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

Temoor Anjum
Center of Post-Graduate Studies, Limkokwing University of Creative Technology, Cyberjaya, Malaysia and
Department of Business Administration, Faculty of Management Sciences, ILMA University, Karachi, Pakistan

Azadeh Amoozegar
Center of Post-Graduate Studies, Limkokwing University of Creative Technology, Cyberjaya, Malaysia

Muhammad Farrukh
Department of Economics, Shenzhen MSU-BIT, Shenzhen, China, and

Petra Heidler
Department for Economy and Health, Danube University Krems, Krems, Austria and
Department of International Trade and Sustainable Economy, IMC University of Applied Sciences Krems, Krems, Austria

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

Paper type Research paper

© Temoor Anjum, Azadeh Amoozegar, Muhammad Farrukh and Petra Heidler. Published by Emerald Publishing Limited. This article is published under the Creative Commons Attribution (CC BY 4.0) licence. Anyone may reproduce, distribute, translate and create derivative works of this article (for both commercial and non-commercial purposes), subject to full attribution to the original publication and authors. The full terms of this licence may be seen at http://creativecommons.org/licences/by/4.0/legalcode
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
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
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:

$H8. \text{ATE mediates the relationship between EE and EI.}$

$H9. \text{ATE mediates the relationship between EPI and EI.}$

$H10. \text{ATE mediates the relationship between EPF and EI.}$

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.
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        | 0.732          |                       |      |
|                                                   | 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                        |            |                | 0.916                 | 0.649|
|                                                   | PEE1       | 0.814          |                       |      |
|                                                   | PEE2       | 0.651          |                       |      |
|                                                   | PEE3       | 0.821          |                       |      |
|                                                   | PEE4       | 0.788          |                       |      |
|                                                   | PEE5       | 0.745          |                       |      |
|                                                   | PEE6       | 0.978          |                       |      |
|                                                   | PUS1       | 0.619          |                       |      |
|                                                   | PUS2       | 0.555          |                       |      |
|                                                   | PUS3       | 0.865          |                       |      |
|                                                   | PUS4       | 0.770          |                       |      |
|                                                   | PUS5       | 0.696          |                       |      |
|                                                   | PUS6       | 0.751          |                       |      |
|                                                   | PUS7       | 0.772          |                       |      |
|                                                   | 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
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|      |      |      |      |      |      |
| 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

| Construct | ATE | EI |
|-----------|-----|----|
| ATE       | 2.178|
| EI        | 1.089|
| EPF       | 1.108|
| EPI       | 1.145|
| EE        | 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

| 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 5. Results of hypothesis testing with bootstrapping

| 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 6. Indirect effect

| Construct | Path coefficient | $T$-statistics | $p$-value |
|-----------|------------------|----------------|-----------|
| Moderating effect 1 → EI | 0.139 | 2.337 | 0.020 |

Table 7. Moderation effect
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).

References
Ahmed, T., Klobas, J.E. and Ramayah, T. (2019a), “Personality traits, demographic factors and entrepreneurial intentions: improved understanding from a moderated mediation study”, Entrepreneurship Research Journal, pp. 1-16.

Ahmed, T., Rehman, I.U. and Sergi, B.S. (2019b), “A proposed framework on the role of entrepreneurial education and contextual factors”, Entrepreneurship and Development in the 21st Century, Emerald Publishing, pp. 47-68.

Ahmed, T., Chandran, V.G.R., Klobas, J.E., Liñán, F. and Kokkalis, P. (2020), “Entrepreneurship education programmes: how learning, inspiration and resources affect intentions for new venture creation in a developing economy”, International Journal of Management Education, Elsevier, Vol. 18 No. 1, p. 10027.

Ajzen, I. (1991), “The theory of planned behavior”, Organizational Behavior and Human Decision Processes, Elsevier, Vol. 50 No. 2, pp. 179-211.

Ajzen, I. (2002), “Perceived behavioral control, self-efficacy, locus of control, and the theory of planned behavior”, Journal of Applied Social Psychology, Vol. 32 No. 4, pp. 665-683.

Ajzen, I. (2011), “The theory of planned behaviour: reactions and reflections”, Psychology and Health, Vol. 26 No. 9, pp. 1113-1127.

Ali, J., Zakaria, N., Jaganathan, M., Rashid, N.A.M., Yacob, P. and Gorondutse, A.H. (2017), “Determinants of entrepreneurial intention: empirical insights from Malaysian undergraduate business students”, International Journal of Economic Research, Vol. 14 No. 19, pp. 159-169.

Anjum, T., Ramzani, S.R., Nazar, N., Shahzad, I.A. and Salman, S. (2018a), “Entrepreneurial intention: does entrepreneurial education matter in Pakistan”, International Journal of Human Resource Studies, Vol. 8 No. 3, pp. 147-161.

Anjum, T., Ramzani, S.R., Farrukh, M, Raju, V., Nazar, N. and Shahzad, I.A. (2018b), “Entrepreneurial intentions of Pakistani students: the role of entrepreneurial education, creativity disposition, invention passion and passion for founding”, Journal of Management Research, Vol. 10 No. 3, p. 76.

Anjum, T., Sharifi, S., Nazar, N. and Farrukh, M. (2018c), “Determinants of entrepreneurial intention in perspective of theory of planned behaviour”, Management Theory and Studies for Rural Business and Infrastructure Development, Vol. 40 No. 4, pp. 429-441.

Anjum, T., Ramzani, S.R. and Nazar, N. (2019), “Antecedents of entrepreneurial intentions: a study of business students from universities of Pakistan”, International Journal of Business and Psychology, Vol. 1 No. 2, pp. 72-88.

Anjum, T., Amoozegar, A., Nazar, N. and Kanwal, N. (2020a), “Intervening effect of attitudes towards entrepreneurship: correlation between passion and entrepreneurial intention”, International Journal of Advanced Science and Technology, Vol. 29 5 Special Issue, pp. 1327-1340.

Anjum, T., Ramani Bai, V. and Nazar, N. (2020b), “Mediating role of attitudes to enhance the creativity disposition towards entrepreneurial intention”, International Journal of Psychosocial Rehabilitation, Vol. 24 No. 3, pp. 542-553.

Anjum, T., Varadarajan, R.B. and Phung, S.P. (2020c), “Moderating role of university support on the relationship between effective entrepreneurship education and entrepreneurial intention”, Test Engineering Management, Vol. 83 Nos March/April 2020, pp. 16377-16387.
Anjum, T., Farrukh, M., Heidler, P. and Tautiva, J.A.D. (2021a), “Entrepreneurial intention: creativity, entrepreneurship, and university support”, Journal of Open Innovation: Technology, Market, and Complexity, Vol. 7 No. 1, pp. 1-13.

Anjum, T., Heidler, P., Amoozegar, A. and Anees, R.T. (2021b), “The impact of entrepreneurial passion on the entrepreneurial intention; moderating impact of perception of university support”, Administrative Sciences, Vol. 11 No. 2, p. 45.

Bae, T.J., Qian, S., Miao, C. and Fiet, J.O. (2014), “The relationship between entrepreneurship education and entrepreneurial intentions: a meta-analytic review”, Entrepreneurship: Theory and Practice, Vol. 38 No. 2, pp. 217-254.

Baron, R.A. (2008), “The role of affect in the entrepreneurial process”, Irish Theological Quarterly, Vol. 66 No. 4, pp. 351-364.

Biraglia, A. and Kadile, V. (2016), “The role of entrepreneurial passion and creativity in developing entrepreneurial intentions: insights from American homebrewers”, Journal of Small Business Management, Vol. 55 No. 1, pp. 170-188.

Bird, B. and Jelinek, M. (1988), “The operation of entrepreneurial intentions”, Entrepreneurship Theory and Practice, Vol. 13 No. 2, pp. 21-30.

Bonneville-Roussy, A., Vallerand, R.J. and Bouffard, T. (2013), “The roles of autonomy support and harmonious and obsessive passions in educational persistence”, Learning and Individual Differences, Elsevier, Vol. 24, pp. 22-31.

Cardon, M.S. and Kirk, C.P. (2015), “Entrepreneurial passion as mediator of the self-efficacy to persistence relationship”, Entrepreneurship: Theory and Practice, Vol. 39 No. 5, pp. 1027-1050.

Cardon, Wincent, J., Singh, J. and Drnovsek, M. (2009), “The nature and experience of entrepreneurial passion”, Vol. 34 No. 3, pp. 511-532.

Cardon, M.S., Gregoire, D.A., Stevens, C.E. and Patel, P.C. (2013), “Measuring entrepreneurial passion: conceptual foundations and scale validation”, Journal of Business Venturing, Elsevier, Vol. 28 No. 3, pp. 373-396.

Chin, W.W. (1998), “Modern methods for business research”, Modern Methods for Business Research, Vol. 295 No. 2, pp. 295-336.

Cohen, J. (1988), Statistical Power Analysis for the Behavioral Sciences, Vol. 2, Lawrence Erlbaum Associates, New York.

Davidsson, P. (1995), “Determinants of entrepreneurial intentions”, Jiliang Xuebao/Acta Metrologica Sinica, Vol. 29 No. 4, pp. 293-296.

Davidsson, P. (2015), “Entrepreneurial opportunities and the entrepreneurship nexus: a re-conceptualization”, Journal of Business Venturing, Elsevier, Vol. 30 No. 5, pp. 674-695.

De Clercq, D., Honig, B. and Martin, B. (2013), “The roles of learning orientation and passion for work in the formation of entrepreneurial intention”, International Small Business Journal, Sage Publications Sage UK, London, England, Vol. 31 No. 6, pp. 652-676.

de Mol, E., Cardon, M.S., de Jong, B., Khapova, S.N. and Elfring, T. (2019), “Entrepreneurial passion diversity in new venture teams: an empirical examination of short- and long-term performance implications”, Journal of Business Venturing, Elsevier, Vol. 35 No. 4, p. 105965.

Drover, W., Busenitz, L., Matusik, S., Townsend, D., Anglin, A. and Dushnitsky, G. (2017), “A review and road map of entrepreneurial equity financing research: venture capital, corporate venture capital, angel investment, crowdfunding, and accelerators”, Journal of Management, Vol. 43 No. 6, pp. 1820-1853.

Entrialgo, M. and Iglesias, V. (2016), “The moderating role of entrepreneurship education on the antecedents of entrepreneurial intention”, International Entrepreneurship and Management Journal, Vol. 12 No. 4, pp. 1209-1232.

Etzkowitz, H. (2000), “The evolution of the entrepreneurial university”, International Journal of Technology and Globalisation, Vol. 1 No. 1, pp. 64-77.
Fallah, H., Jafariyan, H. and Savabieh, S. (2018), “Investigation of market orientation and self-efficacy effects on sales force performance: mediator role of sales force creativity and innovation implementation”, Journal of Relationship Marketing, Taylor & Francis, Vol. 17 No. 3, pp. 188-203.

Farrukh, M., Rehman, S. and Ishaque, A. (2016), “Religion and entrepreneurial Intentions: an empirical investigation”, International Journal of Advanced and Applied Sciences, Vol. 3 No. 9, pp. 31-36.

Farrukh, M., Alzubi, Y., Shahzad, I.A., Waheed, A. and Kanwal, N. (2018), “Entrepreneurial intentions: the role of personality traits in perspective of theory of planned behaviour”, Asia Pacific Journal of Innovation and Entrepreneurship, Emerald Publishing, Vol. 12 No. 3, pp. 399-414.

Farrukh, M., Ying, C.W. and Mansori, S. (2017), “Organizational commitment: an empirical analysis of personality traits”, Journal of Work-Applied Management, Emerald Publishing, Vol. 9 No. 1, pp. 18-34.

Farrukh, M., Lee, J.W.C. and Shahzad, I.A. (2019), “Intrapreneurial behavior in higher education institutes of Pakistan: the role of leadership styles and psychological empowerment”, Journal of Applied Research in Higher Education, Vol. 11 No. 2, pp. 273-294.

Fayolle, A. (2006), “Essay on the nature of entrepreneurship education”, International Conference Entrepreneurship in United Europe - Challenges and Opportunities, pp. 1-18.

Fayolle, A. (Ed.) (2007), Handbook of Research in Entrepreneurship Education, 1st ed., Edward Elgar Publishing, Cheltenham.

Fayolle, A. and Liñán, F. (2014), “The future of research on entrepreneurial intentions”, Journal of Business Research, Elsevier, Vol. 67 No. 5, pp. 663-666.

Feldman, D.C. and Bolino, M.C. (2000), “Career patterns of the self-employed: career motivations and career outcomes”, Journal of Small Business Management, Vol. 38 No. 3, pp. 53-68.

Fishbein, M. and Ajzen, I. (2009), Predicting Changing Behavior and Predicting Behavior, 1st ed., Routledge, New York, NY.

Fornell, C. and Larcker, D.F. (1981), “Structural equation models with unobservable variables and measurement error: algebra and Statistics”, Journal of Marketing Research, Vol. 18 No. 3, p. 382.

Gaglio, C.M. (2018), “Opportunity identification: review, critique, and suggested research directions”, Advances in Entrepreneurship, Firm Emergence and Growth, Vol. 20, doi: 10.1108/S1074-7542018000020001.

GEI Report (2019), “GEI_2019_Final-1”, Global Entrepreneurship Index, pp. 1-71.

Ghatak, M., Morelli, M. and Sjöstrom, T. (2007), “Entrepreneurial talent, occupational choice, and trickle up policies”, Journal of Economic Theory, Vol. 137 No. 1, pp. 27-48.

Global Entrepreneurship Monitor (2019), Global Entrepreneurship Monitor: Global Report 2018/2019, Global Entrepreneurship Monitor, available at: http://www.gemconsortium.org/report/50012.

Guerrero, M., Urbano, D. and Gajón, E. (2020), “Entrepreneurial university ecosystems and graduates’ career patterns: do entrepreneurship education programmes and university business incubators matter?”, Journal of Management Development, Vol. 39 No. 5, pp. 753-775.

Hair, J.F., Sarstedt, M., Hopkins, L. and Kuppelwieser, V.G. (2014), “Partial least squares structural equation modeling (PLS-SEM): an emerging tool in business research”, European Business Review, Vol. 26 No. 2, pp. 106-121.

Hair, J.F., Jr, Hult, G.T.M., Ringle, C. and Sarstedt, M. (2017), A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM), Sage Publications, Thousand Oaks, CA.

Harms, R., Kraus, S. and Schwarz, E. (2009), “The suitability of the configuration approach in entrepreneurship research”, Entrepreneurship and Regional Development, Vol. 21 No. 1, pp. 25-49.

Hattab, H.W. (2014), “Impact of entrepreneurship education on entrepreneurial intentions of university students in Egypt”, Journal of Entrepreneurship, Vol. 23 No. 1, pp. 1-18.

Heuer, A. and Kolvereid, L. (2014), “Education in entrepreneurship and the theory of planned behaviour”, European Journal of Training and Development, Vol. 38 No. 6, pp. 506-523.
Johannisson, B. (2018), “Disclosing everyday practices constituting social entrepreneuring—a case of necessity effectuation”, *Entrepreneurship and Regional Development*, Routledge, Vol. 30 Nos 3-4, pp. 390-406.

Jr, W.A.C. (1995), *A Draft Research Model of the Research University Library Exploring the Scholar-Librarian Partnership of Jaroslav Pelikan in ‘The Idea of the University: A Reexamination’*, Doctoral dissertation, Ohio University.

Karabulut, A.T. (2016), “Personality traits on entrepreneurial intention”, *Procedia - Social and Behavioral Sciences*, Vol. 229, pp. 12-21.

Karimi, S. (2019), “The role of entrepreneurial passion in the formation of students’ entrepreneurial intentions”, *Applied Economics*, Routledge, Vol. 52 No. 3, pp. 331-344.

Karimi, S., Biemans, H.J.A., Lans, T., Mulder, M. and Chizari, M. (2012), “The role of entrepreneurship education in developing students’ entrepreneurial intentions”, *SSRN Electronic Journal*. doi: 10.2139/ssrn.2152944.

Karimi, S., Biemans, J. H., Mahdei, K.N., Lans, T., Mohammed, C. and Mulder, M. (2017), “Testing the relationship between personality characteristics, contextual factors and entrepreneurial intentions in a developing country”, *International Journal of Psychology*, Vol. 52 No. 3, pp. 227-240.

Keat, O.Y., Selvarajah, C. and Meyer, D. (2011), “Inclination towards entrepreneurship among university students: an empirical study of Malaysian university students”, *International Journal of Business and Social Science*, Vol. 2 No. July 2015, pp. 206-220.

Kirby, D.A. and Ibrahim, N. (2011), “Entrepreneurship education and the creation of an enterprise culture: provisional results from an experiment in Egypt”, *International Entrepreneurship and Management Journal*, Vol. 7 No. 2, pp. 181-193.

Kirkwood, J. and Walton, S. (2010), “What motivates ecopreneurs to start businesses?”, *International Journal of Entrepreneurial Behaviour and Research*, Vol. 16 No. 3, pp. 204-228.

Krejcie and Morgan. (1970), “Determining sample size for research activities”, Vol. 17 No. 8, pp. 1566-1577.

Krueger, N.F. and Carsrud, A.L. (1993), “Entrepreneurial intentions: applying the theory of planned behaviour”, *Entrepreneurship and Regional Development*, Taylor & Francis, Vol. 5 No. 4, pp. 315-330.

Krueger, N., Reilly, M.D. and Carsrud, A.L. (2000), “Competing models of entrepreneurial intentions”, *Journal of Business Venturing*, Vol. 15 Nos 5-6, pp. 411-432.

Lecuna, A., Cohen, B. and Chavez, R. (2017), “Characteristics of high-growth entrepreneurs in Latin America”, *International Entrepreneurship and Management Journal*, Vol. 13 No. 1, pp. 141-159.

Leiva, J.C., Mora-esquivel, R., Krauss-delorme, C., Bonomo-odizzi, A. and Sohs-Salazar, M. (2020), “Entrepreneurial intention among Latin American university students”, *Academia Revista Latinoamericana de Administración*, Vol. 34 No. 3, pp. 1-20.

Liñán, F. (2004), “Intention-based models of entrepreneurship education”, *Picolla Impresa/Small Business*, Vol. 3 No. 1, pp. 11-35.

Liñán, F. and Chen, Y.-W. (2009), “Development and cross-cultural application of a specific instrument to measure entrepreneurial intentions”, *Development Dialogue*, No. 56, pp. 35-39.

Liñán, F. and Santos, F.J. (2007), “Does social capital affect entrepreneurial intentions?”, *International Advances in Economic Research*, Vol. 13 No. 4, pp. 443-453.

Liñán, F., Urbano, D. and Guerrero, M. (2011), “Regional variations in entrepreneurial cognitions: startup intentions of university students in Spain”, *Entrepreneurship and Regional Development*, Vol. 23 Nos 3-4, pp. 187-215.

Liñán, F., Fernández Serrano, J. and Romero Luna, I. (2013), “Necessity and opportunity entrepreneurship: the mediating effect of culture”, *Revista de Economía Mundial*, No. 33, pp. 21-47.

Lüthje, C. and Franke, N. (2002), “Fostering entrepreneurship through university education and training: lessons from Massachusetts Institute of Technology”, *European Academy of Management 2nd Annual Conference on Innovative Research in Management*, Stockholm, pp. 9-11.
Lüthje, C. and Franke, N. (2003), “The ‘making’ of an entrepreneur: testing a model of entrepreneurial intent among engineering students at MIT”, R&D Management, Vol. 33 No. 2, pp. 135-147.

Mageau, G.A. and Vallerand, R.J. (2007), “The moderating effect of passion on the relation between activity engagement and positive affect”, Motivation and Emotion, Vol. 31 No. 4, pp. 312-321.

Mahendra, A.M., Djatmika, E.T. and Hermawan, A. (2017), “The effect of entrepreneurship education on entrepreneurial intention mediated by motivation and attitude among management students, state university of Malang, Indonesia”, International Education Studies, Vol. 10 No. 9, p. 61.

Manley, S.C., Hair, J.F., Williams, R.I. and McDowell, W.C. (2020), “Essential new PLS-SEM analysis methods for your entrepreneurial analytical toolbox”, International Entrepreneurship and Management Journal, Vol. 17, pp. 1805-1825.

Maresch, D., Harms, R., Kailer, N. and Wimmer-Wurm, B. (2016), “The impact of entrepreneurship education on the entrepreneurial intention of students in science and engineering versus business studies university programs”, Technological Forecasting and Social Change, Elsevier, Vol. 104, pp. 172-179.

Matsheke, O. and Dhurup, M. (2017), “Entrepreneurial-related programmes and students’ intentions to venture into new business creation: finding synergy of constructs in a university of technology”, Science, Technology and Society, Vol. 22 No. 2, pp. 259-283.

Murnieks, C.Y., Mosackson, E. and Cardon, M.S. (2014), “Pathways of passion: identity centrality, passion, and behavior among entrepreneurs”, Journal of Management, Vol. 40 No. 6, pp. 1583-1606.

Murnieks, C.Y., McMullen, J.S. and Cardon, M.S. (2019), “Does congruence with an entrepreneur social identity encourage positive emotion under environmental dynamism?”, Journal of Small Business Management, Vol. 57 No. 3, pp. 872-890.

Mwasalwiba, E.S. (2010), “Entrepreneurship education: a review of its objectives, teaching methods, and impact indicators”, Education and Training, Vol. 52 No. 1, pp. 20-47.

Nabi, G. and Holden, R. (2008), “Graduate entrepreneurship: intentions, education and training”, Education and Training, Vol. 50 No. 7, pp. 545-551.

Nabi, G. and Liñán, F. (2011), “Graduate entrepreneurship in the developing world: intentions, education and development”, Education + Training, Vol. 53 No. 5, pp. 325-334.

Nabi, G., Walmsley, A., Liñán, F., Akhtar, I. and Neame, C. (2018), “Does entrepreneurship education in the first year of higher education develop entrepreneurial intentions? The role of learning and inspiration”, Studies in Higher Education, Vol. 43 No. 3, pp. 452-467.

Palmer, C., Fasbender, U., Kraus, S., Birkner, S. and Kailer, N. (2021), “A chip off the old block? The role of dominance and parental entrepreneurship for entrepreneurial intention”, Review of Managerial Science, Springer Berlin Heidelberg, Vol. 15 No. 2, pp. 287-307.

Peterman, N.E. and Kennedy, J. (2003), “Enterprise education : influencing students , perceptions of entrepreneurship”, Entrepreneurship Theory and Practice, Vol. 28 No. 2, pp. 129-144.

Premand, P., Brodman, S., Almeida, R., Grun, R. and Barouni, M. (2016), “Entrepreneurship education and entry into self-employment among university graduates”, World Development, Elsevier, Vol. 77, pp. 311-327.

Qureshi, S. and Mian, S. (2020), “Transfer of entrepreneurship education best practices from business schools to engineering and technology institutions: evidence from Pakistan”, Journal of Technology Transfer, Vol. 46 No. 2, pp. 366-392, doi: 10.1007/s10961-020-09793-7.

Rahi, S., Alnaser, F.M.I. and M.A.G (2019), “Designing survey research: recommendation for questionnaire development, calculating sample size and selecting research paradigms”, Economic and Social Development: Book of Proceedings, pp. 1157-1169.

Rasmussen, E.A. and Sorheim, R. (2006), “Action-based entrepreneurship education”, Technovation, Vol. 26 No. 2, pp. 185-194.

Ratten, V. (2020), “Coronavirus (Covid-19) and the entrepreneurship education community”, Journal of Enterprising Communities, Vol. 14 No. 5, pp. 753-764.
Ratten, V. and Jones, P. (2021), “Covid-19 and entrepreneurship education: implications for advancing research and practice”, International Journal of Management Education, Vol. 19 No. 1, p. 100432, doi: 10.1016/j.ijme.2020.100432.

Robinson, P.B., Stimpson, D.V., Huefner, J.C. and Hunt, H.K. (1991), “An attitude approach to the prediction of entrepreneurship”, Entrepreneurship Theory and Practice, Vol. 15 No. 4, pp. 13-32.

Saeed, S., Yousafzai, S.Y., Yani-De-Soriano, M. and Muffatto, M. (2015), “The role of perceived university support in the formation of students’ entrepreneurial intention”, Journal of Small Business Management, Vol. 53 No. 4, pp. 1127-1145.

Samo, A.H. and Channa, N.A. (2021), Global University Entrepreneurial Spirit Students’ Survey (GUESSS), Country Report Pakistan, pp. 1-32.

Shapero, A. and Sokol, L. (1982), The Social Dimensions of Entrepreneurship, University of Illinois at Urbana-Champaign’s Academy for Entrepreneurial Leadership Historical Research Reference in Entrepreneurship.

Sieger, P., Fueglistaller, U. and Zellweger, T. (2014), “Student entrepreneurship across the globe: a look at intentions and activities”.

Souitaris, V., Zerbinati, S. and Al-Laham, A. (2007), “Do entrepreneurship programmes raise entrepreneurial intention of science and engineering students? The effect of learning, inspiration and resources”, Journal of Business Venturing, Vol. 22 No. 4, pp. 566-591.

Tkachev, A. and Kolvereid, L. (1999), “Self-employment intentions among Russian students”, Entrepreneurship and Regional Development, Vol. 11 No. 3, pp. 269-280.

Trivedi, R. (2016), “Does university play significant role in shaping entrepreneurial intention? A cross-country comparative analysis”, Journal of Small Business and Enterprise Development, Vol. 23 No. 3, pp. 790-811, doi: 10.1108/JSBED-10-2015-0149.

Waqas, M. and Hyder, A. (2012), Pakistan’s Beveridge Curve—an Exploration of Structural Unemployment, Institute for Research on Labor and Employment, Berkeley.

Williams, D. and Kluev, A. (2014), “The entrepreneurial university: evidence of the changing role of universities in modern Russia”, Industry and Higher Education, Vol. 28 No. 4, pp. 271-280.

Worldometer (2021), “Population”, Worldometer, available at: https://www.worldometers.info/coronavirus/#countries.

Xu, R., Frey, R.M., Fleisch, E. and Ilic, A. (2016), “Understanding the impact of personality traits on mobile app adoption - insights from a large-scale field study”, Computers in Human Behavior, Elsevier, Vol. 62, pp. 244-256.

Zreen, A., Farrukh, M., Nazar, N. and Khalid, R. (2019), “The role of internship and business incubation programs in forming entrepreneurial intentions: an empirical analysis from Pakistan”, Vol. 27 No. 2, pp. 97-113.

Corresponding author
Petra Heidler can be contacted at: petra.heidler@donau-uni.ac.at

For instructions on how to order reprints of this article, please visit our website: www.emeraldgrouppublishing.com/licensing/reprints.htm Or contact us for further details: permissions@emeraldinsight.com