



OPEN ACCESS

EDITED BY

Jesús-Nicasio García-Sánchez,
Universidad de León,
Spain

REVIEWED BY

Erum Shaikh,
Shaheed Benazir Bhutto University Shaheed
Benazirabad, Pakistan
Irfan Ullah,
Dalian University, China
Guojie Xie,
Software Engineering Institute of
Guangzhou, China

*CORRESPONDENCE

Syed Haider Ali Shah
haidershah11@gmail.com

SPECIALTY SECTION

This article was submitted to
Personality and Social Psychology,
a section of the journal
Frontiers in Psychology

RECEIVED 09 June 2022

ACCEPTED 11 August 2022

PUBLISHED 19 October 2022

CITATION

Al-Ghazali BM, Shah SHA and
Sohail MS (2022) The role of five big
personality traits and entrepreneurial
mindset on entrepreneurial intentions
among university students in Saudi Arabia.
Front. Psychol. 13:964875.
doi: 10.3389/fpsyg.2022.964875

COPYRIGHT

© 2022 Al-Ghazali, Shah and Sohail. This is
an open-access article distributed under
the terms of the [Creative Commons
Attribution License \(CC BY\)](https://creativecommons.org/licenses/by/4.0/). The use,
distribution or reproduction in other
forums is permitted, provided the original
author(s) and the copyright owner(s) are
credited and that the original publication in
this journal is cited, in accordance with
accepted academic practice. No use,
distribution or reproduction is permitted
which does not comply with these terms.

The role of five big personality traits and entrepreneurial mindset on entrepreneurial intentions among university students in Saudi Arabia

Basheer M. Al-Ghazali¹, Syed Haider Ali Shah^{2*} and
M. Sadiq Sohail³

¹Interdisciplinary Research Center for Finance and Digital Economy (IRC-FDE), Dammam Community College, King Fahd University of Petroleum and Minerals, Dhahran, Saudi Arabia,

²Business Studies Department, Bahria University Islamabad, Islamabad, Pakistan, ³Department of Management and Marketing, Interdisciplinary Research Center for Finance and Digital Economy (IRC-FDE), KFUPM Business School, King Fahd University of Petroleum and Minerals, Dhahran, Saudi Arabia

The big five personality traits and entrepreneurial mindset (EM) are crucial individual-level elements that determine entrepreneurial intention (EI). This study examines the impact of big five personality traits and EM, on EI using the theory of planned behavior. Besides, this study examined the role of entrepreneurial self-efficacy (ESE) and attitude toward entrepreneurship (ATE) influences EI. To achieve the research objectives, a quantitative approach was used. Structural equation modeling (SEM) and path analysis were conducted using SmartPLS software. Data were collected from 270 respondents through online questionnaires. Findings of the study revealed that big five personality traits influence ESE and ATE which led to EI. Finally, the moderating role of entrepreneurial passion was also found to have strong effect on influence ESE and ATE. This study offers evidence and insights that academics, educators, and others involved in the creation or expansion of entrepreneurial knowledge can use as a reference point.

KEYWORDS

five big personality traits, entrepreneurial mindset, entrepreneurial passion, entrepreneurial self-efficacy, entrepreneurial intention

Introduction

Entrepreneurship plays a critical part in a country's economic growth and development (Katz, 2003; Davey et al., 2016), Individuals can use it as a feasible career option. It provides unemployed youth with a key path to self-sufficiency by allowing them to start their own business (Bell and Bell, 2016). In governments failing to create jobs in such critical times, it is critical to create new jobs for young people as a self-employment (Kuckertz and Wagner, 2010). The act of starting a business is preceded by "EIs" as an individual involved in taking advantage of opportunities that are available (Liao et al., 2022). The literature on entrepreneurship has

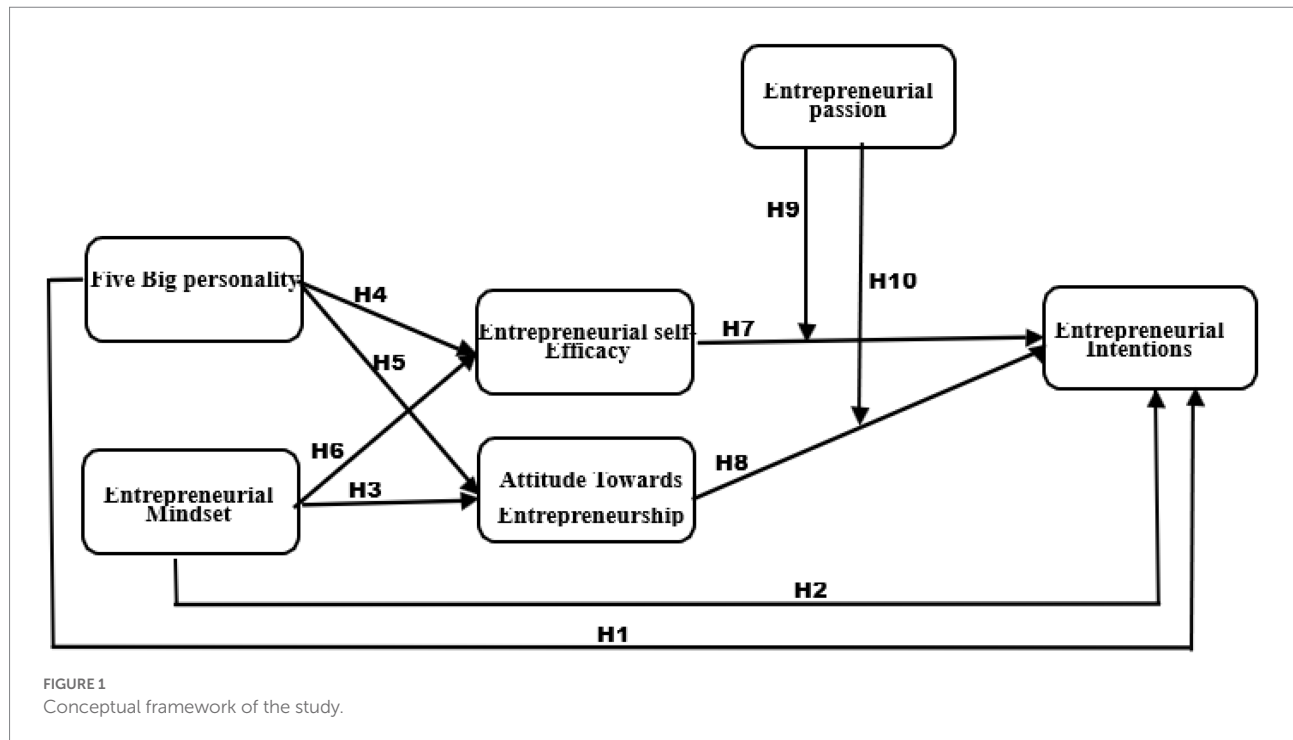
emphasized the importance of intentions in deciding whether or not to start a new business (Bowen and Hisrich, 1986; Hisrich, 1992; Krueger et al., 2000; Kim and Aldrich, 2005; Bögenhold and Fachinger, 2010, 2014; Dieter and Uwe, 2011; Aldrich, 2012; Kautonen et al., 2015; Hisrich and Ramadani, 2017; Cui, 2021). The desire to pursue a career as an entrepreneur is seen to be a key factor in determining the success of new companies. However, very few studies have considered the factors that influence individual intentions in context of Saudi Arabia. To gain greater knowledge of the factors that impact entrepreneurial intent could help ventures evolve more successfully, especially for university students, who are more likely to pursue self-employment that has a large impact on economic growth than those without a university education (Robinson and Sexton, 1994). According to the literature, researchers advocated that there is a link between entrepreneurial intent and personality traits (Almeida et al., 2014). Furthermore, personality traits are becoming a more prominent research focus in the entrepreneurial and psychology literature. However, there is mixed opinion on the significance of personality in predicting entrepreneurial intent (Baron and Shane, 2007). Personality traits, which are shaped by values and beliefs, are crucial in guiding entrepreneurial decision-making. As a result, investigating this underlying relationship by combining various concepts will provide an insight into the relationships. Thus, the first research question of the study is what is the impact of big five personality traits (BFPT) on entrepreneurship intention (EI)? The first objective of the study is to investigate BFPT and EI.

The importance of having an entrepreneurial mindset (EM) has gained a lot of attention (Brown et al., 2011; Cui, 2021; Pidduck et al., 2021). Entrepreneurial mindset is conceptualized as the inclination for entrepreneurship is based on the way of being critical and abilities of being critical thinkers (Nabi et al., 2017; Liao et al., 2022). Individuals that have a more EM are more likely to seek out and exploit new chances and innovations (Burnette et al., 2019). Nevertheless, impact of EM on entrepreneurial intention (EI), on the other hand, has to be confirmed further (Hallak et al., 2011; Chien-Chi et al., 2020; Handayati et al., 2020; Cui, 2021; Liao et al., 2022). Previous research has shown that having an EM can help in developing more dynamic skills and competencies. Very few studies have examined the role EM on EI. Therefore, the second objective of this study is to investigate the impact of EM on EI.

A variety of factors influence one's decision to pursue entrepreneurship as a career including self-efficacy (Krueger and Carsrud, 1993), social context (Henley et al., 2017; Bellò et al., 2018), education (Shahab et al., 2018). In addition, self-efficacy (SE) decides whether or not you want to be an entrepreneur (Ryan, 1970). Moreover, SE is the determination required to generate a result that is closest to action or action intentionality Bandura (1986). Self-employment highly depends on these perceptions of self-efficacy (Scherer et al., 1989), which can be applied to predict the EI. In addition to that, SE has been identified as a critical antecedent in the creation of EIs in several research (Wilson et al., 2007). SE was found to be a significant predictor of EIs and/or activity (Fitzsimmons and Douglas, 2011). Within the context of entrepreneurship, the role of

personality traits in deciding on a career path is also studied within the attraction-selection-attrition (ASA) framework as this framework posits that people like to work in situations with others who have similar personality characteristics to them (Schneider et al., 2000). This study attempts to fill the multiple gaps. First, the BFPT, as well as entrepreneurial self-efficacy (ESE), are considered determinant elements in an individual's EI in this study which are rarely studied together in literature and most of the studies have advocated to investigate the relationship among them (Caprara et al., 2010; Şahin et al., 2019; Elnadi and Gheith, 2021). This study focuses on these personal characteristics based on a large body of evidence that the BFPT and ESE play a predictive role in EI (Zhao and Seibert, 2006). Previous empirical studies produced mixed outcomes on the study of individual personalities and their EI (Baron et al., 2001; Zhao and Seibert, 2006; Şahin et al., 2019; Cui, 2021).

Psychological characteristics are linked to business formation and success, according to meta-analytic evaluations (Frese and Gielnik, 2014). Such traits impact individual's willingness to engage in entrepreneurial activity. Yet, several entrepreneurship studies initially concluded that psychological personality assessments were ineffective (Brandstätter, 2011). With the emergence of meta-analytic studies in entrepreneurship and big-five personality traits linked to entrepreneurial goals, this assumption changed (Zhao and Seibert, 2006; Cui, 2021). According to psychologists, attitude, which serves as the foundation for a person's opinion and justification of conduct, has a significant impact on individual intentions (Ferreira et al., 2012). As a result, it's necessary to look into this link (Fai et al., 2017; Cui, 2021). After reviewing the literature, it has been found that attitude has a significant role in university students' desire to start a business or enterprise (Urbano et al., 2017; Bazkiaei et al., 2020). Personality traits have been widely addressed among individual variations; however, only a few empirical research have looked at how these traits effects on EI among students (Hu, 2008). Education industry plays a significant role in the EI (Bazkiaei et al., 2020). To fill this second research gap, this research study intends to investigate the role of BFPT and EM on EI among students. Another gap this study intends to fill is to investigate the role of EM on attitude toward entrepreneurship (ATE). Similarly, entrepreneurial passion (EP) is very crucial in the EI (Cui, 2021). Moreover, according to (Bierly et al., 2000), the EP is a strong emotion that has the potential to help people reach their full potential. Moreover, enthusiasm drives people to pursue their dreams of starting their own business which is entrepreneurial activities. Very limited number of studies check the EP as a moderator. Third, this study fills the gap by investigating the moderating role of the EP on the relationship between ATE, ESE, and EI. Moreover, studies have highlighted to investigate the above relationships in Saudi Arabia context (Naushad, 2018; Ali et al., 2019; Al-Mamary et al., 2020; Elnadi and Gheith, 2021). Therefore, fourth, this study fills the gap by extending the existing literature of BFPT and entrepreneurial mindset by providing the empirical evidence from developing country context (Saudi Arabia), and data were collected from students from the Kingdom of Saudi Arabia (KSA) including both private and public universities.



The framework of this research study has been developed after a thorough literature review, in this framework, the impact of BFPT has been examined on EI directly and EM on EI directly and indirectly through the ESE and ATE. More interestingly, the moderating role of EP has also been investigated which were highlighted by multiple research studies. This framework in Figure 1, is unique of its kind that it has been developed by combining the holistic research studies and based on multiple research gaps which are discussed in the above paragraphs. In total 10 hypotheses are developed to test the framework of the study.

Literature review

Theory of planned behavior

The elements of this theory of planned behavior (TPB), the first is perceived desirability, which refers to a person's attitude toward entrepreneurship (ATE) or level of interest in it. When faced with a number of problems and options, a person can become overwhelmed and may decide whether or not to react based on an early assessment of the conduct (Ajzen, 1991).

The big five personality traits and entrepreneurial intention

In order to describe major personality traits, a comprehensive model known as the big five models was constructed as human personality is complex broad categories (Goldberg, 1990). The five

factors received widespread support after the model was introduced—conscientiousness, openness to experience, emotional stability, extraversion, and agreeableness – proposed by the model causing the big five to be the most often used personality locus (Brandstätter, 2011).

A lot of research studies have focused on whether the BFPT have an impact on EI (Zhao and Seibert, 2006; Bazkiaei et al., 2020; Awwad and Al-Aseer, 2021; Biswas and Verma, 2021; Huang et al., 2021; Xie et al., 2021). A brief review of the literature is provided below to support the relevance of the BFPT to EI.

Conscientiousness. It can be referred to Individuals with usually having the qualities of working hard, planning well, remaining organized and ready when asked to perform duties and tasks (Costa Jr and McCrae, 1992; Zhao and Seibert, 2006; Ariani, 2013; Hossain et al., 2021). Entrepreneurship and conscientiousness are closely related. A person who has a strong desire to be successful and remained motivated toward achieving their set goals tend to have more traits of an entrepreneur (McClelland, 1961; Baum and Locke, 2004). Entrepreneurs are people who dislike doing the same thing over and over again, who take personal responsibility for their actions and desire to see tangible outcomes of their choices, actions, and decisions (Antoncic et al., 2015). In personality studies, conscientiousness was found to be a trait which actually differentiates managers from entrepreneurs (Zhao and Seibert, 2006). The meta-analysis study conducted by Zhao et al. (2010) highlighted that conscientiousness was found to be consistent and vital dimension that is closely related to EI. In addition to that, another study found no significant differences in conscientiousness between those who take the initiatives as entrepreneurs and those who do not take such type of initiatives which are non-entrepreneurs (Antoncic et al., 2015; Wang et al., 2016).

Openness to experience. This big five model dimension is defined as well as a person's inquisitiveness for taking initiative with new ideas, concepts, and the value system as well as their desire to strive for novel, unusual, and unique (Zhao and Seibert, 2006; Ariani, 2013; Cui, 2021). Those individuals with a high amount of openness to experience score are likely to be more in terms of creativeness and imagination while thinking in a different way to try novel things (Liang et al., 2013; Cui, 2021). An entrepreneur is a person who is efficient and innovative, according to Schumpeter (1934). Openness to new experiences shows the clear distinction between the professionals and entrepreneurs as it is based on emotional stability and extraversion which is referred as vital element (Chen et al., 2015). Openness to new experiences was the second most strongly linked personality trait to the desire to start a business (Zhao et al., 2010).

Emotional stability. When individuals are in state of relax and remained clam during the tough time or the inconvenient times, they are considered emotionally stable. Emotions that bring the negative energy in form of anxiety, fear of loss, or fear of unknown lead to the emotional instability (Costa and McCrae, 1992). Scholars and practitioners highlighted that in order to start the new venture or any type of the business, the confidence level, ability to handle the pressure, and resilience to perform different activities in difficult times are based on emotional stability (Baron and Markman, 1999; Zhao and Seibert, 2006; Al-Hammadi and Moore, 2021). Regarding this particular trait, there is a variety of results. A study highlighted that they did not find a significant difference in neuroticism between entrepreneurs and nonentrepreneurs, according to the study conducted by Antoncic et al. (2015).

Extraversion. Individuals with high level of extraversion tend to be more pleasant, friendly, gregarious, lively, moreover, they have the tendency to be dominating and assertive in social circle. Assertion means claim and persuasion in terms of influence are typically displayed by those with high-level communication capabilities and social impact (Baum et al., 2014; Awwad and Al-Aseer, 2021). Entrepreneurs need to organize and manage their subordinates and teams, in order to encourage their innovative business concepts to employees and customers (Shane, 2003) and extraverts are more likely to find this easier than introverts. Despite this, earlier research on the trait of extraversion in entrepreneurs has been inconclusive (Zhao and Seibert, 2006; Zhao et al., 2010). In addition to that, in a meta-analysis, no significant difference was found between managers and entrepreneurs (Zhao and Seibert, 2006).

Agreeableness. Individuals with higher level of agreeableness tend to be having the attributes of trusting, altruistic, compassionate, and quality of forgiveness (Zhao and Seibert, 2006). In addition to that, entrepreneurs are considered to be more cooperative and supportive yet for such attributes, the level of high motivation and energy is required (Antoncic et al., 2015; Laouiti et al., 2022). Another study highlighted that one of the main attributes of the entrepreneur is to develop trust building measure with team members as well as with all stakeholders (Eisenhardt and Schoonhoven, 1990; Shane and Cable, 2002), further, they

highlighted that entrepreneur also must build trust with their customers. According to empirical research, being agreeable is related with a lower likelihood of becoming an entrepreneur (Wooten et al., 1999). Despite the findings of Zhao et al. (2010) in meta-analysis, there was no evidence of a link between the Big Five model's agreeableness construct and entrepreneurial intent. As a result, we suggest the following hypothesis.

H1: BFPT is positively associated with EI.

Entrepreneurial mindset and entrepreneurial intention

One of the most significant predictors of entrepreneurial behavior has been identified as EI resulting in the establishment of new enterprises (Liñán, 2004; Souitaris et al., 2007; Prodan and Drnovsek, 2010; Bögenhold and Fachinger, 2010, 2014; Dieter and Uwe, 2011; Jiatong et al., 2021; Mukhtar et al., 2021). Entrepreneurial intention, according to DeNoble et al. (1999a), is the entrepreneur's natural knowledge, propensity, and behavioral proclivity to start a new business. Study by Thompson (2009), EI is the belief that entrepreneurs want to start a firm. To put it another way, entrepreneurs are the individuals whose intentions are primarily focused with entrepreneurial outcomes which are only business centric (Darmanto and Yuliani, 2018; Kong et al., 2020). Other researchers claim that mindset and mentality are a broader vision that is used to make new recommendations, assess risks and opportunities related to have new business initiatives depends on the border perspective of individual perception rather than in a particular way or features (Haynie et al., 2010; Davis et al., 2016; Roeslie and Arianto, 2022). Previous research has found that the association between entrepreneurial attitude and ambition to be an entrepreneur has a beneficial effect (Burke and Aldrich, 1984; Bowen and Hisrich, 1986; Hisrich, 1992; Kim and Aldrich, 2005; Aldrich, 2012; Walter and Block, 2016; Hisrich and Ramadani, 2017; Cui and Bell, 2022). As a result, this study suggests the following hypothesis.

H2: Entrepreneurial mindset is positively associated with EI.

Big five personality traits and entrepreneurial self-efficacy

It also necessitates success in responsibilities such as invention, marketing, management, and finance that are associated with the start-up of a new enterprise (Chen et al., 1998; Hsu et al., 2017; Şahin et al., 2019; Chien-Chi et al., 2020). Individuals' personality traits have a significant impact on their self-efficacy (Stajkovic et al., 2018). The BFPT have been linked to SE in various studies (Judge et al., 2007; Cristina et al., 2018; Coco et al., 2019; Hua et al., 2020; Cui, 2021), Extraversion, openness, agreeableness, and responsibility are positively associated with SE, while neuroticism

is adversely correlated (Judge et al., 2007). Some researchers found that individuals who scored better on conscientiousness had stronger self-efficacy views (Brown et al., 2011; Chien-Chi et al., 2020). Openness transforms requests into challenges to be met, resulting in increased level of engagement in different tasks and their self-efficacy (Sanchez-Cardona et al., 2012; Neneh, 2020). According to research, agreeableness might lead to higher self-efficacy (Coco et al., 2020). Individual SE is positively connected with extraversion and adversely correlated with neuroticism, according to some studies (Schmitt, 2007). Djigić et al. (2014) revealed that conscientiousness can be referred as a vital predictor of teacher's SE, although another study by Marcionetti and Rossier (2016) highlighted that the association between the conscientiousness, extraversion, and neuroticism is closely related and positive. Additionally, other researchers advocated that conscientiousness and extraversion lower down the neuroticism and enhance the self-efficacy (Brown and Cinamon, 2016). As a result, this study suggests the following hypothesis.

H4: BFPT is positively related to ESE.

Big-five personality trait and attitude toward entrepreneurship

Individual persistent aims toward entrepreneurship are referred to as attitudes; which could be either have a positive or negative status and be influenced by the environment. According to Hu (2008), there is a positive association between (Agreeableness, extraversion, conscientiousness, and openness to new experiences are some of the Big-Five personality traits.) Neuroticism has a detrimental impact on entrepreneurial attitude (based on experience). Previous research has found to be one of major predictor of EI is one's ATE (Costa Jr and McCrae, 1992; Autio et al., 2001; Duong, 2021; Huang et al., 2021, 2022; Srivastava et al., 2021). Personality traits can have an impact (Luthje and Franke, 2003; Hamza et al., 2021). As a result, this study suggests the following hypothesis.

H5: BFPT is positively associated with ATE.

Entrepreneurial mindset and antecedents

It can be referred as taking unusual decisions in uncertain circumstances which require different and unique kind of thinking and judgments (Solesvik et al., 2013). Moreover, EM, according to Zupan et al. (2018), highlighted that it involves not only the related experience, creativity in solving a problem, identifying the new ways of doing it along with identification of opportunity, but it also contains the way the entrepreneur thinks or thinking. Psychology, particularly personality psychology, is intrinsically tied to the EM (Solesvik et al., 2013). The creation of an EM was discussed by Westhead and Solesvik (2016), who affirmed that it

is related with the ability to think creatively, to look for possibilities rather than problems, and to provide solutions rather than complain (Naumann, 2017; Cui, 2021; Daspit et al., 2021; Kuratko et al., 2021). Examining an entrepreneur's level of ESE is one way for them to better understand their own motivations, capabilities, and limitations, because ESE allows them to assess their own competency in carrying out entrepreneurial activities (McGrath and MacMillan, 2000; Ngek, 2015; McMullen and Kier, 2016; Karyaningsih et al., 2020; Cui, 2021). As a result, based on the information provided, the hypotheses are:

H3: EM is positively associated to ATE.

H6: EM is positively associated to ESE.

The role of attitude toward entrepreneurship on entrepreneurial intention

The level of being attracted toward entrepreneurship behavior and the belief system that allows one to take certain actions that will result in a positive outcome is referred to as one's ATE. This was defined by Liñán and Chen (2009) as preferences and benefits or downsides, respectively. Whereas others described It's a mindset for becoming an entrepreneur (Maes et al., 2014). One's attitude toward entrepreneurial behavior, according to Lee-Ross (2017), is a general assessment of that behavior, or whether it is favorable or not. Previous studies have revealed a statistically significant link between EI and ATE. Demonstrating that students see entrepreneurship as an enticing, desirable career option, and that if given the opportunity and resources, they would pursue entrepreneurial companies (Ajzen, 2001, 2005, 2011; Rauch and Frese, 2007; Ajzen and Cote, 2008; McGee and Peterson, 2017; Shah et al., 2020; Huang et al., 2021, 2022; Palmer et al., 2021; Yasir et al., 2021; Yousaf et al., 2021). Based on previous studies, this study proposes the following hypothesis:

H8: ATE is positively associated to EI.

The role of self-efficacy on entrepreneurial intention

ESE has been described in a variety of ways by researchers. The idea of "self-efficacy" was defined by Bandura (1977) as an individual's belief in their talents Matsu aptitudes to execute specific tasks or assignments. The actions which are based on self-motivation, environment, and perception are depicted in this idea. It is a person's belief in their potential to start a successful business enterprise (McGee et al., 2009). ESE, according to Dissanayake (2013), is an individual's ability or talent to improve motivation, cognitive resources, and particular set of action plan that are essential in order to

be successful in particular profession. As a result, ESE is an important cognitive predictor of entrepreneurial purpose and activity (Lavolette et al., 2012). Previous research has demonstrated that it helps people become entrepreneurs (Bandura, 1982; Oyugi, 2015; Utami, 2017; Elnadi and Gheith, 2021; Pelegrini and de Moraes, 2021; Yousaf et al., 2021). Based on above information, this study presents the following hypothesis:

H7: ESE is positively associated to EI.

The potential moderator effect of entrepreneurial passion

EP is the inspiration that drives people to pursue entrepreneurial endeavors (Bierly et al., 2000; Cardon and Stevens, 2009). It's also a powerfully good emotion that has the potential to help people reach their full capacity (Baron and Ward, 2004; Cardon and Stevens, 2009). EP instills the courage to take risks and overcome challenges as a result of a love for business that expresses both emotionally and cognitively (Baron and Ward, 2004; Cardon and Stevens, 2009). EP has the power to influence entrepreneurship thoughts, i.e., it has a significant impact on ESE (Schwarz et al., 2009; Cardon and Kirk, 2013; Donaldson and Campbell, 2019; Feng and Chen, 2020; Anjum et al., 2021; Lee and Herrmann, 2021; Montiel-Campos, 2021; Newman et al., 2021). Furthermore, enthusiasm has been shown to enhance confidence and competence in the context of particular activities and aims (Cardon et al., 2013; Anjum et al., 2021; Bignetti et al., 2021). Few research studies have looked at the role of entrepreneurial enthusiasm in moderating cognitive antecedents. In undergraduate level students' persistent EI, entrepreneurial enthusiasm showed a significant positive moderating influence on AT, perceived appeal, and perceived feasibility (Tehseen and Haider, 2021). Individuals with EP may have a good perception of the outcomes of entrepreneurship. Hence, the following hypotheses are formed:

H9: EP moderates the relationship between ESE and EI.

H10: EP moderates the relationship between ATE and EI.

Research methodology

In this study, the hypothesized relationships were checked, the type of the study is quantitative through deductive approach while laid the foundation on the philosophical perspective of positivism. Additionally, respondents were students from the Kingdom of Saudi Arabia (KSA) including both private and public universities. The authors drew students from a wide range of academic disciplines, including business, economics, accounting, MIS, finance, and computer

science. The authors contacted them *via* an online questionnaire with the help of faculty members. A survey link long with informed consent was provided *via* email to 390 students. The authors stated unequivocally that all information provided by our responders would not be disclosed. The samples were randomly selected. Emails of reminder were sent to all respondents who did not respond within due time of 3 weeks of receiving the survey link received. Finally, a total of 270 respondents responded to the questionnaire. Resulting in a response rate of 69%. Males made up the majority of the responders 65.63% and females 35.37%. Furthermore, 45.17% of the respondents had only temporary employment experience, while 54.83% were students.

Instruments and measures

For data collection, the survey approach was used and it was the primary source of information. This study adapted the scales which are already existing to measure the concepts because prior research had demonstrated them to be valid and reliable. The BFPT were measured in this study using (TIPI) by Gosling et al. (2003), agreeableness, conscientiousness, extraversion, openness to experience, and emotional stability. To measure EM, the six-item scale is used by researchers which was introduced by Handayati et al. (2020). To assess the ESE, researchers used scale which were introduced by DeNoble et al. (1999b), and Liñán (2008). Moreover, four-item scale was used and adapted from Liñán et al. (2011) to measure ATE. While to measure EP, researchers used five-items introduced by Biraglia and Kadile (2016). Lastly, to assess the EI, researchers used the scale introduced by Liñán et al. (2011).

Data analysis

Students' demographic characteristics

According to the data gathered on gender-based received from students, males made up more than three-quarters of the total population of respondents (i.e., 65.63%), and females made up the rest of the group (i.e., 35.37%). As of age wise of students grouping, the majority of them are young age. The age group of 20–29 years accounted for 56.08 percent of all students. While the next largest category was found to be students above the age of 18. Only 17.03 percent and 4.97 percent of those aged 30–39 and 40–49 years, respectively, were found. When it comes to the students' educational qualifications, Three-quarters of the population was expected to have a bachelor's degree. Furthermore, more than 63 percent of all respondents took the subjects which are related to management and business as per their regular teaching course load according to their higher education requirements at various Saudi Arabian universities.

Assessment of measurement model

Convergent and discriminant validity were investigated using a series of confirmatory factor analyses (CFAs; Hair et al., 2019). While estimating the measurement model the four procedures be followed namely, internal consistency, composite reliability, indicator reliability, convergent, and discriminant validity. For internal consistency, composite reliability values were larger than 0.80, exceeding the minimum criteria of 0.70, and indicating internal consistency (Hair et al., 2014). All of the items had loadings over the cutoff value and they were all retained. The average variance extracted (AVE) of each component was examined using a threshold value of 0.50 to determine convergent validity (Hair et al., 2019). In this study, results supported the convergent validity as range is within the threshold as shown in Tables 1–3.

The Fornell-Larcker criterion (Fornell and Larcker, 1981) and the Heterotrait-Monotrait (HTMT) ratio were used to assess discriminant validity (Hair et al., 2019). Moreover, all of the AVEs on the diagonals in Table 3 were bigger than the corresponding row and column values, showing that the measures were discriminant. All HTMT ratio values in this investigation were less than the crucial value of 0.85, as determined by the cut-off value of 0.85 for proving discriminant validity. Results confirm the measurement model.

Multicollinearity and common method bias

This work used the software PLS to perform a full collinearity test (Kock and Lynn, 2012), to analyze collinearity simultaneously (Kock and Gaskins, 2014; Xie et al., 2021). In Table 4, all of the values of VIF are less than 3.3, and all values of tolerances are greater than 0.10 which means they are in acceptable range. The whole collinearity test process appears to be successful in identifying common method bias (CMV). In addition to that, currently, the most used technique for examining CMV is the Harman single-factor test. According to our research, the characteristic root of the common factor with the highest explanatory power in the absence of factor rotation is 10.256, which accounts for 40.145 percent of the total variance. The

TABLE 1 Descriptive statistic.

Variables	Mean	Maximum	Minimum	Number	SD
BFPT	3.50	5	1	270	0.956
EM	3.66	5	1	270	0.774
ESE	3.48	5	1	270	0.921
ATE	3.64	5	1	270	0.870
EP	3.60	5	1	270	0.758
EI	3.07	5	1	270	0.664

ESE, entrepreneurial self-efficacy; BFPT, Big-Five Personality Trait; EI, entrepreneurial intention EE; EM, entrepreneurial mindset; ATE, attitude toward entrepreneurship.

majority of the covariance between independent variables and dependent variables cannot be explained by a single factor. It

TABLE 2 Evaluation of the measurement model.

Construct items	Number of dimensions	Factor loading	AVE	CR	Cronbach's alpha
Big-Five Personality Trait (BFPT)	BFPT 1	0.71	0.712	0.831	0.85
	BFPT 2	0.72			
	BFPT 3	0.81			
	BFPT 4	0.72			
	BFPT 5	0.85			
	BFPT 6	0.63			
	BFPT 7	0.75			
	BFPT 8	0.80			
	BFPT 9	0.79			
	BFPT 10	0.83			
Entrepreneurial mindset (EM)	EM 1	0.81	0.709	0.857	0.82
	EM 2	0.83			
	EM 3	0.74			
	EM 4	0.78			
	EM 5	0.74			
	EM 6	0.71			
Entrepreneurial self-efficacy (ESE)	ESE 1	0.87	0.755	0.841	0.81
	ESE 2	0.82			
	ESE 3	0.72			
	ESE 4	0.61			
	ESE 5	0.69			
	ESE 6	0.77			
Attitude toward entrepreneurship (ATE)	ATE 1	0.71	0.682	0.880	0.88
	ATE 2	0.79			
	ATE 3	0.68			
	ATE 4	0.81			
Entrepreneurial passion (EP)	EP 1	0.80	0.731	0.812	0.89
	EP 2	0.79			
	EP 3	0.73			
	EP 4	0.75			
	EP 5	0.82			
Entrepreneurial intention (EI)	EI 1	0.88	0.742	0.815	0.82
	EI 2	0.85			
	EI 3	0.75			
	EI 4	0.71			
	EI 5	0.73			
	EI 6	0.69			

AVE, average variance extracted; CR, composite reliability.

demonstrates that this study is free from significant CMV (Podsakoff et al., 2003; Huang et al., 2021, 2022; Xie et al., 2021).

Hypotheses testing

The hypotheses were tested using PLS-SEM. The structural model was examined using the coefficient of determination (R^2), path coefficient (β), values of p , and effect sizes (f^2) with a bootstrapping approach involving 5,000 sub-samples suggested by Hair et al. (2019). In addition, in response to recent critiques that simply using values of p to test hypotheses is insufficient, this study used values of p with confidence ranges and effect sizes as additional criteria (Hahn and Ang, 2017). As a result, reliable and adequate criteria were developed to assess the hypotheses, as illustrated in Table 5.

TABLE 3 Discriminant validity.

Constructs	ESE	BFPT	EI	EM	ATE
ESE	0.859				
BFPT	0.236	0.713			
EI	0.314	0.314	0.845		
EM	0.316	0.214	0.412	0.784	
ATE	0.277	0.218	0.531	0.32.3	0.824

Diagonal elements (in bold) are the square root of AVE. Elements below the diagonal are the correlations among constructs. ESE, entrepreneurial self-efficacy; BFPT, Big-Five Personality Trait; EI, entrepreneurial intention EE; EM, entrepreneurial mindset; ATE, attitude toward entrepreneurship.

TABLE 4 Multicollinearity.

Constructs	Tolerance	VIF
Big-Five Personality Trait (BFPT)	0.714	1,554
Entrepreneurial mindset (EM)	0.837	2,354
Entrepreneurial self-efficacy (ESE)	0.771	1,358
Attitude toward entrepreneurship (ATE)	0.925	1,256
Entrepreneurial intention (EI)	0.654	1,365
Entrepreneurial passion (EP)	0.721	2,258

VIF, variance inflation factor.

TABLE 5 PLS hypothesis testing.

Hypotheses	β	SE	t -value	p -value	LLCI	ULCI	Result
H1: Big-Five Personality Trait \rightarrow Entrepreneurial intention	0.367	0.072	3.254	0.000*	0.062	0.335	Supported
H2: Entrepreneurial mindset \rightarrow Entrepreneurial intention	0.333	0.061	2.587	0.002*	0.054	0.451	Supported
H3: Entrepreneurial mindset \rightarrow Attitude toward entrepreneurship	0.252	0.062	3.562	0.000**	0.061	0.363	Supported
H4: Big-Five Personality Trait \rightarrow Entrepreneurial self-efficacy	0.258	0.059	4.258	0.003*	0.163	0.314	Supported
H5: Big-Five Personality Trait \rightarrow Attitude toward entrepreneurship	0.262	0.069	3.897	0.000**	0.184	0.391	Supported
H6: Entrepreneurial mindset \rightarrow Entrepreneurial self-efficacy	0.271	0.045	2.985	0.002*	0.091	0.299	Supported
H7: Entrepreneurial self-efficacy \rightarrow Entrepreneurial intention	0.472	0.661	3.324	0.000**	0.224	0.399	Supported
H8: Attitude toward entrepreneurship \rightarrow Entrepreneurial intention	0.302	0.055	4.562	0.002*	0.642	0.301	Supported

ESE, entrepreneurial self-efficacy; BFPT, Big-Five Personality Trait; EI, entrepreneurial intention EE; EM, entrepreneurial mindset; ATE, attitude toward entrepreneurship.

* $p \leq 0.05$, ** $p \leq 0.01$.

The value of R^2 for two endogenous latent constructs are 0.358 for the ESE and 0.337 for ATE which are in the range of acceptable and are moderate values (Hair et al., 2016). Furthermore, this study used a blindfolding process to test the predictive relevance. As shown in Table 5, all of the effects are positive and significant at the 1% level or higher. The values of f^2 can be small, medium, or large with cutoff value range is 0.02, 0.15, or 0.35 (Hair et al., 2012, 2016). In terms of relationship of BFPT on EI, the H1 states, there is a positive relationship of BFPT on EI and was found to have positive and significant effect on EI ($\beta = 0.367$, $f^2 = 0.041$, $p < 0.001$), thus H1 is supported, while the H2 states that there is a positive relationship of EM on EI and was found to have positive and significant effect on EI ($\beta = 0.333$, $f^2 = 0.032$, $p < 0.001$). Therefore, H2 is supported.

In terms of the influence of BFPT on ESE and ATE, the H4 states that BFPT is positively related to ESE and was found to have a significant effect on ESE ($\beta = 0.258$, $f^2 = 0.031$, $p < 0.001$). Thus, H4 is supported. Moreover, H5 states that BFPT has a significant positive impact on ATE ($\beta = 0.262$, $f^2 = 0.051$, $p < 0.001$). Therefore, H5 is also supported.

The effect of the EM on ESE which is H6 and the effect of the EM on ATE which is H3, both state that EM is positively related to ESE and was found to have a positive effect on ESE ($\beta = 0.271$, $f^2 = 0.0612$, $p < 0.001$), thus H6 is supported. Similarly, the H3 states that EP is positively related to ATE and was also found to have a positive effect on ATE ($\beta = 0.252$, $f^2 = 0.055$, $p < 0.001$). Thus, it is supported.

While the relationship between the ESE and ATE on EI, Table 6 shows that ESE has strong and positive effect on EI ($\beta = 0.472$, $f^2 = 0.151$, $p < 0.001$), thus H7 is supported. Furthermore, Table 5 shows that ATE was found to have positively related to EI ($\beta = 0.302$, $f^2 = 0.154$, $p < 0.001$). Thus, supported H8.

Moderation analyses were carried out by using the SPSS PROCESS macro (Hayes, 2013), presented in Table 6. Hypothesis H9 hypothesized that EP positively moderates the relationship between ESE and EI, which is also supported ($\beta = 0.152$, $t = 3.587$, 95% bias-corrected CI = [0.051, 0.225]). Similarly, the H10 hypothesized that EP positively moderates the relationship between ATE and EI, which is also supported ($\beta = 0.132$, $t = 2.547$, 95% bias-corrected CI = [0.060, 0.192]).

TABLE 6 Moderation tests (indirect effects).

Hypotheses	β	SE	<i>t</i> -value	<i>p</i> -value	LLCI	ULCI	Result
H9: Entrepreneurial passion * Entrepreneurial self-efficacy → Entrepreneurial intention	0.152	0.059	3.587	0.000***	0.051	0.225	Supported
H10: Entrepreneurial passion * Attitude toward Entrepreneurship → Entrepreneurial intention	0.132	0.066	2.547	0.000***	0.060	0.192	Supported

ESE, entrepreneurial self-efficacy; BFPT, Big-Five Personality Trait; EI, entrepreneurial intention; EE, EM, entrepreneurial mindset; ATE, attitude toward entrepreneurship. *** $p \leq 0.001$; ns, not significant.

Discussion and conclusion

First, this study further provides the evidence of significance of FBPT and EM impact on students' ESE, and ATE, all of which help to support EIs. According to the findings of this study, FBPT and EM positively influence the EIs which is consistent with the previous studies (Wang et al., 2016; Tehseen and Haider, 2021).

Second, according to the findings of this study, FBPT and EM positively influence the ATE (Ayuni, 2018; Wardana et al., 2020; Cui, 2021; Pidduck et al., 2021; Liao et al., 2022). This finding highlights the importance of FBPT and EM in influencing students' entrepreneurial goals by altering their attitudes toward entrepreneurship. Additionally, entrepreneurial attitudes influenced desires to become entrepreneurs significantly more in students who have FBPT and EM than the students who did not have the FBPT and EM. Similarly, FBPT and EM were found to have positive effect on ESE. As compared to the previous studies, this study offers, to help students develop a better grasp of entrepreneurial activities, this research suggests that FBPT and EM programs should be included as part of their projects and classes in order to build and cultivate the FBPT and EM. It is recommended to provide guidance on how to use a variety of specific skills and tactics to increase student self-efficacy when engaging in entrepreneurial activity.

Third, our findings revealed a significant positive link between entrepreneurship attitude and EI. Our findings are consistent with previous research studies and advocate that ATE is the strongest predictor of EI (Liñán and Chen, 2009). According to the findings, students would consider entrepreneurship to be a desirable and advantageous career option, and would pursue entrepreneurial ventures. As compared to the previous studies, this research reveals that ESE has a significant impact on EI consistent with previous findings (Baidi and Suyatno, 2018; Yamina and Mohammed, 2019; Hassan et al., 2020). As a result, when students have more belief in the success of entrepreneurship, they are more likely to contribute to entrepreneurial initiatives.

Fourth, another interesting finding from the study is the EP has a partial moderating influence on the relationship between ESE and ATE and EI. This finding is consistent with the studies conducted by Liao et al. (2022) and Tehseen and Haider (2021). It supports the notion that Entrepreneurship is a module should be placed in a dual/triple degree program for students. They develop positive entrepreneurial attitudes, consider themselves to be more appealing and capable of commencing a long-term

entrepreneurial venture and their enthusiasm improves their EM and feasibility of starting a long-term enterprise.

This study provided a full research framework to assess three research questions that had yet to be addressed by previous research. With several contributions, the importance of BFPT and mindset in generating EI among university students is highlighted in this study. The EI is accelerated by EP as a moderator, according to the findings of this study. These findings could be used by decision-makers as a point of reference.

Implications of the study

This study's findings have a number of academic and management implications. In academic context, when new antecedents are given to define an individual's conduct, TPB can be utilized as a model to examine diverse profiles of entrepreneurial behavior and as a solid foundation to investigate its moderating influence. The findings of our research add to the theoretical perspectives of Gorman et al. (1997) and Kuratko (2005), proving that entrepreneurship education may lead to students pursuing their entrepreneurial career goal which could lead to successful start-ups after completing the graduation studies (Peterman and Kennedy, 2003; Zhang et al., 2014). In addition to that, the empirical evidence of this study support the assumption that an individual's self-efficacy, along with his or her skill for pursuing motivation, and a plan of action, will be a crucial factor in the formulation of entrepreneurial goals, in accordance with SCCT.

In terms of the practical implications, BFPT and EM can enhance the EI in multiple ways. Two ways that FBPT and EM influence students' EI are ESE and ATE (Arshad et al., 2016; Buana et al., 2017; Shah et al., 2020; Liao et al., 2022). Our findings support the idea that self-efficacy plays a significant role in the development of EI. As SCCT evolves, ESE is becoming more important in establishing entrepreneurial intent. Similarly, our research highlights the direct favorable impact of entrepreneurship attitudes on EI. As a result of our findings, the TPB (Ajzen, 1991) appears to be a viable theoretical framework for analyzing an individual's EI.

Limitations and future directions

There are various limitations to this study that indicates areas where future research should be pursued. First, conducting the

study with a pre- and post-test approach would have been fascinating (Rideout and Gray, 2013), such that differences in EI can be investigated different BFPT and entrepreneurial mind. Another limitation of this study is that it is cross-sectional in nature, longitudinal research should be carried out in future studies to investigate the changes in entrepreneurial attitudes and ambitions over time, as well as the development of new businesses of entrepreneurial conduct that is motivated by a desire to succeed. Third, to investigate future studies should investigate the EI with other moderator and mediator such as entrepreneurial leadership and entrepreneurial training, and entrepreneurial practice.

Data availability statement

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author.

Author contributions

SS and BA-G worked on the overall paper (introduction and literature review and developing the conceptual framework). MS

worked on the paper methodology and data analysis. All authors contributed to the article and approved the submitted version.

Acknowledgments

The authors would like to acknowledge the support received from King Fahd University of Petroleum and Minerals.

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Publisher's note

All claims expressed in this article are solely those of the authors and do not necessarily represent those of their affiliated organizations, or those of the publisher, the editors and the reviewers. Any product that may be evaluated in this article, or claim that may be made by its manufacturer, is not guaranteed or endorsed by the publisher.

References

- Ajzen, I. (1991). The theory of planned behaviour. *Organ. Behav. Hum. Decis. Proc.* 50, 179–211. doi: 10.1016/0749-5978(91)90020-T
- Ajzen, I. (2001). Nature and operation of attitudes. *Annu. Rev. Psychol.* 52, 27–58. doi: 10.1146/annurev.psych.52.1.27
- Ajzen, I. (2005). *Attitudes, personality and behaviour*. 2nd Edn. Berkshire: Open University Press.
- Ajzen, I. (2011). "Behavioural interventions: Design and evaluation guided by the theory of planned behaviour," in *Social Psychology Program and Policy Evaluation*. eds. M. M. Mark, S. I. Donaldson and B. C. Campbell (Guildford, New York).
- Ajzen, I., and Cote, N. G. (2008). "Attitudes and the prediction of behavior," in *Attitudes and Attitude Change*. eds. W. D. Crano and R. Prislin (New York, NY: Psychology Press), 289–311.
- Aldrich, H. E. (2012). The emergence of entrepreneurship as an academic field: a personal essay on institutional entrepreneurship. *Res. Policy* 41, 1240–1248. doi: 10.1016/j.respol.2012.03.013
- Al-Hammadi, D., and Moore, R. K. (2021). "Using sampling techniques and machine learning algorithms to improve big five personality traits recognition from non-verbal cues." in *2021 National Computing Colleges Conference (NCCC)*, IEEE, 1–6.
- Ali, I., Ali, M., and Badghish, S. (2019). Symmetric and asymmetric modeling of entrepreneurial ecosystem in developing entrepreneurial intentions among female university students in Saudi Arabia. *Int. J. Gen. Entrepr.* 11, 435–458. doi: 10.1108/IJGE-02-2019-0039
- Al-Mamary, Y. H. S., Abdulrab, M., Alwaheeb, M. A., and Alshammari, N. G. M. (2020). Factors impacting entrepreneurial intentions among university students in Saudi Arabia: testing an integrated model of TPB and EO. *Educ. Train.* 62, 779–803. doi: 10.1108/ET-04-2020-0096
- Almeida, P., Ahmetoglu, G., and Chamorro-Premuzic, T. (2014). Who wants to be an entrepreneur? The relationship between cocational interests and individual differences in entrepreneurship. *J. Career Assess.* 22, 102–112. doi: 10.1177/1069072713492923
- Anjum, T., Heidler, P., Amoozegar, A., and Anees, R. T. (2021). The impact of entrepreneurial passion on the entrepreneurial intention; moderating impact of perception of university support. *Admin. Sci.* 11:45. doi: 10.3390/admsci11020045
- Antonic, B., Bratkovic Kregar, T., Singh, G., and DeNoble, A. F. (2015). The big five personality entrepreneurship relationship: evidence from Slovenia. *J. Small Bus. Manag.* 53, 819–841. doi: 10.1111/jsbm.12089
- Ariani, D. W. (2013). Personality and learning motivation. *Eur. J. Bus. Manag.* 5, 26–38. doi: 10.1037/0003-066X.55.1.68
- Arshad, M., Farooq, O., Sultana, N., and Farooq, M. (2016). Determinants of individuals' entrepreneurial intentions: a gendercomparative study. *Career Dev. Int.* 21, 318–339. doi: 10.1108/CDI-10-2015-0135
- Autio, E., Keeley, R., Klofsten, M., Parker, G. C., and Hay, M. (2001). Entrepreneurial intent among students in Scandinavia and in the USA. *Entrepr. Innov. Manag. Stud.* 2, 145–160. doi: 10.1080/14632440110094632
- Awwad, M. S., and Al-Aseer, R. M. N. (2021). Big five personality traits impact on entrepreneurial intention: the mediating role of entrepreneurial alertness. *Asia Pac. J. Innovat. Entrepr.* 15, 87–100. doi: 10.1108/APJIE-09-2020-0136
- Ayuni, R. F. (2018). The role of family business and education in forming actual entrepreneurs. *KnE Soc. Sci.* 3, 329–340.
- Baidi and Suyatno, (2018). Effect of entrepreneurship education, self efficacy and need for achievement toward students' entrepreneurship intention: case study in Febi, Iain Surakarta, Indonesia. *J. Entrepr. Educ.* 21, 1–16.
- Bandura, A. (1977). *Social Learning Theory*. Englewood Cliffs, NJ: Prentice Hall.
- Bandura, A. (1982). Self-efficacy mechanism in human agency. *Am. Psychol.* 37, 122–147. doi: 10.1037/0003-066X.37.2.122
- Bandura, A. (1986). Fearful expectations and avoidant actions as coefficients of perceived self-inefficacy. *Am. Psychol.* 41, 1389–1391. doi: 10.1037/0003-066X.41.12.1389
- Baron, R. A., and Markman, G. D. (1999). "Cognitive mechanisms: potential differences between entrepreneurs and non-entrepreneurs," in *Frontiers of Entrepreneurship Research*. eds. P. Reynolds, W. Bygrave, S. Manigart, C. Mason, C. Mason and G. Meyer et al. (Babson Park, FL: Babson College), 123–137.
- Baron, R. A., Markman, G. D., and Hirska, A. (2001). Perceptions of women and men as entrepreneurship: evidence for differential effects of attributional augmenting. *J. Appl. Psychol.* 86, 923–929. doi: 10.1037/0021-9010.86.5.923
- Baron, R. A., and Shane, S. (2007). Entrepreneurship: a process perspective. *Psychol. Entrepr.* 1, 19–39.
- Baron, R. A., and Ward, T. B. (2004). Expanding entrepreneurial cognition's toolbox: potential contributors from the field of cognitive science. *Entrepr. Theory Pract.* 28, 553–573. doi: 10.1111/j.1540-6520.2004.00064.x

- Baum, J. R., Frese, M., and Baron, R. A. (2014). "Born to be an entrepreneur? Revisiting the personality approach to entrepreneurship," in *The Organizational Frontiers. The Psychology of Entrepreneurship*, eds. J. R. Baum, M. Frese and R. A. Baron (Mahwah, NJ: Lawrence Erlbaum Associates Publishers), 41–65.
- Baum, J. R., and Locke, E. A. (2004). The relationship of entrepreneurial traits, skill, and motivation to subsequent venture growth. *J. Appl. Psychol.* 89:587.
- Bazkiaei, H. A., Heng, L. H., Khan, N. U., Saufi, R. B. A., and Kasim, R. S. R. (2020). Do entrepreneurial education and big-five personality traits predict entrepreneurial intention among universities students? *Cogent Bus. Manag.* 7:1801217. doi: 10.1080/23311975.2020.1801217
- Bell, R., and Bell, H. (2016). Replicating the networking, mentoring and venture creation benefits of entrepreneurship centres on a shoestring: a student-centred approach to entrepreneurship education and venture creation. *Ind. High. Educ.* 30, 334–343. doi: 10.1177/0950422216660921
- Bellò, B., Mattana, V., and Loi, M. (2018). The power of peers: a new look at the impact of creativity, social context and self-efficacy on entrepreneurial intentions. *Int. J. Entrep. Behav. Res.* 24, 214–233. doi: 10.1108/IJEBR-07-2016-0205
- Bierly, P. E., Kessler, E. H., and Christensen, E. W. (2000). Organizational learning, knowledge, and wisdom. *J. Organ. Chang. Manag.* 13, 595–618. doi: 10.1108/09534810010378605
- Bignetti, B., Santos, A. C. M. Z., Hansen, P. B., and Henriqson, E. (2021). The influence of entrepreneurial passion and creativity on entrepreneurial intentions. *Rev. Adm. Mackenzie* 22, 1–32. doi: 10.1590/1678-6971/eramr210082
- Biraglia, A., and Kadile, V. (2016). The role of entrepreneurial passion and creativity in developing entrepreneurial intentions: insights from American homebrewers. *J. Small Bus. Manag.* 55, 170–188. doi: 10.1111/jsbm.12242
- Biswas, A., and Verma, R. K. (2021). Engine of entrepreneurial intentions: revisiting personality traits with entrepreneurial education. *Benchmarking* 29, 2019–2044.
- Bögenhold, D., and Fachinger, U. (2010). *Entrepreneurship and its Regional Development: in Do Self-employment Ratios Converge and Does Gender Matter?* The entrepreneurial society. Edward Elgar Publishing.
- Bögenhold, D., and Fachinger, U. (2014). Rationality of self-employment: Do female and male entrepreneurs differ? *J. Bank. Finance* 1, 42–62.
- Bowen, D. D., and Hisrich, R. D. (1986). The female entrepreneur: a career development perspective. *Acad. Manag. Rev.* 11, 393–407. doi: 10.2307/258468
- Brandstätter, H. (2011). Personality aspects of entrepreneurship: a look at five meta-analyses. *Personal. Individ. Differ.* 51, 222–230. doi: 10.1016/j.paid.2010.07.007
- Brown, D., and Cinamon, R. G. (2016). Personality traits' effects on self-efficacy and outcome expectations for high school major choice. *Inter. J. Edu. Voc. Gui.* 16, 343–361. doi: 10.1007/s10775-015-9316-4
- Brown, S. D., Lent, R. W., Telander, K., and Tramayne, S. (2011). Social cognitive career theory, conscientiousness, and work performance: a meta-analytic path analysis. *J. Vocat. Behav.* 79, 81–90. doi: 10.1016/j.jvb.2010.11.009
- Buana, Y., Hidayat, D., Prayogi, B., and Vendy, V. (2017). The effect of entrepreneurship education on entrepreneurial intention of university students by adopting Linan model. *Binus Bus. Rev.* 8, 67–75. doi: 10.21512/bbr.v8i1.1958
- Burnette, J. L., Pollack, J. M., Forsyth, R. B., Hoyt, C. L., Babij, A. D., Thomas, F. N., et al. (2019). A growth mindset intervention: enhancing students' entrepreneurial self-efficacy and career development. *Entrep. Theory Pract.* 44, 878–908. doi: 10.1177/1042258719864293
- Caprara, G. V., Alessandri, G., Di-Giunta, L., Panerai, L., and Eisenberg, N. (2010). The contribution of agreeableness and self-efficacy beliefs to rosociality. *Eur. J. Personal.* 24, 36–55. doi: 10.1002/per.739
- Cardon, M. S., Gregoire, D. A., Stevens, C. E., and Patel, P. C. (2013). Measuring entrepreneurial passion: conceptual foundations and scale validation. *J. Bus. Ventur.* 28, 373–396. doi: 10.1016/j.jbusvent.2012.03.003
- Cardon, M. S., and Kirk, C. P. (2013). Entrepreneurial passion as mediator of the self-efficacy to persistence relationship. *Entrep. Theory Pract.* 39, 1027–1050. doi: 10.1111/etap.12089
- Cardon, M. S., and Stevens, C. E. (2009). *The Discriminant Validity of Entrepreneurial Passion*. Briarcliff Manor, NY: Academy of Management.
- Chen, C. C., Greene, P. G., and Crick, A. (1998). Does entrepreneurial self-efficacy distinguish entrepreneurs from managers? *J. Bus. Ventur.* 13, 295–316. doi: 10.1016/S0883-9026(97)00029-3
- Chen, S. C., Hsiao, H. C., Chang, J. C., Chou, C. M., Chen, C. P., and Shen, C. H. (2015). Can the entrepreneurship course improve the entrepreneurial intentions of students? *Int. Entrep. Manag. J.* 11, 557–569. doi: 10.1007/s11365-013-0293-0
- Chien-Chi, C., Sun, B., Yang, H., Zheng, M., and Li, B. (2020). Emotional competence, entrepreneurial self-efficacy, and entrepreneurial intention: a study based on China college students' social entrepreneurship project. *Front. Psychol.* 11:547627. doi: 10.3389/fpsyg.2020.547627
- Coco, M., Guerrero, C. S., Di Corrado, D., Ramaci, T., Maci, T., Pellerone, M., et al. (2019). Personality traits and athletic young adults. *Sport Sci. Health* 15, 435–441. doi: 10.1007/s11332-019-00551-3
- Coco, M., Buscemi, A., Sagone, E., Pellerone, M., Ramaci, T., Marchese, M., et al. (2020). Effects of Yoga Practice on personality, body image and lactate. Pilot study on a group of women from 40 years. *Sustainability* 12:6719.
- Costa, P. T. Jr., and McCrae, R. R. (1992). Four ways five factors are basic. *Personal. Individ. Differ.* 13, 653–665. doi: 10.1016/0191-8869(92)90236-1
- Cristina, P. M., Marinella, C., Tiziana, M., Chiara, M., De Pasquale, C., Gianluca, D. O., et al. (2018). Successfully aging. Choice of life or life that choices. *Acta Med. Austriaca* 34, 107–111.
- Cui, J. (2021). The influence of entrepreneurial education and psychological capital on entrepreneurial behavior among college students. *Front. Psychol.* 12:755479. doi: 10.3389/fpsyg.2021.755479
- Cui, J., and Bell, R. (2022). Behavioural entrepreneurial mindset: how entrepreneurial education activity impacts entrepreneurial intention and behaviour. *Int. J. Manag. Educ.* 20:100639. doi: 10.1016/j.ijme.2022.100639
- Darmanto, S., and Yuliari, G. (2018). Mediating role of entrepreneurial self-efficacy in developing entrepreneurial behavior of entrepreneur students. *Acad. Entrepr. J.* 24, 1–14. doi: 10.1037/0021-9010.90.6.1265
- Daspit, J. J., Fox, C. J., and Findley, S. K. (2021). Entrepreneurial mindset: an integrated definition, a review of current insights, and directions for future research. *J. Small Bus. Manag.* 1, 1–33. doi: 10.1080/00472778.2021.1907583
- Davey, T., Hannon, P., and Penaluna, A. (2016). Entrepreneurship education and the role of universities in entrepreneurship: introduction to the special issue. *Ind. High. Educ.* 30, 171–182. doi: 10.1177/0950422216656699
- Davis, H., Hall, A., and Mayer, I. S. (2016). Developing a new measure of entrepreneurial mindset: reliability, validity, and implications for practitioners. *Consult. Psychol. J.* 68, 21–48. doi: 10.1037/cpb0000045
- DeNoble, A. F., Jung, D., and Ehrlich, S. B. (1999a). "Entrepreneurial self efficacy the development of a measure and its relationship to entrepreneurial action," in *Frontiers of Entrepreneurship Research*, eds. P. D. Reynolds, W. D. Bygrave, N. M. Carter, S. Manigart, C. Mason and G. D. Meyer et al. (Wellesley, MA: Babson College), 73–87.
- DeNoble, A. F., Jung, D., and Ehrlich, S. B. (1999b). "Initiating new ventures: the role of entrepreneurial self-efficacy", in *Babson Research Conference*, Wellesley, MA: Babson College.
- Dieter, B., and Uwe, F. (2011). Entrepreneurial diversity: theoretische und empirische beleuchtungen der heterogenität beruflicher selbständigkeit in Deutschland. *ZfKE-Zeitschrift für KMU und Entrepreneurship* 59, 251–272. doi: 10.3790/zfke.59.4.251
- Dissanayake, D. M. N. S. W. (2013). The impact of perceived desirability and perceived feasibility on entrepreneurial intention among undergraduate students in Sri Lanka: an extended model. *Kelaniya J. Manag.* 2, 39–57. doi: 10.4038/kjm.v2i1.6543
- Djigić, G., Stojiljković, S., and Dosković, M. (2014). Basic personality dimensions and teachers' self-efficacy. *Procedia. Soc. Behav. Sci.* 112, 593–602. doi: 10.1016/j.sbspro.2014.01.1206
- Donaldson, and Campbell, B. C. (2019). *Social psychology for program and policy evaluation*. Guilford Press, 74–100.
- Duong, C. D. (2021). Big five personality traits and green consumption: bridging the attitude-intention-behavior gap. *Asia Pac. J. Mark. Logist.* doi: 10.1108/APJML-04-2021-0276
- Eisenhardt, K. M., and Schoonhoven, C. B. (1990). Organizational growth: linking founding team, strategy, environment, and growth among US semiconductor ventures, 1978–1988. *Adm. Sci. Q.* 35, 504–529. doi: 10.2307/2393315
- Elnadi, M., and Gheith, M. H. (2021). Entrepreneurial ecosystem, entrepreneurial self-efficacy, and entrepreneurial intention in higher education: evidence from Saudi Arabia. *The International Journal of Management Education* 19:100458. doi: 10.1016/j.ijme.2021.100458
- Fai, E. K., Anderson, C., and Ferreros, V. (2017). Role of attitudes and intentions in predicting adherence to oral diabetes medications. *Endocr. Connect.* 6, 63–70. doi: 10.1530/EC-16-0093
- Feng, B., and Chen, M. (2020). The impact of entrepreneurial passion on psychology and behavior of entrepreneurs. *Front. Psychol.* 11:1733. doi: 10.3389/fpsyg.2020.01733
- Ferreira, J. J., Raposo, M. L., Rodrigues, R. G., Dinis, A., and Do Paço, A. (2012). A model of entrepreneurial intention: an application of the psychological and behavioral approaches. *J. Small Bus. Enterp. Dev.* 19, 424–440. doi: 10.1108/14626001211250144
- Fitzsimmons, J. R., and Douglas, E. J. (2011). Interaction between feasibility and desirability in the formation of entrepreneurial intentions. *J. Bus. Ventur.* 26, 431–440. doi: 10.1016/j.jbusvent.2010.01.001
- Fornell, C. G., and Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *J. Mark. Res.* 18, 39–50. doi: 10.1177/002224378101800104

- Frese, M., and Gielnik, M. M. (2014). The psychology of entrepreneurship. *Annu. Rev. Organ. Psych. Organ. Behav.* 1, 413–438. doi: 10.1146/annurev-orgpsych-031413-091326
- Goldberg, L. R. (1990). An alternative description of personality: the big-five factor structure. *J. Pers. Soc. Psychol.* 59, 1216–1229. doi: 10.1037/0022-3514.59.6.1216
- Gorman, G., Hanlon, D., and King, W. (1997). Some research perspectives on entrepreneurship education, enterprise education and education for small business management: a ten-year literature review. *Int. Small Bus. J.* 15, 56–77. doi: 10.1177/0266242697153004
- Gosling, S. D., Rentfrow, P. J., and Swann, W. B. Jr. (2003). A very brief measure of the big five personality domains. *J. Res. Pers.* 37, 504–528. doi: 10.1016/S0092-6566(03)00046-1
- Hahn, E. D., and Ang, S. H. (2017). From the editors: new directions in the reporting of statistical results in the journal of world business. *J. World Bus.* 52, 125–126. doi: 10.1016/j.jwb.2016.12.003
- Hair, J. F., Hult, G. T. M., Ringle, C. M., and Sarstedt, M. (2014). *Aprimer on Partial Least Squares Structural Equation Modeling (PLS-SEM)*. SAGE.
- Hair, J. F., Hult, G. T. M., Ringle, C. M., and Sarstedt, M. (2016). *Aprimer on partial least squares structural equation modeling (PLS-SEM)*. Thousand Oaks, CA: Sage Publications.
- Hair, J. F., Risher, J. J., Sarstedt, M., and Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. *Eur. Bus. Rev.* 31, 2–24. doi: 10.1108/EBR-11-2018-0203
- Hair, J. F., Sarstedt, M., Pieper, T. M., and Ringle, C. M. (2012). The use of partial least squares structural equation modeling in strategic management research: a review of past practices and recommendations for future applications. *Long Range Plan.* 45, 320–340. doi: 10.1016/j.lrp.2012.09.008
- Hallak, R., Lindsay, N. J., and Brown, G. (2011). Examining the role of entrepreneurial experience and entrepreneurial self-efficacy on SMTE performance. *Tour. Anal.* 16, 583–599. doi: 10.3727/108354211X13202764960744
- Hamza, M. A., Rehman, S., Sarwar, A., and Choudhary, K. N. (2021). Is knowledge a tenement? The mediating role of team member exchange over the relationship of big five personality traits and knowledge-hiding behavior. *VINE J. Informat. Knowledge Manag. Syst.* doi: 10.1108/VJIKMS-05-2020-0084
- Handayati, P., Wulandari, D., Soetjipto, B. E., and Wibowo, A. (2020). Does entrepreneurship education promote vocational students' entrepreneurial mindset? *Heliyon* 6, e05426–e05427. doi: 10.1016/j.heliyon.2020.e05426
- Hassan, A., Saleem, I., Anwar, I., and Hussain, S. A. (2020). Entrepreneurial intention of Indian university students: the role of opportunity recognition and entrepreneurship education. *Educ. Train.* 62, 843–861. doi: 10.1108/ET-02-2020-0033
- Hayes, A. F. (2013). PROCESS SPSS macro: computer, software and manual. Available at: <http://afhayes.com/introduction-to-mediationmoderationand-conditional-processanalysis>
- Haynie, J. M., Shepherd, D., Mosakowski, E., and Earley, P. C. (2010). A situated metacognitive model of the entrepreneurial mindset. *J. Bus. Ventur.* 25, 217–229. doi: 10.1016/j.jbusvent.2008.10.001
- Henley, A., Contreras, F., Espinosa, J. C., and Barbosa, D. (2017). Entrepreneurial intentions of Colombian business students: planned behaviour, leadership skills and social capital. *Int. J. Entrep. Behav. Res.* 23, 1017–1032. doi: 10.1108/IJEBR-01-2017-0031
- Hisrich, R. D. (1992). The need for marketing in entrepreneurship. *J. Bus. Ind. Mark.* 7, 53–57. doi: 10.1108/08858629210035427
- Hisrich, R. D., and Ramadani, V. (2017). Effective entrepreneurial management. *Effective Entrepreneurial Management*. doi: 10.1007/978-3-319-50467-4
- Hossain, M. U., Arefin, M. S., and Yukongdi, V. (2021). Personality traits, social self-efficacy, social support, and social entrepreneurial intention: the moderating role of gender. *J. Soc. Entrepr.* 1, 1–21. doi: 10.1080/19420676.2021.1936614
- Hsu, D. K., Wiklund, J., and Cotton, R. D. (2017). Success, failure, and entrepreneurial reentry: an experimental assessment of the veracity of self-efficacy and prospect theory. *Entrep. Theory Pract.* 41, 19–47. doi: 10.1111/etap.12166
- Hu, M. L. (2008). A study of the personality traits, environment and entrepreneurial attitude of technical institute's hospitality management students. *J. Hosp. Home Econ* 5, 349–375. doi: 10.1080/23311975.2020.1801217
- Hua, J., Zhang, G., Coco, C., Zhao, T., and Hou, N. (2020). Proactive personality and cross-cultural adjustment: the mediating role of adjustment self-efficacy. *J. Int. Stud.* 10, 817–835. doi: 10.32674/jis.v10i4.1274
- Huang, L., Huang, Y., Huang, R., Xie, G., and Cai, W. (2022). Factors influencing returning migrants' entrepreneurship intentions for rural E-commerce: an empirical investigation in China. *Sustainability* 14:3682. doi: 10.3390/su14063682
- Huang, L., Xie, G., Huang, R., Li, G., Cai, W., and Apostolidis, C. (2021). Electronic commerce for sustainable rural development: exploring the factors influencing BoPs' entrepreneurial intention. *Sustainability* 13:10604. doi: 10.3390/su131910604
- Jiatong, W., Murad, M., Bajun, F., Tufail, M. S., Mirza, F., and Rafiq, M. (2021). Impact of entrepreneurial education, mindset, and creativity on entrepreneurial intention: mediating role of entrepreneurial self-efficacy. *Front. Psychol.* 12:724440. doi: 10.3389/fpsyg.2021.724440
- Judge, T. A., Jackson, C. L., Shaw, J. C., Scott, B. A., and Rich, B. L. (2007). Self-efficacy and work-related performance: the integral role of individual differences. *J. Appl. Psychol.* 92, 107–127. doi: 10.1037/0021-9010.92.1.107
- Karyaningsih, R. P. D., Wibowo, A., Saptono, A., and Narmaditya, B. S. (2020). Does entrepreneurial knowledge influence vocational students' intention? Lessons from Indonesia. *Entrepreneurial Bus. Econ. Rev.* 8, 138–155. doi: 10.15678/EBER.2020.080408
- Katz, C. (2003). The chronology and intellectual trajectory of American entrepreneurship education. *J. Bus. Ventur.* 18, 283–300. doi: 10.1016/S0883-9026(02)00098-8
- Kautonen, T., van Gelderen, M., and Fink, M. (2015). Robustness of the theory of planned behaviour in predicting entrepreneurial intentions and actions. *Entrep. Theory Pract.* 39, 655–674. doi: 10.1111/etap.12056
- Kim, P. H., and Aldrich, H. E. (2005). Social capital and entrepreneurship. *Found. Trends Entrep.* 1, 55–104. doi: 10.1561/03000000002
- Kock, N., and Gaskins, L. (2014). The mediating role of voice and accountability in the relationship between Internet diffusion and government corruption in Latin America and Sub-Saharan Africa. *Inf. Technol. Dev.* 20, 23–43. doi: 10.1080/02681102.2013.832129
- Kock, N., and Lynn, G. S. (2012). Lateral collinearity and misleading results in variance-based SEM: an illustration and recommendations. *J. Assoc. Inf. Syst.* 13, 546–580. doi: 10.17705/1jais.00302
- Kong, F., Zhao, L., and Tsai, C.-H. (2020). The relationship between entrepreneurial intention and action: the effects of fear of failure and role model. *Front. Psychol.* 11:229. doi: 10.3389/fpsyg.2020.00229
- Krueger, N. F. Jr., and Carsrud, A. (1993). Entrepreneurial intentions: applying the theory of planned behaviour. *Entrep. Reg. Dev.* 5, 315–330. doi: 10.1080/08985629300000020
- Krueger, N. F. Jr., Reilly, M. D., and Carsrud, A. L. (2000). Competing models of entrepreneurial intentions. *J. Bus. Ventur.* 15, 411–432. doi: 10.1016/S0883-9026(98)00033-0
- Kuckertz, A., and Wagner, M. (2010). The influence of sustainability orientation on entrepreneurial intentions: investigating the role of business experience. *J. Bus. Ventur.* 25, 524–539. doi: 10.1016/j.jbusvent.2009.09.001
- Kuratko, D. F. (2005). The emergence of entrepreneurship education: development, trends, and challenges. *Entrep. Theory Pract.* 29, 577–597. doi: 10.1111/j.1540-6520.2005.00099.x
- Kuratko, D. F., Fisher, G., and Audretsch, D. B. (2021). Unraveling the entrepreneurial mindset. *Small Bus. Econ.* 57, 1681–1691. doi: 10.1007/s11187-020-00372-6
- Laouiti, R., Haddoud, M. Y., Nakara, W. A., and Onjewu, A. K. E. (2022). A gender-based approach to the influence of personality traits on entrepreneurial intention. *J. Bus. Res.* 142, 819–829. doi: 10.1016/j.jbusres.2022.01.018
- Laviolette, M., Lefebvre, M. R., and Brunel, O. (2012). The impact of story bound entrepreneurial role models on self-efficacy and entrepreneurial intention. *Int. J. Entrep. Behav. Res.* 18, 720–742. doi: 10.1108/13552551211268148
- Lee, Y., and Herrmann, P. (2021). Entrepreneurial passion: a systematic review and research opportunities. *J. Small Bus. Strateg.* 31, 122–147. doi: 10.53703/001c.29740
- Lee-Ross, D. (2017). An examination of the entrepreneurial intent of MBA students in Australia using the entrepreneurial intention questionnaire. *J. Manag. Dev.* 36, 1180–1190. doi: 10.1108/JMD-10-2016-0200
- Liang, C., Chang, C. C., and Hsu, Y. (2013). Personality and psychological factors predict imagination: evidence from Taiwan. *Learn. Individ. Differ.* 27, 67–74. doi: 10.1016/j.lindif.2013.06.010
- Liao, Y. K., Nguyen, V. H. A., Chi, H. K., and Nguyen, H. H. (2022). Unraveling the direct and indirect effects of entrepreneurial education and mindset on entrepreneurial intention: the moderating role of entrepreneurial passion. *Glob. Bus. Organ. Excell.*
- Liñán, F. (2004). Intention-based models of entrepreneurship education. *Piccolla Impresa/Small Business* 3, 11–35.
- Liñán, F. (2008). Skill and value perceptions: how do they affect entrepreneurial intentions? *Int. Entrep. Manag. J.* 4, 257–272. doi: 10.1007/s11365-008-0093-0
- Liñán, F., and Chen, Y.-W. (2009). Development and cross-cultural application of a specific instrument to measure entrepreneurial intentions. *Entrep. Theory Pract.* 33, 593–617. doi: 10.1111/j.1540-6520.2009.00318.x

- Liñán, F., Urbano, D., and Guerrero, M. (2011). Regional variations in entrepreneurial cognitions: start-up intentions of university students in Spain. *Entrep. Reg. Dev.* 23, 187–215. doi: 10.1080/08985620903233929
- Luthje, C., and Franke, N. (2003). The 'making' of an entrepreneur: testing a model of entrepreneurial intent among engineering students at MIT. *R&D Manag.* 33, 135–147. doi: 10.1111/1467-9310.00288
- Maes, J., Leroy, H., and Sels, L. (2014). Gender differences in entrepreneurial intentions: a TPB multi-group analysis at factor and indicator level. *Eur. Manag. J.* 32, 784–794. doi: 10.1016/j.emj.2014.01.001
- Marcionetti, J., and Rossier, J. (2016). Global life satisfaction in adolescence: the role of personality traits, self-esteem, and self-efficacy. *J. Individ. Differ.* 37, 135–144. doi: 10.1027/1614-0001/a000198
- McClelland, D. (1961). *The Achieving Society*. Princeton, NJ: Van Nostrand.
- McGee, J. E., and Peterson, M. (2017). The long-term impact of entrepreneurial self-efficacy and entrepreneurial orientation on venture performance. *J. Small Bus. Manag.* 57, 720–737. doi: 10.1111/jsbm.12324
- McGee, J. E., Peterson, M., Mueller, S. L., and Sequeira, J. M. (2009). Entrepreneurial self-efficacy: refining the measure. *Enterp. Theory Pract.* 33, 965–988. doi: 10.1111/j.1540-6520.2009.00304.x
- McGrath, R. G., and MacMillan, I. C. (2000). *The Entrepreneurial Mindset: Strategies for Continuously Creating Opportunity in an Age of Uncertainty*. Brighton, MA: Harvard Business Review Press.
- McMullen, J. S., and Kier, A. S. (2016). Trapped by the entrepreneurial mindset: opportunity seeking and escalation of commitment in the Mount Everest disaster. *J. Bus. Ventur.* 31, 663–686. doi: 10.1016/j.jbusvent.2016.09.003
- Montiel-Campos, H. (2021). Entrepreneurial alertness, innovation modes, and business models in small-and medium-sized enterprises: an exploratory quantitative study. *J. Technol. Manag. Innov.* 16, 23–30. doi: 10.4067/S0718-27242021000100023
- Mukhtar, S., Wardana, L. W., Wibowo, A., and Narmaditya, B. S. (2021). Does entrepreneurship education and culture promote students' entrepreneurial intention? The mediating role of entrepreneurial mindset. *Cogent Educ.* 8:1918849. doi: 10.1080/2331186X.2021.1918849
- Nabi, G., Liñán, F., Fayolle, A., Krueger, N., and Walmsley, A. (2017). The impact of entrepreneurship education in higher education: a systematic review and research agenda. *Acad. Manag. Learn. Edu.* 16, 277–299. doi: 10.5465/amle.2015.0026
- Naumann, C. (2017). Entrepreneurial mindset: a synthetic literature review. *Entrepreneur. Bus. Econ. Rev.* 5, 149–172. doi: 10.15678/EBER.2017.050308
- Naushad, M. (2018). A study on the antecedents of entrepreneurial intentions among Saudi students. *Entrep. Sustain. Issues* 5, 600–617. doi: 10.9770/jesi.2018.5.3(14)
- Neneh, B. N. (2020). Entrepreneurial passion and entrepreneurial intention: the role of social support and entrepreneurial self-efficacy. *Stud. High. Educ.* 1, 1–17. doi: 10.1080/03075079.2020.1770716
- Newman, A., Obschonka, M., Moeller, J., and Chandan, G. G. (2021). Entrepreneurial passion: a review, synthesis, and agenda for future research. *Appl. Psychol.* 70, 816–860. doi: 10.1111/apps.12236
- Ngek, N. B. (2015). Entrepreneurial self-efficacy and small business performance: the mediating effect of entrepreneurial mindset and openness to experience. *Probl. Perspect. Manag.* 13, 271–280.
- Oyugi, J. L. (2015). The mediating effect of self-efficacy on the relationship between entrepreneurship education and entrepreneurial intentions of university. *J. Entrep. Manag. Innovat.* 11, 31–56. doi: 10.7341/20151122
- 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. *Rev. Manag. Sci.* 15, 287–307. doi: 10.1007/s11846-019-00342-7
- Pelegri, G. C., and de Moraes, G. H. S. M. (2021). Does gender matter? A university ecosystem, self-efficacy and entrepreneurial intention analysis in Brazilian universities. *Gend. Manag.*
- Peterman, N. E., and Kennedy, J. (2003). Enterprise education: influencing students' perceptions of entrepreneurship. *Enterp. Theory Pract.* 28, 129–144. doi: 10.1046/j.1540-6520.2003.00035.x
- Pidduck, R. J., Clark, D. R., and Lumpkin, G. T. (2021). Entrepreneurial mindset: dispositional beliefs, opportunity beliefs, and entrepreneurial behavior. *J. Small Bus. Manag.* 2, 1–35. doi: 10.1080/00472778.2021.1907582
- Podsakoff, P. M., MacKenzie, S. B., and Lee, J. Y. (2003). Common method biases in Behavioural research: a critical review of the literature and recommended remedies. *J. Appl. Psychol.* 88, 879–903. doi: 10.1037/0021-9010.88.5.879
- Prodan, I., and Drnovsek, M. (2010). Conceptualizing academic entrepreneurial intentions: an empirical test. *Technovation* 30, 332–347. doi: 10.1016/j.technovation.2010.02.002
- Rauch, A., and Frese, M. (2007). Let's put the person back into entrepreneurship research: a meta analysis on research between business owners' personality traits, business creation and success. *Eur. J. Work Organ. Psy.* 16, 353–385. doi: 10.1080/13594320701595438
- Rideout, E. C., and Gray, D. O. (2013). Does entrepreneurship education really work? A review and methodological critique of the empirical literature on the effects of university-based entrepreneurship education. *J. Small Bus. Manag.* 51, 329–351. doi: 10.1111/jsbm.12021
- Robinson, P. B., and Sexton, E. A. (1994). The effect of education and experience on self-employment success. *J. Bus. Ventur.* 9, 141–156. doi: 10.1016/0883-9026(94)90006-X
- Roeslie, S. H., and Arianto, R. F. (2022). Impact of entrepreneurial culture, entrepreneurial education and entrepreneurial mindset, on entrepreneurial intention. *Budapest Int. Res. Crit. Inst.* 5, 12581–12594. doi: 10.33258/birci.v5i2.5101
- Ryan, T. R. (1970). *Intentional Behavior: An Approach to Human Motivation*. New York, NY: The Ronald Press Company.
- Şahin, F., Karadağ, H., and Tuncer, B. (2019). Big five personality traits, entrepreneurial self-efficacy and entrepreneurial intention: a configurational approach. *Int. J. Entrep. Behav. Res.* 25, 1188–1211. doi: 10.1108/IJEBR-07-2018-0466
- Sanchez-Cardona, R., Rodriguez-Montalbán, R., Acevedo-Soto, E., Lugo, K. N., Torres-Oquendo, F., and Toro-Alfonso, J. (2012). Self-efficacy and openness to experience as antecedent of study engagement: an exploratory analysis. *Procedia. Soc. Behav. Sci.* 46, 2163–2167. doi: 10.1016/j.sbspro.2012.05.446
- Scherer, R., Adams, J., Carley, S., and Wiebe, F. (1989). Role model performance effects on development of entrepreneurial career preference. *Enterp. Theory Pract.* 13, 53–72. doi: 10.1177/104225878901300306
- Schmitt, N. (2007). The interaction of neuroticism and gender and its impact on self-efficacy and performance. *Hum. Perform.* 21, 49–61. doi: 10.1080/08959280701522197
- Schneider, B., Smith, D. B., and Goldstein, H. W. (2000). *Attraction-Selection-Attrition: Toward a Person-Environment Psychology of Organizations*. Mahwah, NJ: Lawrence Erlbaum Associates Publishers.
- Schumpeter, J. (1934). *The Theory of Economic Development*. Cambridge, MA: Harvard University Press.
- Schwarz, E. J., Wdowiak, M. A., Almer-Jarz, D. A., and Breitenacker, R. J. (2009). The effects of attitudes and perceived environment conditions on students' entrepreneurial intent. *Educ. Train.* 51, 272–291. doi: 10.1108/00400910910964566
- Shah, I. A., Amjed, S., and Jaboo, S. (2020). The moderating role of entrepreneurship education in shaping entrepreneurial intentions. *J. Econ. Struct.* 9:19. doi: 10.1186/s40008-020-00195-4
- Shahab, Y., Chengang, Y., Arbizu, A. D., and Haider, M. J. (2018). Entrepreneurial self-efficacy and intention: do entrepreneurial creativity and education matter? *Int. J. Entrep. Behav. Res.* 25, 259–280. doi: 10.1108/IJEBR-12-2017-0522
- Shane, S. A. (2003). *A general theory of entrepreneurship: the individual-opportunity nexus*. Cheltenham: Edward Elgar Publishing.
- Shane, S., and Cable, D. (2002). Network ties, reputation, and the financing of new ventures. *Manag. Sci.* 48, 364–381. doi: 10.1287/mnsc.48.3.364.7731
- Solesvik, M. Z., Westhead, P., Matlay, H., and Parsyak, V. N. (2013). Entrepreneurial assets and mindsets: benefit from university entrepreneurship education investment. *Educ. Train.* 55, 748–762. doi: 10.1108/ET-06-2013-0075
- 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. *J. Bus. Ventur.* 22, 566–591. doi: 10.1016/j.jbusvent.2006.05.002
- Srivastava, A., Dasgupta, S. A., Ray, A., Bala, P. K., and Chakraborty, S. (2021). Relationships between the "Big Five" personality types and consumer attitudes in Indian students toward augmented reality advertising. *Aslib J. Inf. Manag.* 73, 967–991. doi: 10.1108/AJIM-02-2021-0046
- Stajkovic, A. D., Bandura, A., Locke, E. A., Lee, D., and Sergent, K. (2018). Test of three conceptual models of influence of the big five personality traits and self-efficacy on academic performance: a meta-analytic path-analysis. *Personal. Individ. Differ.* 120, 238–245. doi: 10.1016/j.paid.2017.08.014
- Tehseen, S., and Haider, S. A. (2021). Impact of universities' partnerships on students' sustainable entrepreneurship intentions: a comparative study. *Sustainability* 13:5025. doi: 10.3390/su13095025
- Thompson, E. R. (2009). Individual entrepreneurial intent: construct clarification and development of an internationally reliable metric. *Enterp. Theory Pract.* 33, 669–694. doi: 10.1111/j.1540-6520.2009.00321.x
- Urbano, D., Aparicio, S., Guerrero, M., Noguera, M., and Torrent-Sellens, J. (2017). Institutional determinants of student employer entrepreneurs at Catalan universities. *Technol. Forecast. Soc. Chang.* 123, 271–282. doi: 10.1016/j.techfore.2016.06.021
- Utami, C. W. (2017). Attitude, subjective norms, perceived behavior, entrepreneurship education and self-efficacy toward entrepreneurial intention university student in Indonesia. *Eur. Res. Stud. J.* 20, 475–495.

- Walter, S. G., and Block, J. H. (2016). Outcomes of entrepreneurship education: an institutional perspective. *J. Bus. Ventur.* 31, 216–233. doi: 10.1016/j.jbusvent.2015.10.003
- Wang, J. H., Chang, C. C., Yao, S. N., and Liang, C. (2016). The contribution of self-efficacy to the relationship between personality traits and entrepreneurial intention. *High. Educ.* 72, 209–224. doi: 10.1007/s10734-015-9946-y
- Wardana, L. W., Narmaditya, B. S., Wibowo, A., Mahendra, A. M., Wibowo, N. A., Harwida, G., et al. (2020). The impact of entrepreneurship education and students' entrepreneurial mindset: the mediating role of attitude and self-efficacy. *Heliyon* 6:e04922. doi: 10.1016/j.heliyon.2020.e04922
- Westhead, P., and Solesvik, M. Z. (2016). Entrepreneurship education and entrepreneurial intention: do female students benefit? *Int. Small Bus. J.* 34, 979–1003. doi: 10.1177/0266242615612534
- Wilson, K., Kickul, J., and Marlino, D. (2007). Gender, entrepreneurial self-efficacy, and entrepreneurial career intentions: implications for entrepreneurship education. *Entrep. Theory Pract.* 31, 387–406. doi: 10.1111/j.1540-6520.2007.00179.x
- Wooten, K. C., Timmerman, T. A., and Folger, R. (1999). The use of personality and the five-factor model to predict new business ventures: from outplacement to start-up. *J. Vocat. Behav.* 54, 82–101. doi: 10.1006/jvbe.1998.1654
- Xie, G., Huang, L., Apostolidis, C., Huang, Z., Cai, W., and Li, G. (2021). Assessing consumer preference for overpackaging solutions in e-commerce. *Int. J. Environ. Res. Public Health* 18:7951. doi: 10.3390/ijerph18157951
- Yamina, G., and Mohammed, B. S. (2019). Factors affecting students' entrepreneurial intentions in Algeria: application of Shapero and Sokol model. *Am. J. Econ.* 9, 273–281. doi: 10.5923/j.economics.20190906.01
- Yasir, N., Mahmood, N., Mehmood, H. S., Rashid, O., and Liren, A. (2021). The integrated role of personal values and theory of planned behavior to form a sustainable entrepreneurial intention. *Sustainability* 13:9249. doi: 10.3390/su13169249
- Yousaf, U., Ali, S. A., Ahmed, M., Usman, B., and Sameer, I. (2021). From entrepreneurial education to entrepreneurial intention: a sequential mediation of self-efficacy and entrepreneurial attitude. *Int. J. Innovat. Sci.* 13, 364–380. doi: 10.1108/IJIS-09-2020-0133
- Zhang, Y., Duysters, G., and Cloudt, M. (2014). The role of entrepreneurship education as a predictor of university students' entrepreneurial intention. *Int. Entrep. Manag. J.* 10, 623–641. doi: 10.1007/s11365-012-0246-z
- Zhao, H., and Seibert, S. E. (2006). The big five personality dimensions and entrepreneurial status: a meta-analytical review. *J. Appl. Psychol.* 91, 259–271. doi: 10.1037/0021-9010.91.2.259
- Zhao, H., Seibert, S. E., and Lumpkin, G. T. (2010). The relationship of personality to entrepreneurial intentions and performance: a meta-analytic review. *J. Manag.* 36, 381–404. doi: 10.1177/0149206309335187
- Zupan, B., Cankar, F., and Cankar, S. S. (2018). The development of an entrepreneurial mindset in primary education. *Eur. J. Educ.* 53, 427–439. doi: 10.1111/ejed.12293