Entrepreneurial intentions among business students: the mediating role of attitude and the moderating role of university support

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Abstract

Purpose – This study aims to examine the potential determinants of entrepreneurial intentions (EIs) among business students. To that end, the study investigates the role of entrepreneurship education (EE) and entrepreneurial passion (EP) (inventing and founding), as well as the mediating role of attitude towards entrepreneurship (ATE) and the moderating role of university support.

Design/methodology/approach – A close-ended questionnaire measured on a seven-point Likert scale was used to collect data from business students at nine universities in Punjab, Pakistan. The sample size comprises 377 participants who were selected using a stratified random sampling technique. Partial least square structural equation modeling (PLS-SEM) was then applied to assess the study's model and the postulated hypothesis.

Findings – The findings indicated that (a) every independent variable (IV) directly impacts EI [dependent variable (DV)] except EP for founding (EPF), (b) ATE significantly mediates the relationship between IV and DV (c) perceived university support positively moderates the relationship between ATE and EI.

Originality/value – As an implication to policy, the Government must ensure that students are exposed to business environments and find university support through different paths. Specifically, Pakistan's Minister of Education and the Higher Education Commission (HEC) may consider designing university programs that lead to more influential EE. The empirical findings may help policymakers develop effective policies for promoting entrepreneurship.

Keywords Entrepreneurship, Entrepreneurship education, Entrepreneurial intention, Attitude toward entrepreneurship, Passion, University support, Theory of planned behavior

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Introduction

The current research was carried out in Pakistan, a developing country and the world's fifth-most populous country, accounting for 2.83% of the world's total population (Worldometer, 2021). The relevance of Pakistan's population stems from the fact that most of its citizens are young. Of Pakistan's population, 60% is under the age of 30 (Qureshi and Mian, 2020). In addition, most of the country's population lives in poverty and unemployment, with a daily income of less than 1.25US$, indicating that Pakistan's poverty situation is worsening. According to an economic survey, 24.3% of Pakistanis live below the poverty line (Zreen *et al.*, 2019).

The unemployment rate for professional degree holders and the labor force has risen at the same rate. Pakistan's official data show that its labor input rate is 54.4% (Zreen *et al.*, 2019) and more than 50,000 engineers are jobless. Even after a year of graduation, most of them had difficulty landing a job. As a result, the rest of the graduates are working part-time or underemployed (Qureshi and Mian, 2020). Moreover, one of the common hurdles to sustained and stable economic growth is unemployment for developing nations like Pakistan (Waqas and Hyder, 2012). One reason for unemployment is a lack of entrepreneurs in Pakistan, which is still far behind neighboring countries (Anjum *et al.*, 2019).

Pakistan has ranked 50th position (out of 50) in entrepreneurial activity as reported by Global Entrepreneurship Monitor (GEM) in 2019. Pakistan has the potential to produce more entrepreneurs than Bangladesh, Malaysia and Turkey; however, they are hesitant to take the initiative due to the fear of failure (Global Entrepreneurship Monitor, 2019). In 2019, the global entrepreneurship index in Pakistan was 17.30 indexes. In the ranking by global entrepreneurship index, including 137 countries, Pakistan has the 109th rank worldwide. Compared to the USA, which ranks first with a global entrepreneurship index of 86.8 in 2019, Pakistan ranks 69, a lower global entrepreneurship index (GEI Report, 2019).

Entrepreneurship is a basis of novelty, job creation and economic development, which is a reason to attract youth to become entrepreneurs in a developing country Pakistan (Farrukh *et al.*, 2016). Entrepreneurship is defined as the start-up of a business that signifies freedom, invention, inspiration and risk-taking at an opportune moment, where the process is usually

Characteristic		Frequency	Percent
Gender	Male	218	57.80
	Female	159	42.20
	Total	377	100.0
Age	≤20	98	26.00
	≤25	165	43.77
	≤30	95	25.20
	≥30	19	5.03
	Total	377	100
Qualification	Graduate	279	74.0
	Master	84	22.30
	PhD	14	3.70
	Total	377	100.0
Work experience	Yes	119	31.56
	No	210	55.70
	Not fill	48	12.74
	Total	377	100
Family background	Employed	215	57.03
	Self-employed	93	24.67
	Not fill	69	18.30
	Total	377	100

Table 1.
Demographic statistics

intentional (Gaglio, 2018; Murnieks *et al.*, 2019). Entrepreneurs have personality traits and intend to commence a new business while using innovation as an instrument to grow and improve their business (Xu *et al.*, 2016). Therefore, experts have conducted extensive research in entrepreneurship and have generated models that can predict entrepreneurial behavior, primarily through EI (Ajzen, 1991; Krueger and Carsrud, 1993).

Thus, one of the most important aspects of this study is to look into factors that predict EI. Knowing the factors that influence a person's intention to be an entrepreneur will speed up business and aid in research and practice. While research on EI's background is emerging, the decision-making mechanism that promotes entrepreneurial behavior remains an open research problem (Fallah *et al.*, 2018). EI among students is a novel research area that remains unexplored despite its potential to provide insights into different techniques for establishing new businesses, especially in developing countries (Zreen *et al.*, 2019). Although much research has been conducted on the determinants of personal, motivational and environmental business intentions, such as personality characteristics, ATE or social environment, a few aspects remain unexplored (Davidsson, 1995; Liñán *et al.*, 2011; Premand *et al.*, 2016).

Entrepreneurship studies are recognized for their contribution to economic growth through generating enormous opportunities for work, innovation, creativity and social development (Anjum *et al.*, 2018a, b; Farrukh *et al.*, 2017). EE in developed countries is linked to the economic escalation by academics and the view that university graduates can be seen as potential entrepreneurs who are more inclined to start businesses than undergraduates. One of the results of these observations is the development of a professional EE program. EE is a tool used to strengthen entrepreneurial activities (Ahmed *et al.*, 2020). Thus, this study contributes to the entrepreneurship literature by uncovering how EE influences EI.

Simultaneously, EP motivates entrepreneurs to identify opportunities and create new businesses, making it a motivating factor (Murnieks *et al.*, 2014). Many studies have shown that passion is a crucial aspect of entrepreneurship, and it plays an essential role in the business-creation process and its results (Cardon *et al.*, 2009; Cardon and Kirk, 2015). Despite substantial progress in understanding the nature and consequences of EP, one of the critical unsolved problems is how and to what extent EP is linked to the desire to start a new enterprise. The importance of EP in establishing EI within a relevant and appropriate theoretical framework has been neglected in entrepreneurship studies, particularly in developing countries (Karimi, 2019). Based on previous academic work on passion in general and particularly, this study seeks to close this gap in the literature.

Thus, the present study establishes two dimensions of EI, namely EE (environmental) and EP (motivational) in order to encourage students to start a new business upon graduation. No definite determinants or consensus were found in the literature; however, a number of studies have provided several factors that are assumed to affect individual inclination toward entrepreneurial activity.

University support has been crucial in shaping EE to reinforce perceptions and subsequently decisions to create ventures (Trivendi, 2016). Preliminary research looked at the function of universities in the economy, focusing on environmental and human elements that encourage regional economic development (Guerrero *et al.*, 2020), and this study takes university support into account as a moderator. The following pages describe the conceptual intention model structure found in the associated literature and how it relates to the theory of planned behavior (TPB). It utilizes quantitative analysis methods to provide the appropriate data collection and evaluation procedures. The outcomes and discussion section shed light on the findings of the research. The present study concludes with the contribution and political consequences.

Literature review

EI can be defined as a mindset that guides and points individual actions to develop and implement new business concepts (Bird and Jelinek, 1988). The intention to perform certain

behaviors is influenced and shaped by different factors, such as needs, values, desires, habits, beliefs, cognitive variables and situational factors (Bird and Jelinek, 1988; Liñán and Santos, 2007). The intention to engage in a particular behavior can be anticipated by a person's attitudes toward that behavior, whether that behavior is regarded favorably or unfavorably (Hattab, 2014). The EI represents a person's motivation to pursue a career as an entrepreneur. People plan to take calculated risks with goals, raise the money required and start ventures. However, EI commences with actions (Karabulut, 2016). The first step in creating a new business is creating EI (De Clercq *et al.*, 2013).

One of the most studied cognitive models is the TPB, which was initially proposed by Ajzen (1991). In this model, Ajzen assumes that human behavior is reasoned, controlled and planned because he considers the possible consequences of the behavior under consideration (Ajzen, 1991, 2002). Here, the authors of the present study use TPB's ATE as the DV and look at the effect on EI. The researchers empirically applied TPB to predict the EI of university students and confirmed the validity of the theory by using three behavioral antecedents (Anjum *et al.*, 2018c; Farrukh *et al.*, 2018; Karimi *et al.*, 2012, 2017). However, the results of the previous studies show that there are significant differences in the relative importance of the antecedents [ATE, perceived behavioral control (PBC) and subjective norms (SN)] on students' EI and their impact in different situations and countries (Krueger *et al.*, 2000; Liñán *et al.*, 2013; Nabi and Liñán, 2011).

Entrepreneurship education and entrepreneurial intentions

Integrating entrepreneurship into education has sparked a lot of interest over the years. EE is the procedure of improving skills and concepts to identify opportunities that others have overlooked, as well as the confidence and ideas to take action where others doubt (Mwasalwiba, 2010). Studies have shown that there have been beneficial impacts of entrepreneurship in education (Fayolle, 2007). Numerous studies have also shown that EE serves as a channel to promote the development of EI, economic growth and business start-ups (Nabi *et al.*, 2018; Nabi and Liñán, 2011). EE incorporates instructive courses, projects and procedures planned to create or reinforce attributes, mindsets and business abilities in students who have completed a program (Bae *et al.*, 2014; Nabi and Holden, 2008).

In summary, EE aims to increase students' responsiveness to entrepreneurship as a career option during their studies and after graduation, as well as to improve their understanding of the procedures involved in starting and managing a new business (Matsheke and Dhurup, 2017; Rasmussen and Sørheim, 2006). An extensive discussion has been made on EE's influence regarding EI (Davidsson, 2015). It is understood from these studies that entrepreneurial potential motivates individual needs (Kirkwood and Walton, 2010). However, the findings of various studies are inconsistent (Ahmed *et al.*, 2019a, b; Souitaris *et al.*, 2007). Entrepreneurial education should develop the participant's intention to become an entrepreneur. Liñán (2004) incorporated the TPB while also incorporating entrepreneurial knowledge gained through education. During the studies in the university, it is easy to divert the student's intentions toward entrepreneurship. As a result, the following hypothesis was devised:

H1. EE positively influences students' EI.

Entrepreneurship passion (inventing and founding) and entrepreneurial intentions

Passion is the spirit of entrepreneurship because it promotes creativity and awareness of new information models, which are essential for discovering and developing promising opportunities (Baron, 2008). Passion is related to entrepreneurs' ability to lift capital from

investors and hire and motivate key employees (Cardon *et al.*, 2009; de Mol *et al.*, 2019). Therefore, scholars promote a deeper understanding of passion, which is at the heart of entrepreneurial efforts (Cardon *et al.*, 2009). Furthermore, these authors emphasized EP's complex nature by proposing three distinct entrepreneurial traits that are related to various stages of the entrepreneurial journey: (1) an inventor, who is active in identifying, inventing and exploring new opportunities; (2) a founder, who is interested in creating businesses to market and seize opportunities and (3) a developer, who is interested in activities related to the cultivation, development and expansion of the company after its establishment. These different identity-related passions will affect goal-related cognition and promote specific business results (Anjum *et al.*, 2021a, b; Karimi, 2019).

EP is considered a strong positive emotion, which is determined mainly by culture; positive emotions in one national culture may produce different results. Therefore, a key question is whether the EP–EI relationship can be established in developing countries by using the widely used population (i.e. students) to verify the EI literature (Cardon *et al.*, 2009; Karimi *et al.*, 2017). Several empirical studies have also demonstrated the positive impact of EP on business behavior and performance (Anjum *et al.*, 2019; Murnieks *et al.*, 2014). While there is considerable progress in valuing the importance and impact of EP, the extent of EP in influencing new companies' ambitions must be addressed. Emerging literature is focused on the role of EP in shaping EI within a proper and successful theoretical context where it is considered an essential factor in EI (Anjum *et al.*, 2018c; Drover *et al.*, 2017).

Further, EP has been demonstrated to boost competence and confidence directly (Karimi, 2019). A better understanding of the fundamental importance of EP is needed. Research that links passion and intention is usually indirect and considers passion as a mediator between individual factors and intention and a precursor of different structures that affect intention (Murnieks *et al.*, 2014). It is also recommended to have high business intensity, which is an alternative for EP and is related to creativity intentions. Therefore, passion generates feelings and experiences that bring students closer to business activities (Bonneville-Roussy *et al.*, 2013). This research was conducted on business students' EPs and their relation to EI. Therefore, we hypothesize as follows:

H2. EPI positively influences students' EI.

H3. EPF positively influences students' EI.

Entrepreneurship education and attitude toward entrepreneurship

EI also depends on other determinants: internal, external or individual factors. Nevertheless, not all people exhibit similar intentions given a similar external situation. It shows that other personal factors could be responsible for EI (Shapero and Sokol, 1982; Ghatak *et al.*, 2007). Ajzen (1991) acknowledged that the TPB has access to additional predictors surrounding circumstances that would significantly enlarge the explanations for behavior or its purpose. There is a direct and strong relationship between participating in various EE programs and EI (Heuer and Kolvereid, 2014). Students who participated in the EE project have a more excellent entrepreneurial disposition than those who did not. Additionally, it promotes the notion that the three antecedents of the TPB model (attitude, social norms and perceived behavior control) are critical intermediary elements between EE and entrepreneurial intent, as the effects of expectations theory are typically established (Maresch *et al.*, 2016).

Alternatively, if not always sufficient, conceptual features such as attitudes are relevant aspects for the EI analysis since an emotional dimension is implicitly included in entrepreneurship. Based on this recommendation, this study attempts to consider EE a

crucial factor in effectively clarifying entrepreneurial awareness and growth mechanisms ignored in the original TPB (developing countries). Exogenous influences or more remote variables, such as personality traits, may indirectly influence individuals' behavioral intentions through their impact on more proximal, motivating elements like attitudes and PBC, according to the TPB (Fishbein and Ajzen, 2009). Remarkably, researchers have considered viewing the impact of EE on ATE. Based on the above-mentioned literature, it was hypothesized as follows:

H4. EE positively influences students' ATE.

Entrepreneurship passion (inventing and founding) and attitude toward entrepreneurship

Individuals with a high EP are internally inspired to take full advantage of their current information collection, resulting in the optimistic feeling of anticipated achievement or success (Mageau and Vallerand, 2007). Passion is associated with the aggressive and persistent pursuit of goals, specifically the desire to resolve opposition, gain capital, encourage and empower critical people and other anticipated challenges (Biraglia and Kadile, 2016). Additionally, sturdy and positive emotions can reduce the perceived challenge of the entrepreneur and make them optimistic. Hence, the higher the EP of an individual, the greater the PBC of the individual. In the same way, an individual's EP can also be their ATE. When people show enthusiasm for related entrepreneurial activities, they are more optimistic toward desirable entrepreneurial tasks (Anjum *et al.*, 2021a, b; Biraglia and Kadile, 2016). Hence, the hypotheses are proposed as follows:

H5. EPI positively influences students' ATE.

H6. EPF positively influences students' ATE.

Attitude toward entrepreneurship and entrepreneurial intention

Attitude is defined as the individual's perception and interests, which significantly affect their intention to venture into new businesses. Academics treat entrepreneurs in two ways. First, entrepreneurial attitudes are personal feelings, thoughts and ideas about entrepreneurship (Ajzen, 1991, 2011). In this approach, entrepreneurship attitudes are considered a function of business value, beliefs and profitability, while entrepreneurship is primarily a multi-dimensional structure. The second approach defines entrepreneurship as a multifaceted concept that includes four key personality factors: achievement needs, personal control over behavior, innovation and self-esteem (Robinson *et al.*, 1991). Scholars have scientifically adapted the students' TPB to the EI and endorsed the theory's assumptions about the effect on their intentions regarding ATE, SN and PBC (Farrukh *et al.*, 2019). These studies support Ajzen's (1991) argument that all three antecedents are significant; however, they also show that their relative importance is not the same in every situation and region, as well as the magnitude of their influence (Karimi, 2019; Karimi *et al.*, 2017).

Based on the individual's perception of the convenience of carrying out the behavior, ATE becomes an entrepreneur. In the Massachusetts Institute of Technology (MIT) sample of 139 students, there are 2 actual results: (1) ATE has the greatest impact on EI and (2) it can be influenced by educators (Lüthje and Franke, 2003). Therefore, ATE deserves more attention, and it should be noted that, while ATE is comprised of various motivations and varies depending on the individual, its impact on EI can be universal (Fayolle and Liñán, 2014). Therefore, the following hypothesis is proposed to consider ATE relevant to this study:

H7. ATE positively influences students' EI.

Attitude toward entrepreneurship as a mediator between entrepreneurship education, Entrepreneurial Passion for Inventing, entrepreneurial passion for founding and entrepreneurial intention

Students' EI is a dynamic field that needs further exploration to understand and manage different tools to build a new business, such as internships and business incubators (Anjum *et al.*, 2020a, b, c). Students' inclination toward entrepreneurship is an imperative framework for establishing new businesses. Attitude, behavior and entrepreneurial indulgence can foster students' desire to initiate new business endeavors in the future. However, they are prone to have a wage-earning mindset and government overreliance on job growth. This mindset could diminish creative practices, innovation and entrepreneurship (Sieger *et al.*, 2014). Likewise, another study showed that the greater people understand creative temperament, the higher their attitude and the stronger their EI. Feldman and Bolino (2000) concluded that people with a higher degree of creativity are more likely to be self-employed. Similarly, creative intelligence may significantly affect individual behaviors to launch a new venture (Anjum *et al.*, 2021a, b).

Prior literature has considered PBC and ATE as mediating variables in various relationships connecting individual/psychological parameters and entrepreneurial results (Karimi *et al.*, 2017). The ATE and PBC were tested as mediators among personality characteristics and EI. In turn, ATE and PBC are repeatedly shown to enhance EI. Further, students would feel assured that they have the essential entrepreneurial skills and take a positive view of entrepreneurship to start a new business (Karimi, 2019). Previous studies have also indicated that personal and environmental factors influenced EI, including attitudes toward entrepreneurship, personality traits and social environment (Davidsson, 1995; Lüthje and Franke, 2003; Robinson *et al.*, 1991). Thus, ATE is likely a proximal predictor of EI, while EE, EPI and EPF are more distant determinants. Consequently, there is an indirect relationship between EE, EPI, EPF and EI via ATE. Therefore, it was hypothesized as follows:

H8. ATE mediates the relationship between EE and EI.

H9. ATE mediates the relationship between EPI and EI.

H10. ATE mediates the relationship between EPF and EI.

Perception of university support, attitude toward entrepreneurship and entrepreneurial intention

Scholars have debated the entrepreneurial role of universities extensively with conflicting views. The university is a place to promote knowledge through research, disseminate knowledge through teaching and publishing activities and preserve knowledge in the library (Jr, 1995; Williams and Kluev, 2014). As part of the environmental context that influences entrepreneurial attitudes and behaviors, the university environment has been accepted as a contributing factor and emerged as a predictor of intention (Anjum *et al.*, 2021a, b; Harms *et al.*, 2009). The university has several factors that can improve students' corporate control intentions. Nonetheless, they provide a favorable environment for thinking and imagination with the help of creativity and arrangements. It is useful for starting entrepreneurship; environmental perception guides individual behavior (Lüthje and Franke, 2002). Therefore, universities are recognized as a source of promoting actions and entrepreneurialism. Thus, they play an important role in positively shaping students' intentions and efforts toward entrepreneurship, as well as making them capable of developing a new venture (Anjum *et al.*, 2021a, b).

Research shows that if universities provide this ideal environment, students are more likely to become future entrepreneurs. When universities provide a campus environment conducive to entrepreneurship, students' ability to take advantage of entrepreneurial

opportunities will increase (Keat *et al.*, 2011). To foster students' entrepreneurial attitude and willingness, universities offer a variety of compulsory and elective entrepreneurship courses in various majors. The entrepreneurship-friendly environment at universities positively impacts students' entrepreneurial motivation. In the Global University Entrepreneurial Spirit Students' Survey (GUESS) report (2021), it was found that several courses being offered at different degree programs in universities enhanced students' understanding of values and motivations to be an entrepreneur, actions required to be an entrepreneur, practical and management skills to start a business, ability to develop networks and ability to identify an opportunity (Samo and Channa, 2021).

University courses on entrepreneurship, small company management and campus-based incubators are important in igniting student interest in business ownership (Harms *et al.*, 2009). The university's efforts to promote an entrepreneurship environment lead to an enormous desire to start a firm in the future. Thus, higher education institutions furnish students with motivation and entrepreneurial skills in the interest of policymakers. To do so effectively, the mission of a university, sometimes referred to as the third assignment, improves teaching and study of the value of a particular discipline (Etzkowitz, 2000; Johannisson, 2018). However, despite some scholars' efforts to discuss the impact of the university environment on EI, the understanding of the university's role as it enhances the process of EI remains unclear (Entrialgo and Iglesias, 2016). Thus, this study examined the moderating role of university support on the relationship between ATE and EI.

H11. Perception of university support (PUS) moderates the relation between ATE and EI such that this relationship is more robust for those students who have higher PUS.

Conceptual model

According to EI theories, intention is the most critical concept for starting a new business. Kirby and Ibrahim (2011) further argue that entrepreneurship is intentional and as well as pre-planned. In this sense, the formation of EI is fundamental for the evolutionary process and, at times, long for creating business enterprise. Therefore, EI plays a critical role in understanding the connection between people and start-ups (Bird and Jelinek, 1988; Fayolle, 2006; Krueger and Carsrud, 1993). The TPB provides information and insights into how perception and viability are affected by auras such as education and experience, as well as how entrepreneurial motivation influences the perception of viability and strengthens or weakens the effect or tendency to take action (Ahmed *et al.*, 2020).

Given the above theoretical supports, this study utilizes TPB to examine the relationships between individuals' EE, EP (inventing and founding) and entrepreneurship attitude. Besides EI, entrepreneurship's success is mainly dependent on university support, which has received little attention in previous studies. Various dimensions collaborate in the development of EI. In the current study, the IV consists of EE, EPI and EPF. The actual EI is a DV, whereas entrepreneurship attitude is a mediator between three IVs and the DV. On the other hand, PUS moderates ATE and EI. A conceptual framework is thus constructed based on the theories given, and a research model has been proposed to analyze the EI determinants (see Figure 1).

Methodology

The present work concentrated on student's EI in Pakistan, focusing on developing the relationship between the IVs and DV. Therefore, the descriptive-correlative research design was adopted as the most suitable method for achieving the research objectives. The descriptive-correlative research design has been previously applied to determine the effect of EI in Mahendra *et al.* (2017) study.

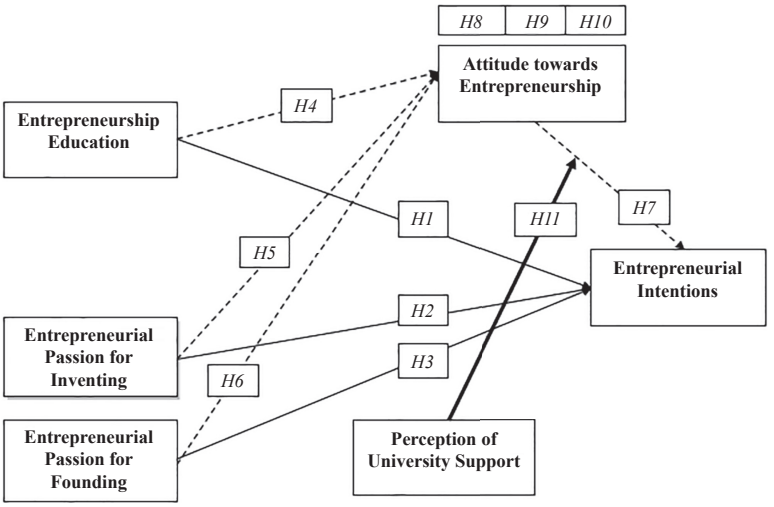

Figure 1.
Conceptual framework

This current study was conducted in the Punjab province of Pakistan, where nine universities in Lahore, Islamabad, Faisalabad, Multan and Bahawalpur were chosen for data collection. The selected participants were 377 business students from different universities; as this is an entrepreneurship study, business students evaluated EI (Ali *et al.*, 2017). Krejcie and Morgan's (1970) method was adopted to select sample size for this current research, and the proportionate stratified random sampling was used in the study (Krejcie and Morgan, 1970). Proportionate stratified random sampling is when the sample size of each section is proportional to the division's population size when observed in contrast to the total population (Rahi *et al.*, 2019).

A self-administered, closed-ended questionnaire with a Likert scale was used. All chosen variables are based on a 7-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). The DV in this study is EI, and the operationalization for this variable was done using six items (Liñán and Chen, 2009). Since the study tries to figure out how EE and TPB dimensions (ATE) affect entrepreneurship intent, EE was measured with six items (Ahmed *et al.*, 2020) and university support with fourteen items (Keat *et al.*, 2011). The six dimensions of ATE were chosen from Ahmed *et al.* (2019a, b). Moreover, the authors already used these dimensions in the Pakistani context. Four items for EPF and five items for EPI were adopted from Cardon *et al.* (2013).

Demographic profile

Respondents were 57.8% male, 42.2% female and most respondents (95%) were under 30. Of this target population, 74% hold a bachelor's degree and 22.3% study for a master's degree, while the remaining 3.7% earn their doctorate. Furthermore, 55.70% have no work experience, whereas 24% of the students belong to a self-employed family (see Table 1).

Result

The direct, indirect and moderation roles of the model used in PLS-SEM were tested to analyze the results and establish the relationships among variables (Anjum *et al.*, 2018c; Farrukh *et al.*, 2019; Farrukh *et al.*, 2017). In the past five years, approximately 95% of the studies related to entrepreneurship utilized the two-step SmartPLS process for analysis

(Manley *et al.*, 2020). The first step evaluates the reliability and validity of the constructs in the measurement model, where the composite reliability (CR), average variance extracted (AVE) and discriminant validity were calculated. The standard threshold values for CR and AVE are 0.70 and 0.50, respectively (Hair *et al.*, 2017) are presented in Table 2. As for the discriminant validity, the Fornell and Larcker (1981) Criteria (Table 3) were adopted as a measurement tool in the study. The second step of the analysis involves evaluating the

Construct indicators	Indicators	Cross loadings	Composite reliability	AVE
Attitude toward entrepreneurship			0.929	0.687
	ATE1	0.813		
	ATE2	0.813		
	ATE3	0.805		
	ATE4	0.813		
	ATE5	0.757		
	ATE6	0.959		
Entrepreneurial intention			0.922	0.675
	EI1	0.894		
	EI2	0.950		
	EI3	0.871		
	EI4	0.812		
	EI5	0.752		
	EI6	0.982		
Entrepreneurial passion for founding			0.925	0.754
	EPF1	0.860		
	EPF2	0.903		
	EPF3	0.887		
	EPF4	0.822		
Entrepreneurial passion for inventing			0.930	0.727
	EPI1	0.735		
	EPI2	0.844		
	EPI3	0.834		
	EPI4	0.937		
Entrepreneurship education	EPI5	0.900		
			0.916	0.649
	PEE1	0.814		
	PEE2	0.651		
	PEE3	0.821		
	PEE4	0.788		
	PEE5	0.745		
	PEE6	0.978		
			0.930	0.500
	PUS1	0.619		
	PUS2	0.555		
	PUS3	0.865		
	PUS4	0.770		
	PUS5	0.696		
	PUS6	0.751		
	PUS7	0.772		
Perception of university support	PUS8	0.739		
	PUS9	0.773		
	PUS10	0.773		
	PUS11	0.713		
	PUS12	0.721		
	PUS13	0.744		
	PUS14	0.729		

Table 2.
The latent validity and reliability of the measurement model

structural model where the coefficient of determination (R squared) and the significance of path coefficients were tested.

Discriminant validity

As mentioned earlier, the discriminant validity was measured using the Fornell and Larcker (1981) criteria. The general rules by Fornell and Larcker (1981) suggest that the AVE's square root should not surpass the correlational value of the latent constructs. Therefore, as presented in Table 3, the square root of AVE is compared against the correlational value for each construct (Fornell and Larcker, 1981).

In Table 3, the comparison between the correlations of the latent constructs against the square root of the average variances extracted was performed. The square root of the average extracted variances was reported to surpass the latent constructs' correlational values, so the model's discriminant validity is sufficient (Chin, 1998).

Assessment of the structural model

According to the technique described in Hair *et al.* (2017), the structural model for collinearity issues must first be evaluated by checking the VIF values for all sets of predictor components in the structural model. As seen in Table 4, all VIF values are less than the threshold value of 5. As a result, collinearity among the predictor constructs is not a serious issue in the structural model, and the results report was examined afterward.

Upon confirming the measurement model's reliability and validity, the structural model was evaluated. This evaluation process was conducted using the bootstrap resampling method, where the significance of path coefficients was assessed based on 5,000 resample (Hair *et al.*, 2014).

Mediating effects

Following the recommendations proposed by Hair *et al.* (2017), a mediation analysis was performed using the SmartPLS. The bootstrap program makes no assumptions about the

Construct	ATE	EI	EPF	EPI	PCD	EE	PUS
Attitude toward entrepreneurship	0.829						
Entrepreneurial intention	0.687	0.821					
Entrepreneurial passion for founding	0.276	0.243	0.869				
Entrepreneurial passion for inventing	0.341	0.391	0.154	0.853			
Entrepreneurship education	0.612	0.511	0.174	0.258	0.336	0.806	
Perception of university support	−0.322	−0.242	−0.069	−0.110	−0.186	−0.220	0.707

Source(s): Fornell and Larcker (1981)

Table 3. Criteria for discriminant validity

	ATE	EI
ATE		2.178
EI		
EPF	1.051	1.089
EPI	1.108	1.145
EE	1.208	1.654
PUS		1.110

Table 4. VIF values in the structural model

sampling distribution of statistical data or how the variables are distributed. In addition, its safe usability with small sample sizes renders the bootstrap method appropriate for testing the indirect effects using the PLS-SEM technique (Hair *et al.*, 2017).

Results showed that EPF → ATE → EI (H10), indicating a full mediation since the EPF was found to reject the direct impact on EI (H3). In contrast, the two remaining variables reported partial mediation where they demonstrated a direct effect on EI (H1 and H2) as explained in Table 5 (for indirect effects see Tables 6 and 7).

Moderating effects

The moderating effect of perceptions of university assistance on the connection between ATE and EI was investigated using a product indicator approach. The results of the moderation analysis are shown in the table below, with the PUS being found to moderate entrepreneurial inclinations. Furthermore, the moderation results for beta values, *t*-value and *p*-values showed a significant relationship (see Table 7).

Coefficients of determination (R^2)

The R^2 value reflects exogenous latent variables' ability to predict endogenous latent variables (Cohen, 1988). In the present study, the variation in endogenous constructs described by exogenous constructs was deemed sufficient. The R^2 for the endogenous latent variables was 0.561 and 0.523 for EI and ATE, respectively. These values indicate that 56.1% and 52.3% of the EI and ATE variance are caused by the IV (EE, EPF and EPI).

Discussion and conclusions

The primary goal of this research was to look at the factors influencing university students' EI. This study's findings showed that EE and EPI are positively associated with EI among

Table 5.
Results of hypothesis testing with bootstrapping

Construct	Path coefficient	*T*-statistics	*p*-values	Decision
EE → EI	0.106	1.978	0.048	Supported
EPI → EI	0.168	4.169	0.000	Supported
EPF → EI	0.048	1.281	0.201	Not supported
EE → ATE	0.461	8.994	0.000	Supported
EPI → ATE	0.133	2.992	0.003	Supported
EPF → ATE	0.134	3.474	0.001	Supported
ATE → EI	0.425	6.095	0.000	Supported

Table 6.
Indirect effect

Construct	Path coefficient	*T*-statistics	*p*-values	Decision
EE → ATE → EI	0.196	5.111	0.000	Supported
EPI → ATE → EI	0.057	2.612	0.009	Supported
EPF → ATE → EI	0.057	2.883	0.004	Supported

Table 7.
Moderation effect

	Path coefficient	*T*-statistics	*p*-value
Moderating effect 1 → EI	0.139	2.337	0.020

business students in Pakistan, with EPF as an exception. Furthermore, ATE was reported to have a full mediation impact on EPF and EI, but partial mediation impacted EE and EPI. The PUS was also confirmed as a moderator between ATE and EI. Therefore, all the study's hypotheses are supported except EPF impact on EI.

However, this evidence indicates that this study describes the positive impact of EE and EP on Pakistani students' EI. Although several researchers have examined the effectiveness of EE in the past, limited knowledge is available on EE's benefits and desired goals. University courses and programs in EE are proven to positively impact the attractiveness and viability of the latest ventures and actual business activities via the solid development of intentions (Nabi and Holden, 2008; Peterman and Kennedy, 2003; Tkachev and Kolvereid, 1999). However, it is essential to evaluate current teaching methods. Going beyond traditional entrepreneurship courses appears to be a stop-gap measure. Besides, an entrepreneurship course can improve the EI, satisfaction toward the entrepreneurship course and learning effectiveness. There is evidence that entrepreneurship courses should increase students' awareness of the importance of emotional, social and cognitive skills for business success while inspiring students' confidence in their resources (Leiva *et al.*, 2020). In contrast, some studies have found contradictory evidence regarding EE (Ahmed *et al.*, 2019b; Souitaris *et al.*, 2007).

To achieve EE's goals of cultivating entrepreneurial attitudes among business students, it is critical to first identify a student's passion for starting a venture and then inspire them to consider entrepreneurship as a profession. The Government can contribute to this process by organizing various competitions with the university's assistance by supporting students to venture into entrepreneurship activities under the supervision of the university (Anjum *et al.*, 2018a, b; Anjum *et al.*, 2020a, b, c). Impact evaluations for entrepreneurship courses, which assess the effectiveness of factors such as group size, program duration, mandatory vs voluntary participation, professor profile and student credits earned are the responsibility of university administrators. For example, entrepreneurship classes can be offered to students enrolled in other academic areas who have the potential to pursue an entrepreneurial career, as well as business students who usually benefit from official entrepreneurship programs (Leiva *et al.*, 2020). In other words, the university supports successful entry into self-employment.

Finally, the study emphasizes independent factors and the TPB dimension (ATE) on EI in underdeveloped countries. The fact that the variables have a positive connection suggests that they can help students conceptualize entrepreneurial ideas. The study discovered that EE has a favorable impact on EI and that students who pursue entrepreneurship courses had a higher intention. A strong correlation was found between TPB and individual intentions to start a new business. However, there is a need to strengthen several areas of EE in Pakistan and make it more relevant to intention formation in Pakistan's higher education institutions. This study builds on previous research to support the EE research base (Ahmed *et al.*, 2019a, b). Pakistan attempts to enhance its economic position through different educational policies. This move includes the establishment of the National Business Education Accreditation Council (NBEAC) by the HEC to promote entrepreneurial culture in universities (Saeed *et al.*, 2015).

The role of university support is essential in influencing students' attitudes toward entrepreneurship. Universities need to plan various entrepreneurial activities, including workshops, exhibitions and innovative competitions, to identify further students' entrepreneurial skills, creativity and EP. Additionally, universities must also adopt up-to-date teaching and learning entrepreneurship content that primarily focuses on activity-based entrepreneurship learning (Anjum *et al.*, 2020a, b, c). Further, the HEC stressed the importance of developing creativity, innovative abilities and skills alongside academic knowledge to prepare students for their real-world experiences upon completing their university studies (Farrukh *et al.*, 2019; Farrukh *et al.*, 2016).

Implications of the study

This research provides valuable insights into theory building. It contributes specifically to the TPB by empirically providing experimental support in determining the relationship between attitude and intention. Although there are existing studies on entrepreneurship's impact, this study's outcomes, based on Pakistani data, proved unique as it can reflect the perspective of Asia's rising economies. The data were collected before the coronavirus disease 2019 (COVID-19); however, the impact of COVID-19 was not considered in this study.

This research provides a comprehensive understanding of EI determinants among Pakistani university students in terms of practical contributions. Therefore, all parties are accountable for entrepreneurship growth by grasping how EI is formed and how these beliefs and opinions affect their business readiness. Furthermore, the study reveals the role of EE in promoting personal characteristics to improve business intentions, allowing the Government and policymakers to foster EI among students through entrepreneurial training. Therefore, higher education decision-makers and managers should increase their educational research efforts among universities and collaborate with industries.

Universities can achieve this by allowing student groups to create and manage prototype businesses on campus. The findings of this study directly impact the support provided to entrepreneurial professors and university administrators charged with developing and supporting entrepreneurial ecosystems in emerging economies. This process allows students to acquire experience in establishing companies, resulting in higher-financial returns in the future and contributing to a better economic structure. Projects such as these should interest researchers, teachers and stakeholders, as they involve not fully explored concepts, such as the constructs tested in the current study. Furthermore, a series of events can encourage entrepreneurship, including presenting the strong position of local and international role models in teaching, creating an industrial entrepreneurship support network and organizing business plan competitions.

Limitations and suggestions for future studies

Despite its factual findings, this research is not without limitations. First, this research was conducted within the country's central and most populated province. Thus, the results may differ if the research was conducted in other parts of the country, as selected universities may have greater student variety. Therefore, future studies can consider replicating this study in other parts of the country. Moreover, different regions such as Europe and diverse countries like Austria, Belgium, Latvia, Spain or Sweden might bring more insight into the construct. Second, the labeling of some constructs (e.g. EE and PUS) is purely based on the sample population of Pakistani university students, making it possible for a qualitative observation. This study further evaluated the EI model of university students and included professionals or entrepreneurs, allowing for the assessment of EI in various market segments.

Quite significant results regarding the degree of EI prediction were obtained using the variables of the current model. However, this does not prove that these should be the final variables for future evaluations. Future studies can consider an entrepreneur's family history, years of education completed, opportunities or innovation discoveries (Lecuna *et al.*, 2017; Palmer *et al.*, 2021). These can help generate more complex models to understand the EI phenomenon better.

The COVID-19 hassle is a recent and ongoing event, and there are many opportunities for EE research in the future. It will help to understand better what entrepreneurship educators are doing to deal with uncertainty and the rapid transition to online learning. More research is needed on teaching innovation caused by the COVID-19 disaster. As a result, entrepreneurial educators have a great opportunity to use their existing skills to acquire new community technologies of entrepreneurial education, thus creating a more contextualized learning

environment. It will provide useful information for entrepreneurial universities looking for new sources of income based on existing sources of income (Ratten, 2020). Future research could concentrate on delving deeper into the various case studies and how entrepreneurial educators integrate the innovation paradigm. Additionally, more longitudinal research is needed, especially in the pre- and post-COVID environment, to understand what has changed in EE (Ratten, 2020; Ratten and Jones, 2021).

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