

## Article

# Sustainable Career Development for College Students: An Inquiry into SCCT-Based Career Decision-Making

Xin-Hai Wang <sup>1,2</sup>, Hsuan-Po Wang <sup>1,\*</sup> and Wen-Ya Lai <sup>1,2</sup>

<sup>1</sup> Chinese International College, Dhurakij Pundit University, Bangkok 10210, Thailand

<sup>2</sup> School of Tourism and Sport Health, Hezhou University, Hezhou 542899, China

\* Correspondence: hsuan-po.wan@dpu.ac.th

**Abstract:** As an important factor in predicting the future sustainable development of college students, career decision-making (CDM) has attracted widespread attention in the field of vocational education. Based on Social Cognitive Career Theory (SCCT), this study proposed a moderated mediation model to investigate the relationship between work values and CDM, the mediating role of career decision-making self-efficacy (CDMSE), and the moderating effect of career goals. A total of 1300 questionnaires were collected using the snowball sampling method, and 1203 valid questionnaires were collected. The differences in background variables were examined by the independent sample *t*-test, and the validity of the research hypotheses was tested by SEM and multigroup analysis. The results of the study showed the following: (1) There were significant differences in CDM performance among college students of different genders and different grades. (2) CDMSE plays a partial mediating role between work values and career decision-making. (3) Career goals play a moderating role between CDMSE and CDM, and compared with low-level career goals, high-level career goals can promote the impact of CDMSE on CDM. In the future, colleges and universities can promote college students' CDM by shaping work values, improving CDMSE, and guiding the establishment of career goals.

**Keywords:** career decision-making; work values; career decision-making self-efficacy; career goals; sustainable development



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## 1. Introduction

The identity change from school to work is a major turning point in the life of college students [1]. To realize their value in future career development and adapt to the trend of social development as soon as possible, smart career decisions are important [2,3]. The correctness of career decisions among college students is closely related to their future career development [4], which can not only predict income levels, but also change a person's career prospects, such that it can directly affect an individual's life satisfaction in the future [5]. Therefore, college students' career decisions are related to their future sustainable career development [6]. Sustainable career development refers to professional experiences reflected over time through various continuity patterns across several social spaces characterized by individual agency, thus providing meaning to the individual [7] (pp. 1–19), and is essential for personal survival and self-actualization [8]. Due to global economic instability and the complexity of the career decision-making (CDM) process, many college students are unable to make rational career decisions and will increasingly face challenges and obstacles to career sustainability [9,10]. This will also make career decisions during college graduation more difficult [11].

The advent of artificial intelligence and big data in the 21st century has led to the adjustment of China's economic and industrial structure and the emergence of new economic forms [12]; at the same time, China's higher education has entered the middle and late stages of popularization, and the scale of college graduates has increased year by

year. Data show that there were 9.09 million Chinese college graduates in 2021, reaching 10.76 million in 2022 [13]. These graduates will be concentrated in June and July every year to enter the workplace, in the complex employment situation, so college students not only face significant changes in the world economic environment, but also face significant competition in the number of jobs. The employment of college students is actually a career decision-making process [14], so in such a large number of Chinese college graduate employment groups, guiding them to make reasonable career decisions can not only alleviate the competitive pressure on employment, but also help them have a better development in their future careers.

In addition to this, we must also take into account the social mission of college students. As a reserve talent force for national development, college students have advanced knowledge reserves in various fields and the ability to innovate in science and technology, shouldering important social responsibilities to build the country and promote social progress, and their professional values will directly affect their professional attitude, professionalism, and even the development and progress of the entire country and society [15]. However, today's college students pay too much attention to obvious factors such as salary and working environment, and ignore the important impact of hidden conditions such as the future development of the industry, development space, and employment competition opportunities on the long-term development of their careers [16]. Therefore, we should not only consider the employment of college students, but also pay attention to the value orientation of college students in the career decision-making process.

Research shows that values can reflect individual commitments, influence perceptions, and guide behavior [17]. Although the field of occupational research has focused on the importance of values, there are few studies that truly explore the relationship between values and career decision-making in the occupational field [3,18]; for example, the study of Li et al. (2022) confirmed the significant impact of professional values on employability [19], while more research on occupational values focuses on the medical field (e.g., [20–23]). Therefore, this study aims to confirm the relationship between professional values and career decision-making through empirical research, and to increase the attention of professional values in the field of occupational research. It is groundbreaking to explore the impact of professional decision-making from this perspective.

In summary, we can find that under the unstable international economic environment, the reform of China's industrial structure, and the increasing number of college students year after year, the employment of Chinese college students is facing unprecedented pressure. This study aims to explore an effective way to promote college students' career decision-making, to effectively alleviate the employment pressure of college students and enhance their future career competitiveness. The research takes the influence of professional values on career decision-making as the main path, which is blank in the research field of career decision-making, and takes this as the main clue to construct a model that can effectively improve college students' career decision-making. In terms of theoretical significance, this study helps to clarify the key factors influencing college students' career decisions, thereby improving our understanding of the potential association between career values and college students' career decisions. In terms of practical significance, the research results can provide a new reference direction for educators in alleviating the employment pressure of college students and improving their future career competitiveness.

## 2. Theory and Research Hypothesis

### 2.1. Social Cognitive Career Theory (SCCT)

SCCT contains three subject variables: self-efficacy, outcome expectation, and goals [24]. Outcome expectations refer to the positive or negative consequences of engaging in adaptive behaviors [25], and include career-related value orientations, i.e., values, which scholars typically measure by examining people's preferences for specific working conditions or benefits (e.g., social status, money, and autonomy) [26]. Values can be understood as a positive outcome expectation, which can be effectively applied to the CDM research of

college students' sustainable development [2]. Lent and Brown (2013) developed the Career Self-Management (CSM) model based on SCCT [27], primarily "the behaviors people use to help guide their career and educational development," such as how people make career-related decisions, how they coordinate transitions from school to work, and how they pursue personal goals [28]. CSM shows that career goals, self-efficacy beliefs, and outcome expectations are directly or indirectly linked to career decision-making behavior [29]. Relevant empirical studies show that the CSM model can be applied to the study of college students' career decision-making in different countries, which has a good explanatory effect for college students' initial and subsequent career decisions [30,31].

In summary, it is of value to study the CDM behavior of college students from the long-term perspective of sustainable development, and SCCT can be an effective theoretical support for this research [2]. Based on this, we explored the influence mechanism of CDMSE, work values, and career goals on CDM in college students.

## 2.2. Work Values and Career Decision-Making

Work values are the embodiment of the value system in the occupational field, a preference belief that individuals want to have or consider important in career decision-making, have certain guidance for people's professional behavior [16], and play an indispensable role in career choice [32]. It changes depending on events or experiences [33], and childhood and adolescence are considered critical periods for value development [17], but this change decreases with age until it stabilizes [34]. Values have been applied to various fields, such as Knox-Hayes et al. (2021) using grounded theory to explore the relationship between values and sustainable development [35]; Fearon et al. (2018) explored the impact of personal values on career decidedness [36]; Poorchangizi et al. (2019) investigated the importance of professional values from the perspective of nursing students [20]; Gu and Shen (2019) discussed the role of professional values from the perspective of entrepreneurship [37]. The results of the study show the positive effect of values. Therefore, promotion programs that approach career decision-making from the perspective of work values are considered to be traceable.

Job seekers believe that actions that align with their own values will be beneficial to themselves and can help them get what they want [16], so individuals positively evaluate behaviors that align with their values and experience them as rewards and satisfaction [38]. Awareness of this reward system plays a key motivating role in CDM and career development, and can motivate individuals to engage in professional behaviors consistent with them. This includes choosing careers and jobs that align with values [39]. For this reason, work values are considered the main prerequisites for career decisions among university students [36], who are more inclined to look for jobs that align with their professional values during the job search process [40]. Studies have shown that extrinsic career values, such as salary and career prospects, are often a priority when choosing a job [41]. Nisha et al. (2016) took 300 samples from adolescents to explore the impact of values on CDM and showed that some dimensions of values were significantly positively correlated with CDM [42]. Sorthaix et al. (2015) further suggested, through quantitative research, that professional values play a key motivating role in CDM and career development [43]. Based on the above analysis, this study proposed the following hypotheses.

**H1.** *Work values have a significant positive impact on college students' CDM.*

## 2.3. The Mediating Effect of Career Decision-Making Self-Efficacy

SCCT-based self-efficacy in occupational decision-making, defined as "the degree of an individual's belief that he or she is able to successfully complete the tasks required for career decision-making" [44], has received significant attention from all areas of occupational behavior due to its importance in occupational decision-making and occupational intervention [25,45]. Choi and Kim (2013) explained the specific behavior of self-efficacy as a direct mediator in people through self-efficacy theory [46]. When individuals attempt to make a career decision that is appropriate for them, their abilities must be assessed [47],

so CDMSE is considered a pre-proximal influencing factor for career decisions [48–50]. In addition, CDMSE is considered a necessary component of successful career decision-making [51], and examining self-efficacy in career decision-making can provide a deeper understanding of the career decision-making process [52]. Other empirical studies have shown that CDMSE has a significant correlation with career decision-making [53].

In addition, the research of Huang and Guan (2020) confirms the significant correlation between professional values and self-efficacy [54]. There are also studies that prove that CDMSE can play a key mediating role in an individual's CDM process [55]. For example, values may influence career decision-making by stimulating interest and learning, thereby supporting the acquiring of skills and self-efficacy in the field of value alignment [56,57]. Yang and Zhou (2016) further pointed out that the influence of career values on CDM is mostly indirectly realized by influencing an individual's CDMSE [58]. In addition, Wang et al. (2016) conducted a study on the relationship between the work values, CDMSE, and employability of 379 college students in a central province, and found that CDMSE plays a mediating role in the relationship between work values and employability [59]. CDM itself is also a form of employability [60]. In addition, Choi et al. (2013) further confirmed that the influence of intrinsic work values on CDM is mediated by the CDMSE [61]. In summary, the following assumptions were made in this study.

**H2.** *CDMSE plays a mediating role in professional values and CDM.*

#### 2.4. Moderating Effect of Career Goals

The embodiment of goals in professional behavior, which can be called career goals, is a basic component of career management and plays an important role in career management [62]. Colakoglu and Caliguiri (2012) defined career goals as “the primary purpose that a person strives to achieve in a chosen occupation” [63]. It is a combination of occupational levels and types that an individual wishes to pursue and strive for [64]. Goal-setting theory suggests that when individuals set specific, higher-level goals, they perform better than those with no goals or vague goals, and the higher the level of goals set by individuals, the better their performance [65]. In addition, goal-setting theory states that goals are direct moderators of behavior, and setting specific and challenging goals through feedback has a higher task performance than general or simple goals [66].

In a network of social relationships, career development is in a fluctuating state, while setting career goals can keep it on an overall upward trajectory [67]. Career decision-making faced by college students is a challenging task, people with strong career goals have stronger beliefs to overcome obstacles in the face of setbacks, and their self-efficacy is enhanced, which, in turn, promotes the likelihood of career success [68]. Other studies have pointed out that individuals with high career goals tend to be accompanied by high CDMSE in CDM and, therefore, have a clearer positioning in the CDM process [69,70]. Based on the above research, this study proposed the following hypothesis.

**H3.** *Career goals play a moderating role in CDMSE and CDM.*

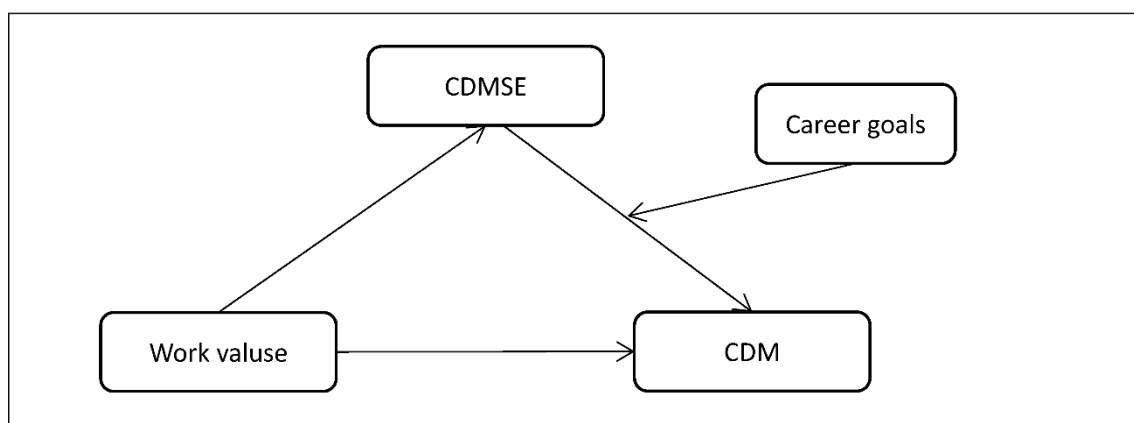
#### 2.5. Background Variables

The development and formation of CDM are long processes, and each person's life is unique from the perspective of special events and experiences. The differences in the events experienced by individuals can have an impact on CDM, which is reflected in different genders, ages, and educational backgrounds [71]. Pan (2022) believes that college students will find it more and more difficult to make career decisions as their grades increase [72]. The results of Chen (2021) showed that there is a significant difference in the degree of difficulty exhibited by men and women in CDM [73]. At the same time, Chen's (2021) research also pointed out that different groups of college students also have certain differences in CDM [73]. In addition, children with higher family economic status have more advantages in career decision-making, mainly because their parents have a certain economic foundation that can encourage the children to explore careers, and may

provide them with richer career information and resources, resulting in differences in career decisions [74]. Therefore, this study included gender, grade, family income, and educational level into background variables to explore differences in CDM.

## 2.6. Research Model

Based on the above hypothetical inferences, combined with the CSM model of SCCT, the route framework diagram of this study (Figure 1) was constructed, and the research assumptions were as follows: Work values have a significant positive impact on college students' CDM; CDMSE plays a mediating role in professional values and CDM; career goals play a moderating role in CDMSE and CDM.



**Figure 1.** Research framework diagram.

## 3. Research Method

### 3.1. Participants and Procedure

Questionnaire Star APP is a tool widely used in online questionnaires in China, which has the characteristics of convenience, speed, and stability. Based on this tool, three universities in Guangxi, China were selected as sample units and snowball sampling was used for sample collection. First, the URL address of the questionnaire was sent to the teachers of the sample universities, and the teachers sent it to some students. When these students filled them out, we encouraged them to send the questionnaire to the class QQ group, WeChat group, and other social media, because these media are commonly used communication tools, with fast transmission speed, crowd concentration, and other characteristics, so the number could be fully guaranteed when the sample is collected. The survey period was from 12 June 2022 to 20 June 2022.

The questionnaire survey method was used with college students from three universities in Guangxi, China, and the snowball sampling method was used to collect the samples. Participation was voluntary, and the data responses were anonymous in accordance with the ethical standards of the Declaration of Helsinki [75]. Participants filled in information about their gender, grade, household income, educational level, and scored measures of work values, CDMSE, career goals, and CDM. A total of 1300 students filled out the questionnaire, and after screening, 97 questionnaires were returned too late; thus, 1203 valid questionnaires were retained, giving a response rate of 93%. The sample covered undergraduate and junior college students in their first to fourth years. The demographic information is shown in Table 1.



**Table 1.** Background information of participants (N = 1203).

Variables		Quantity	Percent
Gender	Male	329	27%
	Female	874	73%
Grade	(Low) Freshman and sophomore year	545	72%
	(High) Junior and senior years	249	28%
Household income (RMB)	Below 5000 (including 5000)	644	54%
	More than 5000	559	46%
Educational level	Junior college	480	40%
	Undergraduate course	723	60%

### 3.2. Instruments

#### 3.2.1. Career Decision-Making Self-Efficacy Scale—Short Form (CDMSE-SF)

Betz et al. (1996) developed the CDMSE-SF, which contains five dimensions: self-evaluation, career information, goal selection, planning, and problem solving, for a total of 25 questions (e.g., preparing a good job resume). Using a Likert five-point scale, respondents concluded that higher scores for the variables were associated with higher self-efficacy, with a scale reliability of 0.94 and cumulative explanatory variation of 62% [76].

#### 3.2.2. Career Value Scale

Song (2020) developed a scale to measure work values, including five dimensions of freedom, cognition, work team relevance, instrumentality, and altruism, over a total of 27 questions (e.g., good working environment and comfort). A Likert five-point score is used, and the score indicates that the item reflects the relative importance of work values to a certain extent. The total reliability of the scale is 0.94, and the cumulative explanatory variation is 66.85% [77].

#### 3.2.3. Career Goals Scale

Yu (2004) developed a one-dimensional scale to measure career goals, consisting of five items (e.g., I set a career goal and tried to achieve it). Using a Likert five-point scale, the higher the score, the higher the level of career goals. The internal consistency reliability of the scale is 0.80 [78].

#### 3.2.4. Career Decision-Making Scale

The CDM Scale compiled by Xu (2020) contains two dimensions, namely satisfactory decision-making and active creation, with a total of 12 questions (e.g., I don't think there is the best career choice). It also uses Likert five-point scoring. The internal consistency coefficients of the two dimensions of satisfactory decision-making and active creation are 0.79 and 0.80, respectively, and the cumulative explanatory variation is 44.07% [79].

### 3.3. Data Analysis

In research in the social sciences, structural equation modeling (SEM) is considered a powerful and widely used tool [80]. It is often used to help measure the effects between variables and the structural relationship of models [81], i.e., to evaluate the validity of theories or hypotheses through the use of data [82]. Based on the characteristics of the above statistical methods, SEM was used to test the relationship between variables. The test criteria and complete validation analysis results are as follows.

## 4. Results

### 4.1. Reliability and Normality Test

In order to test the internal consistency of each variable, Cronbach's  $\alpha$  was used to perform reliability analysis on each scale; Cronbach's  $\alpha$  values of 0.7 and above are acceptable [83]. The Cronbach's  $\alpha$  of each variable in this study is shown in Table 2, ranging from 0.855 to 0.964, indicating good reliability.

**Table 2.** Summary table of reliability and normality.

	M	SD	Number of Questions	Mardia Coefficient	Cronbach's $\alpha$
Threshold	-	-	-	-	>0.70
Career Goals	2.970	0.766	5	19.821	0.907
Career Value	3.744	0.398	21	248.950	0.886
CDM	3.389	0.640	9	61.356	0.855
CDMSE	3.458	0.645	24	348.047	0.964

The estimation method for selecting the structural equation model was based on data allocation, with Maximum Likelihood Estimate (MLE) as the main criterion if the sample data are multivariate normal allocations, and the asymptotic distribution freedom method (ADF) if the data allocation is non-multivariate normal [84]. Mardia and Foster (1983) argued that the Mardia coefficient can be used to test the hypothesis of multivariate normality, and when the Mardia coefficient is less than  $P \times (P + 2)$  [85], the data can be considered to conform to multivariate normality [86], where  $P$  is the number of observed variables. As shown in Table 2, the Mardia coefficients of each variable in this study were less than their corresponding  $P \times (P + 2)$  values, so the model estimation method used MLE to measure the data.

#### 4.2. Convergent Validity

Studies have shown that the convergent validity of variables can be tested by Standardized Factor Loading (SFL), Average Variance Extracted (AVE), and Composite Reliability (CR) [87]. As shown in Table 3, the observed variables SFL of each variable were greater than 0.5, and the  $t$  values all reached a significant level. The AVE of each variable exceeded 0.5 and the CR value also exceeded 0.6, so the work values, CDMSE, CDM, and career goal scales all had good convergent validity [87,88].

**Table 3.** Convergent validity table.

	SFL	t	CR	AVE
Threshold	>0.50	>1.96	>0.60	>0.50
Career Goals	0.743–0.853	29.059–37.161	0.907	0.662
Career Value	0.557–0.904	20.598–39.989	0.760–0.913	0.517–0.640
CDM	0.660–0.813	21.842–31.149	0.763–0.873	0.520–0.536
CDMSE	0.713–0.852	29.570–36.156	0.864–0.915	0.632–0.684

#### 4.3. Discriminant Validity

Fornell and Larcker (1981) recommended that the AVE square root of each facet be greater than the number of correlation coefficients for each facet, accounting for at least 75% of the overall comparison [89]. From the results of Table 4, there was good difference validity between the variables in this study.

**Table 4.** Discriminant validity table.

	A	B	C	D	E	F	G	H	I	J	K	L	M
A	0.813												
B	0.313 **	0.8											
C	0.094 **	0.127 **	0.766										
D	0.081 **	0.112 **	0.398 **	0.78									
E	0.092 **	0.123 **	0.433 **	0.368 **	0.791								
F	0.089 **	0.171 **	0.295 **	0.246 **	0.292 **	0.719							
G	0.082 **	0.014	−0.026	0.033	0.001	0.001	0.72						
H	0.233 **	0.374 **	0.108 **	0.093 **	0.061 **	0.126 **	0.482 **	0.732					
I	0.512 **	0.387 **	0.056	0.048	0.033	0.077 **	0.271 **	0.483 **	0.795				
J	0.474 **	0.356 **	0.004	0.015	0.015	0.078 **	0.267 **	0.443 **	0.780 **	0.827			
K	0.485 **	0.328 **	0.028	0.02	0.02	0.081 **	0.281 **	0.430 **	0.787 **	0.802 **	0.805		
L	0.448 **	0.372 **	0.125 **	0.114 **	0.095 **	0.144 **	0.148 **	0.389 **	0.699 **	0.639 **	0.721 **	0.825	
M	0.452 **	0.425 **	0.099 **	0.072 *	0.085 **	0.130 **	0.209 **	0.473 **	0.723 **	0.679 **	0.738 **	0.797 **	0.807

Note1: \*  $p < 0.05$ ; \*\*  $p < 0.01$ . The diagonal value is the square root of AVE. A: Career goals; B: Cognitive; C: Free; D: Instrumentality; E: Altruism; F: Working team; G: Satisfactory decision-making; H: Active creation; I: Planning; J: Career information; K: Self-evaluation; L: Target selection; M: Problem-solving.

#### 4.4. Common Method Variance (CMV)

As all key variables in this study were generated by a single participant's self-report, the relationship between the variables was inevitably affected by common method bias [90]. Harman's one-factor test is often used to test the CMV of a sample. The test data showed that the Kaiser–Meyer–Olkin (KMO) value was (0.945 > 0.8) and Bartlett's test of sphericity was significant ( $p < 0.001$ ). A total of 10 non-rotating factors were extracted, of which the explanatory power of the first factor was 27.490%, which does not exceed the critical value of 50%; that is, the CMV problem was acceptable [90].

#### 4.5. Difference Analysis

The differences in career decision-making under different background variables were examined by independent sample  $t$ -tests, and the results of gender were  $t = 5.416$ ,  $p = 0.000$ . The results of grade were  $t = 2.223$ ,  $p = 0.023$ . This showed that there were significant differences in career decision-making among college students of different genders and grades. However, there were no significant differences in career decisions between college students at different educational levels ( $t = 1.841$ ,  $p = 0.066$ ) and household incomes ( $t = 0.277$ ,  $p = 0.782$ ).

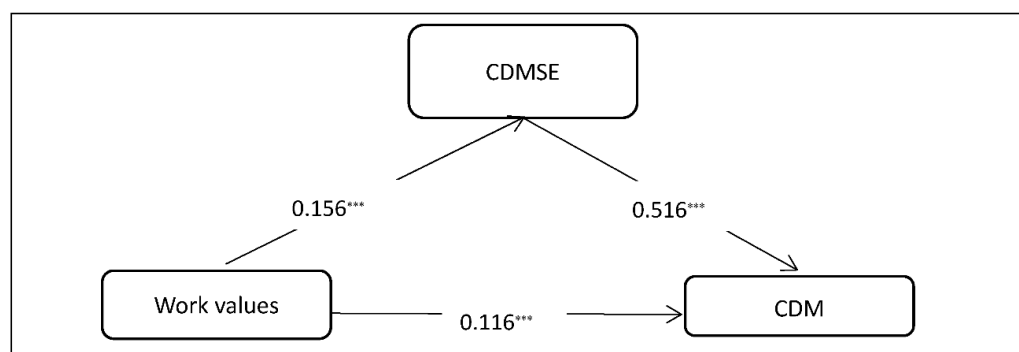
#### 4.6. The Mediating Role of CDMSE and the Moderating Role of Career Goals

##### 4.6.1. Model Fit Analysis

In the verification of model fit, the value of  $\chi^2/df$  is required to be less than 5; the values of GFI, AGFI, NFI, NNFI, CFI, IFI, and RFI should be greater than 0.8; the value of PNFI and PGFI should be greater than 0.5 [83]. However,  $\chi^2$  values fluctuate depending on the sample size, and samples that are too large may be rejected and, therefore, not included in the examination criteria [91]. The fitted SEM indices for this study were GFI = 0.903, AGFI = 0.852, NFI = 0.892, NNFI = 0.869, CFI = 0.899, IFI = 0.899, RFI = 0.861, PNFI = 0.690, and PGFI = 0.591. Therefore, the model had a good fit.

##### 4.6.2. Direct and Indirect Effects

The path relationship between variables was examined by SEM, as shown in Figure 2. The direct effect of work values on CDM was  $\beta = 0.116$ , \*\*\*,  $p < 0.001$ ; the effect of work values on CDMSE was  $\beta = 0.156$ , \*\*\*,  $p < 0.001$ ; the effect of CDMSE on CDM was  $\beta = 0.516$ , \*\*\*,  $p < 0.001$ . In addition, the above effects were verified using the bootstrap method (Table 5). The direct effect of work values on CDM was 0.116 and its 95% confidence interval was (0.056–0.175). The mediating effect of CDMSE was 0.081, with a 95% confidence interval (0.045–0.120). The total effect of work values on CDM was 0.197, with a 95% confidence interval of (0.124–0.271), and the 95% confidence interval for each path effect did not contain "0"; that is, the effect of each path was significant [92]. Based on the above data, work values can positively and significantly affect CDM. The CDMSE plays a partial mediating role between work values and CDM, and the mediating effect accounts for 40.9% of the total effect. Hypothesis 1 and hypothesis 2 were verified.



**Figure 2.** Research model validation. Note: \*\*\*  $p < 0.001$ .



**Table 5.** Bootstrap verification.

	Estimate	95% Confidence Interval Bias-Corrected Percentile Method	
		Lower Bounds	Upper Bounds
Career Value → CDMSE → CDM	0.081	0.045	0.120
Career Value → CDM	0.116	0.056	0.175
Career Value → CDMSE	0.156	0.086	0.232
CDMSE → CDM	0.516	0.056	0.175
Career Value → CDM (Total)	0.197	0.124	0.271

#### 4.6.3. Moderating Role of Career Goals

Using SPSS 22.0 software, the K-means classification method was used to divide career goals into low-score and high-score groups. The number of high-score group samples was 726 and the number of low-score group samples was 477, and the independent sample *t*-test confirmed that the two groups had significant differences ( $p < 0.001$ ); that is, the grouping was effective [93]. Before the adjustment effect was judged, the low grouping sample model and the high grouping sample model of the occupational target were first tested for model fit, and the verification results are shown in Table 6. Both sample models had a good fit [83,94].

**Table 6.** Occupational goal high-grouping and low-grouping model adaptation test table.

	Threshold	Low-Grouped Sample Verification Values	High-Grouped Sample Verification Values
GFI	>0.800	0.902	0.892
AGFI	>0.800	0.849	0.836
RMR	>0.080	0.031	0.051
NFI	>0.800	0.881	0.875
NNFI	>0.800	0.870	0.851
CFI	>0.800	0.900	0.885
RFI	>0.800	0.846	0.838
IFI	>0.800	0.900	0.885
PNFI	>0.500	0.681	0.676
PGFI	>0.500	0.589	0.584

The original work values, CDMSE, and CDM model were used as the benchmark model. On the basis of the benchmark model, according to the two groups of low score and high score for career goals, the influence coefficient of work values on the CDMSE was set to be equal in the two groups, and this was used as the interference model. By establishing an unrestricted model (i.e., the baseline model) and a restricted model (i.e., the interference model), the chi-square values and degrees of freedom of the two models were compared to obtain the difference in the chi-square values of the two. If the test results of this difference in chi-square value were statistically significant, then it could be inferred that the adjustment effect was significant, and vice versa [93]. As can be seen from Table 7, the chi-square value of model 1 (the basic model) was 808.894 (DF = 102), the chi-square value of model 2 (interference model) was 817.748 (DF = 103), the difference between model 1 and model 2 was 1 degree of freedom, and the difference between the chi-square values of the two models was 8.854. The results showed that when the difference in degrees of freedom between the two models was 1, the difference between the chi-square values was greater than 3.84 ( $\alpha = 0.05$ ), so the difference in chi-square values was significant. As the gap between the two models only added a restriction (low grouping = high grouping) to the second model, if the chi-square values of the two models differed significantly, it meant that the limit (the assumption that the path coefficients of the two groups are equal) was not true. Therefore, the path estimation values of CDMSE → CDM in the high-career-goal group and the low-career-goal group were not equal, and it can be inferred that the moderating effect of career goals is significant.

**Table 7.** Single-path identity coefficients (CDMSE → CDM).

Model		$\chi^2$	DF	$\Delta\chi^2$	$\Delta DF$	$p$
Model 1	baseline model	808.894	102	8.854	1	0.003 **
Model 2	interference model	817.748	103			

Note. \*\*  $p < 0.01$ .

The path coefficient sizes of the high- and low-occupational-goals groups were further compared, and the results are shown in Table 8. The path coefficient of CDMSE on CDM was 0.551 ( $p < 0.001$ ) in the high-occupational-target-group model and 0.3621 ( $p < 0.01$ ) in the low-occupational-target-group model. That is, the influence of CDMSE on CDM when career goals are low was lower than that of high career goals. Thus, it can be verified that career goals play a role of interference. Hypothesis 3 was verified.

**Table 8.** Interference path coefficient analysis table (CDMSE → CDM).

Path	High Grouping of Career Goals	Low Grouping of Career Goals
	Estimates	
CDMSE → CDM	0.551 ***	0.362 **

Note: \*\*  $p < 0.01$ ; \*\*\*  $p < 0.001$ .

## 5. Discussion

### 5.1. Differences in CDM across Background Variables

The results of the study showed that there were significant differences in CDM among college students of different genders, consistent with Kazi and Akhlaq's (2017) study [95]. This may have been due to the fact that female college students may have more hesitation and lack preparation and self-understanding in the career decision-making process, have lower awareness of personality characteristics such as the possibility of self-development within a certain time limit in the future, and are more likely than male students to regret their decisions [96]. Yu (2006) argued that due to the existence of gender stereotypes, compared with male students, female college students have a relatively narrow range of future career choices, and gender stereotypes restrict female college students' exploration of future career information [97]. In addition, female college students may be socialized to present as more introverted and be less likely to voice opinions, while male college students may have been socialized to be more assertive and more decisive in dealing with problems.

In addition, there were significant differences in CDM among college students in different grades, consistent with the findings of Yang and Xie (2017) [98]. With the increase in grades, college students participate in social practices and campus culture training, and receive more opportunities for systematic vocational training, which strengthens their vocational ability. In addition, because juniors and seniors are under pressure to enter the world and enter the workplace, they have a stronger sense of urgency, which will make these senior students more active in seeking information about careers and give them a richer choice in terms of career decisions.

### 5.2. The Positive Effect of Work Values on CDM

The results show that work values have a positive and significant impact on college students' CDM. This validates the views of scholars such as Lewis-Smith et al. (2021) and Rietveld and Hoogendoorn (2022) that values can positively guide professional behavior [17,99]. Values are the inner scale for judging and evaluating whether things are good or bad, and determine and command people's attitudes, motivations, and behavior patterns [100]. College students are an important group in the younger generation and are in a critical period of value establishment, and professional value orientation is crucial to future career development, but the values of college students are not completely determined, especially in the face of multiple career choices. Sometimes, they do not know where to go, resulting in a confused mentality, which is mainly due to the lack of discernment and analysis skills, insufficient life experience, etc. [101]. Therefore, in the

education link of career planning, colleges and universities should tilt more class hours toward the interpretation and analysis of careers, and guide students to interpret careers from a dynamic and comprehensive perspective. Through career learning and planning, let students determine a clear career positioning, provide students with favorable employment conditions through policy publicity, contact professional internship work as soon as possible, and increase students' job search weight. Task-driven teaching has strong support for the improvement of employability, and applies task-driven teaching to mental health education and career planning education to help students establish correct value goals and emotional goals and cultivate positive work values [16].

### 5.3. The Mediating Role of CDMSE

The research showed that CDMSE plays a partially mediating role between work values and CDM. It confirms the conclusions of scholars such as He et al. (2021) and Hamzah et al. (2021) that self-efficacy in career decision-making can play a mediating role in the occupational field [102,103]. Therefore, improving an individual's CDMSE is critical to helping individuals make career transitions and transitions between workplaces [104]. For college students, work values can be reflected in their preferences and expectations for future jobs and workplaces [105], so they will further promote their CDMSE by tending to collect employment information consistent with their work values, and high self-efficacy can help them make an accurate self-assessment of themselves and use their abilities or skills to build confidence in completing career decisions, which, in turn, makes college students feel less difficulty in career decision-making [72]. The intrinsic reason for this may be because values have a certain motivating function that can promote positive moods in individuals; that is, values can stimulate the improvement of self-efficacy [106], increasing confidence to complete professional decision-making behaviors.

### 5.4. Moderating Role of Career Goals

The research showed that career goals promote the impact of CDMSE on CDM. Specifically, when a career goal is high, the impact of CDMSE on CDM is greater than the impact on CDM when career goals are low. Previous studies have found that higher goals are associated with positive emotions, while lower goals signify stress and worry [107,108]. Positive and optimistic emotions can effectively promote CDMSE [25]. Therefore, this study further verifies the conclusions of the predecessors. As young people have not yet developed a stable lifestyle, they are at a stage where career choices and goals are shaped [109]. Goal setting is an important adaptive skill, so the promotion of this skill could be incorporated into early education programs to develop more active, resilient, and adaptable young people, in order to prepare them for the turbulence of future professional life [110].

## 6. Contributions and Suggestions

### 6.1. Contributions

#### 6.1.1. Theoretical Implications

First, the hypotheses of this study are tested and supported. Studies have shown that (Table 9) work values have a positive predictive effect on CDM, and CDMSE has a partial mediating effect on it. In addition, career goals regulate the effect of CDMSE on CDM. In particular, high-level career goals can increase the effect of CDMSE on CDM compared to lower-level career goals.

**Table 9.** Summary table of results.

Hypothesis		Conclusions
H1	Work values have a significant positive impact on college students' CDM.	assumption holds
H2	CDMSE plays a mediating role in professional values and CDM.	
H3	Career goals play a moderating role in CDMSE and CDM.	

Second, the findings help improve our understanding of the antecedents of college students' career decisions. Although there appears to be a logical link between kaleidoscopic career orientations and career decisions, no studies have theoretically or empirically linked career values to career decisions. Therefore, our study fills a research gap.

Finally, using SCCT, we explore possible mechanisms by which work values are associated with career decision-making. The analysis results show that CDMSE plays a significant mediating role in this pathway, and career goals can play a moderating role in the process of CDM. By incorporating variables from different theoretical perspectives while testing their ability to explain career decisions, our study clarifies their respective roles and is somewhat innovative in its research model.

#### 6.1.2. Practical Implications

The findings highlight the importance of career values in improving career decision-making among college students. As college students' work values are thought to influence long-term career choices and employability, a comprehensive description of work values may help develop career counseling interventions to help improve students' career paths and employment arrangements [109]. In addition, in order to facilitate career decision-making among college students, universities must help students establish reasonable career values to guide their careers. For example, universities can offer individual career counseling, career-related training, and seminars to help students understand their career values and develop their own definition of career success. Through these trainings and activities, students also gain access to career-related information and competencies that improve their career decision-making and self-efficacy.

#### 6.2. Suggestions

The development of students and the dynamic nature of social development require that students' career development education should not only be short-term but also penetrating and systematic at all stages of student development, to improve career development education in an all-round and whole-process manner and promote student employment [111], i.e., career development must be a sustainable, long-term process [2]. Colleges and universities must maintain sustainability in the education of career decisions to ensure their future career success and development [112]. For college students who are about to enter the workplace, the following three suggestions are put forward based on the results of this study.

First, value orientation is relatively stable after the formation of personal values, and it plays a role for a relatively long period of time. Value orientation and behavior are not easy to change [113]. Therefore, colleges and universities should shape the values of college students as soon as possible, for example, by utilizing educational guidance advantages of campus news media and highlighting the government's guiding role.

Secondly, CDMSE as an intervention variable makes a positive contribution to CDM among college students. Therefore, in university vocational education, we should cultivate a positive and optimistic attitude. In daily education, teachers should be more encouraging and can strengthen college students' CDMSE by inviting outstanding alumni to present and carry out vocational lectures.

Finally, high-level career goals are linked with better career decision-making performance than low-level career goals. Therefore, we should rely on educators to have richer social experience than students, and use targeted case explanations, themed class meetings, employment guidance, and other methods to help students concretize goals and directions, so that students can understand their own connection with society and realize that people themselves are goals, and so they learn to treat every life choice carefully and take responsibility for their lifelong development.

## 7. Research Limitations and Future Study

Although this study achieved its intended purpose, there were still some limitations, and some suggestions for future research are put forward in view of the limitations of this study. First, this study used a self-report questionnaire. Further, quantitative research emphasizes that the purpose of hypotheses, variable control, and causality is to reveal the objective nature of things, and there was a lack of understanding and explanation of the meaning of factual phenomena in this study. Interviews could be introduced in future studies and mixed studies adopted, which could not only verify the causal relationship between variables, but also introduce the subjective perspective and subjective interpretation of participants.

Second, from Table 1, the sample size of subjects of different sexes and different grades in this study was unevenly distributed, so the results of the difference analysis may be somewhat imprecise. In the future, when collecting sample information, we should recruit sample categories more evenly so the results of the difference analysis will be more rigorous.

Finally, the sample selected in this study was college students in Guangxi. Guangxi is located in the western region of China, and its economic development is relatively behind that of the eastern region. There is a lack of educational resources and social resources, and there has also been a certain delay in the specific implementation of some policy measures introduced by the state. At the same time, there are also some gaps in the quality of higher education in more developed areas, and Guangxi is dominated by ethnic minorities, which may be different from Han college students in terms of behavior, value orientation, and professional cognition. Therefore, the sample had certain limitations, and the coverage of the sample could be expanded in the future to increase the breadth of the research results.

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## Abbreviations

Note: There are many abbreviations in the text, in order to improve the reading quality of readers. The abbreviated words are summarized as follows: (1) Social Cognitive Career Theory, abbreviation “SCCT”. (2) Career decision-making, abbreviation “CDM”. (3) Career decision-making self-efficacy, abbreviation “CDMSE”. (4) Career Self-Management model, abbreviation “CSM”.

## References

1. Presti, A.L.; Capone, V.; Aversano, A.; Akkermans, J. Career competencies and career success: On the roles of employability activities and academic satisfaction during the school-to-work transition. *J. Career Dev.* **2022**, *49*, 107–125. [\[CrossRef\]](#)
2. Shen, X.; Gu, X.; Chen, H.; Wen, Y. For the future sustainable career development of college students: Exploring the impact of core self-evaluation and career calling on career decision-making difficulty. *Sustainability* **2021**, *13*, 6817. [\[CrossRef\]](#)
3. Karabiyik, T.; Kao, D.; Magana, A.J. First-Year Exploratory Studies about Students' Career Decision Processes and the Impact of Data-Driven Decision Making. *Educ. Review.* **2021**, *5*, 418–433. [\[CrossRef\]](#)
4. Verbruggen, M.; De Vos, A. When people don't realize their career desires: Toward a theory of career inaction. *Acad. Manag. Rev.* **2020**, *45*, 376–394. [\[CrossRef\]](#)



5. Eva, N.; Newman, A.; Jiang, Z.; Brouwer, M. Career optimism: A systematic review and agenda for future research. *J. Vocat. Behav.* **2020**, *116*, 103287. [\[CrossRef\]](#)
6. Park, I.J.; Gu, M.; Hai, S. How can personality enhance sustainable career management? The mediation effects of future time perspective in career decisions. *Sustainability* **2020**, *12*, 1167. [\[CrossRef\]](#)
7. Van der Heijden, B.I.; De Vos, A. Sustainable Careers: Introductory Chapter. In *Handbook of Research on Sustainable Careers*; Edward Elgar Publishing: Cheltenham, UK, 2015; pp. 1–19.
8. Rusu, M. The process of self-realization—From the humanist psychology perspective. *Psychology* **2019**, *10*, 1095–1115. [\[CrossRef\]](#)
9. Trevor-Roberts, E.; Parker, P.; Sandberg, J. How uncertainty affects career behaviour: A narrative approach. *Aust. J. Manag.* **2019**, *44*, 50–69. [\[CrossRef\]](#)
10. Kiani, A.; Liu, J.; Ghani, U.; Popelnukha, A. Impact of future time perspective on entrepreneurial career intention for individual sustainable career development: The roles of learning orientation and entrepreneurial passion. *Sustainability* **2020**, *12*, 3864. [\[CrossRef\]](#)
11. Jelks, S.M.; Crain, A.M. Sticking with STEM: Understanding STEM career persistence among STEM Bachelor's Degree Holders. *J. High. Educ.* **2020**, *91*, 805–831. [\[CrossRef\]](#)
12. Zhao, M. A Study on the Strategies for Improving the Employment Quality of College Students in China. *Jiangsu Higher Educ.* **2019**, *10*, 67–72. [\[CrossRef\]](#)
13. Zhong, Y.H.; Tang, F.F.; Wu, K.M. Analysis of the Influencing Factors and Mechanism of Dynamic Changes of College Students' Entrepreneurial Intention. *J. Educ. Sci. Hunan Norm. Univ.* **2021**, *20*, 113–122. [\[CrossRef\]](#)
14. Jemini-Gashi, L.; Duraku, Z.H.; Kelmendi, K. Associations between social support, career self-efficacy, and career indecision among youth. *Curr. Psychol.* **2021**, *40*, 4691–4697. [\[CrossRef\]](#)
15. Liu, X.L. The present situation analysis and cultivation countermeasure of the values of contemporary college students. *Ideol. Theor. Educ.* **2021**, *12*, 102–106. [\[CrossRef\]](#)
16. Liu, X.L. The Relationship between Occupational Values, Professional Commitment and Employability of College Students. *Jiangsu High. Educ.* **2021**, *12*, 128–131. [\[CrossRef\]](#)
17. Lewis-Smith, I.; Pass, L.; Reynolds, S. How adolescents understand their values: A qualitative study. *Clin. Child Psychol. Psychiatry* **2021**, *26*, 231–242. [\[CrossRef\]](#) [\[PubMed\]](#)
18. Li, D.; Lindo, N.A. Acculturation moderating between international students' career decision-making difficulties and career decision self-efficacy. *Career Dev. Q.* **2022**, *70*, 38–51. [\[CrossRef\]](#)
19. Li, Y.X.; Wang, Y.X.; Dong, C.H. The Impact of College Students' Professional Values on Employment Ability: The Mediating Role of Psychological Capital. *China Univ. Stud. Career Guide* **2022**, *3*, 32–38. [\[CrossRef\]](#)
20. Poorchangizi, B.; Borhani, F.; Abbaszadeh, A.; Mirzaee, M.; Farokhzadian, J. The importance of professional values from nursing students' perspective. *BMC Nurs.* **2019**, *18*, 26. [\[CrossRef\]](#)
21. Tuna, R.; Sahin, S. The effect of professional values of nurses on their attitudes towards caregiving roles. *Int. J. Nurs. Pract.* **2021**, *27*, e12879. [\[CrossRef\]](#)
22. Monroe, H.A. Nurses' professional values: Influences of experience and ethics education. *J. Clin. Nurs.* **2019**, *28*, 2009–2019. [\[CrossRef\]](#)
23. Tian, Q.J.; Li, X.H.; Wei, K.; Hou, L.L.; Chen, X.; Xue, Y.Z. Relationship between professional values and ethical decision-making ability of higher vocational college nursing students. *J. Nurs. Sci.* **2021**, *36*, 66–68. [\[CrossRef\]](#)
24. Lent, R.W.; Morris, T.R.; Penn, L.T.; Ireland, G.W. Social-cognitive predictors of career exploration and decision-making: Longitudinal test of the career self-management model. *J. Couns. Psychol.* **2019**, *66*, 184–194. [\[CrossRef\]](#)
25. Lent, R.W.; Ireland, G.W.; Penn, L.T.; Morris, T.R.; Sappington, R. Sources of self-efficacy and outcome expectations for career exploration and decision-making: A test of the social cognitive model of career self-management. *J. Vocat. Behav.* **2017**, *99*, 107–117. [\[CrossRef\]](#)
26. Lent, R.W. Career-life preparedness: Revisiting career planning and adjustment in the new workplace. *Career Dev. Q.* **2013**, *61*, 2–14. [\[CrossRef\]](#)
27. Lent, R.W.; Brown, S.D. Social cognitive model of career self-management: Toward a unifying view of adaptive career behavior across the life span. *J. Couns. Psychol.* **2013**, *60*, 557–568. [\[CrossRef\]](#)
28. Brown, S.D.; Lent, R.W. Social cognitive career theory at 25: Progress in studying the domain satisfaction and career self-management models. *J. Career Assess.* **2019**, *27*, 563–578. [\[CrossRef\]](#)
29. Hirschi, A.; Koen, J. Contemporary career orientations and career self-management: A review and integration. *J. Vocat. Behav.* **2021**, *126*, 103505. [\[CrossRef\]](#)
30. Lent, R.W.; do Céu Taveira, M.; Soares, J.; Marques, C.; Cardoso, B.; Oliveira, Í. Career decision-making in unemployed Portuguese adults: Test of the social cognitive model of career self-management. *J. Couns. Psychol.* **2022**, *69*, 121–127. [\[CrossRef\]](#)
31. Stremersch, J.; Van Hove, G.; Van Hooft, E. How to successfully manage the school-to-work transition: Integrating job search quality in the social cognitive model of career self-management. *J. Vocat. Behav.* **2021**, *131*, 103643. [\[CrossRef\]](#)
32. Chow, A.; Galambos, N.L.; Krahn, H.J. Work values during the transition to adulthood and mid-life satisfaction. *Int. J. Behav. Dev.* **2017**, *41*, 105–114. [\[CrossRef\]](#)
33. Sortheix, F.M.; Parker, P.D.; Lechner, C.M.; Schwartz, S.H. Changes in young Europeans' values during the global financial crisis. *Soc. Psychol. Personal. Sci.* **2019**, *10*, 15–25. [\[CrossRef\]](#)

34. Daniel, E.; Benish-Weisman, M. Value development during adolescence: Dimensions of change and stability. *J. Personal.* **2019**, *87*, 620–632. [\[CrossRef\]](#)
35. Knox-Hayes, J.; Chandra, S.; Chun, J. The role of values in shaping sustainable development perspectives and outcomes: A case study of Iceland. *Sustain. Dev.* **2021**, *29*, 363–377. [\[CrossRef\]](#)
36. Fearon, C.; Nachmias, S.; McLaughlin, H.; Jackson, S. Personal values, social capital, and higher education student career decidedness: A new ‘protean’-informed model. *Stud. High. Educ.* **2018**, *43*, 269–291. [\[CrossRef\]](#)
37. Gu, J.J.; Shen, X.B. A research on the influence of entrepreneur’s occupation values and resource bricolage on entrepreneurial performance. *Sci. Res. Manag.* **2019**, *40*, 206–215. [\[CrossRef\]](#)
38. Bauers, R.; Mahler, E. Factors that Contribute to Job Satisfaction of Millennials. Ph.D. Thesis, The College of St. Scholastica, Duluth, MN, USA, 2020. Available online: <https://www.proquest.com/openview/d022b5fb6e1987a157cb40ef94907d0f> (accessed on 15 May 2022).
39. Abessolo, M.; Rossier, J.; Hirschi, A. Basic values, career orientations, and career anchors: Empirical investigation of relationships. *Front. Psychol.* **2017**, 1556. [\[CrossRef\]](#)
40. Ramírez, I.; Fornells, A.; Del Cerro, S. Understanding undergraduates’ work values as a tool to reduce organizational turnover. *Educ. Train.* **2022**, *64*, 445–459. [\[CrossRef\]](#)
41. Giraud, L.; Bernard, A.; Trinchera, L. Early career values and individual factors of objective career success: The case of the French business graduates. *Career Dev. Int.* **2019**, *24*, 350–382. [\[CrossRef\]](#)
42. Nisha, C.; Anjali, M.; Sarita, S. A study on the Impact of Values on Career Decision Making of Adolescents. *Int. J. Res. Appl. Sci. Eng. Technol.* **2016**, *4*, 395–398.
43. Sortheix, F.M.; Chow, A.; Salmela-Aro, K. Work values and the transition to work life: A longitudinal study. *J. Vocat. Behav.* **2015**, *89*, 162–171. [\[CrossRef\]](#)
44. Li, H.; Ngo, H.Y.; Cheung, F. Linking protean career orientation and career decidedness: The mediating role of career decision self-efficacy. *J. Vocat. Behav.* **2019**, *115*, 103322. [\[CrossRef\]](#)
45. Guan, P.; Capezio, A.; Restubog, S.L.D.; Read, S.; Lajom, J.A.L.; Li, M. The role of traditionality in the relationships among parental support, career decision-making self-efficacy and career adaptability. *J. Vocat. Behav.* **2016**, *94*, 114–123. [\[CrossRef\]](#)
46. Choi, K.; Kim, D.Y. A cross cultural study of antecedents on career preparation behavior: Learning motivation, academic achievement, and career decision self-efficacy. *J. Hosp. Leis. Sport Tour. Educ.* **2013**, *13*, 19–32. [\[CrossRef\]](#)
47. Ginevra, M.C.; Pallini, S.; Vecchio, G.M.; Nota, L.; Soresi, S. Future orientation and attitudes mediate career adaptability and decidedness. *J. Vocat. Behav.* **2016**, *95*, 102–110. [\[CrossRef\]](#)
48. Creed, P.; Patton, W.; Prideaux, L.A. Causal relationship between career indecision and career decision-making self-efficacy: A longitudinal cross-lagged analysis. *J. Career Dev.* **2006**, *33*, 47–65. [\[CrossRef\]](#)
49. Penn, L.T.; Lent, R.W. The joint roles of career decision self-efficacy and personality traits in the prediction of career decidedness and decisional difficulty. *J. Career Assess.* **2019**, *27*, 457–470. [\[CrossRef\]](#)
50. Willner, T.; Gati, I.; Guan, Y. Career decision-making profiles and career decision-making difficulties: A cross-cultural comparison among US, Israeli, and Chinese samples. *J. Vocat. Behav.* **2015**, *88*, 143–153. [\[CrossRef\]](#)
51. Argyropoulou, K.; Kaliris, A. From career decision-making to career decision-management: New trends and prospects for career counseling. *Adv. Soc. Sci. Res. J.* **2018**, *5*, 483–502. [\[CrossRef\]](#)
52. Germeijs, V.; Verschueren, K.; Soenens, B. Indecisiveness and high school students’ career decision-making process: Longitudinal associations and the mediational role of anxiety. *J. Couns. Psychol.* **2006**, *53*, 397–410. [\[CrossRef\]](#)
53. Cheng, C.F.; Tsai, H.H.; Kao, C.C. The construction of a career developmental counseling model for Taiwanese athletes. *Phys. Educ. J.* **2016**, *49*, 443–464.
54. Huang, X.L.; Guan, J.F. Study on the Relationship between Occupational Values and Occupational Choice Self-Efficacy of Medical Graduates in a Medical University in Guangdong Province. *Med. Soc.* **2020**, *33*, 64–67. [\[CrossRef\]](#)
55. Tang, M.; Pan, W.; Newmeyer, M. Factors influencing high school students’ career aspirations. *Prof. Sch. Couns.* **2008**, *11*, 285–295. [\[CrossRef\]](#)
56. Caprara, G.V.; Alessandri, G.; Eisenberg, N. Prosociality: The contribution of traits, values, and self-efficacy beliefs. *J. Personal. Psychol.* **2012**, *102*, 1289–1303. [\[CrossRef\]](#)
57. Caprara, G.V.; Steca, P. Prosocial agency: The contribution of values and self-efficacy beliefs to prosocial behavior across ages. *J. Soc. Clin. Psychol.* **2007**, *26*, 218–239. [\[CrossRef\]](#)
58. Yang, J.; Zhou, F. The Influence of the Work Values on College Students Employment. *China Univ. Stud. Career Guide* **2016**, *12*, 45–50.
59. Wang, Y.; Wang, W.; Lei, L. The Professional Values and Employability of College Students: The Mediating Role of Career Decision-Making Self Efficacy. *Theory Pract. Educ.* **2016**, *36*, 9–11.
60. Bridgstock, R. The graduate attributes we’ve overlooked: Enhancing graduate employability through career management skills. *High. Educ. Res. Dev.* **2009**, *28*, 31–44. [\[CrossRef\]](#)
61. Choi, B.Y.; Kim, B.; Jang, S.H.; Jung, S.H.; Ahn, S.S.; Lee, S.M.; Gysbers, N. An individual’s work values in career development. *J. Employ. Couns.* **2013**, *50*, 154–165. [\[CrossRef\]](#)
62. Seibert, S.E.; Kraimer, M.L.; Holtom, B.C.; Pierotti, A.J. Even the best laid plans sometimes go askew: Career self-management processes, career shocks, and the decision to pursue graduate education. *J. Appl. Psychol.* **2013**, *98*, 169–182. [\[CrossRef\]](#)

63. Colakoglu, S.; Caligiuri, P. Cultural influences on Millennial MBA students' career goals: Evidence from 23 countries. In *Managing the New Workforce: International Perspective on the Millennial Generation*; Edward Elgar Publishing: Cheltenham, UK, 2012; pp. 262–280.
64. Greenhaus, J.H.; Callanan, G.A.; Godshalk, V.M. *Career Management*, 4th ed.; Sage Publications, Inc.: Thousand Oaks, CA, USA, 2010. Available online: <https://psycnet.apa.org/record/2010-02967-000> (accessed on 15 May 2022).
65. Latham, G.P. Goal-setting theory: Causal relationships, mediators, and moderators. *Oxf. Res. Encycl. Psychol.* **2016**. [\[CrossRef\]](#)
66. Locke, E.A.; Latham, G.P. Building a practically useful theory of goal setting and task motivation: A 35-year odyssey. *Am. Psychol.* **2002**, *57*, 705–717. [\[CrossRef\]](#)
67. Li, X.M.; Sun, Y.C. Bridging the Gap between Academic Goals and Career Goals by Compensatory Education: A Practical Exploration of Contemporary College Students' Life Problems. *J. Guizhou Norm. Univ.* **2021**, *228*, 66–73. [\[CrossRef\]](#)
68. Sullivan, S.E.; Martin, D.F.; Carden, W.A.; Mainiero, L.A. The road less traveled: How to manage the recycling career stage. *J. Leadersh. Organ. Stud.* **2003**, *10*, 34–42. [\[CrossRef\]](#)
69. Gushue, G.V.; Scanlan, K.R.; Pantzer, K.M.; Clarke, C.P. The relationship of career decision-making self-efficacy, vocational identity, and career exploration behavior in African American high school students. *J. Career Dev.* **2006**, *33*, 19–28. [\[CrossRef\]](#)
70. Scott, A.B.; Ciani, K.D. Effects of an undergraduate career class on men's and women's career decision-making self-efficacy and vocational identity. *J. Career Dev.* **2008**, *34*, 263–285. [\[CrossRef\]](#)
71. Huang, L.N. Research on the influencing factors and countermeasures of college students' career decision-making. *Educ. Explor.* **2009**, *299*, 127–128.
72. Pan, X.Y. The influence of college students' self-efficacy and coping style on career decision-making. *J. Minnan Norm. Univ.* **2022**, *35*, 127–132. [\[CrossRef\]](#)
73. Chen, R. Investigation and Countermeasure Research of Career Decision-making Difficulties in Higher Vocational College Students. *Guide Sci. Educ.* **2021**, *22*, 183–185. [\[CrossRef\]](#)
74. Hsieh, H.H.; Huang, J.T. The effects of socioeconomic status and proactive personality on career decision self-efficacy. *Career Dev. Q.* **2014**, *62*, 29–43. [\[CrossRef\]](#)
75. Goodyear, M.D.; Krleza-Jeric, K.; Lemmens, T. The declaration of Helsinki. *BMJ* **2007**, *335*, 624–625. [\[CrossRef\]](#) [\[PubMed\]](#)
76. Betz, N.E.; Klein, K.L.; Taylor, K.M. Evaluation of a short form of the career decision-making self-efficacy scale. *J. Career Assess.* **1996**, *4*, 47–57. [\[CrossRef\]](#)
77. Song, Z.Y. Research on Work Values-Job Supplies Fit of New Generation Construction Project Management Professionals. Ph.D. Thesis, Tsinghua University, Beijing, China, 2020. Available online: <https://kns.cnki.net/KCMS/detail/detail.aspx?dbname=CDFDLAST2022&filename=1021809294.nh> (accessed on 18 June 2022).
78. Yu, Y.H. Research on Integrated Model of Career Decision-Making. Ph.D. Thesis, East China Normal University, Shanghai, China, 2004. Available online: <https://kns.cnki.net/KCMS/detail/detail.aspx?dbname=CDFD9908&filename=2004087152.nh> (accessed on 10 May 2022).
79. Xu, H. Development and initial validation of the constructivist beliefs in the career decision-making scale. *J. Career Assess.* **2020**, *28*, 303–319. [\[CrossRef\]](#)
80. Ye, J.H.; Lee, Y.S.; He, Z. The Relationship Among Expectancy Belief, Course Satisfaction, Learning Effectiveness, and Continuance Intention in Online Courses of Vocational-Technical Teachers College Students. *Front. Psychol.* **2022**, *13*, 904319. [\[CrossRef\]](#)
81. Hansen, B.G.; Olsson, U.H. Specification Search in Structural Equation Modeling (SEM): How Gradient Component-wise Boosting can Contribute. *Struct. Equ. Model. A Multidiscip. J.* **2022**, *29*, 140–150. [\[CrossRef\]](#)
82. Phakiti, A. Confirmatory factor analysis and structural equation modeling. In *The Palgrave Handbook of Applied Linguistics Research Methodology*; Palgrave Macmillan: London, UK, 2018; pp. 459–500. [\[CrossRef\]](#)
83. Hair, J.F.; Black, W.C.; Babin, B.J.; Anderson, R.E. *Multivariate Data Analysis*, 7th ed.; Pearson Prentice Hall: Upper Saddle River, NJ, USA, 2010.
84. Browne, M.W. Asymptotically distribution-free methods for the analysis of covariance structures. *Br. J. Math. Stat. Psychol.* **1984**, *37*, 62–83. [\[CrossRef\]](#)
85. Mardia, K.V.; Foster, K. Omnibus tests of multinormality based on skewness and kurtosis. *Commun. Stat. Theory Methods* **1983**, *12*, 207–221. [\[CrossRef\]](#)
86. Bollen, K.A. A new incremental fit index for general structural equation models. *Sociol. Methods Res.* **1989**, *17*, 303–316. [\[CrossRef\]](#)
87. Hair, J.F., Jr.; Hult, G.T.M.; Ringle, C.; Sarstedt, M. *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM)*; Sage Publications: London, UK, 2017.
88. Hair, J.F.; Ringle, C.M.; Sarstedt, M. PLS-SEM: Indeed a silver bullet. *J. Market. Theory Pract.* **2011**, *19*, 139–152. [\[CrossRef\]](#)
89. Fornell, C.; Larcker, D.F. Evaluating structural equation models with unobservable variables and measurement error. *J. Mark. Res.* **1981**, *18*, 39–50. [\[CrossRef\]](#)
90. Podsakoff, P.M.; MacKenzie, S.B.; Lee, J.Y.; Podsakoff, N.P. Common method biases in behavioral research: A critical review of the literature and recommended remedies. *J. Appl. Psychol.* **2003**, *88*, 879–903. [\[CrossRef\]](#) [\[PubMed\]](#)
91. Hox, J.J.; Bechger, T.M. An introduction to structural equation modeling. *Fam. Sci. Rev.* **1998**, *11*, 354–373.
92. Cheung, G.W.; Lau, R.S. Testing mediation and suppression effects of latent variables: Bootstrapping with structural equation models. *Organ. Res. Methods* **2008**, *11*, 296–325. [\[CrossRef\]](#)

93. Chen, K.Y.; Wang, Z.H. *Thesis Statistical Analysis Practice: SPSS and AMOS Applications*, 4th ed.; Wunan Book Publishing Company: Taipei, Taiwan, 2022.
94. Abedi, G.; Rostami, F.; Nadi, A. Analyzing the dimensions of the quality of life in hepatitis B patients using confirmatory factor analysis. *Glob. J. Cf Health Aciene* **2015**, *7*, 22–31. [\[CrossRef\]](#)
95. Kazi, A.S.; Akhlaq, A. Factors affecting students' career choice. *J. Res. Reflect. Educ.* **2017**, *11*, 187–196.
96. Zhang, Y.; Yao, F.H. Analysis and countermeasures of female college students' career choice dilemma. *High. Educ. Forum* **2017**, *8*, 120–122.
97. Yu, Y.H. A Study on the Information Processing of Anxiety Individuals in Multi-attribute Decision-making Tasks. *J. Psychol. Sci.* **2006**, *29*, 1157–1158+1127. [\[CrossRef\]](#)
98. Yang, G.P.; Xie, B.G. The Level, Demographic Characteristics and Biographical Antecedents of Career Decision-Making Difficulties in College Students: An Exploring Study. *Hum. Resour. Dev. China* **2017**, *5*, 37–44. [\[CrossRef\]](#)
99. Rietveld, C.A.; Hoogendoorn, B. The mediating role of values in the relationship between religion and entrepreneurship. *Small Bus. Econ.* **2022**, *58*, 1309–1335. [\[CrossRef\]](#)
100. Yang, X.H. Values Education for Chinese and Foreign College Students: Empirical Investigation and Comparison. *Educ. Res.* **2022**, *43*, 97–109.
101. Yang, C.H. The analysis of contemporary college students' social mentality from the perspective of values and the exploration of guiding path. *Stud. Core Soc. Values* **2022**, *8*, 71–78. [\[CrossRef\]](#)
102. He, Z.; Zhou, Y.; Li, F.; Rao, Z.; Yang, Y. The effect of proactive personality on college students' career decision-making difficulties: Moderating and mediating effects. *J. Adult Dev.* **2021**, *28*, 116–125. [\[CrossRef\]](#)
103. Hamzah, S.R.A.; Kai Le, K.; Musa, S.N.S. The mediating role of career decision self-efficacy on the relationship of career emotional intelligence and self-esteem with career adaptability among university students. *Int. J. Adolesc. Youth* **2021**, *26*, 83–93. [\[CrossRef\]](#)
104. Gati, I.; Kulcsár, V. Making better career decisions: From challenges to opportunities. *J. Vocat. Behav.* **2021**, *126*, 103545. [\[CrossRef\]](#)
105. Lukeš, M.; Feldmann, M.; Vegetti, F. Work values and the value of work: Different implications for young adults' self-employment in Europe. *ANNALS Am. Acad. Political Soc. Sci.* **2019**, *682*, 156–171. [\[CrossRef\]](#)
106. Hou, C.; Wu, Y.; Liu, Z. Career decision-making self-efficacy mediates the effect of social support on career adaptability: A longitudinal study. *Soc. Behav. Personal. Int. J.* **2019**, *47*, 1–13. [\[CrossRef\]](#)
107. Schroevers, M.; Kraaij, V.; Garnefski, N. How do cancer patients manage unattainable personal goals and regulate their emotions. *Br. J. Health Psychol.* **2008**, *13*, 551–562. [\[CrossRef\]](#)
108. Wrosch, C.; Miller, G.E.; Scheier, M.F.; De Pontet, S.B. Giving up on unattainable goals: Benefits for health? *Personal. Soc. Psychol. Bull.* **2007**, *33*, 251–265. [\[CrossRef\]](#)
109. Llenares, I.I.; Deocarís, C.C.; Deocarís, C.C. Work values of Filipino college students. *Br. J. Guid. Couns.* **2021**, *49*, 513–523. [\[CrossRef\]](#)
110. Praskova, A.; Creed, P.A.; Hood, M. Facilitating engagement in new career goals: The moderating effects of personal resources and career actions. *Int. J. Educ. Vocat. Guid.* **2013**, *13*, 115–134. [\[CrossRef\]](#)
111. Wu, N.W. Optimize college students' career development education based on the improvement of employment quality. *Ideol. Theor. Educ.* **2022**, *7*, 108–111. [\[CrossRef\]](#)
112. Priest, K. Career decision-making for agriculture student's sustainability. *Agric. Educ. Mag.* **2008**, *80*, 23–24.
113. Lichtenstein, S.; Lichtenstein, G.; Higgs, M. Personal values at work: A mixed methods study of executives' strategic decision-making. *J. Gen. Manag.* **2017**, *43*, 15–23. [\[CrossRef\]](#)

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