

The Relationship between Entrepreneurship Education and Entrepreneurial Intentions of College Students in China: Focus on Mediating Effect of Entrepreneurial Opportunity Recognition and Entrepreneurial Self-Efficacy

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Abstract

Entrepreneurship education (EE) plays a significant role on improving the entrepreneurial intention and willingness of youth and future entrepreneurs. This study aims to identify the effects of entrepreneurship education on the entrepreneurial intention of students in higher education institutions in China. A structural equation is used to analyze data collected from 406 Chinese students from business and management majors across 5 universities. Entrepreneurial opportunity recognition and self-efficacy were introduced as the mediating variable in this model. Results showed that 1) EE has a positive effect on the entrepreneurial intentions of the students, 2) partly mediating effects of entrepreneurial opportunity recognition and mediating effect of self-efficacy were found between Entrepreneurship education (EE) and entrepreneurial intentions (EI). The findings suggest that educational institutions should place a greater emphasis on entrepreneurship education and the recognition of business opportunities in order to promote entrepreneurial intent among students. Although a longitudinal study may be necessary to understand the long-term effect of entrepreneurship education, through empirical evidence this study demonstrates that the perception of entrepreneurship education among Chinese college students significantly influences entrepreneurial self-efficacy and indirectly influences entrepreneurial intention.

Keywords

Entrepreneurship Education, Entrepreneurial Opportunity Recognition,

1. Introduction

Schumpeter (1934) concludes that the entrepreneurship process is the primary factor in economic and social progress, while entrepreneurs are the bedrock of economic growth. Recent years have seen an increasing impact of government encouragement and financing of college students' entrepreneurship pathways. According to the "Report on Employment of Chinese University Students in 2020" data, in 2019 the percentage of self-employed students against employed is only 1.6 percent. For academics, therefore, factors that improve the entrepreneurial intentions of college students have become a highly evolving issue.

In the last three decades, the increase in entrepreneurship as a sector has preceded the emergence of entrepreneurship courses and programs in universities (Piperopoulos & Dimov, 2015). The state government of China recently drafted a variety of policies and encouraged the initiative of education of young entrepreneurs. In order to address the problem of employment challenges for college students, the government and universities are also taking active steps to ease the burden on employment. The Government has played a leading role in the top-level design and structural process, and a policy support structure was initially formed: for newly developed businesses to reduce taxation, cut rents, improve the security of intellectual property, and offer tailored training and advice.

Entrepreneurship has a significant effect on the development of the national economy. In order to lead a vibrant entrepreneurial environment, entrepreneurship is an important element. Therefore, it is important to provide entrepreneurship education for college students and aspiring entrepreneurs. The literature on the motivating factors of the entrepreneurial willingness of college students is primarily embodied in the following two aspects: Firstly, research is carried out on environmental factors such as family history (Palmer et al., 2019), entrepreneurial policies (Park, Kim, & Ko, 2015), social networks (Quan, 2012), social capital (Weiss, Anisimova, & Shirokova, 2019), business role models (Nowiński & Haddoud, 2019), attention deficit hyperactive disorder (ADHD) symptoms (Yu et al., 2021); secondly, from the demographics of college students, studies across individual factors such as gender (Wilson et al., 2007), psychological characteristics (Kang, 2017), entrepreneurial zeal (Cardon, Glauser, & Murnieks, 2017), constructive personality (Hu et al., 2018), motivational self-knowledge (imaginative personality) (Fuller et al., 2018) and self-efficiency (Hsu et al., 2019) have taken place. Moreover, research has been carried out primarily on the factors affecting the recognition of entrepreneurial opportunities and the relationship between the recognition of entrepreneurial opportunities and entrepreneurial willingness. But there is little research focusing on the

mediating impact of the recognition of entrepreneurial opportunities. In addition, although the Chinese government has formed a set of policies and given assistance to entrepreneurship and innovation in recent years, the entrepreneurial rate has not increased much, especially for young college students. Based on existing research literature, this paper introduces two variables, the entrepreneurial opportunity recognition and the self-efficacy of entrepreneurship, and constructs a structural equation model (SEM) to illustrate the internal impact of entrepreneurship education on the entrepreneurial willingness of college students in China.

In general, there is a need to better understand the entrepreneurial intentions of Chinese students and the factors that influence their intentions. The main contribution of this study is to address the same need. It is presumed that the findings would elaborate on a variety of issues. It will test the applicability of the Ajzen's TPB Model to Chinese college students. It will also act as a clarification of the relationship between the educational context and the background of the intentions. Moreover, policy makers, EE researchers and educators can find some useful recommendations from this study. Finally, Identify students' potential and interests and encourage them to start new businesses.

The remainder of this paper is organized into four parts:

- 1) A literature review on prior studies on entrepreneurship education and entrepreneurial intentions and theoretical frameworks of the relationship between educational background and intentions.
- 2) The methodology of the research.
- 3) Results and discussions.
- 4) Main conclusions, highlighting key limitations in this analysis and suggest recommendations for future research.

2. Theoretical Framework and Hypotheses

2.1. Social Cognitive Theory and Entrepreneurship Education Research

Social cognitive theory provides a theoretical analysis framework for this study, and establishes a theoretical connection between students' entrepreneurial practical experience and entrepreneurial behavior-oriented motivational processes. Academic studies believe that only by building relevant constructs (such as self-concept and self-efficacy) together through theoretical construction can we better explain the expectation of one's career choice outcome (such as satisfaction and stability) and explain the relationship between seemingly different constructs (such as self-efficacy, interest, ability, and intention) (Lent & Hackett, 1994). Krueger, Reilly, and Carsrud (2000) found that entrepreneurial intention has a positive impact on the final choice to pursue an entrepreneurial career path. They summed up that entrepreneurial intention is a good indicator of behavior, especially when the behavior is difficult to observe or there is limited previous data to find, the impact is even more serious. It can be seen that social cognition theory plays an important theoretical guiding role in the study of en-

trepreneurs and new ventures, and these studies play an important theoretical guiding significance in how to conduct entrepreneurship education in universities.

2.2. Entrepreneurship Education (EE) and Entrepreneurial Intentions (EI)

The Danish Entrepreneurship and Youth Enterprise Foundation introduced the definition of Entrepreneurship in 2012 and since then, the European Commission has used this definition: “Entrepreneurship means you are working on and converting opportunities and ideas into(for) others” worth. American scholar Bird (1988) first proposed the concept of entrepreneurial intention. He believed that the mental state that entrepreneurs present when they achieve a certain stage of entrepreneurial goals is entrepreneurial willingness. Entrepreneurial intention refers to the “target behavior of entrepreneurship” (Krueger, 1993). The entrepreneurial intentions of potential entrepreneurs are strengthened by teaching the entrepreneurial skills and attitudes required to explore business concepts, create practical business strategies and operate effectively (Lee & Lee, 2015). Drucker (1985) said that entrepreneurship can be learned through training. Kuratko (2014) also confirmed that one person can acquire abilities, skills, and personality traits through training, which leads to the desire to start a business. The necessity and importance of entrepreneurship education are emphasized from the viewpoint that entrepreneurs can be cultivated through entrepreneurship education (Ronstadt, 1985). In addition, it is necessary to conduct entrepreneurship education because it can increase entrepreneurial intentions through education (Timmons, 1994). Furthermore, most of the research on the impact of entrepreneurship education on entrepreneurial intentions is concentrated in the later stages of college students’ journey (Liñán et al., 2011). Martin et al. (2013) conducted a meta-analysis on the results of entrepreneurship education and found that there is a significant positive correlation between students’ participation in entrepreneurship education and higher entrepreneurial intention. In addition, Bae et al. (2014) found that there is a significant positive relationship between entrepreneurship education and entrepreneurial intention, and this relationship is stronger than the relationship between ordinary business education and entrepreneurial intention. The results of Barba-Sánchez and Atienza (2018)’s research on the key factors of future engineers’ entrepreneurial intentions show that entrepreneurship education makes a positive contribution to their entrepreneurial intentions. The first hypothesis on the positive effect of entrepreneurship education on entrepreneurial intentions is therefore established through the above literature and is as follows:

H1: Entrepreneurship education positively impacts entrepreneurial intentions.

2.3. Entrepreneurship Education (EE) and Entrepreneurial Opportunity Recognition (EOR)

Entrepreneurial opportunities are means of generating potentially profitable new

goods, services, and/or modes of production (Shane, 2000). Entrepreneurial opportunity recognition refers to the ability to identify a good idea and transform it into a profitable business opportunity to increase customer or social value (Lumpkin & Lichtenstein, 2005). Regarding the dimension of entrepreneurial opportunity recognition, scholars currently do not have a clear division and regard it more as a one-dimensional variable. The definitions of entrepreneurial opportunity recognition in works of literature are different, but they have in common that opportunity recognition is an insight or an ability to capture entrepreneurial opportunities under uncertain environments. Prior opportunity studies mainly focused on the concept of entrepreneurial opportunity (Zhao et al., 2005; Baron, 2006); the nature and source of opportunity (Chandler et al., 2002); the process of discovery and creation (Lindsay et al., 2006); evaluation and development (Cox, 2016); as well as the factors that affect the formation of entrepreneurial opportunities and individuals who recognize the opportunity (Camelo-Ordaz et al., 2020). Among these views, the recognition view of opportunity is the most relevant to this study. Therefore, based on the discovery perspective, this study defines opportunity identification as an individual's efforts in the search and identification of opportunity (Ozgen & Baron, 2007).

Saks and Gaglio (2002) found out that the secret to entrepreneurship education programs for prospective entrepreneurs should be opportunity recognition, as education can be adequately acquired. Furthermore, the significance of entrepreneurship education in the growth of entrepreneurial competence must be recognized. According to Choi (2016), on both the first day and the last day of training, we analyzed prospects for students obtaining entrepreneurship education to recognize possibilities. As a consequence, they showed that preparation for entrepreneurship has helped students develop their ability to recognize opportunities. Costa et al. (2018)'s research results also showed that entrepreneurship training has a positive and significant role in accurately identifying business opportunities. The following hypothesis was derived based on the findings and inferences of previous study results.

H2: Entrepreneurship education has a significant effect on entrepreneurial opportunity recognition.

2.4. Entrepreneurship Education (EE) and Entrepreneurial Self-Efficacy (ESE)

In general, self-efficacy refers to "the ability to believe in oneself to organize and carry out the course of action necessary to achieve a given achievement" (Bandura, 1997). Entrepreneurship self-efficacy is the expansion of the concept of self-efficacy in the field of entrepreneurial research. Several studies show that targeted education plays an important role in the development of self-efficacy. Zhao (2005) revealed that communication in entrepreneurship has a substantial impact on self-efficacy and suggest that realistic preparation to experience entrepreneurship in advance should be offered to improve self-efficacy. Self-efficacy can also be enhanced through social persuasion, or through positive encouragement and

feedback given to individuals by professors and faculty in entrepreneurship education programs (Wilson et al., 2007). Recent research has shown that the self-efficacy beliefs of learners are responsive to the signals they receive from entrepreneurship courses in an educational setting (Graevenitz, Harhoff, & Weber, 2010). The hypothesis is defined as follows, based on previous studies.

H3: Entrepreneurship education has a significant effect on entrepreneurial self-efficacy.

2.5. Entrepreneurial Opportunity Recognition (EOR) and Entrepreneurial Intentions (EI)

Entrepreneurial opportunity is the core of the entire entrepreneurial activity. As an important research direction in the field of entrepreneurship, entrepreneurial opportunity identification has attracted the attention of scholars domestic and foreign. Hassan et al. (2020)'s research shows that the recognition of entrepreneurial opportunities has a significant positive impact on the entrepreneurial intentions of Indian college students. Ma and Huang's (2020) findings suggest that employees are able to use their knowledge to identify more opportunities, which in turn increases employees' willingness to start their own businesses. A significant aspect is identifying opportunities for entrepreneurs. The topic of how opportunities are understood and exploited is directly linked to the success or failure of entrepreneurship (Kim, 2013). Based on the previous studies, the fourth and fifth hypotheses are set as follows.

H4: Entrepreneurial opportunity recognition has a significant effect on entrepreneurial intentions.

H5: Entrepreneurial opportunity recognition will have a mediating effect on the relationship between entrepreneurship education and entrepreneurial intentions.

2.6. Entrepreneurial Self-Efficacy (ESE) and Entrepreneurial Intentions (EI)

According to Bandura's Social Learning Theory (1977), there is a connection between the self-perception of personal skills and career decision-making when performing specific tasks. These perceptions are often called self-efficacy (Nowiński et al., 2019). The theoretical context of the relationship between entrepreneurial behavior and entrepreneurial intentions is primarily split into the "entrepreneurial event model" proposed by Shapero (1975) and the "theory of planned behavior theory" proposed by Ajzen (1991). Previous self-efficacy research in entrepreneurial contexts has shown that it can predict the intention of a person to start a new business because it represents the expectation that they are likely to do so (Pittaway et al., 2010; Piperopoulos & Dimov, 2015). Many studies have shown that self-efficacy is an equally accurate indicator of the educational environment, linked to the provision of entrepreneurial courses to improve entrepreneurial intentions (Zellweger et al., 2011). According to Bullough et al. (2014)'s study result, ESE has always been related to the intention of an in-

dividual to engage in entrepreneurship, and it was found to be a key prerequisite for entrepreneurial intention. Thus the sixth hypothesis is defined as follows.

H6: Entrepreneurial Self-efficacy has a significant effect on Entrepreneurial Intentions.

If H3 and H6 were positively verified, we can think that ESE has a mediating role between entrepreneurship education and entrepreneurial intentions. In fact, ESE's role in the link between entrepreneurship education and entrepreneurial intention has been recognized and examined in several previous types of research (Zhao, 2005; Nowiński et al., 2019). Similarly, Darmanto and Yuliari (2018) establish that the entrepreneurial self-efficacy of entrepreneur students has a significant mediating effect on the development of entrepreneurial intentions and entrepreneurial behavior, indicating that Social Cognitive Theory, Theory of Planned Behavior, and Entrepreneurship Career Development Theory have significant contributions to the realization of entrepreneurial career development of entrepreneur students. Our research aims to formally test the mediating role of ESE in China.

H7: ESE will have a mediating effect on the relationship between EE and EI.

The research model of this paper is as follows.

The social cognitive theory helps construct a theoretical model with four variables (Figure 1): 1) entrepreneurship education as an independent variable 2) entrepreneurial opportunity recognition and 3) entrepreneurial self-efficacy as mediating variable and 4) entrepreneurial intentions as a dependent variable. It also includes the seven hypotheses described above. Our theoretical model validates the social cognitive theory and establishes new insights into the process of shaping the entrepreneurial intention of students.

3. Methods of Data Analysis

3.1. Characteristics of Research Samples

This research gathered data from students of Hebei University, Hebei University of Engineering, Xingtai University, Qingdao University, and Zhejiang Ocean University in China. The questionnaires were distributed and retrieved from

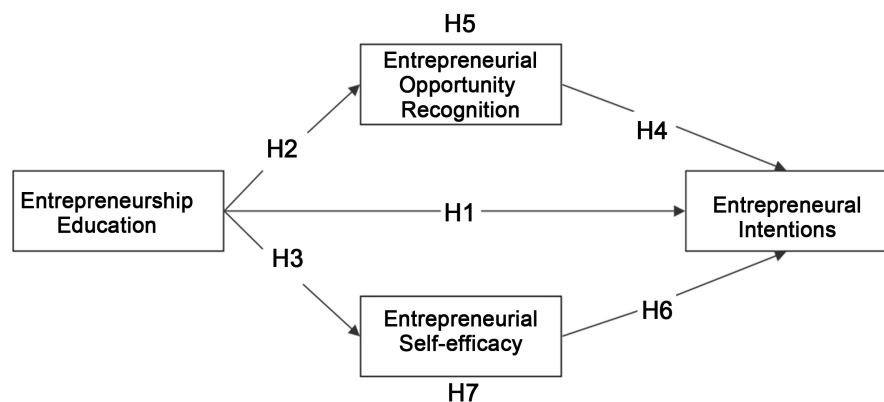


Figure 1. Research model.

May 10, 2021, to September 19, 2021, and the invalid result was excluded, such as those filled in randomly and those answered with obvious regularity, a total of 406 valid questionnaires were produced, with an effective rate of about 81.2%. The characteristics of the sample are as follows: in terms of gender, males account for 46.8% and females accounted for 53.2%; in terms of the study year, freshmen 23.5%, sophomores 21.8%, juniors 32%, and seniors 23.4%, others accounted for 3.7%; In terms of majors, economic management majors accounted for 27.9%, mathematical science majors accounted for 24.3%, Oceans and science majors accounted for 23.5%, foreign language majors accounted for 14%, and other majors accounted for 10.3%; In terms of satisfaction with entrepreneurial support projects, 5.4% were dissatisfied, 14.2% were generally satisfied, 40.9% were relatively satisfied, and 39.5% were very satisfied. The detailed information is shown in **Table 1**.

3.2. Configuration of Measurement Tools

SPSS 26 and Amos 26 are used in this paper to statistically evaluate the direct effect of the hypotheses. Exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) were used for reliability, validity and descriptive analysis. Based on the previous studies linked to the analysis, the operational description of the variables is summarized. The questionnaire in this paper consists of items related to entrepreneurship education, opportunity recognition, self-efficacy and entrepreneurial intentions. The questionnaire items are shown in **Table 2**.

Table 1. The demographics of the valid sample.

	Variables	Frequency	Percent (%)
Gender	Male	190	46.8
	Female	216	53.2
Grade	First year	95	23.5
	Second year	86	21.2
	Third year	130	17.4
	Forth year	95	23.4
Major	Economics and Management	113	27.9
	Mathematics and Science	99	24.3
	Oceans and Science	95	23.5
	Foreign Language	57	14
	Other	42	10.3
Satisfaction with Startup Support Program	Not satisfied	22	5.4
	Ordinary	58	14.2
	Satisfied	166	40.9
	Very satisfied	160	39.5

Note: N = 406.

Table 2. The composition of the questionnaire.

Variables	Number of Item	Source of Questionnaire	Measurement Method
Entrepreneurship Education	12	Li & Hendrischke (2020)	
Entrepreneurial Opportunity Recognition	5	Singh et al. (1999); Ozgen and Baron (2007); Bhagavatula et al. (2010)	Likert 7-Point Scale Measurement
Entrepreneurial Self-efficacy	5	Wilson, Kickul, and Marlino (2007)	
Entrepreneurial Intentions	6	Liñán and Chen (2009)	

4. Results & Discussions

4.1. Reliability and Validity Test

In this study, SPSS 26.0 was used to test the reliability of the scale. The test results are shown in **Table 3**. The variable Cronbach's α is between .851 and .960, all higher than 0.7, which shows that the scales in this study have good reliability.

In this study, the principal component analysis method was used to achieve the dimensionality reduction of the variables through the linear combination of the original variables and the solution of each principal component, thereby extracting the common factors, and selecting the easy to interpret orthogonal rotation method (varimax rotation), exploratory factor analysis was performed on the scale, and the test results are shown in **Table 4**. The KMO value is .938, the Bartlett's p value is less than .001, and the absolute value of the factor loading of each variable is greater than .70. This shows that in this study, each scale has good convergent validity.

AMOS 26.0 was used to conduct confirmatory factor analysis for the scale, and the test results are shown in **Table 5**. The absolute value of factor loading of each variable is greater than 0.70, the constituent reliability value CR is greater than 0.80, and the average variance extraction amount AVE is greater than 0.50. The overall structure model fits well with the data ($\chi^2 = 605.810$, $df = 583$, $\chi^2/df = 1.039$, CFI = .998, IFI = .998, RMSEA = .010). It can be seen that the fitting validity of the model is good ($\chi^2/df = 1.039$, RMSEA = .01), which means that the model has good discriminant validity.

A confirmatory factor analysis (CFA) was conducted to verify the validity of each factor for entrepreneurship education, entrepreneurship self-efficacy, entrepreneurship opportunity recognition, and entrepreneurship intentions. The analysis results based on the factor loading capacity of .5 or more are summarized in **Table 5**. As a result of the confirmatory factor analysis, the entrepreneurship education variable excluded four items. In addition, reliability was

Table 3. Scale reliability test results.

Variable	Cronbach's α	Cronbach's α after item deletion
EE (practice)	.931	.913 - .919
EE (theory)	.917	.888 - .900
EE (atmosphere)	.898	.84 - .868
EOR (ability)	.933	.914 - .923
EOR (target)	.931	.906 - .913
EOR (pressure)	.924	.896 - .907
ESE	.851	.817 - .829
EI	.960	.951 - .955

Note: EE = entrepreneurship education, EOR = entrepreneurial opportunity recognition, ESE = entrepreneurial self-efficacy, EI = entrepreneurial intention.

Table 4. Scale exploratory factor analysis.

Variable	Item	Factor							
		1	2	3	4	5	6	7	8
Practice	EE1-EE5	.828 - .848							
EE Theory	EE6-EE9	.803 - .845							
Atmosphere	EE10-EE12	.808 - .836							
Ability	EOR1-EOR5	.789 - .848							
EOR Target	EOR6-EOR9	.818 - .842							
Pressure	EOR10-EOR13	.812 - .837							
ESE	ESE1-ESE5	.740 - .778							
EI	EI1-EI6	.766 - .812							

KMO = .938, Bartlett's $p < .001$.

verified with Cronbach's Alpha value, and all Cronbach's Alpha values were confirmed to be above 0.7.

4.2. Descriptive Statistics and Correlation Analysis

Table 6 is the descriptive statistics and correlation table of each variable in this study. It can be seen that there is a significant positive correlation between entrepreneurship education and entrepreneurial intention, as well as between entrepreneurial self-efficacy and entrepreneurial opportunity recognition. Correlation analysis can only test whether there is a relationship between factors and the strength of the relationship, but cannot verify the causal relationship between factors. In order to further explore the relationship between these factors and verify the relevant assumptions proposed in this study, regression analysis was carried out for further analysis. In addition, gender, grade, major, and satisfaction were selected as control variables to exclude the influence of factors other

Table 5. Scale confirmatory factor analysis.

Variable	Item	Estimate	SD Estimate	SE	P	CR	AVE	
EE	practice	EE1	1.000	.830				
		EE2	1.064	.867	.049	***		
		EE3	1.048	.849	.050	***	.931	.730
		EE4	1.080	.872	.049	***		
		EE5	1.077	.853	.051	***		
	theory	EE6	1.000	.857				
		EE7	.967	.833	.046	***		
		EE8	1.027	.871	.046	***	.917	.734
	atmosphere	EE9	1.026	.865	.046	***		
		EE10	1.000	.881				
		EE11	.958	.865	.043	***	.898	.747
		EE12	.951	.846	.044	***		
EOR	Ability	EOR1	1.000	.881				
		EOR2	.965	.866	.040	***		
		EOR3	.955	.869	.039	***	.933	.737
		EOR4	.908	.833	.041	***		
		EOR5	.897	.843	.039	***		
		EOR6	1.000	.868				
	Target	EOR7	1.016	.871	.043	***		
		EOR8	1.000	.897	.040	***	.932	.773
		EOR9	1.024	.880	.042	***		
	pressure	EOR10	1.000	.879				
		EOR11	.997	.855	.043	***		
		EOR12	1.022	.887	.041	***	.925	.754
		EOR13	.943	.852	.041	***		
ESE	-	ESE1	1.000	.737				
		ESE2	.933	.695	.071	***		
		ESE3	.968	.737	.070	***	.852	.534
		ESE4	.960	.730	.070	***		
		ESE5	.975	.755	.069	***		
EI	-	EI1	1.000	.898				
		EI2	.982	.892	.035	***		
		EI3	.994	.910	.034	***		
		EI4	.976	.901	.034	***	.961	.803
		EI5	.971	.894	.035	***		
		EI6	.949	.880	.035	***		

$\chi^2 = 605.810$, $df = 583$, $\chi^2/df = 1.039$, CFI = .998, IFI = .998, RMSEA = .010

Note: EE = entrepreneurship education, EOR = entrepreneurial opportunity recognition, ESE = entrepreneurial self-efficacy, EI = entrepreneurial intention *** $p < .001$.

Table 6. Mean, standard deviation and correlation coefficient.

Variable	1	2	3	4	5	6	7	8	9	10	11	12
Gender	1											
Grade	.043	1										
Major	.011	.254**	1									
Satisfaction	-.025	.013	.112*	1								
EE (Practice)	-.161**	.005	-.102*	.072	1							
EE (Theory)	.002	-.113*	-.030	.083	.476**	1						
EE (Atmosphere)	-.079	-.111*	-.001	.085	.483**	.524**	1					
EOR (Ability)	.027	.003	-.037	.012	.164**	.164**	.156**	1				
EOR (Target)	-.069	.000	-.071	.026	.208**	.251**	.220**	.548**	1			
EOR (Pressure)	.029	.016	-.063	-.025	.120*	.150**	.136**	.579**	.507**	1		
EI	-.037	-.011	-.017	.089	.429**	.439**	.428**	.396**	.433**	.388**	1	
ESE	-.025	.037	.034	.014	.183**	.148**	.129**	-.005	.121*	.055	.509**	1
Mean	1.530	2.580	2.540	3.140	4.062	4.011	3.999	4.106	4.063	4.011	4.172	4.030
Standard Deviation	.500	1.149	1.307	.856	1.630	1.623	1.705	1.615	1.744	1.691	1.850	1.159

Note: EE = entrepreneurship education, EOR = entrepreneurial opportunity recognition, ESE = entrepreneurial self-efficacy, EI = entrepreneurial intention. * $p < .05$, ** $p < .01$ (N = 406).

than independent variables on dependent variables as much as possible, making the results of data analysis more authentic and reliable.

4.3. Hypothesis Verification Results

Following the suggestions of Baron (2006), this paper takes three steps to examine the relationship between entrepreneurship education and entrepreneurial intention, and the mediating effect of entrepreneurial self-efficacy and entrepreneurial opportunity recognition on entrepreneurship education and entrepreneurial intention. Firstly, the relationship between entrepreneurship education and the entrepreneurial intention was investigated. Secondly, the relationship between entrepreneurship education, entrepreneurial self-efficacy, and entrepreneurial opportunity recognition was investigated. Finally, after controlling for entrepreneurial self-efficacy and entrepreneurial opportunity recognition respectively, the relationship between entrepreneurship education and the entrepreneurial intention was investigated.

From Table 7, it can be seen that entrepreneurship education practice and entrepreneurial intention have a significant positive relationship (M4, $\beta = .223$, $p < .001$), and entrepreneurship education theory and entrepreneurial intention have a significant positive relationship (M4, $\beta = .228$, $p < .001$), there is a significant positive relationship between entrepreneurship education atmosphere and

Table 7. Results of regression analysis between EE, EI and ESE.

Variable	ESE				EI	
	M1	M2	M3	M4	M5	M6
Independent Variable	EE (practice)	.183***			.223***	.165***
	EE (theory)		.148**		.228***	.199***
	EE (atmosphere)			.129**	.201***	.189***
Mediating Variable	ESE				.509***	.425***
	R ²	.033	.022	.014	.281	.455
	F	13.943***	8.989**	6.856**	52.483***	140.903***

Note: EE = entrepreneurship education, EOR = entrepreneurial opportunity recognition, ESE = entrepreneurial self-efficacy, EI = entrepreneurial intention. * $p < .05$, ** $p < .01$, *** $p < .001$.

entrepreneurial intention (M4, $\beta = .201$, $p < .001$). Therefore, H1 is verified.

From **Tables 8-10**, it can be seen that entrepreneurship education and the recognition of entrepreneurial opportunity have a significant positive relationship (M7, $\beta = .164$, $p < .01$; M8, $\beta = .164$, $p < .01$; M9, $\beta = .156$, $p < .01$; M13, $\beta = .208$, $p < .001$; M14, $\beta = .251$, $p < .001$; M15, $\beta = .220$, $p < .001$; M19, $\beta = .120$, $p < .05$; M20, $\beta = .150$, $p < .01$; M21, $\beta = .136$, $p < .01$). Therefore, the study proves the H2. It can be seen from **Table 5** that entrepreneurship education and entrepreneurial self-efficacy have a significant positive relationship (M1, $\beta = .183$, $p < .001$; M2, $\beta = .148$, $p < .01$; M3, $\beta = .129$, $p < .01$). Therefore, H3 is also supported.

From **Tables 8-10**, it can be seen that there is a significant positive relationship between the ability to recognize entrepreneurial opportunity and entrepreneurial intention (M11, $\beta = .396$, $p < .001$), and the target recognition of entrepreneurial opportunity has a significant positive relationship with entrepreneurial intention (M17, $\beta = .433$, $p < .001$), and the recognition of entrepreneurial opportunity pressure has a significant positive relationship with entrepreneurial intention (M23, $\beta = .388$, $p < .001$). Therefore, the H4 is verified. In addition, after incorporating entrepreneurship education and entrepreneurial opportunity ability identification into the model, entrepreneurship education practice and entrepreneurial intention are significantly positively correlated (M12, $\beta = .196$, $p < .001$), but the impact of entrepreneurship education practice on entrepreneurial intention changes from the original .223 in M10 was reduced to .196 in M12. This shows that the recognition of entrepreneurial opportunity ability plays a part in the mediating effect between entrepreneurship education practice and entrepreneurial intention. In addition, the same method can be used to verify the part of the mediating effect of entrepreneurial opportunity ability recognition, target recognition, and pressure recognition between entrepreneurship education practice, theory, atmosphere, and entrepreneurial intentions. Therefore, H5 is verified.

It can also be seen in **Table 9** that entrepreneurial self-efficacy and entrepreneurial intentions have a significant positive relationship (M5, $\beta = .509$, $p < .001$).

Table 8. The mediating effect result of EOR (ability) between EE and EI.

Variable	EOR (ability)				EI	
	M7	M8	M9	M10	M11	M12
Independent Variable	EE (Practice)	<u>.164**</u>			<u>.223***</u>	<u>.196***</u>
	EE (Theory)		<u>.164**</u>		<u>.228***</u>	<u>.202***</u>
	EE (atmosphere)			<u>.156**</u>	<u>.201***</u>	<u>.180***</u>
Mediating Variable	EOR (Ability)				<u>.396***</u>	<u>.302***</u>
	R ²	.027	.027	.024	.281	.369
	F	11.210**	11.222**	10.073**	52.483***	75.048***

Note: EE = entrepreneurship education, EOR = entrepreneurial opportunity recognition, ESE = entrepreneurial self-efficacy, EI = entrepreneurial intention. * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 9. The mediating effect result of EOR (target) between EE and EI.

Variable	EOR (target)				EI	
	M13	M14	M15	M16	M17	M18
Independent Variable	EE (Practice)	<u>.208***</u>			<u>.223***</u>	<u>.197***</u>
	EE (Theory)		<u>.251***</u>		<u>.228***</u>	<u>.178***</u>
	EE (atmosphere)			<u>.220***</u>	<u>.201***</u>	<u>.171**</u>
Mediating Variable	EOR (target)				<u>.433***</u>	<u>.309***</u>
	R ²	.043	.063	.049	.281	.370
	F	18.329***	27.072***	20.612***	52.483***	93.013***

Note: EE = entrepreneurship education, EOR = entrepreneurial opportunity recognition, ESE = entrepreneurial self-efficacy, EI = entrepreneurial intention. * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 10. The mediating effect result of EOR (pressure) between EE and EI.

Variable	EOR (pressure)				EI	
	M19	M20	M21	M22	M23	M24
Independent Variable	EE (Practice)	<u>.120*</u>			<u>.223***</u>	<u>.210***</u>
	EE (Theory)		<u>.150**</u>		<u>.228***</u>	<u>.198***</u>
	EE (atmosphere)			<u>.136**</u>	<u>.201***</u>	<u>.181***</u>
Mediating Variable	EOR (pressure)				<u>.388***</u>	<u>.309***</u>
	R ²	.014	.022	.018	.281	.374
	F	5.941*	9.268**	7.602**	52.483***	71.794***

Note: EE = entrepreneurship education, EOR = entrepreneurial opportunity recognition, ESE = entrepreneurial self-efficacy, EI = entrepreneurial intention. * $p < .05$, ** $p < .01$, *** $p < .001$.

Therefore, H6 is supported. In addition, after incorporating entrepreneurship education and entrepreneurial self-efficacy into the model at the same time, entrepreneurship education practice and entrepreneurial intention are significantly positively correlated (M6, $\beta = .165$, $p < .001$), but the impact of entrepreneurship education practice on entrepreneurial intention changes from the original .223 in M4 dropped to .165 in M6. This shows that entrepreneurial self-efficacy plays a part in the mediating effect of entrepreneurship education practice and entrepreneurial intentions. In addition, the same method can be used to verify the partial mediating effect of entrepreneurial self-efficacy in entrepreneurship education practice, theory and atmosphere, and entrepreneurial intention. Therefore, H7 is verified.

According to the suggestions of Mackinnon et al. (2007), this study further adopted the SPSS 26.0 Process plug-in and the Bootstrap method to test whether the mediating effect of entrepreneurial self-efficacy and the identification of entrepreneurial opportunities are significant. The Bootstrap sample size is set to 5000 and the mediating effect macro test was carried out. The Sobel test of entrepreneurship education-entrepreneurial opportunity recognition-entrepreneurial intention shows that the mediating effect of entrepreneurial opportunity recognition in entrepreneurship education and entrepreneurial intention is significant ($Z > 1.96$, $p < .001$), Bootstrap test results show that the 95% asymmetric confidence interval of the above-mentioned mediation effect does not contain 0, indicating that the mediation effect is significant. In addition, the Sobel test of entrepreneurship education-entrepreneurial self-efficacy-entrepreneurial intention shows that entrepreneurial self-efficacy has a significant mediating effect in entrepreneurship education practice and entrepreneurial intention ($Z > 1.96$, $p < .001$). Bootstrap test results show that in the above-mentioned mediation the 95% level of the asymmetric confidence interval of the effect is none of them contain 0, indicating that the mediating effect is significant. Therefore, this article assumes that the mediating effect of H5 entrepreneurial opportunity recognition and the mediating effect of H7 entrepreneurial self-efficacy are once again supported.

4.4. Discussions

With the continuous exploration, popularization and gradual popularization of entrepreneurship education in colleges and universities, the practice of various forms of entrepreneurship education has been implemented among college students, and plays a positive role in improving the employment and entrepreneurship quality of college students. This study applied the survey data of 406 college students from five universities to analyze the status quo of entrepreneurship education, entrepreneurial self-efficacy, entrepreneurial opportunity recognition and entrepreneurial intention, as well as the relationship between different types of entrepreneurship education and entrepreneurial intention and entrepreneurial self-efficacy of college students.

After incorporating entrepreneurship education and entrepreneurial opportunity ability identification into the model, entrepreneurship education practice and entrepreneurial intention are significantly positively correlated, but the impact of entrepreneurship education practice on entrepreneurial intention was reduced. So the recognition of entrepreneurial opportunity ability plays a part in the mediating effect between entrepreneurship education practice and entrepreneurial intention. The same, after incorporating entrepreneurship education and entrepreneurial self-efficacy into the model at the same time, entrepreneurship education practice and entrepreneurial intention are significantly positively correlated ($\beta = .165, p < .001$), but the impact of entrepreneurship education practice on entrepreneurial intention dropped (.223 \rightarrow .165). So entrepreneurial self-efficacy plays a part in the mediating effect of entrepreneurship education practice and entrepreneurial intentions.

5. Conclusion & Research Limitation

5.1. Conclusion and Practical Implications

According to the research results, the study outcomes are as follows:

First, from previous studies, we know that there is a close association between behavior and intentions. The findings of this study's empirical analysis are consistent with the results of the relationship between entrepreneurship education and entrepreneurial intentions derived from the plan action theory of [Hrubes et al. \(2001\)](#). So, the principle of proof is developed.

Secondly, it could not be the same as the current scenario when college students do not have real job experience, but this study has produced several promising outcomes. It will be of immense value to all facets of potential entrepreneurial students if successful entrepreneurs give lessons.

Third, since many entrepreneurship-related influencing factors are generated or cultivated, the role of entrepreneurship education plays a vital role in enhancing entrepreneurial intentions. It is therefore important to undertake entrepreneurship training in order to improve the entrepreneurial intentions of college students.

Fourth, In order to effectively promote college students to pursue entrepreneurial practices, universities can develop cooperative partnerships with companies through opportunities such as business, education, and science, and explicitly or indirectly provide internship opportunities and entrepreneurial experience for college students as universities are gathering and transportation place for talents ([Wang, 2020](#)). In addition, numerous support policies, such as support for national entrepreneurship, are indispensable.

Finally, this research may be of considerable value for the creation and promotion of entrepreneurship courses. It will alleviate the job burden globally, improve the self-fulfillment of entrepreneurs and cultivate the entrepreneurial spirit of entrepreneurs. It also provides a realistic and feasible theoretical framework for entrepreneurship education and entrepreneurship training in the re-

gion.

While entrepreneurship education is of great assistance to entrepreneurship, the framework of entrepreneurship education initiatives often needs to take into account unique national (or likely local) context barriers and opportunities.

5.2. Limitations and Future Research

The samples selected in this study were from students of 5 Chinese universities, and more detailed analysis with a bigger sample size is required if the result of the study is extended to other areas.

There was also a limitation in the questionnaire collection process. In this analysis, only a horizontal study was introduced, questionnaires were obtained over a fixed span of time and questionnaires were not returned at intervals for longitudinal comparative studies. Longitudinal studies can help explain the degree of entrepreneurship education obtained by college students and the evolving mechanism of entrepreneurial intentions that is convenient for evaluating the causal connection between various phenomena.

Much of the questionnaire elements are drawn from international literature, and Chinese college students were subject to investigation. Due to cultural differences, the calculation of such things may not represent the actual intention of Chinese college students. In the future, scholars should establish initiatives that represent the entrepreneurial spirit and entrepreneurial aspirations of Chinese college students, taking into account local cultural factors.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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