findings suggest that students from urban and rural backgrounds exhibit comparable levels of personal initiative, perceived support, and adaptability, with the main difference observed in their confidence regarding career decision-making.

Table 4: Differences based on residential background

Variable	Urban (n = 83) (M±SD)	Rural (n = 299) (M±SD)	t (df)	p	Cohen's d [95% CI]
Proactive Personality	81.22± 12.94	81.83± 13.66	–0.36 (380)	.72	-0.05 [-0.29, 0.20]
CDMSE	111.57± 31.37	121.26± 34.07	–2.33 (380)	.02	-0.29 [-0.53, -0.05]
Social Support	56.78± 12.65	57.50± 11.90	–0.48 (380)	.64	-0.06 [-0.30, 0.18]
Career Adaptability	43.92± 8.08	42.72± 8.40	1.16 (380)	.25	0.14 [-0.10, 0.39]

Note. Cohen's d and its 95% confidence interval (CI) indicate effect-size magnitude and precision. All values are rounded to two decimal places.

Therefore, Ha1 was partially supported, as a significant difference in career decision-making self-efficacy was found between rural and urban students,

although no significant differences were observed across gender or grade levels for any of the variables.

4.3 Pearson Correlation Coefficient

Pearson correlation analysis was conducted to examine the relationships between proactive personality, career decision-making self-efficacy (CDMSE), social support, and career adaptability among higher vocational college students in Sichuan Province. As shown in Table 5, all three predictors were positively and significantly correlated with career adaptability at the $p < .01$ level. Specifically, proactive personality demonstrated a strong positive correlation with career adaptability ($r = .62$), indicating that students with higher levels of proactive behaviour tend to exhibit stronger adaptability in career development contexts. Similarly, career decision-making self-efficacy was also significantly related to career adaptability ($r = .61$), suggesting that students with greater confidence in their ability to make career-related decisions are more capable of coping with transitions and uncertainty. Notably, social support was most strongly correlated with career adaptability ($r = .66$).

Collectively, these findings underscore the importance of perceived support from family, peers, and institutional networks, especially within collectivist cultural contexts like China, where relational influences often play a central role in shaping career trajectories. These results align with the theoretical assumptions of Career Construction Theory (CCT) and Social Cognitive Career Theory (SCCT), both of which highlight the interaction between personal resources and contextual affordances in the development of career adaptability. Therefore, Ha2 was fully supported, as all three predictors were significantly and positively correlated with career adaptability ($p < .01$).

Table 5: Result of Pearson correlation

Variable	Proactive Personality	CDMSE	Social Support	Career Adaptability
Proactive Personality	1	.64**	.64**	.62**
CDMSE		1	.63**	.61**
Social Support			1	.66**
Career Adaptability				1

Note. N = 382. All correlation coefficients are Pearson's r, $p < .01$ (2-tailed). All values are rounded to two decimal places.

4.4 Multiple Linear Regression

To determine the extent to which proactive personality, career decision-making self-efficacy (CDMSE), and social support predict career adaptability, a multiple linear regression analysis was performed. Before interpreting the regression results, the assumptions of normality, multicollinearity, homoscedasticity, and independence of residuals were tested to ensure the validity of the model.

The normality of residuals was verified using graphical methods. The histogram of residuals appeared approximately bell-shaped, and the normal P–P plot showed points closely aligning with the diagonal line. These findings suggest that the residuals approximated a normal distribution, thereby meeting the assumption of normality (Luu et al., 2021).

To assess multicollinearity, both Tolerance and Variance Inflation Factor (VIF) values were examined. As shown in Table 6, all VIF values were below 2, and all Tolerance values exceeded 0.50, indicating no significant multicollinearity among the predictors (Kim, 2019).

Table 6: Results of multicollinearity based on tolerance and VIF values

Variable	Tolerance	VIF
Proactive Personality	.50	1.99
CDMSE	.51	1.95
Social Support	.52	1.94

Note. VIF = Variance Inflation Factor. Tolerance and VIF values assess multicollinearity.

All values are rounded to two decimal places. $p < .001$ indicates statistical significance.

The assumption of homoscedasticity was tested by examining the scatterplot of standardized residuals against standardized predicted values. As shown in Figure 2, the plot exhibited a random and uniform distribution of residuals, with no funnel-shaped or systematic patterns. This supports the assumption of constant variance (Cook & Weisberg, 1983).

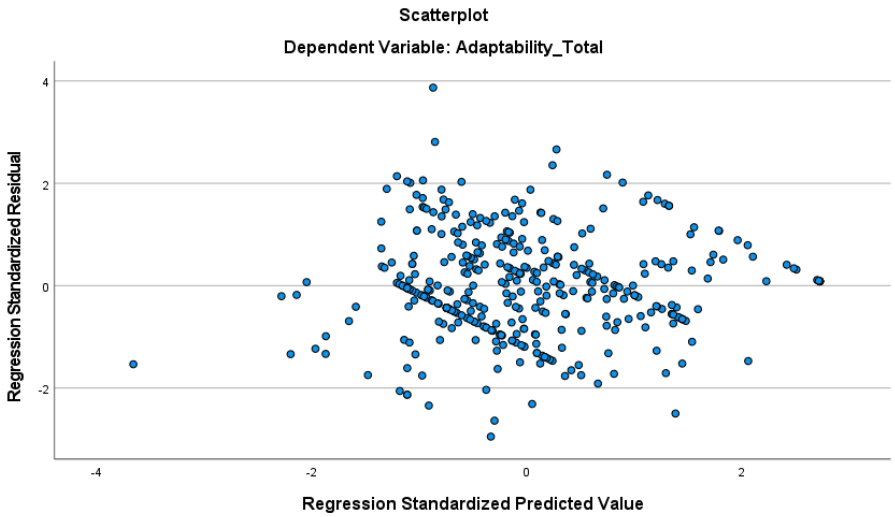

Figure 2: Scatterplot of standardized residuals

Finally, the Durbin–Watson statistic was 1.81, which lies within the acceptable range of 1.5 to 2.5, indicating no serious autocorrelation among residuals (Uyanto, 2020). Together, these diagnostic results confirm that the data met the core assumptions of multiple linear regression and justify proceeding with further

model estimation. As shown in Tables 7 and 8, the regression model was statistically significant, $F(3, 378) = 140.66$, $p < .001$, indicating that the three predictors jointly contributed to the prediction of career adaptability. The model yielded a multiple correlation coefficient of $R = .73$ and an R^2 value of .53, suggesting that approximately 53% of the variance in career adaptability could be explained by the combined influence of the independent variables. The adjusted R^2 was .52, with a standard error of estimate of 5.76.

Table 7: Model summary

Model	R	R^2	Adjusted R^2	Std. Error
1	.73a	.53	.52	5.76

Note. R = multiple correlation; R^2 = explained variance; Adjusted R^2 = adjusted explained variance; Std. Error = standard error of the estimate; Durbin–Watson = test for residual autocorrelation. All values are rounded to two decimal places.

Table 8: ANOVA summary

Source	SS	df	MS	F	p
Regression	13,976.55	3	4,658.85	140.66	< .001
Residual	12,520.24	378	33.12		
Total	26,496.79	381			

Note. SS = sum of squares; df = degrees of freedom; MS = mean square; F = F-ratio; p = significance level. Dependent variable: career adaptability. Predictors: proactive personality, career decision-making self-efficacy, and social support. All values are rounded to two decimal places.

Taken together, the results from the model summary, ANOVA, and regression coefficients demonstrate that the integrated framework offers a robust explanation for career adaptability among vocational college students.

As shown in Table 9, all three predictors were found to have a statistically significant and positive effect on career adaptability ($p < .001$). Among them, perceived social support was the strongest predictor ($\beta = .37$), followed by proactive personality ($\beta = .24$) and CDMSE ($\beta = .23$). The unstandardised coefficients further revealed that a one-unit increase in social support was predicted to lead to a 0.25-unit increase in career adaptability, while one-unit increases in proactive personality and CDMSE corresponded to increases of 0.15 and 0.06 units, respectively.

Table 9: Regression coefficients

Predictor	B	β	Std. Error.	t	p
Proactive Personality	0.15	.24	.03	4.75	< .001
CDMSE	0.06	.23	.01	4.68	< .001
Social Support	0.25	.37	.03	7.42	< .001

Note. B = unstandardized regression coefficient; β = standardized regression coefficient. All values are rounded to two decimal places. $p < .001$ indicates statistical significance.

These findings confirm that all three predictors—proactive personality, CDMSE, and social support—make significant contributions to career adaptability, with social support emerging as the strongest.

Therefore, Ha3 was fully supported, as the multiple regression analysis showed that each predictor had a significant and positive effect on career adaptability. This underscores the central role of relational and contextual resources in shaping adaptive career outcomes among vocational students. The results offer strong empirical support for the proposed theoretical model and affirm that both personal agency and environmental support are integral to fostering career adaptability.

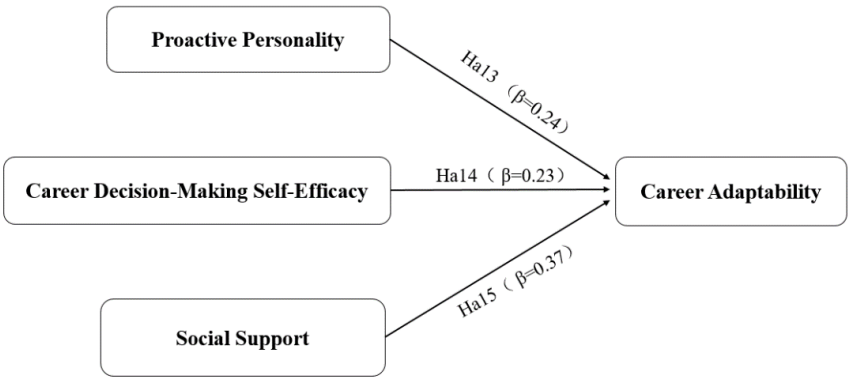

Figure 3: Result of research framework

As shown in Figure 3, the multiple linear regression analysis not only validates the hypotheses but also emphasises the practical and theoretical relevance of fostering supportive environments, strengthening self-efficacy, and encouraging proactive dispositions to enhance students' adaptability in navigating complex career landscapes.

5. Discussion

This study examined how proactive personality, career decision-making self-efficacy (CDMSE), and social support influence career adaptability among higher vocational college students in Sichuan Province, China. Guided by Career Construction Theory (CCT) and Social Cognitive Career Theory (SCCT), the results provide theoretical and empirical support for a multidimensional model in which individual traits, psychological beliefs, and environmental resources jointly shape students' career adaptability.

5.1 Demographic Differences

Analysis by gender, grade level, and residential background revealed few statistically significant differences. No meaningful gender-based differences were found in proactive personality, CDMSE, social support, or career adaptability. This aligns with recent studies suggesting that when vocational students receive equitable access to institutional resources and career support, gender-based differences may diminish (Liu et al., 2023). Though earlier research often reported

stronger self-efficacy or social support among females (Coetzee & Harry, 2015), our results suggest that access to support may moderate such disparities in the vocational education context.

Across grade levels, no significant differences were found, although CDMSE scores showed a non-significant upward trend from first to third year. This may reflect developmental gains as students accumulate experiences such as internships or career guidance, consistent with SCCT's emphasis on mastery experiences (Lent & Brown, 2017). However, the stability of proactive personality and career adaptability across grades supports the view that some traits are relatively stable unless actively cultivated (Bateman & Crant, 1993).

In terms of residential background, rural students reported significantly higher CDMSE than their urban counterparts. While counterintuitive, this finding suggests that motivational pressure from family expectations, combined with targeted institutional interventions, may compensate for resource limitations (Chen et al., 2023). Although the effect size was small to moderate, it nevertheless indicates practical relevance. No other variables differed significantly by residential background, supporting the notion that institutional contexts may buffer geographic disparities. Overall, CDMSE emerged as the most context-sensitive variable, influenced by students' background and developmental stage. In contrast, proactive personality and career adaptability appeared more stable across subgroups.

5.2 Relationships among Variables

Correlation analyses revealed strong, positive associations between each predictor and career adaptability, aligning with prior research and the assumptions of CCT and SCCT. These findings reinforce the integrated nature of career development, where traits, beliefs, and supports jointly influence outcomes.

Proactive personality was significantly associated with career adaptability, echoing the CCT perspective that personality traits provide a foundation for adaptability (Savickas & Porfeli, 2012). Proactive students tend to take initiative, plan, and respond strategically to challenges, contributing to the four dimensions of adaptability: concern, control, curiosity, and confidence (He & Yu, 2022; Ling et al., 2022).

CDMSE was positively related to career adaptability, supporting SCCT's assertion that self-efficacy enhances goal setting, planning, and resilience in uncertain vocational contexts (Stead et al., 2022; Xu et al., 2023). In vocational education, where students may lack clear occupational pathways, strong self-efficacy enables them to persist through ambiguity and make informed decisions.

Social support showed the strongest correlation with career adaptability. In collectivist societies such as China, relational networks (family, peers, teachers) play a central role in shaping students' confidence and behaviour. Prior studies confirm that perceived support boosts career clarity and adaptive functioning (Hu et al., 2021; Feng et al., 2023).

5.3 Predictors of Career Adaptability

Multiple regression analysis confirmed that all three predictors significantly contributed to explaining career adaptability, with social support emerging as the strongest predictor, followed by proactive personality and CDMSE. This model accounted for 53% of the variance, representing a substantial effect in educational and psychological research. The strong influence of social support is consistent with SCCT, which emphasizes the role of contextual affordances in enabling career confidence and action (Brown & Lent, 2017). In the Chinese vocational context, family involvement, teacher support, and peer encouragement provide essential scaffolding for students navigating uncertain labour markets. This underscores the cultural sensitivity of social support's impact and highlights the importance of tailoring career interventions to fit the specific social and institutional realities of the population served.

The contribution of proactive personality highlights the value of dispositional traits that foster initiative and self-regulation. Students with higher proactivity are more likely to explore options, engage in problem-solving, and remain adaptable under pressure (Zhao et al., 2022). CDMSE also played a meaningful role, reinforcing its status as a key developmental resource. It may function as both a direct predictor and a mediator that channels external support into adaptive behaviours (Rahim et al., 2021). While not the strongest predictor, CDMSE remains critical for shaping how students interpret and respond to vocational challenges. Cross-cultural comparisons show that the relative influence of these predictors varies across contexts. In some countries, proactive personality or CDMSE may be more prominent (Ebenehi et al., 2016; Fawehinmi & Yahya, 2018). However, in China's collectivist and resource-sensitive environment, social support assumes greater importance.

From a practical standpoint, the findings suggest that integrated interventions targeting both individual traits (e.g., proactivity, self-efficacy) and environmental support systems can be effective in fostering career adaptability. For instance, mentoring programmes that combine emotional encouragement, career coaching, and experiential learning could simultaneously enhance students' confidence, proactive behaviour, and perceived support. In conclusion, this study demonstrates that career adaptability is shaped by a dynamic interplay of personal and contextual factors. Social support emerged as the strongest predictor, followed by proactive personality and CDMSE. These results validate the integrated theoretical model and offer valuable insights for the design of culturally responsive, developmentally supportive career interventions in vocational education settings.

5.4 Implications

5.4.1 Theoretical Implications

This study contributes to the understanding of career adaptability by integrating Career Construction Theory (CCT) and Social Cognitive Career Theory (SCCT) within the context of Chinese vocational education. Findings affirm that career adaptability is not fixed but shaped by the interaction of individual traits (e.g.,

proactive personality), psychological resources (CDMSE), and contextual supports (social support).

That social support emerged as the strongest predictor reinforces SCCT's emphasis on contextual affordances, especially in collectivist cultures like China, where family expectations and relational norms strongly shape career development. Meanwhile, the stability of proactive personality across subgroups aligns with CCT's conception of enduring traits, while the variability in CDMSE highlights its developmental sensitivity and potential mediating role.
These results support the cultural adaptability of CCT and SCCT and suggest that such frameworks remain relevant in non-Western settings when applied with contextual awareness. In particular, the role of CDMSE as a potential bridge between external support and adaptability outcomes warrants further theoretical refinement.

5.4.2 Practical Implications
Practically, the findings point to several key strategies for vocational institutions: (1) Enhance CDMSE through early interventions such as career workshops, internships, and experiential learning—particularly for first-year students. (2) Tailor support to students' backgrounds.

For example, urban students may benefit from decision-making clarity, while rural students may need broader exposure to opportunities. (3) Invest in social support structures, including mentoring programmes, parental engagement, and teacher training for career guidance, given the strong influence of perceived support. (4) Cultivate proactivity through leadership training, entrepreneurial challenges, and project-based tasks. (5) Institutions should ensure inclusive practices in career services by acknowledging and addressing disparities that may not be immediately observed.

In sum, integrated programmes that build self-efficacy, promote proactivity, and expand support systems can significantly enhance career readiness among vocational students.

5.5 Limitations and Future Research
This study has several limitations. First, its cross-sectional design restricts causal interpretations and does not capture developmental changes over time. Since the sample was drawn solely from higher vocational colleges in Sichuan Province, the findings may have limited generalizability to other regions or institutional contexts in China. Additionally, reliance on self-report instruments introduces the risk of bias. This study examined only direct relationships between variables and did not account for potential mediating or moderating mechanisms. Furthermore, important individual and contextual factors—such as parental education, academic performance, and institutional support—were not included. Lastly, while the theoretical frameworks (CCT and SCCT) proved useful, they may not fully account for the relational and hierarchical influences that shape student agency in collectivist cultures like China.
Future research should employ longitudinal and mixed method approaches to better understand how career adaptability evolves over time and in response to

interventions. Broader, multi-regional studies are needed to improve generalizability, and structural equation modelling could clarify the indirect pathways among variables. Incorporating additional predictors—such as digital access, peer influence, or family socioeconomic status—could provide a more comprehensive understanding. Cross-cultural comparisons are also encouraged to explore how cultural values shape the relative influence of personality, self-efficacy, and support. Finally, intervention studies targeting proactive personality, CDMSE, and social support would help determine what strategies most effectively enhance vocational students' adaptability in real-world contexts.

6. Conclusion

This study investigated how proactive personality, career decision-making self-efficacy (CDMSE), and social support influence career adaptability among higher vocational college students in Sichuan Province, guided by Career Construction Theory (CCT) and Social Cognitive Career Theory (SCCT). All three predictors were significantly and positively associated with career adaptability, with social support emerging as the strongest predictor. These findings emphasize the critical role of relational and contextual resources in shaping vocational students' career development, particularly in collectivist societies like China. The study supports the complementary value of CCT and SCCT in explaining career adaptability as a dynamic interplay of personal traits, psychological resources, and environmental conditions. While proactive personality and career adaptability appeared relatively stable across demographic groups, CDMSE demonstrated greater variability, suggesting its sensitivity to developmental and contextual factors and its potential mediating role.

These results contribute to the cross-cultural applicability of existing theories and highlight the importance of culturally grounded frameworks in vocational contexts. Practically, the findings underscore the need for integrated, student-centred interventions that not only cultivate proactivity and self-efficacy but also strengthen social support from families, peers, and institutions. Special attention should be directed toward first year and urban students who may experience greater challenges in accessing career development resources. Overall, this study reinforces the importance of a holistic, equity-driven approach to career education—one that empowers vocational students to adapt and thrive amid growing uncertainty and complexity in the labour market.

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