



Assessing the impact of entrepreneurial education activity on entrepreneurial intention and behavior: role of behavioral entrepreneurial mindset

Jingwen Yan¹ · Tian Huang² · Yunxia Xiao³

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Abstract

This study explores the relationship between Entrepreneurship Education (EE) and Entrepreneurial Intentions (EI) using the Theory of Planned Behavior (TPB). From January through May of 2022, students from 10 Chinese institutions were surveyed using an online questionnaire. According to the research, students' EI scores rose significantly after participating in EE. In addition, students in China had a more significant impact on EI regarding factors like perceived feasibility and desirability. This study extends the body of knowledge about the connection between prior exposure and early intervention (EI) by demonstrating the beneficial effects of PE on EI. In addition, the results suggest that girls have lower EI than males, which is good news for gender equality. Lastly, the behavioral entrepreneur attitude has a favorable correlation with EI. Policymakers and university administrators might use the findings to understand better how and when extracurricular activities (EE) improve students' emotional intelligence (EI). A pioneering empirical study in a developing South-Asian setting shows the relevance of EE on EI among students at private universities. According to the study, EE generates EI, and entrepreneurial enthusiasm is crucial.

Keywords Entrepreneur education · Entrepreneur intension · Behavioral entrepreneur mindset · China

Introduction

Each nation's economic growth is shaped by entrepreneurship, which drives growth (Cui and Bell 2022). On the other hand, entrepreneurship has yet to be proven to be a factor in creating or eradicating economic inequality in emerging economies. While some scholars suggest that

entrepreneurship is the main cause of economic disparity in emerging economies (Liao et al. 2022), others argue that entrepreneurship may help reduce economic inequality in the long term (Rustiana et al. 2022). According to the original definition of entrepreneurship, new products and services can be introduced to the market by recognizing and exploiting business opportunities (Hassan et al. 2022). Entrepreneurship's impact on job creation and economic growth makes this term even more relevant today (Uddin et al. 2022). However, in recent years, entrepreneurship has also been viewed as a method of thinking and acting (NGO 2022). In light of this broader definition of entrepreneurship, we may say that entrepreneurship education (EE) is "any pedagogical program or process of education for entrepreneurial attitudes and abilities," which is appropriate for this review study. Salamzadeh et al. (2022) have summarized and described the taxonomy of these attitudes and talents elsewhere.

Students' entrepreneurial skills, knowledge, and attitudes can be improved through Entrepreneurship Education (EE) (Sampene et al. 2022), graduate trade start-ups, and general employment creation (Sampene et al. 2022). Entirely

Responsible Editor: Philippe Garrigues

✉ Yunxia Xiao
xiaoyx@cqipc.edu.cn

Jingwen Yan
gs58620@student.upm.edu.my

Tian Huang
b19092100054@cityu.mo

- ¹ School of Business and Economics, Universiti Putra Malaysia, Serdang 43400, Malaysia
- ² Faculty of Business, City University of Macao, Macao 999078, China
- ³ College of Economic and Management, Chongqing Industry Polytechnic College, Chongqing 401120, China

of this finally leads to the possibility of economic progress and development (Choi et al. 2021; Nungsari et al. 2022). There has been a significant increase in the amount of money invested in entrepreneurship education as a result of both private and public organizations across the globe realizing this potential (Svotwa et al. 2022; Xiong et al. 2022). It has been widely celebrated, but many in the sector are still unsure if any of this investment is worthwhile. Due to a global shift in university duties from separated ivory towers to an entrepreneurial pattern, a large portion of this investment and development is happening in advanced education. Universities are increasingly being viewed as both a place where new ideas can emerge and a place where they can be commercialized. That being said, it raises the question Irfan et al. (2022) presented about the best EE for students with these goals and in these settings. They ask: what kind of EE is most beneficial for students with these goals and in these circumstances? This is still a pressing concern, and the lack of answers does not appear to reduce investment movement.

A growing part of a country's economic development is played by entrepreneurial activities, which spur new ideas and technological advancements while generating jobs (Huang and Yang 2022). The formation of entrepreneurial goals and conduct is critical since it marks the initial stage in the creation of a firm itself. Individuals' state of mind can transform their acts into actual behaviors when they are "intentionally" doing them. Because of this, researchers and practitioners have paid great attention to entrepreneurial behavior and intention drivers (Qiu et al. 2021). Shapero's model of the entrepreneurial event (SEE) and theory of planned behavior (TPB) (Mir et al. 2022) pioneered by Chen et al. (2022) have been evaluated, refined, and used by many studies since its inception. In many countries and circumstances, academics have highlighted the importance of entrepreneurial ambition in forecasting one's behavior. Due to this, many countries' academics and business professionals have focused on studying the factors that influence entrepreneurial intent to understand better how such intents emerge (Kusumojanto et al. 2021). An assessment of the influence of entrepreneurship education has made use of TPB (Jin 2022; Zhai et al. 2022). Because it focuses on procedures that an entrepreneurship education program can change, the theory will likely be particularly beneficial in understanding entrepreneurial behavior. People's opinion that starting their firm is a viable career option is a significant factor in their entrepreneurial goals (Colombelli et al. 2022). As a result, it is reasonable to conclude that an entrepreneurial education's primary goal is to foster a positive view of entrepreneurship among students. People's intentions can largely be predicted by their view that starting a business is a feasible prospect.

Entrepreneurship education can alter students' perceptions about the difficulties of starting their own business,

a concept known as perceived behavioral control (Alferaih 2022). It is therefore supposed that one's intentions are what drives one to perform a certain action and that one's intentions can be affected as well as evaluating educational programs in terms of their impact on entrepreneurial behavior, which is defined as conduct targeted toward starting a business (Paliwal et al. 2022). As the term "entrepreneurship" has been defined in various ways, the goals of entrepreneurship education also have varied. According to certain definitions, an essential aspect of entrepreneurship is the ability to spot and take advantage of business opportunities (Wang et al. 2022). Incorporating diverse kinds of entrepreneurship, such as social, corporate, emerging, and family companies, into these concepts, leaves room for a wide range of possibilities. Successful and unsuccessful entrepreneurs have attributed their success and failure to an entrepreneurial mindset (Mukhtar et al. 2021). An entrepreneurial attitude is a significant variable in entrepreneurship studies because experts inevitably support it (Liao et al. 2022; Mukhtar et al. 2021). Jiatong et al. (2021) observed a connection between the entrepreneurial mindset and more profound cognitive phenomena that represent the unique engagement of entrepreneurial activities, particularly in their study. An essential factor in achieving desired outcomes after taking entrepreneurial activity, the foundation of entrepreneurial intention rests on cognitive adaptation (Kusumojanto et al. 2021).

There is a correlation between the lack of success in running a business in some emerging countries and the entrepreneurial mindset (Duong, 2021; Kusumojanto et al. 2021). To cultivate an entrepreneurial mindset, several supporting dimensions include entrepreneurial education (Santos et al. 2021), attitudes toward entrepreneurship (Ashari et al. 2022), and self-efficacy (Mensah et al. 2021). According to Lopez et al. (2021) social cognitive theory, learning about entrepreneurship increases one's sense of self-efficacy. First and foremost, entrepreneurship education allows students to contribute to tasks such as analyzing business viability, recruiting a business plan, and applying their business strategy. Additional social coercion is created by students' responses to class discussions and performance on course assignments in entrepreneurship education. EI and BEM both have a role in the influence of EE involvement on EI, and this paper aims to investigate that impact. By including BEM as an impact indicator alongside EI and gender response, this study adds to our knowledge of EE's influence. In addition, our research adds to the value-added understanding of EI's internal determinants by proving the entrepreneur's prior exposure as an endogenous driver. As a third benefit, this research helps us better understand how people feel about the perceived feasibility and attractiveness of participating in EI. Finally, we use the Probit Maximum

Likelihood Regression and Structural equations model to help us better comprehend EI.

Theoretical review

These studies, as well as Cui (2021), Drăgan et al. (2021), and Hanandeh et al. (2021), will all be considered in the context of this review. Boubker et al. (2021) directed a comprehensive and thematic investigation of EE research literature. According to their findings, the profession needs a common vocabulary for discussing entrepreneurship education, which they discovered using story coding. Also, the effectiveness of entrepreneurship education was not evident, which was predicted given the lack of an agreed-upon vocabulary (Iqbal et al. 2021a, b; Lau et al. 2021; Liu et al. 2021; Tang et al. 2021; Yu et al. 2022). The study's authors say in 2013, Salamzadeh et al. (2022) published a systematic review of papers between 1997 and 2011. All empirical research from university-based Entrepreneurship Education (EE) was evaluated using a methodological framework created by Tantawy et al. (2021), and a methodological critique was presented. It has recently been shown that teaching approaches and specific outcomes are linked in a teaching model framework by Hassan et al. (2021a, b), who conducted a comprehensive search from 2004 to 2016. Even though these writers did not use efficient evaluation procedural grading, they analyzed the procedural competencies in the arena and concluded that various researches only contain subjective and short-term results.

Research on the impact of EE has a variety of results for EI: positive (Abbas et al. 2020), non-significant (Liu et al. 2021; McLarty et al. 2021), and detrimental (Pidduck et al. 2021). Research investigating the impact of EE was urged in a study by the European Directorate-General for Enterprise and Industry on the subject (Hou et al. 2019; Mohsin et al. 2021c; Zhang et al. 2022a). Several researchers have made the same call, and the causes for this are well-recorded: research tends to focus on subjective and short-term result measures rather than long-term result measures, and it regularly nosedives to sufficiently explain the pedagogies being examined (Saptono et al. 2021) Entrepreneurship education's influence has also been called for in a stronger, more theory-driven context (Kwapisz et al. 2022; Xiang et al. 2022a; Zhang et al. 2022b).

Education in entrepreneurship and the desire to get into business for oneself Entrepreneurship education focuses on developing fundamental skills and information to provide students the ability to think creatively and innovatively (Yu et al. 2022; Yumei et al. 2021). People can work for others or themselves (Soomro and Shah 2022). There are three types of entrepreneurs: those with a definite objective in

mind, those who have a clear vision of how they want things to go, and those who have an open mind about how they want things to go and how they want to act in the future. Entrepreneurial education aims to arouse a person's desire to start their own business (Huang et al. 2022; Khokhar et al. 2022, 2020; Xiang et al. 2022b). There was a strong link between entrepreneurship education and entrepreneurial behavior among college students. Student interest in starting their own business was higher among those who took part in entrepreneurship classes. Students who have received entrepreneurship education are more likely to have entrepreneurial aspirations and motivations than students who have not. Entrepreneurial cognition benefits from exposure to entrepreneurship education; that is why it is important (Su et al. 2021). According to Mngumi and Nasir et al. (2022), entrepreneurial behavior is driven by entrepreneurial intention, which is influenced by entrepreneurship education. Numerous academics throughout the world feel that entrepreneurial education is linked to a person's desire to start their own business. Entrepreneurship can only begin when a person has the desire and ability to do so, and entrepreneurship education plays a significant role in nurturing those qualities and interests in students. Entrepreneurial education and entrepreneurial ambition are examined from three perspectives: entrepreneurial cognition, entrepreneurial ability, and entrepreneurial spirit.

Motivation for starting one's own business, as opposed to working for someone else for a wage, can be described as entrepreneurial intention. According to Hai Ming et al. (2022), entrepreneurial intention is the willingness to carry out the actions necessary to start a firm. Research by Elnadi and Gheith (2021) and Wang et al. (2022) include intentions for future prediction. The entrepreneurial purpose is a significant phenomenon that has received a lot of cognitive investigation. According to the findings of this study, entrepreneurs must be observed and studied in advance (Du et al. 2022; Mohamed and Sheikh Ali 2021). Intention models are frequently employed in the study of entrepreneurial intentions. In order to gain a deeper understanding of the entrepreneurial process, intention models provide a cogent, economical, and reliable framework (Krueger 1993). Hassan et al. (2021a, b) theory of planned action and Nguyen et al. (2021) theory of the entrepreneurial event are two of the most frequently mentioned theories of entrepreneurship intentions in the entrepreneurship literature.

Entrepreneurship education's goals must be considered while designing an evaluation study. It is vital to note that entrepreneurship education is distinct from education about entrepreneurship (Seyoum et al. 2021; Tang et al. 2022). Entrepreneurship education aims to increase students' understanding of the many facets of starting and operating a firm. If you want to learn about entrepreneurship, you may want to

take courses in this tradition (Nasir et al. 2022; Seyoum et al. 2021). In the second category, education for entrepreneurship, future entrepreneurs are taught how to start a business, emphasizing hands-on learning. Developing one's entrepreneurial drive and talent (personal development) (Lu et al. 2021), preparing a business proposal (Coaching for Business Proposals), and developing, promoting, and supporting new venture creation (Dana et al. 2021) are all part of this tradition's courses. They emphasize acquiring awareness and talents that upsurge the possibility of beginning a business and the achievement of entrepreneurs (competence improvement). When measuring educational results, the distinction between entrepreneurial and entrepreneurship education is slightly oversimplified (Mngumi et al. 2022; Sandhu et al. 2021).

In order to prepare students for a business career, we emphasize entrepreneurship education. Constructing a theory about the training outcomes is necessary to evaluate this educational program properly. TPB and human capital theory are two main approaches for training efficacy. As a result, methods based on human capital theory prioritize training outcomes such as knowledge, skills, and abilities (Leiva et al. 2021) since these results make entrepreneurs more applicable in the beginning and maintaining a business. It is not uncommon for these programs to focus on topics such as business plan development, start-up finance, feasibility analysis, innovative business models, and so on (Astuti and Fatimah 2022). This method has been critiqued in the literature on entrepreneurship (Colombelli et al. 2022). There is little commonality between what instructors explain about pertinent start-up doings and what aspiring entrepreneurs undertake, according to the results of a content study of 24 business textbooks (Chen et al. 2022). As a result, educators have devised new methods of instructing pupils that focus on doing, experimenting, and practicing rather than simply lecturing. This includes a variety of teaching methods, such as the use of games and simulations, as well as project-based learning and other forms of design thinking (Debarliev et al. 2022). These methods aim to promote activities that impact the market (Zhang et al. 2022a). Put another way, they are aligned with the socio-economic focus on entrepreneurial education (Sampene et al. 2022). These strategies encourage entrepreneurial action by emphasizing acquiring information and inspiring and raising perceptions of resources. It is the TPB's goal to improve people's understanding of entrepreneurship by providing them with the opportunity to test their own beliefs and perspectives.

In order to better understand behavior, psychology has created models that can be used to make predictions about future conduct (GEM 2022). TPB is a useful model for analyzing behavior at least partially under free will control (Zhang et al. 2022a). For the theory, it is assumed that one's actions are best explained by one's desire to strive to carry

out those actions (Sampene et al. 2022). To put it another way, attitudes, subjective norms, and perceptions of behavioral control influence intentions—perceived benefits of a particular action impact one's attitude. Friends and family members' attitudes about specific behaviors and the extent to which they adhere to these ideas are factors in forming subjective norms. What matters most to people is what they think of the opinions of those close to them. Finally, perceived behavioral control measures how easy or difficult it is to start a new behavior and how much control one has over their behavior. This aspect emphasizes that many behaviors are not totally within volitional control, which is reflected in prior practices and the existence or lack of opportunities and resources. Research has shown that the TPB is responsible for 27% and 39% of the diversity in behavior and intentions (Svotwa et al. 2022).

In this case, the theory has been utilized because entrepreneurship is a behavior that the individual can control. Entrepreneurial behavior and goals (Muhammad Muneeb et al. 2020) and the consequences of entrepreneurship education (Arni et al. 2022; Mukonza 2016; Uddin et al. 2022) have all been explained by the theory. A meta-analysis of the TPB in the perspective of entrepreneurship discovered that 39% of the change in entrepreneurial intentions was explained by attitudes, subjective standards, and the perception of behavioral control (Gavriliuță et al. 2022). Because of its usefulness, the TPB can be used to study how business education influences entrepreneurial behavior.

Hypothesis development

Entrepreneurial intention (EI) is influenced by perceived desirability and considered feasibility, which is consistent with earlier studies by a wide range of researchers (Hooi et al. 2016; Khan 2019; Shkabatur et al. 2021; Soto-Acosta et al. 2016). This research has found that perceived feasibility and desirability are key backgrounds of purposes. Perceptions of desirability and feasibility, say Maharana and Chaudhury (2022), refer to the genesis of the entrepreneurial affair. Moreover, Gu and Zheng's theory of planned action by Gu and Zheng (2021) suggests that the stance about the subjective norms acts and perceived behavioral control are essential backgrounds of entrepreneurial intention (EI) (Sun et al. 2020c). More than half of the variation in entrepreneurial intention can be explained by perceptions of desirability and feasibility (Alemzero et al. 2021; Sun et al. 2020a, 2020b), according to Yohana and Meilani (2022). As a result of these studies, scholars have a well-supported case for the link between perceived desirability, EI, and perceived feasibility, which has been empirically confirmed (Hou et al. 2019). As a result of this reasoning, we predict that:

Hypothesis 1a: Entrepreneurial intention (EI) positively correlates with perceived desirability.

Hypothesis 1b: Entrepreneurial intention (EI) positively correlates with perceived feasibility.

Prior exposure to entrepreneurial experience is a third important aspect in entrepreneurial intention models, after perceived feasibility and desirability. We can better understand why some people's goals differ from others by looking at their past experiences (Miao et al. 2022). Self-employment is more likely predicted by earlier entrepreneurial expertise, such as having self-employed parents. Others, such as Okuwhere and Tafamel (2022), have shown that family members' aspirations toward entrepreneurship are influenced by earlier disclosure of entrepreneurship and know-how in the household business. Children who grow up around a household business are naturally exposed to entrepreneurial situations because they may hear, see, feel, know, and comprehend the realities of running a business firsthand. This exposure (Iqbal et al. 2020) is critical to developing the informational needs and behavioral abilities needed to work for oneself later in life. In this way, they confirm that prior family business experience correlates positively with entrepreneurial intent. When children are exposed to self-employed parents at an early age, they acquire entrepreneurial capital (skills, values, and other traits conducive to self-employment success) that positively impact their future success. In a family business, parents typically teach their children the appropriate skills, values, and self-confidence necessary to start their firm.

When a person is exposed to an entrepreneurial atmosphere in the company of friends, family members, employers, or themselves, we believe this tremendous influence will also occur. As well as becoming a role model for their children, these people can spread their entrepreneurial wisdom. As Burchi et al. (2021) show, exposure to entrepreneurship can be varied, either by drawing from the experiences of others or one's own. Prior exposure to entrepreneurial role models should therefore have a favorable impact on an individual's entrepreneurial ambition. As a result of this, we recommend the following:

Hypothesis 2a: Entrepreneurial intention (EI) positively relates to prior entrepreneurial exposure.

Entrepreneurship education significantly impacts a person's likelihood of starting their own business. According to empirical studies, students' entrepreneurial intentions are positively influenced by education in general and entrepreneurship programs in particular. According to Hai Ming et al. (2022), education can improve EI, who found that entrepreneurship-related knowledge and abilities boosted an individual's desire to start a new business. Silvestri and Veltri (2020) discussed promoting education to foster entrepreneurialism. According to Iqbal et al. (2021a, b), entrepreneurship can be taught or supported

through education. Entrepreneurship assistance programs, such as those developed by Vrontis et al. (2022) and Nasar et al. (2021), are effective in spurring entrepreneurs to start new businesses or enhance existing ones. Entrepreneurship education has positively affected students' desire to start a business. Institutions should offer entrepreneurial courses to help students make informed decisions about their future careers. According to Cheng et al. (2021), high school pupils' emotional intelligence (EI) improved after they had such an education. Science and engineering students who participate in entrepreneurial programs had better attitudes and higher levels of emotional intelligence (EI) than their peers who do not participate in such programs, according to a study published in 2007. Our theory on how entrepreneurial education affects EI is as follows:

Hypothesis 2b: Entrepreneurship education is positively related to entrepreneurial intention (EI).

Over the past half-century, women have been more involved in entrepreneurial doings as they have become more involved in the workforce (Fang et al. 2022). Studies on the connection between Entrepreneurial intention (EI) and gender have emerged as a result of this (Fang et al. 2022). Self-employment choice is a vital predictor of actual participation in self-employment. According to recent research, women exhibit a lower partiality for self-employment over stipend employment than males (Martínez-Rodríguez et al. 2020; Potluri and Phani 2020; Sun et al. 2020c). The findings of Duong (2021) show that female alumnae are slower than their male counterparts to start their businesses. It has been discovered that women are more likely to engage in activities viewed as entrepreneurial by both sexes than males. Entrepreneurial self-efficacy is not connected to gender, as Alferaih (2022) demonstrates, but EI is: women stated lower Entrepreneurial intention (EI) than men. Mohsin et al. (2021a, b, c) found that Singaporean students' EI is affected by their gender.

While women may have the same level of self-confidence as males, they may view the entrepreneurial environment as more demanding and less rewarding. The "pipeline effect" (Ratten and Jones 2021) may result from gender-related barriers to women's participation in entrepreneurship. Restrictions on a woman's capacity to advance in her job can lead to premature departures from related fields of employment and hinder her ability to build the necessary entrepreneurial capital (Kusumojanto et al. 2021). Numerous studies have demonstrated that men have a higher emotional intelligence (EI) than women, yet this finding may not hold in China. Twenty-five percent of Chinese entrepreneurs were women in 2011, with 80% citing self-realization as their primary source of motivation (Mukhtar et al. 2021). Furthermore, there is no solid

evidence that gender influences the association between EE and the desire to start a business. We contend that, even though hypothesis 2b states that entrepreneurship education will help people form entrepreneurial intentions, the impact on women's perceptions of entrepreneurial opportunity and environment will be less than it is on men because of the "pipeline" effect (Ratten and Jones, 2021) that exists in the female population. As a result, we propose:

Hypothesis 3a: Females have lower Entrepreneurial intention (EI) than males.

There are a number of factors that can affect a student's emotional intelligence (EI). According to Zulfiqar et al. (2021), the educational background can significantly impact one's entrepreneurial intentions in the latter case. In particular, their findings reveal that a student's academic major considerably affects entrepreneurial intent, with engineering students having higher entrepreneurial intentions than students from other disciplines. As Huang et al. (2022) demonstrate, degree programs can considerably impact entrepreneurial inclinations. They conclude that students who pursue a science degree are more likely to be interested in starting a business than those who pursue a business or arts degree. These studies' findings will be used to support our claim that students majoring in technology are more likely than non-technological students to have entrepreneurial aspirations. We will use similar logic to that used to compare different study fields to show that students attending technology colleges are more likely to have entrepreneurial aspirations than those participating in other types of schools. Pupils with technology education and significant are likely to have a higher EI than non-technological students. In addition to having a higher emotional intelligence (EI), scientific students are more likely than their peers to take risks.

Data and methods

Sample

Between January and May of 2022, researchers at ten Chinese institutions administered a questionnaire survey to compile the information. Most of the items on the survey were in the form of checklists. Beihang University (technological), Tsinghua University (technological), Renmin University, Beijing Institute of Science and Technology (technological), the Central University of Finance and Economics, Shanghai, Wuhan, and Zhejiang universities are all included in this list to reduce the selection bias. Five of these 10 colleges are included in the list of entrepreneurship-education models, while the other five are not.

The selection of colleges from worldwide metropolises like Beijing and Shanghai and provincial capitals like Hangzhou and Wuhan minimized the regional bias. Our survey targets were undergraduates from university-wide common elective courses, which means that students from a wide range of academic fields and educational levels can be contacted. In most Chinese institutions, all students can take university-wide common elective courses, regardless of their educational level, gender, or academic background. Sixty students are typically in a typical class for this optional course. Each targeted class received a total of 100 questionnaires in our survey. A variety of typical optional courses were randomly assigned questionnaires. Finally, 510 surveys were returned (700 questionnaires were issued: 72.86% response rate), and 494 were completed to the fullest extent possible.

Seventy percent of the 494 responders were under 26 years old; 64% were undergraduates, 27% had master's degrees, and 9% had PhDs. Fifty-one percent of the participants were male, while 49% were female. Our approach informed the questions, which focused on the desirability, viability, and previous business experience. Huang et al. (2022) the published research of Hanandeh et al. (2021) were all used as pretested sources for the questionnaires employed (2000). A dummy variable represents the intention to start a business (yes, 1; no, 0). Do you believe you will begin a business in the future, based on your answers to questions like that? Three sub-questions were used to gauge people's opinions on how desirable something was: The more eager you are, the more anxious you will be, and the more excited you will be, the more enthusiastic you are to start a new business. The Likert scale ranged from 1 (the lowest) to 5 (the greatest) (highest). The average of the three answers is used to arrive at the final score. The same three sub-questions were used to gauge perceived feasibility: f (1) Is it difficult to start a business? f (2) How confident are you in your ability to succeed? And f (3) How confident are you in your abilities?

As stated by Hanandeh et al. (2021), the breadth of one's prior entrepreneurial experience is a better indicator of one's attitude toward opening a new enterprise than any one event, and good experiences have a greater impact than poor ones. However, heuristically, the decision to pursue a career is based on many criteria that must be examined together. As a result, we created an integrated index PE to account for prior entrepreneurial experience. EB (experience gathered from family and friends, as well as former coworkers and employers) and the self-evaluated repercussions of this PE, referred to as "experience quality," were used to create this index. A positive impact weighed 1, while a negative influence weighed -1.25 . A major advantage of this integrated score is that it accurately reflects the prior entrepreneurial

experience in quantity and quality. There is also the variable of entrepreneurship education to consider. Based on a scaled inquiry, it had a value. Those with entrepreneurship education had it set at 2, those who plan to get it at 1, and those with no plans to get it at all had it set at 0. Additionally, gender (male = 1, female = 0), kind of institution (technical = 1), and type of study major (technological = 1, other = 0) are all independent factors. The Chinese Education Bureau recognizes technological universities as education and study establishments dedicated to engineering and technological fields of expertise. If you are looking for a university that teaches these courses but does not specialize in them, go elsewhere.

Adulthood and education level (Ph.D., Master, and Bachelor) are the control factors in this study. We used Probit Extreme Probability Regression to examine the influence of all the independent factors on the likelihood of EI because the dependent variable EI has two values, one of which is “1” and the other “0.” Moderated variables, independent variables, and control variables all appear in Eq. (1).

$$EI(1\&0) = \beta_0 + \beta_1 PF + \beta_2 PD + \beta_3 PE + \beta_4 EE + \beta_5 FvsM + \beta_6 BEM + \mu \quad (1)$$

In Eq. (1), EI, PF, PD, PE, EE, FvsM, and BEM show entrepreneur intention, perceived feasibility, perceived desirability, prior exposure, entrepreneur education, female and male response, and behavioral entrepreneurial mindset, where μ is the error term. Likewise, for robustness, this study uses the structural equation model.

Results and discussion

Descriptive statistics

Table 1 displays mean, standard deviation, and correlations between the focal variables. Correlation coefficients are below. Table 1 indicates that multicollinearity is unlikely (Cui, 2021). There is, however, no evidence of severe multicollinearity among the variables, as the maximum correlation is 0.64. Table 1 shows the findings.

The results of the Probit Maximum Likelihood Regression are shown in Table 2. Entrepreneurial exposure has been shown to have a favorable effect on EI. This variable significantly influences EI. Seeing this outcome has startled us, but we are also thrilled. “..individuals with prior family business experience may absorb their experiences, such that their attitudes and actions towards entrepreneurial activity are impacted positively or negatively towards business ownership,” Lopez et al. (2021) claim in their paper. Entrepreneurial exposure has a favorable effect on EI in our study, which may be because our respondents have had positive entrepreneurial experiences. As a result, students’ entrepreneurial intentions may be negatively impacted by prior exposure to positive EE from other ideal techniques. For example, if students come from a family of self-employed individuals who have experienced failure or setbacks, they may lose interest in starting their own business. Chinese students’ entrepreneurial endeavors have a failure rate of

Table 1 Descriptive and pairwise correlation tests

	Mean	SD	1	2	3	4	5	6
EI	2.99	1.20	1					
PF	4.55	1.87	0.41	1				
PD	3.12	0.55	0.32	0.23	1			
PE	6.98	1.39	0.64	0.70	0.36	1		
EE	4.20	1.01	0.49	0.63	0.66	0.45	1	
F vs M	5.63	1.54	0.36	0.55	0.56	0.72	0.24	1
BEM	3.69	1.33	0.73	0.66	0.44	0.59	0.65	0.40

Table 2 Probit maximum likelihood regression

	PD	PF	PEE	ED	F vs M	BEM
Model 1	0.896* (0.115)	0.255* (0.019)	-0.745* (0.135)	0.933* (0.133)	0.633* (0.342)	0.369* (0.263)
Model 2	0.863* (0.152)	0.195* (0.032)	-0.702* (0.155)	0.991* (0.195)	0.589* (0.244)	0.457* (0.119)
Model 3	0.8118 (0.191)	0.235* (0.121)	-0.684* (0.101)	0.888* (0.245)	0.422* (0.139)	0.492* (0.215)
Model 4	0.845* (0.140)	0.211* (0.110)	-0.735* (0.223)	0.964* (0.245)	0.881* (0.569)	0.393* (0.301)
Model 5	0.851* (0.166)	0.2868 (0.133)	-0.751* (0.199)	0.892* (0.125)	0.669* (0.159)	0.522* (0.133)

98%. In contrast to a relatively constant income from wage employment, students may have a more pessimistic attitude toward entrepreneurial endeavors after exposure to high failure rates and the related risks.

Entrepreneurial education has a substantial impact on entrepreneurial ambition. This means that enrolling in an entrepreneurship course increases one's likelihood of deciding to start one's own business. Both ideas have a good deal of evidence in favor of them. Females, on the other hand, have a lower EI than men. Model 5 also shows that males have a more significant chance of EI than females if all pupils receive entrepreneurship education. Both hypotheses were proven correct. According to the research, college students have a more significant impact on EI if they obtain an entrepreneurship education.

Structural Equation Modeling

Structural Equation Modeling (SEM) should be approached in two steps, according to Hair et al. (2006): first, the measurement model should be evaluated, and then the structural model should be evaluated. The suggested measurement model was first tested by performing a Confirmatory Factor Analysis (CFA). SEM was used to test the structural theory after establishing a satisfying measurement model. A suitable structural model for the records was selected, and afterward, the assumptions were examined.

Assessment of the fit of the model

SEM does not have a fixed statistical test that perfectly measures the model's "strength." Goodness index values can be used to analyze the model's fit to the data. Table 3 shows how well this model is statistically significant. This study's hypothesized model of six constructs is good based on the data we gathered.

The assessment of the measurement model

Before testing research hypotheses, CFA was required to ensure that the proposed model was a satisfactory structural equation model, as indicated earlier. To put it another way,

Table 3 Stability measurement model

Model	Measurement model
χ^2	299.633
χ^2/df	1.901
GFI	0.827
TLI	0.937
CFI	0.949
IFI	0.950
RMSEA	0.020

CFA evaluates the GOF indices and the reliability and validity of the theoretical model quantitatively.

Construct validity Validity of a concept takes into account both the convergent validity and discriminant validity of the measurements: We can utilize the following three criteria to evaluate convergent validity, as recommended by Fornell and Larcker (1981): (1) Build or Composite Reliabilities, (2) Factor Loadings, and (3) Average Variance Extracted (AVE) by each construct (CR). The convergence reliability of the questions was investigated using canonical factor analysis (CFA) on the items that measure the variables of entrepreneurial inclinations. This was the first phase.

The first requirement that must be met in order to prove convergent validity in loading is that it must be significant (all of the critical ratios must be greater than 1.96). All of the standardized factor loadings must be greater than 0.50. According to Table 4, all items in question have loadings greater than 0.5, and all surpass the crucial ratio at the 0.05 level of significance. The crucial ratio might range anywhere from 7.662 to 12.332, inclusive. The standardized factor loading and the critical ratio provide a strong indication of convergent validity.

It is the average amount of variance that a latent construct can explain in observed data to which it is conceptually related. An AVE of 0.5 or greater suggests adequate convergent validity, which is a solid rule of thumb (Gefen et al. 2000). All constructs met the 0.50 requirement, according to the results. The concept of construct (composite) dependability refers to the consistency of a set of latent indicators of constructs. In the context of a construct dependability estimate, 0.7 or above is considered good. All of the constructs in Table 4 had construct dependability values more than the suggested standard of 0.70, as observed (Hair et al. 2006).

Comparing the squared inter-construct correlations (SIC) connected with a concept to its average variance extracted (AVE) estimations provides insight into its discriminant validity. All AVE estimations should be more significant than the equivalent SIC estimates (as a rule of thumb) (Fornell and Larcker, 1981). The average variance recovered (range from 0.51 to 0.59), as shown in Table 4, is bigger than the squared correlations between the six components. This suggests that the indicators are more similar to the construct with which they are related than other constructs (Fornell and Larcker, 1981). As a result, the findings show that the research constructs have discriminant validity.

Assessment of structural model The structural model was used to assess six latent variables (constructs) and 24 observable indicators from the CFA. The research model's

Table 4 Convergent validity test

Latent var	Items	Standardized factor loading	<i>t</i> value	<i>p</i>	Construct reliability	AVE
EI	Y1	0.444	10.301	<0.001	0.79	0.59
	Y2	0.593	9.296	<0.001		
	Y3	0.602	9.223	<0.001		
	Y4	0.569	8.132	<0.001		
	Y5	0.739				
PF	X1	0.573	12.332	<0.001	0.71	0.56
	X2	0.699	11.234	<0.001		
	X3	0.734	9.771	<0.001		
	X4	0.701				
PEE	X5	0.563	10.889	<0.001	0.82	0.52
	X6	0.752	7.662	<0.001		
	X7	0.638				
ED	X8	0.764	10.411	<0.001	0.73	0.53
	X9	0.773	8.969	<0.001		
	X10	0.561	5.745	<0.001		
	X11	0.703				
F vs M	X12	0.699	7.963	<0.001	0.78	0.51
	X13	0.635	7.125	<0.001		
	X14	0.715	7.917	<0.001		
	X15	0.740				
BEM	X16	0.574	11.324	<0.001	0.84	0.54
	X17	0.699	10.885	<0.001		
	X18	0.713	10.111	<0.001		
	X19	0.810				

Table 5 Assessment of structure model

Variable	β value	S.E	<i>p</i>
EI ← PF	0.44	0.06	0.000
EI ← PEE	0.29	0.13	0.000
EI ← ED	0.39	0.25	0.005
EI ← F vs M	0.09	0.05	0.000
EI ← BEM	0.57	0.21	0.001

latent constructs are included in the structural model. We can test the null hypothesis for each path coefficient using the path coefficient and its related *t* value. As seen in Table 5, each theorized route's coefficient and critical ratio are listed in this table (C.R.). This table shows that the first research hypothesis, which states that self-efficacy positively correlates with entrepreneurial inclinations, is supported (0.44, $p < 0.001$). The second hypothesis is likewise confirmed: the demand for achievement positively influences entrepreneurial inclinations (0.29, $p < 0.001$). Despite this, there was no support for the idea that PEE entrepreneurial aspirations go hand in hand. According to the findings, ED has a statistically significant impact on entrepreneurial ambitions. Exogenous variables have an indirect effect on entrepreneurial intention, according to the study's findings as a whole. Entrepreneurial aspirations are positively affected by the ED, the F vs M, and the BEM.

Discussion

Prior studies have shown that entrepreneurial intention is positively linked to perceived feasibility and desirability. Further supporting our hypothesis, we determine proof of a positive collaboration impact between a person's regarded desirable, and they are seen feasible when it comes to finding the strength of their intention to be self-employed. People with lower levels of perceived desirability (enthusiasm) may acquire the desire to act entrepreneurially if they view themselves as having sufficient perceived feasibility (or "information") to do so, contrary to Boubker et al. (2021). When people regard themselves as lacking in self-efficacy, they may form the desire to become entrepreneurs even if they lack the self-perceived competence to do so. When both perceived feasibility and perceived attractiveness are at high levels, entrepreneurial intentions are established (Shahin et al. 2021; Uvarova et al. 2021). According to our findings, those with high and low perceptions of desirability and feasibility and those with both high and low or low and high blends of these two major impacts appear with high intents. On the other hand, traditional expectancy models suggest that motivation is at its strongest when anticipation and value are both high. Entrepreneurial intents are more likely to be strong when either perceived attractiveness or considered feasibility exceeds a threshold value, according to Hassan et al. (2021a, b)'s discussion. When each perceived attractiveness or feasibility is high,

the intention to act entrepreneurially is more likely to be established. We find that high values of one of these criteria tend to reduce the influence of the other on the formulation of plans.

We also found that the interaction of prior exposure is included in the model. The effect of prior on EE develops more significantly and is beneficial. As a result of these findings, prior exposure is vital for the human capital in determining entrepreneurial intentions. When the interaction between perceived desirability and feasibility is considered for EI, it provides a sufficient description of the individual when the model of entrepreneurial intentions includes (Table 5).

The data support the hypothesis that entrepreneurship education at universities has a beneficial effect on entrepreneurial inclinations. An educational program on entrepreneurship has been shown to increase the desire of pupils to establish their businesses. Teaching kids how to be entrepreneurs helps them develop a sense of self-belief and confidence in their abilities, as well as their ability to persevere when faced with obstacles (Tantawy et al. 2021). According to previous studies (Colombelli et al. 2022; Lu et al. 2021; Saptono et al. 2021; Soomro and Shah, 2022), entrepreneurship education helps students develop an entrepreneurial mindset, motivates them to start businesses, and encourages students to choose entrepreneurship as a viable career option. Similarly, the findings show that students' entrepreneurial spirit is heightened as a result of entrepreneurship education. Entrepreneurial enthusiasm is an essential mediator between EE and entrepreneurial intentions for students. That entrepreneurship education is crucial to stimulating students' entrepreneurial zeal is consistent with prior findings by Hassan et al. (2021a, b) and Nguyen et al. (2021), and that enthusiasm for entrepreneurship may influence students' future propensity to be entrepreneurs (Dewianawati 2020).

Gender stereotypes may change based on the level of gender equality, according to our research. According to Du et al. (2022), women in countries with poor levels of gender equality may be less inclined to start their businesses because of gender preconceptions. Women's Entrepreneurial Education, for example, can significantly impact women's entrepreneurial activities in certain situations. As an illustration, in nations with low gender equality, women's roles are generally restricted to domestic duties and child care, leaving them with few employment options (Dvorak et al. 2021). In other words, a woman's education in entrepreneurship gives her a more comprehensive range of professional possibilities. Numerous studies are showing that entrepreneurship education can boost women's entrepreneurial intent in nations where women have a lower level of gender equality.

A careful reading of BEM literature reveals the relevance of attentive interpretations for the success or failure

of EI. Research in the entrepreneurship literature has identified similar effects on creativity (e.g., Miocevic 2022) and the influence of entrepreneurial resources and networks on intentions (e.g., Jun et al. 2022). These findings support our use of the BEM construct because creativity, resourcing, and networking are significant components of behavior. While the primary effect of BEM somewhat contributes to EI, our findings suggest that emotional intelligence might also play a role in creating behavior. For the first time, a novel two-chain intermediary function has been discovered. Our study model described how BEM could promote the interaction between students' involvement with their EI by constructing a relatively new construct of BEM. Researchers found that BEM was critical in the development of new theoretical frameworks. To capture the behavioral characteristics of an entrepreneurial mentality, we used six interrelated sub-constructs, which we defined and tested as part of BEM. These are: focus yet adaptability; innovation; execution; resource leveraging; networking; and mobilizing others. EI is linked to the theory of self-efficacy and human capital, but other antecedents of intention may be related to the mentality that has not been studied previously (Mohsin et al. 2021b). According to our findings, BEM is a key mediator in the link between EI and BEM. An alternative (behavioral perspective) for the beneficial impacts of entrepreneurship education is provided, as is a deeper insight into the mindful result of entrepreneurship education (antecedent) and the mindful cause of EI, in order to add to the body of literature on entrepreneurial mindset (consequent). Consequently, this study's BEM model helps explain how these mindsets work.

Conclusion and policy recommendations

Our findings offer insight into the link between perceived feasibility, perceived desirability, prior exposure, entrepreneur education, gender response, and behavioral entrepreneurial mentality and entrepreneurial intention. The study's findings can be summed up as follows. First and foremost, exposure to and education in entrepreneurship increase entrepreneurial desire. This positive correlation between perceived feasibility and desirability of an entrepreneurial venture has a significant impact on entrepreneurial ambition. Furthermore, it was revealed that men have a greater desire to start their businesses. BEM and entrepreneurial intention in China are found to have a positive correlation. Entrepreneurial education's beneficial impact on entrepreneurial intention was the most crucial component in boosting the other factors. There is a clear correlation between entrepreneurial education and entrepreneurial intention, which was found to be strongest in the sample.

Policy recommendation

The findings of this study offer some practical advice for dealing with the difficulties faced by university students. For starters, the report recommends that higher education institutions ought to construct entrepreneurship courses and programs in a way that encourages students to start their businesses. There could be less pressure on industry and government to produce jobs for educated young people if students develop emotional intelligence (EI). This could encourage them to choose self-employment or entrepreneurial endeavors. One of the most important benefits of excellent entrepreneurship education is that it may shift graduates from job searchers to job creators. To help achieve Sustainable Development and Inclusive Development goals, entrepreneurship education could transform educated young people from social liabilities to social assets. Reduced teenage criminality will improve social, economic, and political stability and boost universities' reputations as places that produce well-educated entrepreneurs who will power the country's long-term growth. Self-employment alleviated their melancholy and anxiety and improved their self-esteem and social inclusion.

A second finding from this study is that the university's administration has taken steps to encourage students to develop a strong entrepreneurial ambition and entrepreneurial mindset. One of the most critical factors contributing to a country's economic progress is the spirit of entrepreneurship. State policymakers should develop policies to ensure colleges provide entrepreneurship education at the undergraduate level and across multiple fields to speed up entrepreneurial ventures. Supporting colleges is essential if this country's demographic dividend of highly educated young people is fully realized. Students must be aware of the scarcity of employment opportunities and encouraged to become self-employed by incorporating instrumental EE into their course curriculum. In addition, the country's EE system should be redesigned to better prepare students for successful entrepreneurial careers. As a result, higher education practitioners and policymakers are urged to implement educational policies and practices encouraging students' EI to achieve inclusive growth.

EE's importance cannot be overstated in light of the COVID-19 situation, which has impacted the job market (Emami et al. 2022). As a result of the epidemic, EE can assist businesses in better navigating their corporate environment in a crisis, and becoming EE more accessible to a broader range of people could alleviate some of the societal issues that have arisen. A good socio-economic flow is essential to the long-term success of EE, and this can only be achieved via the cooperation of various organizations. In addition, the government must expand its EE investments and use a variety of effective interventions during times of crisis to boost the number of entrepreneurs capable of creating new jobs. In the long run, this could help the country's education system and economy

become more competitive. Even during the epidemic, EE has an opportunity to excite students on feasible and exciting careers, from start-ups to small and medium enterprises, as well as venture capitalists for large corporations (Kurniawati et al. 2021). People's ability to produce innovation, critical in reacting to problems in times of crisis, is enhanced when they choose entrepreneurship as a vocation (Jun et al. 2022).

Although this study has many significant flaws, it is nonetheless worthwhile. It is important to note that our findings may not apply to the broader populations of Australia, Thailand, India, or other people, because our sample was more educated and younger than the overall population. Neither education nor age significantly impacted entrepreneurial inclinations in the final model, and country dummies had no impact. There is a third reason to be concerned about the sample: respondents may have shown "interviewer bias," giving answers they believed were the "correct" ones based on what they already knew about the subject. Before any entrepreneurship principles were taught, surveys conducted in the first hour of entrepreneurship class are highly unlikely. Even more unlikely that many students had even read the "opportunity recognition" module assigned for that class before class. This is why the results of the survey are so interesting. Thirdly, we predicted that our sample respondents would have adopted a negative regulatory perspective when judging the job alternatives' desirability. However, we cannot be sure from the results of this study that this is the case. When evaluating the desirability of each employment scenario, respondents were aware of the degree of danger and the labor effort necessary (high or low), and we hypothesize that this would have likely generated a preventative regulatory focus. Preventive focus can be more reliably elicited if we reframe the scenarios in future research.

Limitation and future recommendation

Further study of entrepreneurial goals can be pursued along the lines suggested in this publication. In the future, researchers might try to repeat this study with larger, more representative groups at home. As for the viability screening process, future research could use an even more reliable technique to ensure that participants truly adhere to Mohamed and Sheikh Ali (2021)'s regulatory focus. This paper has brought up some fascinating research questions. Can the (espoused) responses to a basic questionnaire provide a more accurate indicator of a person's attitude toward ownership than a time-consuming and complex conjoint analysis of attitudes? Does the process of forming an entrepreneurial mindset differ between a novice and a veteran? Is it true that attitudes become less significant when a person's behavior grows more and more automatic? Is there a difference in the entrepreneurial process between those who are accidental entrepreneurs

and those who are destined to succeed? What distinguishes accidental entrepreneurs from natural or inevitable entrepreneurs is whether or not they exhibit attitudinal ambivalence and engage in additional information gathering and processing (i.e., due diligence effort). These inquiries suggest much more work to be done in this field.

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Data availability The data can be available on request.

Declarations

Ethical approval and consent to participate The authors declare that they have no known competing financial interests or personal relationships that seem to affect the work reported in this article. We declare that we have no human participants, human data, or human tissues.

Consent for publication N/A

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