



## Research article

# Career exploration and its influence on the relationship between self-efficacy and career choice: The moderating role of social support

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## ABSTRACT

Career choice is a highly complex process. The growth in the number, nature, and overlap between occupations creates a more multifaceted career landscape, especially for young people. This study expands the Social Cognitive Career Theory (SCCT) by developing a model that includes additional factors influencing career choices, such as self-efficacy, career exploration, and social support. A convenient sampling method was applied, with 340 Vietnamese students responding to the questionnaire on Google Forms between August and October 2022. The results supported the research hypotheses, with environmental exploration emerging as the most decisive factor influencing career choice. The most exciting finding of this article is the negative impact of social support on the relationship between environmental exploration and career choice. Finally, the results underscore the significance of implementing career guidance and providing career experiences for university students at educational institutions.

## 1. Introduction

A career sustains individual living needs by generating income or satisfying other mental factors such as passions and hobbies [1]. Career choice is essential for developing and maintaining a fulfilling life [2,3]. However, choosing a sustainable career can be challenging, particularly for young individuals [4]. According to Jiang et al. [5], increasing occupations' number, variety, and interaction gradually diminishes job constraints. This is the primary reason for the growing challenge of making career choices [6,7]. In the world, there have been many studies conducted to explore career choices, typically by Lent et al. [8,9], Park et al. [10], and Jiang et al. [5]. However, the survey subjects are often teenagers, specifically senior high school students [11–13]. Consequently, university students are often overlooked, representing a potential and powerful source for a qualified workforce [14].

Park et al. [10] assert that an inappropriate career choice can lead to poor performance or even a wrong orientation. However, people still tend to prioritize occupations considered attractive to the current market rather than focusing on areas with sustainable development in the future [15]. This tendency can lead to an imbalance in the labor market [16]. In other words, enterprises will face difficulties finding suitable employees due to the shortage of qualified workers. On the contrary, unskilled labor is in surplus [17] because university students do not receive adequate career guidance from the university curriculum, resulting in uncertainty about post-graduation plans [18].

However, career counseling in educational institutions is a major concern in emerging economies such as Vietnam [19]. Only a few

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international schools have applied this career counseling model, such as RMIT University Vietnam. In the public education system, public schools in Vietnam, from primary school to university, typically have only one counseling room and one or two specialists who provide psychological and career counseling services [19]. The consequence of the lack of counseling is that the number of unemployed young people aged 15–24 in 2022 is about 409.3 thousand, accounting for 37.6 % of the total number of unemployed individuals aged 15 and over. The youth unemployment rate in 2022 is 7.72 % [20].

Thus, career choice is ineffective if career-oriented activities are inappropriate [21]. Such activities often focus on explaining how to choose a university rather than selecting a sustainable career [22]. Higher education often lacks clear work experiences and career orientations for students. It leads to potential risks and a lack of confidence in career choices [23]. On the other hand, university students are unaware of which career they want to choose. It is a consequence of the inappropriate connection between contextual and subjective factors [8].

Levine and Alely [24] argue that the continuous advancement of technology enhances the ability to access information [25]. Individuals can access and aggregate career information faster than traditional methods [24,26]. However, excessive information can lead to confusion or misrepresentation of the intended career [27]. As another example, parental influence [28], peer pressure [29], or social influence [30,31] can be considered critical contextual factors in career choice. Some researchers suggest that negative social influence can lead to job dissatisfaction [29] or low engagement [32], and the studies above confirm the significance of integrating contextual and subjective factors in career choice [24].

Combining contextual and subjective factors in research on career choice and behavioral intention is essential. Although attitude plays a vital role in career decision-making, in some cases, environmental and external factors significantly influence career choices more than individual attitudes. The business and industrial environment can generate numerous job opportunities in a specific field, making career decisions more dependable on the business environment than personal attitudes. For example, in Vietnam's employment statistics for 2021, job opportunities in business, sales, marketing, customer service, finance, and accounting are in high demand [33]. Nearly 1.3 million students are studying business and management majors, making them the two fields with the highest number of Vietnamese students enrolled in 2021, reflecting the impact of market demand on career orientation.

Social support is an environmental factor that plays the most positive role in shaping career choices [10,34]. It is a resource that influences individual perception, provided by family, friends, and significant others (such as university), and enhances feelings of security and companionship, leading to better life outcomes [10]. Specifically, social support helps reduce the difficulty of making career decisions and increases commitment to the original choice intention [35]. Not only that, Jemini-Gashi et al. [36] confirmed that social support positively influences the status and extent of career decisions. Besides, the factors that contribute to the career selection process are also influenced by social support, such as self-efficacy [34] or career exploration [21]. Since then, the role of social support has been examined in the Social Cognitive Career Theory [8] to provide an overview of the relationship between contextual factors and subjective factors.

On the other hand, providing opportunities for university students to explore careers during their studies is considered a solution to guide career orientation effectively. Flum and Blustein [37] argue that the process of career exploration involves discovering and evaluating a wide range of internal attributes, external opportunities, and constraints related to different contexts concerning the career, thereby raising awareness of self and the environment. Career exploration fosters career development, selection, and retention agreement by establishing an information platform for risk planning, prediction, and management [38]. Career exploration also helps access social resources through information search [5]. This is the premise for promoting career choice and career development later [39].

This study aims to evaluate the influence of self-efficacy, career exploration, and the moderating role of social support on career choice. Previous studies have often focused on models of direct or indirect effects [40], while the moderating influence of social support on career choice is frequently overlooked [10]. Therefore, this paper assesses the moderating relationship of social support with other factors to help comprehensively expand the theory of career behavior.

This article consists of five sections. The first part introduces the practical context and the theoretical gap. The second part presents the literature review and the proposed research model. Research methods and research design are discussed in the third section. Furthermore, Part Four presents the results of the study. Finally, the study concludes with managerial implications and recommendations.

## 2. Literature review

### 2.1. Career choice

A career is an "individual's work-related and other relevant experience, both inside and outside of organizations, that forms a unique pattern over the individual's lifespan" [41, p. 1543]. A career is the process or progression of a person's lifetime or a specific phase of life. Career is related to many aspects of an individual's life, study, and work. For example, a career reflects a lifelong learning and working process [42], positions held by a person during a lifetime [43], or a series of work experiences in organizations [44].

Career choice is an important decision that can significantly impact an individual's life satisfaction and well-being [45]. It is a complex decision involving various factors, such as personal preferences, labor market conditions, and social influences. Choosing a sustainable career helps cultivate a positive professional attitude that adds value to the individual and their organization [46,47]. Therefore, a practical career choice aligns well with the individual's chosen job. For example, there is a strong relationship between their discipline, the field of study, skills, or values they pursue [48]. In the career choice process, individuals evaluate and compare options based on compatibility, career value, or related aspects to select the most suitable career [49]. In addition, recent scholars have

suggested that environmental factors and occupational knowledge are crucial aspects of these explorations [10,34].

## 2.2. Social Cognitive Career Theory (SCCT)

The Social Cognitive Career Theory (SCCT) has been acknowledged as a comprehensive theory that elucidates career choices and is widely applied [9,50–53]. SCCT argues that self-efficacy and outcome expectations are determinants of individuals' behavior. Self-efficacy is an individual's positive or negative assessment of their ability to perform a behavior [9]. According to SCCT, self-efficacy directly and indirectly influences individuals' intentions and behaviors when choosing a career [8].

SCCT complements the limitations of previous theories by emphasizing the role of external factors in individuals' career choice decision-making. Traditional career models often only consider external factors as the context of behavioral performance, such as in the Theory of Planned Behavior by Ajzen [54]. Meanwhile, SCCT highlights specific situations and the nature of the behavior. For instance, SCCT emphasizes people's cognitive variables (self-efficacy, outcome expectations) and how these variables interact with environmental or contextual variables [21,50]. More specifically, it considers the interaction between the self and the environment in a dynamic state, i.e., the relationship between the environment and the individual that changes over time but is not static like some earlier models [55].

## 2.3. Career exploration and career choice

Career exploration is a lifelong process [5]. Exploration is the act of eliciting and maintaining interest in an environment or field in order to increase knowledge [56]. Zikic & Klehe [38] defined career exploration as a collection of information related to career goals that the explorer wishes to achieve. Career exploration allows individuals to participate in career development [51] and provides more information for making choices, reducing the risk of encountering previously unknown problems [57,58]. This is also essential for effective planning and developing a career in the right direction [34,39].

Career exploration effectively combines environmental exploration and self-exploration [59,60]. When exploring careers, individuals consider contextual, subjective, and personal factors, as well as opportunities and experiments, before making a decision [5]. As a result, individuals can secure better jobs and navigate challenges during their career transition [61]. More specifically, exploring the career environment helps establish the foundation for adapting to the chosen career and develop a general understanding of the profession's nature, content, or structure [62]. In addition, environmental exploration helps individuals synthesize information related to jobs, organizations, and occupations, enabling them to make effective career choices [63,64].

### H1. Environmental exploration has a positive impact on career choice

Self-exploration helps individuals identify interests, personalities, abilities, or career goals [65]. When individuals discover themselves effectively and produce positive results, they can strengthen their belief in behavioural capabilities and outcomes [66]. In other words, self-exploration is associated with a favorable perception of job/career possibilities [67]. In addition, effective self-exploration helps one choose a career that is more compatible with oneself, making it easier to adapt to work [68,69]. The above arguments are the basis for the proposed hypothesis:

### H2. Self-exploration has a positive impact on career choice

## 2.4. Self-efficacy and career exploration

Self-efficacy is a personal belief in the ability to perform and achieve success in a particular task, referring to a person's capability to execute the behavior [70,71]. Self-efficacy refers to individuals' assessment of their ability to organize and perform the actions required to achieve specific types of performance [72]. It does not emphasize or identify with the skill but instead is an indicator of the effectiveness of the craft when applied to the behavior [73].

Studies have shown self-efficacy's direct and indirect impact on career exploration in various contexts [34,60]. SCCT also argues that when people positively perceive their abilities, they engage in exploratory behavior to verify the source of the information they receive [70]. Self-efficacy can increase individuals' desire to explore careers that align with their perceived capabilities [8]. Therefore, a positive perception of self-efficacy enhances the intention to explore a career. Moreover, individuals with higher self-efficacy in career exploration are more likely to experience a positive outcome following the exploration process [51].

Self-efficacy is a precursor to explaining the context and motivation for career exploration [74]. When self-efficacy is high, individuals seek information about the professional environment even when the answers they receive are unclear [75]. In addition, self-efficacy stimulates the desire to explore oneself through informal discussions with others [75]. Previous studies have also shown that self-efficacy positively influences career exploration [76]. Based on the above arguments, the following hypotheses are proposed:

### H3. Self-efficacy has a positive influence on self-exploration

### H4. Self-efficacy has a positive influence on environmental exploration

## 2.5. The moderating role of social support

Social support refers to an individual's perception of interactions or relationships that offer genuine assistance or integrate them

into a social system that provides essential values. It is a resource available through others and is used by individuals as soon as they need it [77]. SCCT defines social support as the capacity to adjust to the context of career choice and development [78]. Social support is positively associated with career choices, reducing pressure and increasing confidence in decision-making [34,79,80]. Individuals with strong social support can explore a broader range of options during self-exploration. They feel comfortable trying new things and receiving valuable feedback that helps refine their interests. This can lead to a more confident and focused career choice that aligns with their self-discovered strengths. Limited support might hinder translating self-exploration into concrete choices. Confusion or self-doubt might arise, leading to suboptimal career decisions.

Each encounters various risks and barriers when engaging in career exploration behavior [78]. Social support provides information and other resources to facilitate exploration, reducing decision-making pressure [10]. Not only that, but the form and content of career exploration will change according to the context of social support, promoting career decision-making through career exploration [81–83]. With strong social support, individuals can enhance the effectiveness of their environmental exploration. Connections and information gained can lead to more informed and targeted career choices.

Conversely, limited support might hinder the impact of exploration. Individuals might struggle to access relevant information or opportunities, which could result in suboptimal career decisions. Previous studies have also confirmed the impact of social support on career choice and career exploration [84,85]. Combining the above arguments, we propose the following hypothesis:

**H5.** Social support plays a role in moderating the relationship between self-exploration and career choice.

**H6.** Social support plays a role in moderating the relationship between environmental exploration and career choice.

### 3. Methodology

#### 3.1. Measurement scales

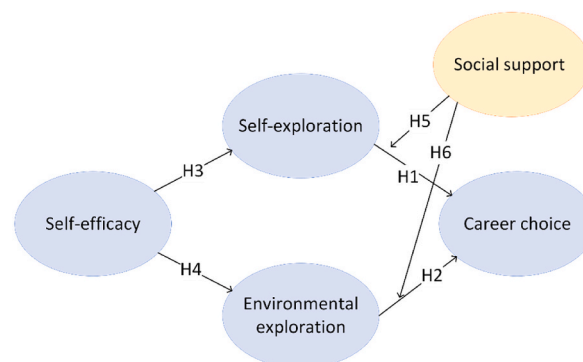
The concepts in the model (See Fig. 1) are all inherited from previous related studies. A group discussion with experts from the university was conducted to review the factors in the framework model and evaluate the measurements. Observed variables are kept the same according to the original scales. First, the social support scale utilizes 15 observed variables from the study by Nauta and Kokaly [86]. Career exploration involves environmental exploration, which adopts the 6-variable observation scale, and self-exploration, which adopts the 5-variable scale from Stumpf et al.'s research [67]. Self-efficacy is measured using the 8-item scale developed by Betz et al. [87]. Finally, career choice is measured by the scale in the study of Mu [88] with six observed variables.

The scales were translated from the original language into Vietnamese using the forward and backward translation method: 1. Translate from English to Vietnamese and verify the Vietnamese-English translation by two different translators; 2. Modify the questions' content to align with Vietnam's research context and socio-cultural aspects.

#### 3.2. Sampling and data analyzing process

The research implements a convenient sampling method with survey subjects who are university students in Vietnam. This study is approved by Ho Chi Minh City Open University review boards (Ref. No. 01/E2022.05.2). The survey is designed with a 5-point Likert scale and forwarded to respondents through the Google Form platform to ensure convenience, speed, and accuracy when synthesizing data. In addition, 340 respondents agreed with this survey by answering the questionnaire.

The data were analyzed using partial least squares structural equation modeling (PLS-SEM). PLS-SEM was chosen because it is primarily designed for predictive analysis of problems with a certain level of complexity [89]. Using PLS-SEM makes it easy to see the impact and relationship of each variable forming the structure. In addition, PLS-SEM also provides accurate results for small sample sizes [89]. The analytical procedure was carried out in two phases, as suggested by Hair et al. [89]. The first stage, measurement model assessment, evaluates construct validity through Cronbach's  $\alpha$  (CA), composite reliability (CR), outer loading ( $\lambda$ ), average variance extracted (AVE), and Fornell - Larcker criterion [90]. The second stage, structural model assessment, evaluates the explanatory and



**Fig. 1.** Conceptual model.

predictive power of the model through the coefficient of determination ( $R^2$ ) and cross-validated redundancy measure ( $Q^2$ ), evaluates multicollinearity through variance inflation factor (VIF), and the statistical significance of the path coefficients.

## 4. Results and discussions

### 4.1. Descriptive

The study obtained 340 valid samples from August to October 2022. There were 70.9 % of the female participants, and the rest were male. In addition, the data also shows that 69.7 % of respondents studied/have been studying in Economics - Administration majors, 21.8 % have majored in Social Sciences - Humanities, and 8.5 % of respondents belonging to Natural Science – Engineering. The percentage of students participating in the survey is Year 1 (37.9 %), Year 2 (19.4 %), Year 3 (12.4 %) and Year 4 and above (12.4 %), respectively. Despite the short time, this number of pieces is consistent with PLS-SEM, but analytical results are still objective enough to test the scale and research hypotheses. Basic information about gender, year, and major is shown in [Table 1](#).

### 4.2. Measurement model assessment

#### 4.2.1. Construct validity

In the first phase, this study verifies the scale's reliability through composite reliability (CR) and Cronbach's  $\alpha$  (CA). Compared to CA, CR is considered more appropriate when considering the differences in the observed variables [91]. All scales achieve the required reliability of CA and CR greater than 0.7 [92]. [Table 2](#) shows the minimum CA value of 0.854 and the minimum CR value of 0.895 for self-exploration. Based on this result, the scales are reliable.

Next, [Table 2](#) displays the average variance extracted (AVE) and outer loading ( $\lambda$ ) used to assess convergent validity. To meet the convergence requirement, the AVE must be greater than 0.5, and  $\lambda$  must be greater than 0.7 [92]. The results in [Table 2](#) show that all scales have AVE values greater than 0.5, and all  $\lambda$ s are above 0.7. This indicates that the observed variables of the scales can explain more than 50 % of the variance of the concept they represent [93].

[Table 3](#) presents the discriminant validity, demonstrating the extent to which the factors are distinct and uncorrelated. This value is evaluated by comparing the square root of the AVE of each concept and their inter-correlation with the remaining ones [90]. The results show that this coefficient (number in bold) is more significant than other inter-correlations. In that case, it satisfies the Fornell-Larcker criterion, considered the most suitable criterion for evaluating the discriminants of the structures [93].

The analysis results in [Tables 2 and 3](#) show that the collected data satisfies the conditions of construct validity, which is the basis for testing the research hypotheses in the following section.

### 4.3. Structural model assessment

Evaluation of structural models is preferred to test the explanatory power of structures through the coefficient of determination ( $R^2$ ) [92].  $R^2$  is ranked as strong, moderate, and weak, with values of 0.75, 0.50, and 0.25, respectively [94]. The analysis results (See [Table 4](#)) show that the concepts in the model have the smallest  $R^2$  value of 0.391 (Self-exploration).

Checking for multicollinearity among the independent variables is done through the variance exaggeration factor (VIF). The results in [Table 2](#) are satisfactory in that the VIF value should not exceed 3 [95]. In addition, to evaluate the predictive power of the model,  $Q^2$  values are analyzed, provided these values need to be positive numbers [89]. The results of [Table 4](#) confirm that this study's model can predict when the lowest  $Q^2$  is 0.389.

PLS-SEM is a non-parametric method, so the bootstrap technique is used to prove the statistical significance of the research hypotheses. This paper uses bootstrapping 5000 times to test whether the reliability of the variable is significantly higher or lower than the recommended minimum threshold. In other words, bootstrapping is applied to test the effects between relationships in the model. The results are shown in [Table 5](#), indicating that all hypotheses have p-value  $< 0.05$  or statistical significance at the 95 % level and are supported.

**Table 1**  
Descriptive statistics.

Variable	Category	Frequency	Percent (%)
Gender	Male	99	29.1
	Female	241	70.9
Academic year	Year 1	129	37.9
	Year 2	103	30.3
	Year 3	66	19.4
	Year 4 and above	42	12.4
	Major	Economics - Administration	237
	Social Sciences - Humanities	74	21.8
	Natural Science - Engineering	29	8.5

**Table 2**  
Convergent validity and multicollinearity.

	CA	CR	AVE	$\lambda$		VIF	
				Min	Max	Min	Max
Career choice	0.898	0.922	0.662	0.783	0.840	1.903	2.491
Environmental exploration	0.888	0.915	0.643	0.732	0.870	1.733	2.888
Self-exploration	0.854	0.895	0.631	0.758	0.831	1.614	2.046
Self-efficacy	0.899	0.919	0.587	0.725	0.795	1.761	2.156
Social Support	0.874	0.900	0.531	0.702	0.769	1.659	1.881

**Table 3**  
Discriminant validity.

	(1)	(2)	(3)	(4)	(5)
Career choice (1)	<b>0.814</b>				
Environmental exploration (2)	0.660	<b>0.802</b>			
Self-exploration (3)	0.688	0.643	<b>0.766</b>		
Self-efficacy (4)	0.604	0.643	0.625	<b>0.795</b>	
Social Support (5)	0.379	0.393	0.338	0.353	<b>0.729</b>

**Table 4**  
The coefficient of determination ( $R^2$ ), predictive power ( $Q^2$ ).

Variable	$R^2$	$Q^2$
Career choice	0.510	0.503
Environmental exploration	0.413	0.412
Self-exploration	0.391	0.389

**Table 5**  
Evaluate research hypotheses.

Relationships	Path coefficient	t-value	p-value	Results
Environment Exploration → Career Choice	0.410	6.098	0.000	Accepted
Social support x Environmental Exploration → Career Choice	-0.093	2.156	0.031	Accepted
Social support x Self-Exploration → Career Choice	0.099	2.356	0.019	Accepted
Self-Efficacy - > Career Choice	0.461	9.987	0.000	Accepted
Self-Efficacy - > Environmental Exploration	0.643	16.267	0.000	Accepted
Self-Efficacy - > Self-Exploration	0.625	12.852	0.000	Accepted
Self-Exploration - > Career Choice	0.315	4.314	0.000	Accepted

#### 4.4. Discussions

As presented in the introduction, this study examines the relationship between self-efficacy, career exploration, social support, and students' career choice formation. According to the research results in Fig. 2, self-efficacy positively affects self-exploration ( $\beta = 0.625$ ) and environmental exploration ( $\beta = 0.643$ ). This result is similar to the findings of Chan et al. [34] and Kleine et al. [76], where belief strongly influences motivation and the exploration process. First, self-efficacy motivates individuals to learn more about themselves [96]. This behavior aims to confirm an individual's prior subjective judgments regarding their abilities, personality, qualities, or goals. Self-efficacy motivates individuals to explore the professional environment, helping them find the right fit. It can be seen that self-efficacy plays a critical role in career exploration actions to develop an effective career choice process [46]. From there, universities need to integrate skills training for students and enhance their awareness of their capabilities. It is the basis for choosing a career that is suitable for their abilities. Finally, it is essential for skill development to progress in parallel with career development.

Self-exploration has a positive effect on career choice ( $\beta = 0.315$ ). According to Xu [97], self-exploration offers accurate information about oneself, guiding individuals to select a career based on their abilities. The study by Paixão & Gamboa [98] shows that self-exploration effectively reduces hesitation in an individual's decision-making process. Next, environmental exploration positively affects career choice ( $\beta = 0.410$ ). This result is also supported in the study by Kleine et al. [76]. Exploring the environment provides valuable information about corporate culture, salary, bonuses, and benefits, which helps to alleviate individual uncertainties regarding career choices [76]. This result also demonstrates that universities need to prioritize creating conditions for students to have the opportunity to explore the working environment of the professions they are interested in.

Furthermore, this article has highlighted the significance of social support in the relationship between career exploration and decision-making. Specifically, the moderating role of social support in the relationship between self-exploration and career choice is

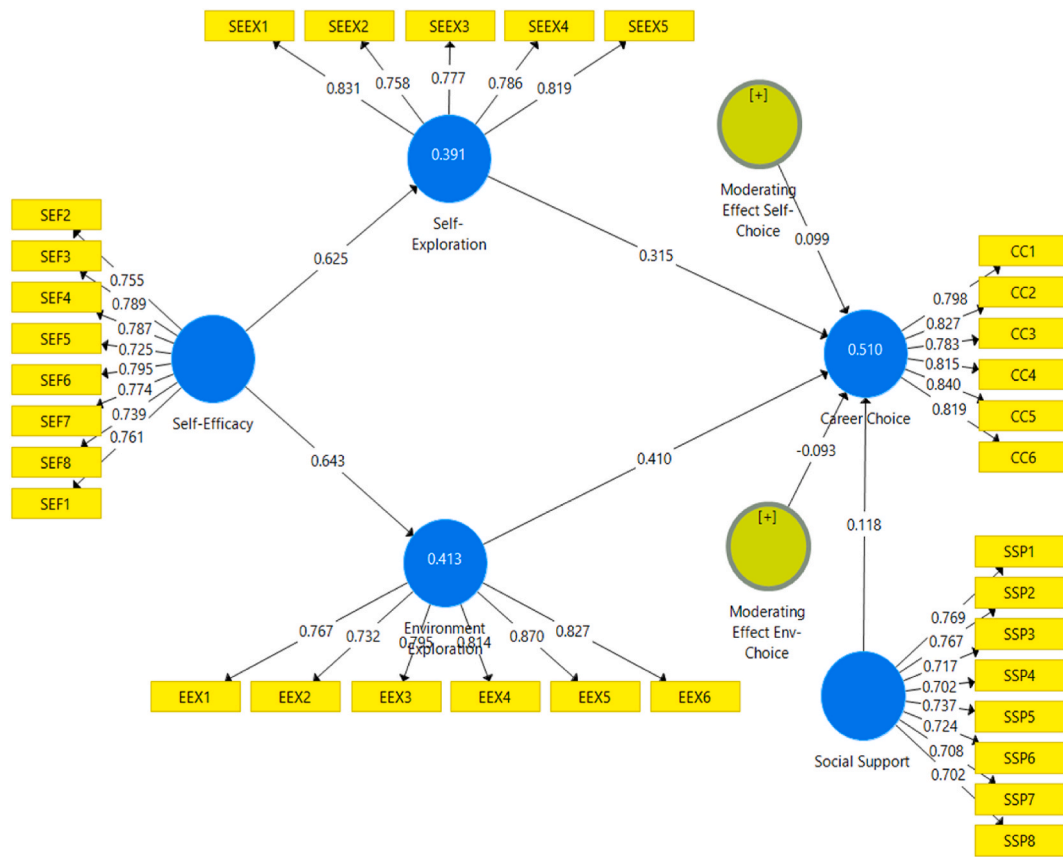


Fig. 2. The results of SEM.

positive ( $\beta = 0.099$ ). This support will provide individuals with methods, ways, or opportunities to enhance their existing skills [99]. Marciniak et al. [100] also argue that adequate support leads to timely decision-making. Furthermore, support also diminishes the negative impact of barriers on self-exploration. This positive influence is also supported in the study by Zhao et al. [101].

A new finding in this study is the negative impact of social support on the relationship between environmental exploration and career choice ( $\beta = -0.093$ ). This result is completely opposite to the perspectives of Denault et al. [61]. When receiving social support, individuals can make environmental exploration more favorable than exploring alone [61]. However, Fouad et al. [102] argue that Asian cultures tend to be more supportive of children than American cultures. Similarly, in Vietnam, the family often influences students' choice of majors and careers [103]. This influence is manifested through guidance and direction and may even include assigning or proposing specific tasks to them. Therefore, the subjects received excessive support, which resulted in dependence and reduced activity in their job search [104]. Some argue that career exploration becomes ineffective when an individual lacks sufficient, consistent, or timely social support [105]. This result indicates that social support needs to be distributed appropriately. Limiting the provision of excessive resources can make individuals passive, and assistance should aim to maintain a minimum level of stability to achieve the desired outcome.

## 5. Conclusions and implications

### 5.1. Conclusions

This research contributes to career development by proposing and validating an explanatory model for university students' career exploration and choice in a transitional economy like Vietnam. It expands the Social Cognitive Career Theory (SCCT) by constructing a model that includes additional factors influencing career choices, such as self-efficacy, career exploration, and social support. The results again confirm self-efficacy's critical role in positively influencing self-exploration ( $\beta = 0.625$ ) and environmental exploration ( $\beta = 0.643$ ). Next, environmental exploration ( $\beta = 0.410$ ) and self-exploration ( $\beta = 0.315$ ) positively influence career choice. The study also demonstrates the significant role of social support in career exploration and career decision-making within the research context of Vietnam. Specifically, the moderating role of social support on the relationship between self-exploration and career choice is positive ( $\beta = 0.099$ ). However, social support had a negative effect on the relationship between environmental exploration and career choice ( $\beta = -0.093$ ).

## 5.2. Theoretical implications

The study introduces a novel framework for investigating career choices by integrating contextual factors (such as social support) with subjective factors (like self-efficacy and career exploration). This holistic approach provides a more comprehensive understanding of the complex interplay of influences on career selection. One key finding is the moderating effect of social support on the relationship between environmental exploration and career choice. This suggests that social support can amplify or attenuate the impact of environmental exploration. This finding warrants further investigation to elucidate the specific conditions under which social support plays this moderating role.

Furthermore, the unexpected negative effect of social support sometimes necessitates further exploration. The study suggests that cultural differences and potentially other environmental factors may influence how social support impacts career choices. This finding underscores the need for future research to delve deeper into the role of these contextual factors.

## 5.3. Practical implications

To effectively guide students toward fulfilling career paths, educational institutions should provide clear guidance and resources to aid their decision-making process. This encompasses providing comprehensive information about career options, facilitating self-exploration and environmental exploration activities, and incorporating practical content or career-oriented programs into the curriculum. Developing appropriate assessment scales is crucial for institutions to tailor instruction and create an environment conducive to practical self-assessments. By implementing these measures, educational institutions can empower students to make informed career choices that align with their aspirations, market demands, and personal strengths.

In this article, the moderating role of social support is specific to career exploration and career choice. So, first, universities need to create and develop sustainable connections with multi-disciplinary businesses to create opportunities for experience (through internships) as well as more stable outputs for students. Educational institutions must also make students aware of these available social resources so that they can be used more effectively.

## 5.4. Limitations and future research directions

This study expands the understanding of career choice by considering factors beyond the Social Cognitive Career Theory. However, limitations are present. The convenient sampling method might limit the generalizability of the findings to the entire Vietnamese student population. Additionally, focusing on university students restricts applicability to younger age groups or those pursuing alternative education. Due to the cross-sectional design, this study cannot definitively determine whether social support causes changes in career exploration or vice versa.

Furthermore, the study was conducted in a transitional market, so its findings may not be generalizable. Further studies could expand to include adjustments in sample size and survey participants to enhance the representativeness of the research model. Considering hypotheses across different cultures and regions will provide more insight into the model proposed in this study. Further studies should include cultural factors and characteristics of university students to generalize the research results. In addition, the importance of social support should be further elaborated upon, as it is a fundamental element of this research.

One direction of research that should be considered is combining multiple theories to explore career choices. Combined with the Theory of Planned Behavior, for example, where multiple arguments point to the complementarity between this theory and SCCT, it helps explain individual and environmental causality more comprehensively.

### Informed consent statement

Informed consent was obtained from all subjects involved in the study.

### Data availability statement

Data will be made available on request.

### CRediT authorship contribution statement

**Minh Pham:** Writing – original draft, Supervision, Project administration, Investigation, Conceptualization. **Bao Quoc Lam:** Writing – original draft, Formal analysis, Data curation, Conceptualization. **Anh Tuan Ngoc Bui:** Writing – review & editing, Writing – original draft, Validation, Software, Methodology, Formal analysis, Conceptualization.

### Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.



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## Appendix

Item	Source
<b>Social support</b>	[86]
There is someone I can count on to be there if I need support when I make academic and career choices.	
There is someone who helps me weigh the pros and cons of academic and career choices I make.	
There is someone who helps me consider my academic and career options	
There is no one who shows me how to get where I am going with my education or career. (R)	
There is someone who supports me in the academic and career choices I make	
There is someone who stands by me when I make important academic and career decisions.	
There is no one who supports me when I make academic and career decisions	
There is someone who tells or shows me general strategies for a successful life.	
There is someone I am trying to be like in my academic or career pursuits	
There is no one particularly inspirational to me in the academic or career path I am pursuing. (R)	
In the academic or career path I am pursuing, there is someone I admire.	
There is no one I am trying to be like in my academic and career pursuits. (R)	
I have a mentor in my academic or career field	
I know of someone who has a career I would like to pursue.	
In the academic or career path I am pursuing, there is no one who inspires me. (R)	
<b>Environmental exploration</b>	[58]
Investigated career possibilities.	
Went to various career orientation programs	
Obtained information on specific jobs or companies.	
Initiated conversations with knowledgeable individuals in my career area.	
Obtained information on the labor market and general job opportunities in my career area.	
Sought information on specific areas of career interest.	
<b>Self-exploration</b>	[58]
Reflected on how my past integrates with my future career.	
Focused my thoughts on me as a person.	
Contemplated my past.	
Been retrospective in thinking about my career.	
Understood a new relevance of past behavior for my future career	
<b>Self-efficacy</b>	[87]
Figure out which career options could provide a good fit for your personality	
Identify careers that best use your skills	
Pick the best-fitting career option for you from a list of your ideal careers	
Learn more about careers you might enjoy	
Match your skills, values, and interests to relevant occupations	
Make a well-informed choice about which career path to pursue	
Learn more about jobs that could offer things that are important to you	
Identify careers that best match your interests	
<b>Career choice</b>	[88]
I have a clear set of goals for my future	
I know what I want to do in terms of an occupation or career	
I believe my occupational/career goals are realistic	
I believe I will be able to achieve my occupational/career goals;	
I am clear about the steps I need to take to achieve my occupational/career goals	
I am taking the steps necessary to achieve my occupational/career goals	

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