

The Mediating Effect of Entrepreneurial Intention on the Relationship between Entrepreneurship Education and Entrepreneurial Performance: Evidence from Chinese College Student Entrepreneurs

Feng Liu, Putthiwat Singhdong*

Faculty of Business Administration, Rajamangala University of Technology
Thanyaburi, Pathum Thani, Thailand

feng_liu@mail.rmutt.ac.th, putthiwat_s@rmutt.ac.th (Corresponding author)

Abstract. This study examines the relationship between entrepreneurship education, entrepreneurial intention, and entrepreneurial performance among Chinese college students. While China has implemented various policies to encourage college student entrepreneurship, the success rate remains low compared to other countries. Using a quantitative approach and structural equation modeling, this study analyzes survey data from 424 college students who have started their own businesses. The results indicate that entrepreneurship education has a significant positive impact on both entrepreneurial intention and performance, with entrepreneurial intention partially mediating the relationship between entrepreneurship education and entrepreneurial performance. The findings highlight the importance of entrepreneurship education in fostering entrepreneurial intention and improving entrepreneurial performance outcomes among Chinese college students. However, the cross-sectional design and self-reported nature of the data limit the causal inferences that can be drawn from the study. Future research should adopt longitudinal designs and objective performance measures to further investigate the impact of entrepreneurship education on entrepreneurial success in China.

Keywords: Entrepreneurship Education, Entrepreneurial Intention, Entrepreneurial Performance.

1. Introduction

Entrepreneurship plays a central role in fostering economic development within a nation or locality. (Seth, 2019) and also an important catalyst for socioeconomic development (Gu, Wang, Hua, & Liu, 2021). Entrepreneurship not only contributes to economic advancement, industrial enhancement, and the evolution of economic structure, but also generates job prospects, drives technological advancement, and enhances social productivity (Andrews, Chatterji, Lerner, & Stern, 2022; Busenitz et al., 2003; I. Hathaway & R. E. Litan, 2014; I. F. Hathaway & R. E. Litan, 2014). Due to its significance, entrepreneurship has garnered considerable interest from researchers and policymakers alike.

At present, Chinese government attaches great importance to innovation and entrepreneurship, elevating it to the level of national strategy. According to the Global Entrepreneurial Ecosystem Index 2022 report published by Startup Blink, China's Entrepreneurial Ecosystem Index ranks 10th among the world's 100 largest economies (Blink, 2023). According to the Global Innovation Index Report 2022 published by the World Intellectual Property Organization (WIPO), China's innovation and entrepreneurship index ranks 11th (WIPO, 2022). The survey revealed that individuals aged 19–23, including college students, recent graduates, and unemployed individuals, constitute the main force behind youth entrepreneurship (China Youth Entrepreneurship Development Report 2022, 2022). According to the 2022 China Youth Entrepreneurship Development Report, 96.1% of college students have entertained thoughts and intentions of starting their own businesses, with 14% already engaged in entrepreneurial activities or preparing for entrepreneurship (China Youth Entrepreneurship Development Report 2022, 2022). Notably, 90% of youth entrepreneurs have received education beyond the college level, with nearly 70% of youth entrepreneurial enterprises concentrated in sectors such as agriculture, forestry, animal husbandry, fisheries, wholesale and retail trade, education, culture, sports, entertainment, accommodation, and catering (Kangtao, 2022). In summary, China possesses abundant entrepreneurial resources, a relatively mature entrepreneurial ecosystem, and more favorable policies and measures, providing ample opportunities for college students to engage in entrepreneurship. This is expected to promote the development of entrepreneurship education and enhance entrepreneurial performance.

While China has implemented various policies favorable to entrepreneurship, including tax reductions, innovative office spaces for entrepreneurs, and guaranteed loans. However, entrepreneurship carries high risks. According to the 2022 China Youth Entrepreneurship Development Report, over half of young entrepreneurs experience fluctuating profits (China Youth Entrepreneurship Development Report 2022, 2022). Additionally, about 80% of college students have limited understanding of venture capital, while only 2.12% fit the criteria of 'ready entrepreneurs' in the eyes of venture capital firms (zheng, 2021). Startup capital, social resources, and knowledge and skills reserves are the three major difficulties faced by youth entrepreneurship (Kangtao, 2022). Nearly 50% of college students consider the biggest challenge in the entrepreneurial process to be financial issues, while 31% believe that the main reason for entrepreneurial failure is also financial issues (Hong, 2017). Chinese college student entrepreneurs currently face challenges such as insufficient startup capital, limited entrepreneurial knowledge, and lack of entrepreneurial means (Qu, 2024). This has led to a relatively low success rate of college student entrepreneurship, only about 2-3%, compared to approximately 20% for American college student entrepreneurship (Mycos, 2017; Sieger, 2016).

Colleges and universities are the ecological cultivators of college student entrepreneurship, and college students are the main force of entrepreneurship in colleges and universities, and most of the major colleges and universities have a very large variety of technology-driven, fast-growing startups. They come from different industries and have different business models, but most of the startups incubated in colleges and universities stay in the early stage, and very few of them are fast-funded, fast-growing and enter the later stage. If low growth is maintained over a long period of time, it will lead to a lack of confidence among both entrepreneurs and entrepreneurship educators in universities, and will also unconsciously transfer this extreme uncertainty about entrepreneurial success to students. In the future, colleges and universities should

focus their support on the quality and depth of student entrepreneurship to help startups survive the so-called "valley of death" (W., 2019).

Entrepreneurship education encompasses the systematic provision of knowledge, skills, and resources essential for individuals to recognize business prospects and cultivate an entrepreneurial mindset. (Tomy & Pardede, 2020). It teaches students "what entrepreneurship is" and "how to become an entrepreneur"(Katherine & Jonathan, 2021). Entrepreneurship education has been implemented in China for numerous years, with a substantial integration of mandatory and elective courses on innovation and entrepreneurship into the curriculum of Chinese universities dating as far back as 2016, where over 82% of institutions have embraced this initiative (Lee & Yuan, 2018).

Although entrepreneurship education has been practiced in China for many years, the current state of entrepreneurship education in China is still in its infancy, characterized by a disconnect between theoretical knowledge and practical application in the curriculum (Zhang, 2016) and inadequate integration with professional education (Dai, 2022).

During the investigation into the key policies of 17 Chinese government initiatives supporting entrepreneurship among college students, Wang Wanshan found that the demand for improvement in entrepreneurship education and training among student entrepreneurs was the highest, reaching a level of 31.7% (W., 2019). Survey data also show that 56.7% of college students believe that entrepreneurship courses offered by schools are helpful, while 20.98% say they are not helpful, and 22.32% are unsure. Insufficient guidance and cultivation in entrepreneurial practice channels provided by schools make students feel unable to practice and apply what they have learned. Students urgently hope that schools can provide entrepreneurship counseling, financial support, policy support, skills training, and venue support for entrepreneurial college students(Qu, 2024). The primary purpose of college students choosing entrepreneurship courses is to earn credits rather than to train thinking, acquire knowledge, and engage in practice (H. Li, 2020).

Establishing a comprehensive entrepreneurship education system is a relatively slow process (Slavica Singer, 2018). Given the current problems in entrepreneurship education in China, the clear demand for entrepreneurship education among college students, and the significant attrition rate of college student entrepreneurship, it is necessary.

2. Literature Review

2.1. Entrepreneurship Education and Entrepreneurial Performance.

Entrepreneurial performance serves as the primary criterion for assessing the success of entrepreneurs (Alene, 2020). For emerging entrepreneurs, the formation of entrepreneurial performance requires both the possession of relevant entrepreneurial knowledge and skills, as well as the acquisition of resources necessary for business development. Unger et al. point out that entrepreneurship education not only equips students with essential skills to identify business opportunities but also assists them in developing viable business models to serve profitable markets, thereby achieving entrepreneurial performance goals (Unger, Rauch, Frese, & Rosenbusch, 2011). Entrepreneurship education can provide entrepreneurs with entrepreneurial knowledge, cultivate entrepreneurial spirit, enhance entrepreneurial skills, boost entrepreneurial confidence, and thus improve entrepreneurial performance (Bae, Qian, Miao, & Fiet, 2014). Entrepreneurship education enables students to confront potential difficulties and risks in actual entrepreneurial processes early on in teaching, encouraging innovative problem-solving methods and motivating students to overcome challenges for success (Ren, 2017). In the practice of entrepreneurship education, students may also gain access to valuable networking resources from successful entrepreneurs and senior managers, facilitating early exposure to novel, high-quality information (Rasmussen & Sørheim, 2006) and thereby alleviating the "deficiencies" of new businesses to promote entrepreneurial performance. Chen Du emphasizes the diverse pathways through which entrepreneurship education can enhance the entrepreneurial performance of college students, A favorable campus entrepreneurship environment and entrepreneurship education environment have a

huge impact on the success rate of college students returning home to start their own businesses later in life. The better the entrepreneurship education courses are offered, the better the performance usually is. Enhancing the quality of entrepreneurship education instructors, creating a supportive entrepreneurship environment, providing hands-on entrepreneurship experiences, improving entrepreneurship curriculum content, and enhancing the overall teaching and managerial aspects of entrepreneurship education all play crucial roles in enhancing the entrepreneurial capabilities of these students (Chen, 2023). Shi Qinghai found in his study that school support is the most crucial factor influencing entrepreneurial performance. Schools enhance students' entrepreneurial abilities by offering courses, providing venues, and inviting expert lectures. Moreover, schools supporting student entrepreneurship foster a strong entrepreneurial atmosphere, leading to the emergence of more entrepreneurs. Generally, the greater the support from the school, the better the entrepreneurial outcomes for college students (Shi, 2018). Therefore, this study employs four factors, personal involvement (PI), personal satisfaction (PS), learning effect (LE), and school support (SS), to measure entrepreneurship education. Financial performance (FP) and growth performance (GP) are used to measure entrepreneurial performance. Hypothesis 1 is proposed: entrepreneurship education is significantly related to entrepreneurial performance.

2.2. Entrepreneurship Education and Entrepreneurial Intention.

A series of empirical studies consistently reveal the significant and positive impact of entrepreneurship education on entrepreneurial intention (Ge, 2022; Huang, 2022; J. Li, 2014; Ning, 2023; Wang X, 2016; Xu, 2023). Entrepreneurship education is considered a key factor in fostering entrepreneurial intentions (San-Martín, Fernández-Laviada, Pérez, & Palazuelos, 2021) and is identified as one of the decisive factors influencing graduates' willingness to start a business (Fayolle & Klandt, 2006). Participation in comprehensive entrepreneurship courses is associated with a significant increase in individual entrepreneurial confidence and belief (Dehghanpour Farashah, 2013). Individuals, while engaging in entrepreneurship education, not only enhance their understanding of entrepreneurship and ignite their interest in this field, but also establish a vision and desire for entrepreneurship, providing them with firsthand experience of the entrepreneurial process. This experiential learning helps elevate their entrepreneurial knowledge to a practical level, reduces concerns related to entrepreneurship, and ultimately enhances their entrepreneurial intentions (A. Li, Xu, G., Zeng, X., & Zhou, N., 2012). As the focal unit of entrepreneurship education, schools play a crucial role in providing resources, guidance, networks, opportunities, and educational training. These supports can assist students in overcoming difficulties in the entrepreneurial process, enhancing their confidence and motivation for entrepreneurship, thereby promoting the formation and development of entrepreneurial intentions. For individuals who are already aware of starting a new venture, possess entrepreneurial skills, recognize opportunities, have received training, and perceive positive support from their university for entrepreneurship, the probability of entrepreneurial intention is higher (Coduras, Urbano, Rojas, & Martínez, 2008). Therefore, this study employs three factors, namely perceived desirability (PD), perceived feasibility (PF), and propensity to act (PA), to measure entrepreneurial intention. Hypothesis 2 is proposed: Entrepreneurship education is significantly related to entrepreneurial intention.

2.3. Entrepreneurial Intention and Entrepreneurial Performance.

Drawing upon the Theory of Planned Behavior and Social Cognitive Theory, it becomes apparent that entrepreneurial intention significantly impacts individuals' future behaviors, propelling them towards internal objectives (Ajzen, 2005). During the intention formation phase, entrepreneurs need to cultivate entrepreneurial confidence. Rich entrepreneurial knowledge, skills, and diverse network resources can bolster entrepreneurs' self-assurance, thereby facilitating the formation of their entrepreneurial intentions. Among various factors, entrepreneurial self-efficacy emerges as a key variable influencing entrepreneurial intention, possessing strong predictive power (Wei., 2022). It is

noteworthy that entrepreneurial self-efficacy has a significant positive impact on entrepreneurial performance (Zhong, 2012). Individuals' pursuit of entrepreneurship often hinges on a steadfast belief in their entrepreneurial capabilities. According to Social Cognitive Theory, the interaction between self-efficacy and outcome expectations yields performance outcomes. Strong entrepreneurial intentions can stimulate entrepreneurs' forward-thinking and risk-taking propensity, likely fostering continuous innovation in product market strategies (Miller & Friesen, 1982). By anticipating product demand and pioneering new products/services in new market positions, these actions contribute to the generation of entrepreneurial performance (Ireland, Hitt, & Sirmon, 2003).

Entrepreneurial intention serves as the precursor to entrepreneurial behavior, typically assessed through self-assessment and market research to evaluate the feasibility of entrepreneurial opportunities (Liñán & Fayolle, 2015). The stronger students' entrepreneurial self-confidence and abilities are, the more inclined they are to take proactive actions, seize identified opportunities, and pursue entrepreneurial success (Krueger Jr, Reilly, & Carsrud, 2000; Tian, 2014; Wei, 2015). Nurturing students' stronger entrepreneurial intentions and confidence can lead to higher entrepreneurial performance. Hence, in this study, it can be hypothesized that: Hypothesis 3. entrepreneurship intention is significantly related to entrepreneurial performance. Hypothesis 4. entrepreneurship intention mediates the relationship between entrepreneurship education and entrepreneurial performance.

3. Methodology

3.1. Sample size and sampling

This research employed a quantitative methodology and utilized variance-based structural equation modeling to examine a structural model. As the principal method of data collection, a standard questionnaire was utilized to conduct a survey for this study. The survey was completed in English and Chinese. Utilized was a five-point Likert scale; the Likert scale ratings of 1, 2, 3, 4, and 5, respectively, correspond to "strongly disagree," "don't agree," "disagree," "agree," and "strongly agree."

The study's target population comprises entrepreneurial college students currently enrolled in Chinese universities. In this study, the author designed 40 questions to investigate three variables, please refer to table 1 for comprehensive details. This study utilized a two-stage stratified random sampling technique, with the categorization of colleges and universities based on criteria published on the official website of the Ministry of Education of China (as of December 30, 2022, for statistical purposes). In the first stage of sampling, the number of universities in each category was determined based on a 3% proportion. In the second stage of sampling, a minimum of five times the questionnaire quantity was collected from each category of universities. Furthermore, according to Bentler and Chou, it is recommended that the ratio of sample size to the number of items should be at least 10:1. Given that the number of items in this study is 40, a minimum of 400 valid questionnaires should be collected accordingly (Bentler & Chou, 1987). In summary, assuming a survey response rate of 70%, it is suggested that a total of 600 surveys be distributed to meet the requirements. The results of the sampling are shown in the table 2.

Table 1. Research Questionnaire

Variable	Item	Questions	Authors
PI	PI1	While in school, you frequently attend entrepreneurship education theory courses.	(Arranz, Ubierna, Arroyabe, Perez, & Fdez. de Arroyabe, 2017; Chen, 2023; Cui
	PI2	During your time at school, you frequently attend entrepreneurship seminars organised by the university.	

Variable	Item	Questions	Authors
	PI3	While in school, you often participate in various types of entrepreneurial competitions.	& Bell, 2022; Ning, 2023)
	PI4	While in school, you regularly train or practice simulations of entrepreneurial skills.	
PS	PS1	You are very satisfied with the theoretical courses related to entrepreneurship education.	(Chen, 2023; J. Li, 2014; Ning.D, 2017)
	PS2	You are very satisfied with lectures or competitions on entrepreneurship.	
	PS3	You are very satisfied with the practical courses related to entrepreneurship.	
	PS4	You are very satisfied with the teachers of entrepreneurship education.	
LE	LE1	Enhance your spirit of innovation through entrepreneurship education and learning	(J. Li, 2014; Piperopoulos & Dimov, 2015)
	LE2	Enhance your awareness of entrepreneurial risk through entrepreneurship education programmes.	
	LE3	You have a good grasp of basic business knowledge after learning through entrepreneurship education.	
	LE4	The entrepreneurship education programme is a great way to improve your entrepreneurial capability.	
	LE5	Improvement of your psychological quality after learning through entrepreneurship education.	
SS	SS1	My school has a well-established entrepreneurship center or mentoring organization.	(J. Li, 2014; Ning.D, 2017)
	SS2	The school offers an entrepreneurship elective.	
	SS3	My school has a good creative atmosphere.	
	SS4	The school's teachers are passionate and committed to entrepreneurship education.	
	SS5	School leaders place a high value on entrepreneurship education.	
PD	PD1	You feel energized in an entrepreneurial work environment	(Ning.D, 2017; Phan,

Variable	Item	Questions	Authors
	PD2	You became an entrepreneur because it makes you feel better about your life.	Wong, & Wang, 2002), (Zhi, 2014), (Liñán & Chen, 2009)
	PD3	You have the confidence to start a business	
	PD4	Entrepreneurship can bring you challenges	
	PD5	Entrepreneurship can bring you great material rewards	
	PF1	You have told family or friends about your intention to start a business	
PF	PF2	You are starting a business because you want to do something new and different.	(Liñán & Chen, 2009; Ning.D, 2017; Phan et al., 2002; Zhi, 2014)
	PF3	you have taken the time to learn about entrepreneurship	
	PF4	You are very interested in starting a business	
	PF5	You believe that you can succeed in entrepreneurship by constantly pioneering and innovating.	
PA	PA1	You like to work in a job where you can organize your time freely.	(Liñán & Chen, 2009; Ning.D, 2017; Phan et al., 2002; Zhi, 2014)
	PA2	You are willing to take the risks associated with starting a business.	
	PA3	You are starting a business because it gives you the opportunity to make a difference.	
	PA4	You strive for entrepreneurial success.	
FP	FP1	Entrepreneurship will significantly increase your income over your pre-entrepreneurship or pre-employment income.	(J. Li, 2023; Z. Wang, Ma, H., & Guo, P., 2020a)
	FP2	Entrepreneurship will significantly improve your quality of life compared to before entrepreneurship.	
	FP3	Entrepreneurship will improve and enhance the living conditions of your family.	
GP	GP1	Your business has achieved the goals you had in mind before you started it.	(J. Li, 2023; Z. Wang, Ma, H., & Guo, P., 2020b)
	GP2	you have realized the value of your life.	

Variable	Item	Questions	Authors
	GP3	You have achieved some success in your current business.	
	GP4	You feel that I have contributed to society by starting your own business.	
	GP5	Entrepreneurship makes you very happy.	

Table 2. Number of Samples Collected from Each Type of Colleges or Universities

Type	Quantities	Stage	Stage 2
HEIs under Central Ministries and Agencies	118	4	20
Academic HEIs	1120	34	170
Professional HEIs	32	1	5
Vocational HEIs	1486	45	225
Total	2756	84	420

The information was gathered via mail or WeChat surveys. A total of 424 valid questionnaires were returned from the 84 universities to which 600 entrepreneurial college students were administered the surveys; the effective recovery rate is 70.67 percent. SPSS was utilized to perform an initial analysis of the data, with the purpose of addressing concerns such as missing values, outliers, and data non-normality. The principal analysis was conducted utilizing AMOS 26 to assess the measurement model's validity and reliability, and the hypotheses were examined for the significance of the asserted relationships via the bootstrapping method.

3.2. Reliability testing

The reliability testing in this study is measured using the Internal Consistency Reliability (ICR) method. This method typically employs the Cronbach's α coefficient for measurement, where a higher Cronbach's α value indicates greater internal consistency of the scale. If the α value is greater than 0.7, it indicates good reliability. Additionally, judgment is typically made based on indicators such as Alpha if an item is deleted, CITC (Corrected Item-Total Correlation) value, and SMC (Squared Multiple Correlation) in the research results. Typically, if the α value increases after deleting an item, the CITC value is less than 0.4, or the SMC is less than 0.4, it indicates poor internal consistency between the item and other items, and deletion may be considered (Bollen, 1989; Han & Zhao, 2020; Hinkin, 1998; Polit, Beck, & Owen, 2007).

3.3. Validity testing

This study will use Amos 24.0 software to construct Confirmatory Factor Analysis structural equation models for the three variables (EE, EI, and EP), and employ the CFA method to test their structural validity and convergent validity.

The fitness standard of the confirmatory factor analysis in this study is mainly based on the standard of Gefen (Gefen, Straub, & Boudreau, 2000). For models with large samples, the value of the chi-square degree of freedom ratio (χ^2/df) is required to be less than 5 (Kothari, 2004). The smaller the value of RMSEA is, the better the fitness of the model is. Its value is between 0.05 and 0.08, which indicates that the fitness of the model is good. If it is less than 0.05, the fitness of the model is very good. When the GFI value is greater than 0.9, it indicates that the fitness is good. AGFI is the adjusted fitness index, which increases with the increase of GFI, preferably greater than 0.9.

Convergent validity, places a spotlight on the robust correlations among items situated under the same construct. Typically, convergent validity is assessed against the following benchmarks: standardized factor loadings exceeding 0.5, an average variance extracted (AVE) surpassing 0.5, and a composite reliability (CR) surpassing 0.7 (Hair Jnr, Black, Babin, & Anderson, 2009). The attainment of these criteria signifies a commendable level of convergent validity.

The criteria for discriminant validity testing follow the recommendations of Fornell and Larcker (Fornell & Larcker, 1981). The AVE numbers are higher than the correlation coefficients of the dimensional variables they represent, which is in line with the criteria for discriminative validity.

4. Data Analysis

In this study, parameter estimation is carried out using Maximum Likelihood Estimation, or MLE for short, a technique that is common in management studies. It is based on the principle of using a known sample to find the parameters that are most likely to generate that sample.

4.1. Demographic Data

Table 3. Demographic Data

Attribute	Category	Frequency	Proportion (%)
Gender	Male	315	74.29
	Female	109	25.71
Age	18-22	120	28.30
	23-27	221	52.12
	28-35	83	19.58
Educational Level	Specialized	93	21.93
	Undergraduate	296	69.81
	Postgraduate	35	8.25
Nature of the school	HEIs under Central Ministries and Agencies	104	24.53
	Academic HEIs	120	28.30
	Professional HEIs	107	25.24
	Vocational HEIs	93	21.93
Professional Category	Engineering	37	8.73
	Finance	127	29.95
	Management	192	45.28
Number of Employees	Education	45	10.61
	Others	23	5.42
	10 Employees or Less	326	76.89
	11-20 Employees	73	17.22
Industry of the Enterprise	21-50 Employees	12	2.83
	More than 50 Employees	13	3.07
	High-tech	15	3.54
	Traditional Manufacturing	86	20.28
Industry of the Enterprise	Construction / Real Estate	14	3.30
	Trade/Services	275	64.86
	Finance	17	4.01

Others	17	4.01
Overall	424	100.00

According to table 3, 74.29% of respondents were male, and 25.71% were female. The age group of 23-27 years old had the most respondents, accounting for 52.12% of the total, followed by the age groups of 18-22 years old (28.30%) and 28-35 years old (19.58%). Respondents with an undergraduate made up the majority (69.81% of the total), followed by those with specialized (21.93%), and respondents with postgraduate (8.25%). As for nature of the school attended by the respondents, 24.53% came from HEIs under Central Ministries and Agencies, 28.30% from Academic HEIs, 25.24% from Professional HEIs, and 21.93% from Vocational HEIs. Regarding the professional category, management had the highest proportion, reaching 45.28%. Following that, finance accounted for 29.95%, education ranked third at 10.61%, engineering accounted for 8.37%, and others had the lowest proportion at 5.42%. Concerning the number of employees, businesses with fewer than 10 employees accounted for 76.89% of the total. The proportions of businesses with 11–20 employees accounted for 17.22%, and those with 21–50 employees accounted for 2.83%. Enterprises with over 50 employees constituted only 3.07% of the total. Regarding the industry of the enterprise, high-tech companies accounted for 3.54%, traditional manufacturing also accounted for 20.28%, construction and real estate accounted for 3.30%, trade and services accounted for 64.86%, and finance and others were the same at 4.01%.

4.2. Reliability analysis

In this study, the reliability of survey questionnaire data was assessed using SPSS 21.0 through reliability analysis. The results are presented in tables 3.

Table 4. Reliability Analysis

Variable	Dimension	Item	CITC	SMC	Alpha if item Deleted	Cronbach's α
EE	PI	PI1	.717	.563	.843	.872
		PI2	.683	.521	.852	
		PI3	.749	.569	.827	
		PI4	.769	.605	.821	
	PS	PS1	.707	.518	.828	.863
		PS2	.677	.477	.838	
		PS3	.725	.527	.819	
		PS4	.739	.551	.813	
	LE	LE1	.737	.564	.871	.894
		LE2	.715	.527	.876	
		LE3	.748	.566	.868	
		LE4	.736	.547	.872	
		LE5	.764	.588	.865	
	SS	SS1	.703	.509	.882	.895
		SS2	.743	.577	.872	
SS3		.750	.564	.870		
SS4		.778	.609	.863		
SS5		.743	.554	.872		
EI	PD	PD1	.718	.551	.879	.895
		PD2	.705	.533	.879	

Variable	Dimension	Item	CITC	SMC	Alpha if item Deleted	Cronbach's α
	PF	PD3	.788	.624	.862	.893
		PD4	.754	.570	.869	
		PD5	.751	.565	.869	
		PF1	.738	.559	.871	
		PF2	.720	.531	.874	
		PF3	.730	.538	.872	
	PA	PF4	.749	.563	.867	.863
		PF5	.760	.583	.865	
		PA1	.718	.521	.825	
		PA2	.691	.483	.835	
		PA3	.720	.520	.822	
		PA4	.726	.528	.819	
EC	OIC	OIC1	.726	.528	.785	.847
		OIC2	.728	.529	.778	
		OIC3	.705	.497	.799	
	MC	MC1	.684	.507	.832	.859
		MC2	.662	.478	.837	
		MC3	.735	.542	.808	
		MC4	.747	.562	.805	
	FRC	FRC1	.702	.501	.881	.894
		FRC2	.763	.592	.866	
		FRC3	.769	.593	.865	
		FRC4	.754	.574	.868	
		FRC5	.721	.523	.875	
	TBC	TBC1	.709	.514	.812	.855
		TBC2	.680	.471	.822	
		TBC3	.690	.479	.821	
		TBC4	.722	.525	.804	
ED	IE	IE1	.638	.500	.823	.841
		IE2	.616	.486	.824	
		IE3	.734	.556	.776	
		IE4	.736	.554	.773	
	ETE	ETE1	.763	.585	.864	.893
		ETE2	.730	.534	.872	
		ETE3	.726	.529	.872	
		ETE4	.747	.559	.869	
		ETE5	.731	.538	.871	
EP	PF	PF1	.693	.480	.790	.838
		PF2	.710	.507	.770	
		PF3	.709	.505	.768	

Variable	Dimension	Item	CITC	SMC	Alpha if item Deleted	Cronbach's α
	GP	GP1	.735	.582	.888	.903
		GP2	.724	.569	.889	
		GP3	.789	.627	.875	
		GP4	.767	.597	.880	
		GP5	.778	.613	.878	

As shown in table 4, the Cronbach's alpha coefficient for each part of the entrepreneurship education, entrepreneurial intention, and entrepreneurial performance scale is more than .8. The CITC value is also more than .6, and the SMC value is more than .4. This means that the variables are internally consistent, and the measurement questions and items meet the needs of the study. From the value of "Alpha if item Deleted", the deletion of any item will not cause the Cronbach's alpha value to increase, which also indicates that the above variables have good reliability.

4.3. Validity Analysis

The results of the confirmatory factor analysis for Entrepreneurship Education, Entrepreneurial Intention, and Entrepreneurial Performance are depicted in Figures 1, while the model fit indices are presented in table 4.

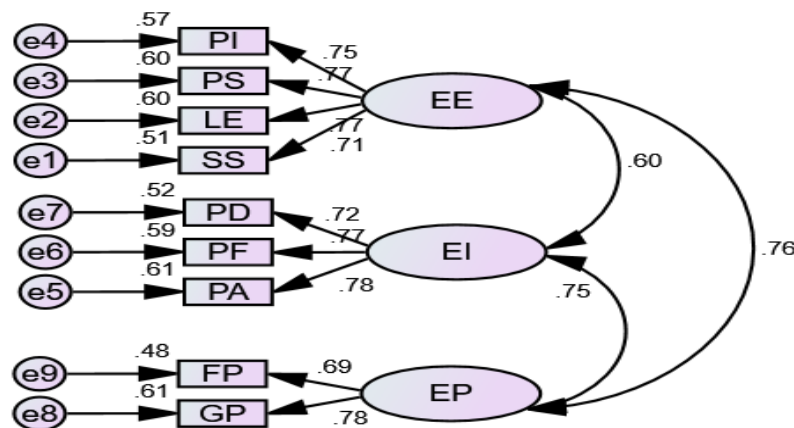


Fig.1: Confirmatory Factor Analysis of Model

Table 5. Confirmatory Factor Analysis Model Fit for Each Latent Variable

Indicator	Threshold	Estimate	Interpretation
χ^2/df	< 3	.909	Qualified
RMR	< .08	.018	Qualified
RMSEA	< .08	.000	Qualified
GFI	> .90	.989	Qualified
AGFI	> .90	.979	Qualified
NFI	> .90	.986	Qualified
TLI	> .90	1.000	Qualified
CFI	> .90	1.000	Qualified

From table 5, it can be seen that according to the standard of model fitting indicators, the fitting indicators of the model all meet the requirements.

Table 6. The Outer Loadings, Reliability and Validity Measures

Construct	Item	Factor Loading	Cronbach's α	CR	AVE	
EE	PI1	.793	.872	.875	.637	
	PI2	.760				
	PI3	.805				
	PI4	.833				
	PS1	.771	.863	.864	.614	
	PS2	.774				
	PS3	.784				
	PS4	.805				
	LE1	.803	.894	.894	.629	
	LE2	.764				
	LE3	.801				
	LE4	.778				
	LE5	.817				
	EI	SS1	.750	.895	.896	.634
		SS2	.810			
		SS3	.797			
SS4		.833				
SS5		.789	.895	.857	.636	
PD1		.781				
PD2		.765				
PD3		.837				
PD4		.806				
PF1		.798	.893	.894	.628	
PF2		.777				
PF3		.786				
PF4		.796				
PF5		.806				
EP	PA1	.793	.863	.89	.618	
	PA2	.759				
	PA3	.788				
	PA4	.797				
	PD5	.794	.838	.841	.638	
	FP1	.782				
	FP2	.802				
	FP3	.812				
EP	GP1	.790	.903	.904	.654	
	GP2	.776				
	GP3	.838				
	GP4	.811				

Construct	Item	Factor Loading	Cronbach's α	CR	AVE
	GP5	.826			

Source: Obtained using SPSS software and Amos software

The results of the convergent validity assessment are presented in table 6. As can be seen from table 6, the maximum value of the factor loadings is .838. the minimum value of the factor loadings is .750 and all these values are above the factor loading threshold of .500. All alpha values are greater than .800, therefore, it can be inferred that there is no concern about the reliability of individual items in this study. The internal reliability of the variables was calculated through Composite Reliability (CR), which should be greater than the threshold of .60, and according to the CR values shown in table 6, internal consistency was achieved for each construct, and this study shows that the internal consistency requirement was met. Convergent validity indicates the degree of similarity between items and related constructs. Based on the findings drawn in table 5, .654 was found to be the maximum value of AVE. On the other hand, .614 was found to be the minimum value of AVE, therefore, the AVE value of this study is greater than the threshold value of .50 0and hence this study ensures the convergent validity requirement.

Table 7. Discriminant Validity

	Entrepreneurship Education	Entrepreneurial Intention	Entrepreneurial Performance
Entrepreneurship Education	0.802	0.496**	0.589**
Entrepreneurial Intention	0.496**	0.801	0.561**
Entrepreneurial Performance	0.589**	0.561**	0.787

Note: The values highlighted in bold within the diagonal row represent the square roots of the average variance extracted for the constructs within the research model.

The results of the discriminant validity assessment are presented in table 7. The discriminant validity of the research model is generally examined by the fact that the square root of the AVE for each latent construct should exceed its correlation coefficients with other latent constructs (Fornell & Larcker, 1981); As shown in table 6, the requirement of discriminant validity were supported in this study.

4.4. Structural Model Analysis

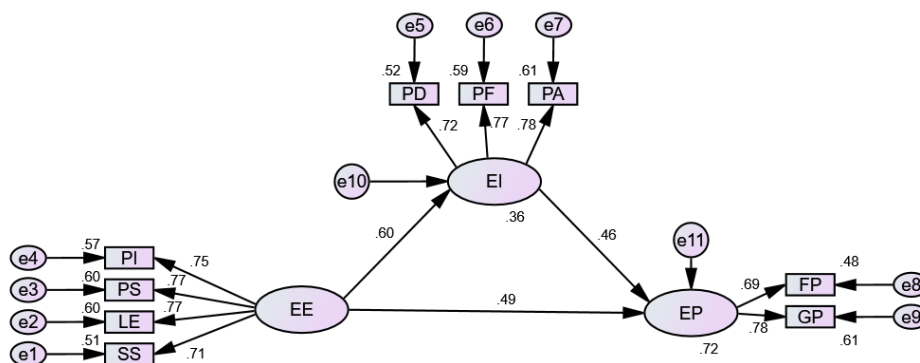


Fig.2: Structural Equation Model

Following the execution of the measurement model and the fulfillment of all criteria ensuring the validity and reliability of the constructs, bootstrapping is employed to assess the structural model. This method facilitates a comprehensive examination of the significance of each direct and indirect relationship outlined in the study. The analysis focuses on the outcomes of H1, H2, and H3, exploring the relationship between entrepreneurship education and entrepreneurial performance, entrepreneurship

education and entrepreneurial intention, and entrepreneurial intention and performance, respectively. The four hypotheses that comprised the analysis are three related to direct relationships and one to a mediated relationship. The results of the three path relationship hypotheses are presented in table 8, while the results of the mediated relationship hypothesis are presented in table 9. These tables provide a comprehensive overview of the observed associations, as detailed below.

Table 8. Path analysis results

Path	Standardized Estimate	S.E.	C.R.	P	Hypothesis
EE→EP	.489	.067	6.734	***	H1
EE→EI	.603	.059	9.34	***	H2
EI→EP	.456	.075	6.189	***	H3

Note: * denotes P<0.05, ** denotes P<0.01, *** denotes P<0.001

As can be seen in table 8, entrepreneurship education (EE) has a significant positive effect on entrepreneurial performance (EP) ($\beta=.489$, $p<.001$) and this result indicates that hypothesis H1 is supported. Entrepreneurship education (EE) has a significant positive effect on entrepreneurial intention (EI) ($\beta=.603$, $p<.001$), and this result suggests that hypothesis H2 is supported. Entrepreneurial intention has a significant positive effect on entrepreneurial performance ($\beta=.456$, $p<.001$), and this result indicates that hypothesis H3 is supported.

Table 9. Hypothesis Testing for Mediating Relationships

Paths	Point estimate	Product of Coefficients		Bootstrapping			
		SE	Z	Bias-Corrected 95%CI		Percentile 95%CI	
				Lower	Upper	Lower	Upper
Total effect EE→EP	.704	.064	11.00	.578	.829	.58	.832
Indirect effect EE→EP	.253	.045	5.622	.166	.342	.168	.344
Direct effect EE→EP	.451	.065	6.938	.332	.596	.328	.591

Note: Unstandardized estimating of 2000 bootstrap sample.

Table 9 shows the indirect influences between variables. It can be seen from table 9 that the indirect effect coefficient of EE on EP through EI was .253, with a 95% confidence interval of [.166,.342], excluding 0, and Z is above 1.96, indicating that the indirect effect is supported. The direct effect coefficient of EE on EP was .451, with a 95% confidence interval of [.332,.596], excluding 0, and Z is above 1.96, indicating that the direct effect is supported. The total direct effect coefficient of EE on EP was .704, with a 95% confidence interval of [.578,.829], excluding 0, and Z is above 1.96, indicating that the total effect is supported. In summary, entrepreneurial intention plays a partial mediating role in elucidating the mechanism through which entrepreneurial education impacts entrepreneurial performance, and the percentage of indirect effect is 35.94% (.253/.704), so H4 is supported.

5. Discussion

5.1. Effect of entrepreneurship education on entrepreneurial performance

The study discusses the impact of entrepreneurship education on entrepreneurial performance. Traditional entrepreneurship theories mainly focus on the influence of individual entrepreneurial traits, psychological capital, and the entrepreneurial environment on entrepreneurial performance. However, this study integrates interdisciplinary knowledge, merges the outcomes of management and education research, and aligns them with the contemporary context of entrepreneurship in China. Building upon the multidimensional logic of entrepreneurship education research, it regards entrepreneurship education as a variable with qualitative differences, elucidating new dimensional concepts and a novel connotation system of entrepreneurship education, thus expanding the scope of entrepreneurial performance research and broadening the domain of entrepreneurship theory.

The focus of this study differs from others, as it targets college students engaged in entrepreneurship. These students often possess stronger entrepreneurial aspirations and motivations, with a propensity for innovation, risk-taking, and autonomy. College student entrepreneurs are more likely to have received systematic entrepreneurship education and training, accumulated more entrepreneurial experience, and had greater opportunities for practical exposure. As a result, they are better positioned to accurately assess the impact of entrepreneurship education on entrepreneurial performance. Specifically, the initial hypothesis examines the relationship between entrepreneurship education and entrepreneurial performance, revealing a positive correlation. Entrepreneurship education equips students with the necessary knowledge, skills, and methodologies for entrepreneurship. This comprehensive theoretical understanding positively influences the cultivation of entrepreneurial behavior. Moreover, through engagement in entrepreneurial practices, students have the opportunity to interact with senior managers, successful entrepreneurs, bankers, and other high-quality human resources, facilitating early exposure to new and high-quality information. Additionally, support measures provided by schools, such as entrepreneurial resources, guidance, and incubation centers, can effectively enhance the effectiveness of student entrepreneurship education and improve their entrepreneurial performance level. These findings align with the research results of Falck et al. (Falck, Hebllich, & Luedemann, 2012; Rasmussen & Sørheim, 2006; Thompson, 2005).

5.2. The Partial Mediating Role of Entrepreneurial Intention

In previous research, there has been limited research on the variables influencing the relationship between entrepreneurship education and performance, and the intrinsic impact between them remains inadequately explained. To explore how entrepreneurship education influences entrepreneurial performance, this study constructs a comprehensive model comprising entrepreneurship education, entrepreneurial intention, and entrepreneurial performance mechanisms. The study draws conclusions by extensively reviewing relevant literature, carrying out large-scale questionnaire surveys, organizing and analyzing data, and providing detailed explanations of the connotations, dimensions, and measurement standards of variables. The research confirms the clarification of the connotations, dimensions, and measurement standards of each variable, verifies the mediating role of entrepreneurial intention, and further elucidates the impact of entrepreneurship education on entrepreneurial performance. By revealing the "black box" between the two, makes up for the lack of academic research on the relationship between the two, and provides new methods and tools for future research on the integration model.

The second hypothesis of this study posits a connection between entrepreneurship education and entrepreneurial intention, which has been identified as positive and statistically significant. Many studies have emphasized the direct and favorable association between entrepreneurship education and entrepreneurial intention. These findings are consistent with conclusions regarding entrepreneurship education and entrepreneurial intention. Specialized entrepreneurship education has the potential to instill a strong entrepreneurial drive among college students. By engaging with theoretical frameworks in entrepreneurship education, students have the opportunity to cultivate fundamental attributes such as entrepreneurial spirit, knowledge, and skills. In the practice of entrepreneurship education, students are directly exposed to the entire process of entrepreneurial activities and, to some extent, apply

entrepreneurial theories in practice, which is the most direct and profound exposure for students. Particularly, participation in entrepreneurship competitions by some students stimulates their entrepreneurial enthusiasm, enhances their confidence in entrepreneurship, thus ultimately positively influencing students' entrepreneurial intentions. This is consistent with the findings of Fiet et al. (Fiet, 2001; Jones & Iredale, 2010; Krueger Jr & Brazeal, 1994). Many studies have indicated that individuals must possess entrepreneurial intentions before translating them into entrepreneurial actions, and the clearer the intention, the higher the likelihood of implementation (Y. Wang, Feng, W., & Wang, Y., 2013). According to the Theory of Planned Behavior and Social Cognitive Theory, intentions have a significant impact on individuals' future behaviors, motivating them to strive for internal goals (Ajzen, 1991). Among various factors, entrepreneurial efficacy emerges as a key variable influencing entrepreneurial intentions, demonstrating strong predictive validity (Wei., 2022). According to Social Cognitive Theory, performance outcomes result from the interaction between self-efficacy and outcome expectations. It is worth noting that entrepreneurial self-efficacy has a significant positive impact on the performance of startups (Zhong, 2012). Many studies have shown that entrepreneurship education has a positive impact on entrepreneurial intentions (Rauch & Hulsink, 2015). Additionally, several articles have emphasized the positive impact of entrepreneurial intentions on entrepreneurial performance (Tajpour & Hosseini, 2021). In this context, entrepreneurship education provides entrepreneurs with opportunities to cultivate entrepreneurial intentions, thereby enhancing entrepreneurial performance. Therefore, the results of the current study provide strong evidence supporting the indirect relationship between entrepreneurship education and entrepreneurial performance.

6. Conclusion

This study contributes to the literature on entrepreneurship education and performance by examining the mediating role of entrepreneurial intention in the relationship between education and performance among Chinese college students. The findings suggest that entrepreneurship education can significantly enhance entrepreneurial intention and performance, highlighting the importance of incorporating entrepreneurship courses and programs into the college curriculum. However, the study also reveals that the impact of entrepreneurship education on performance is partially mediated by entrepreneurial intention, suggesting that other factors, such as individual characteristics and contextual influences, may also play a role in shaping entrepreneurial outcomes.

The conclusions of this study are of significant importance for promoting the reform and development of entrepreneurship education in China and enhancing the entrepreneurial performance of college students. For universities, it is crucial to integrate entrepreneurship education content and establish a more robust and varied array of entrepreneurial competitions, university science parks, and incubators tailored to their unique attributes to foster an entrepreneurial environment within and beyond campus boundaries. For college student entrepreneurs, it is essential to actively participate in self-directed learning and practical entrepreneurial activities, establish personal ideals, and enhance entrepreneurial intentions. Additionally, they should prioritize skill development. Throughout the entrepreneurial journey, entrepreneurs should acquire knowledge in business management and team building, refine their critical thinking skills, sharpen their ability to identify entrepreneurial opportunities, and acquire financing skills. These actions facilitate problem-solving, enhance efficiency, ensure accurate decision-making, and ultimately improve entrepreneurial performance. For policymakers, prioritizing the establishment of a fair market environment and the implementation of customized regulatory frameworks is essential. Continuous efforts are required to further streamline administrative processes, delegate authority, and enhance services to continually improve the business climate. Collaboration between the government and newly established enterprises is crucial for advancing the "mass entrepreneurship and innovation" strategy in China, ensuring its success.

To further advance research in this area, future studies should consider the following:

1. Investigate the specific components of entrepreneurship education that are most effective in fostering entrepreneurial intention and performance, such as experiential learning, mentorship, and networking opportunities.

2. Examine the role of individual differences, such as personality traits, self-efficacy, and risk propensity, in moderating the relationship between entrepreneurship education and entrepreneurial outcomes.

3. Conduct longitudinal studies to track the long-term impact of entrepreneurship education on entrepreneurial success and to identify the critical junctures in the entrepreneurial process where education interventions may be most effective.

4. Explore the contextual factors, such as university support, government policies, and cultural norms, that may facilitate or hinder the translation of entrepreneurial intention into actual entrepreneurial behavior and performance.

In conclusion, this study provides valuable insights into the role of entrepreneurship education in promoting entrepreneurial intention and performance among Chinese college students. However, more research is needed to unpack the complex interplay between individual, educational, and contextual factors in shaping entrepreneurial success in China and beyond.

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