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# Integrating and Extending Competing Intention Models to Understand the Entrepreneurial Intention of Senior University Students

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# Integrating and Extending Competing Intention Models to Understand the Entrepreneurial Intention of Senior University Students


## Abstract

**Purpose**- The growing interest in the development of Entrepreneurial Intention (EI) has increased the importance of theories that explain and anticipate the tendency among individuals to start a new business. However, most of these theories focus on the relationship between entrepreneurs perceptions and their intention and ignore the cognitive and psychological characteristics that might configure their perceptions. Therefore, the purpose of this study is to integrate the Theory of Planned Behavior (TPB) with the Entrepreneurial Event Model (EEM) and to extend the combined model to include the personality characteristics of an entrepreneur that might shape the perceptions and intentions.

**Design/methodology/approach**- This study uses a sample of 688 senior university students (Emirati nationals, 91.2% and expatriates, 8.8%) and employs positivist research with a quantitative approach, adopting a survey strategy through questionnaires, and structural equation modeling (SEM).

**Findings**- The results demonstrate the relevance and robustness of the suggested combined and extended model in the prediction of intention on the part of senior university students to become entrepreneurs (explained varience=73.3%) based on survey data (2017; n = 688).

**Originality/Value**- The main contribution of this paper lies not only in the integration of the TPB and the EEM but also in extending the two theories on which it is based through adding entrepreneurial personality characteristics and an explanation of the mechanism through which entrepreneurial perceptions and EI develop.


**Keywords**: EI, TPB, EEM, Personality, and UAE

## Introduction

Modeling entrepreneurs' personality characteristics (Kautonen *et al.*, 2015; de Pillis and Reardon, 2007; Lange, 2012; Shane and Nicolaou, 2015; Zhao *et al.*, 2010), entrepreneurs' perceptions (Bae *et al*, 2014; Zhao *et al.*, 2010), and entrepreneurs' behavioural intentions (Luarn and Lin, 2005; Dheer and Lenartowicz, 2017; Schlaegel and Koenig, 2014; Van Yperen *et al.*, 2016) remains a common research interest in the field of Entrepreneurial Intention (EI). Scholars have begun to ask what factors strengthen the intention to become an entrepreneur. Certain factors in particular have been selected as responsible for arousing this intention (Langkamp Bolton and Lane, 2012). Zhao *et al.*,

2010 and Turker and Selcuk (2009) note that the current literature has established a link between EI and personality traits, including autonomy, risk taking and creativity. For example, autonomy as a determinant of intention has been discussed in other disciplines, but with little focus on the entrepreneurship perspective (see, for example, Bray *et al*., 2016). From the perspective of business students, Bröckling (2015) has empirically shown that autonomous people have the desire to be self-regulated and build their own systems whereas non-autonomous people need to live in a system controlled and regulated by others. Similarly, Hull *et al*. (1980) have found, after surveying alumni, that, business owners rated higher in creativity than those who preferred to become employees. These findings from different disciplines show clearly that autonomy and creativity as personality characteristics can determine students' perceptions of behaviour and ability (Zhao *et al*., 2010). Therefore, this study will empirically give entrepreneurship researchers and practitioners the opportunity to know whether autonomy and creativity as personality traits are major determinants of business students' EI.

Undoubtedly, in light of the current global economic crises, it is useful to know that entrepreneurial graduates can substantially change the business environment and which factors affect students' attitudes to starting a small business enterprise (SBE) of their own. Entrepreneurship researchers argue that developed and developing economies require more entrepreneurs who are willing to innovate and create new ventures to facilitate economic growth (Packham et. al., 2010); for example, the UAE government is working very hard to encourage UAE higher education institutions to develop capable and talented graduates with a wide variety of entrepreneurial and innovation skills to use in starting up new businesses.

Furthermore, the Global Entrepreneurship Monitor (GEM) (2011) reports that, although a very high proportion (51.9%) of UAE young people perceive opportunities for entrepreneurial activity, few take the necessary steps to seize these opportunities. Moreover, only a small proportion of young people engage in early-stage entrepreneurial activities. In addition, research suggests that the intention to start a new business in the UAE in the next three years is limited to a few people, only 2% (Horne *et al.*, 2011). The reasons for this low rate can be classified as (a) the economic cost of failure, which indicates the loss that would be incurred by business failure in terms of monetary, financial and other tangible resources; (b) the social cost of failure, which is related to loss of reputation, shame to one's family and embarrassment; and (c) the personal cost of failure, which indicates how individual business failure affects the level of motivation, perception of one's personal abilities, capacity, skills and intelligence. Furthermore, a fear of failure may result in part from the inadequacy of the UAE legislative framework and the entrepreneurship ecosystem.

The previous literature proposed the inclusion of personal psychological traits as dimensions of EI, i.e., autonomy, and cognitive personal characteristics e.g., creativity in entrepreneures (Brough *et al.*, 2013; Carsrud and Brännback, 2011; Hsu *et al.*, 2017; Krueger and Carsrud, 1993; Liñán and Chen, 2009), but few EI studies have investigated autonomy and creativity as elements of EI. This omission, we believe, has occurred because autonomy and creativity are not elements of the "original" dimensions of EI Miller (1983) identified and Covin and Slevin (1991) developed.

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Therefore, the present research was planned to help fill this knowledge gap by extending both TPB and EEM through integrating them with entrepreneurial personal characteristics. Indeed, it is known that autonomy (Woo *et al.*, 1991; Lee *et al.*, 2011) and creativity (Yar Hamidi *et al.*, 2008) are two of the most frequently stated reasons for choosing an entrepreneurial career (Kolvereid, 1996). What is unknown is whether they are mediated by TPB perceptions. To sum up, the purpose of this research was to ask why perceptions to entrepreneurship vary between students who are all taking the same courses, and to examine perceptions as mediating factors between the cognitive and psychological factors of entrepreneurship and EI.

The objective of this study is twofold: first, through a review of the relevant EI literature, we respond to calls for a more systematic aggregation of the cumulative evidence in the entrepreneurship literature (Frese *et al.*, 2012). We follow the pioneering study of Krueger *et al.* (2000), who were the first to compare and integrate the current theories of EI and make our first contribution through suggesting an integrated conceptual model that uses competing theories of EI and their respective constructs. Second, we examine the specific mechanism that underlie the formation of EI, where earlier writers mainly focused on the direct relationships between attitudes and EI. Hence little has emerged about the way in which entrepreneurs' personal characteristics perceptions and intention influence each other and encourage individuals to create a more positive intention to start a new business. Based on personality models (Taylor, 1984), we integrate the entrepreneurial personal characteristics, test this integrated model of EI using structural equation modeling, and compare the results with earlier studies which relied on competing theories for their predictive validity. By examining the mechanism through which both entrepreneurs'

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personality characteristics and their perceptions are associated with EI, we provide an augmented and more detailed picture of the process through which higher levels of EI are chieved. Therefore, our second main contribution lies in the integration of the TPB and the EEM. It also extends the two theories by adding entrepreneurs' personality characteristics and explaining the mechanism through which entrepreneurs' perceptions and EI develop.

## Literature Review

### Theories of Entrepreneurship Behavioural Intention

Two dominant behavioural intention models serve as frameworks in which to study and understand EI. Those are Shapero and Sokol's (1982) entrepreneurial event model (EEM) togeher with Ajzen's (1991) theory of planned behaviour (TPB). These two seem the most complete and the most extensively and empirically tested models from which to learn about EI (Fayolle and Liñán, 2014; Kautonen *et al.*, 2015; Krueger *et al.*, 2000; Schlaegel and Koenig, 2014).

The TPB, which is built upon reasoned action theory (RAT) (Ajzen and Fishbein, 1975) takes account of both personal and social factors (Rueda *et al.*, 2015). The theory has three main specifications of intention, namely, attitude (referring to the degree to which individuals perceive the attractiveness of the behaviour in question), subjective norm (referring to the perceived social pressure from significant others; such as family, friends, role models, and others to exhibit the behaviour) and perceived behavioural control (PBC) (referring to the self-evaluation of one's own competence with regard to a task or action) (Ajzen, 1991). In TPB, the three main specifications represent individuals' experiences



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and observations, which in turn form a foundation on which to develop three different kinds of "salient" belief: behavioural beliefs, normative beliefs and beliefs drawn from experience (Engle *et al.*, 2010). It is argued that the more favourable the attitude and subjective norm and the greater the PBC of the behaviour, the stronger is the intention to perform that behaviour (Ajzen, 1991; Autio *et al.*, 2001; Matlay *et al.*, 2012; Nishimura and Morales, 2011). Moreover, according to the theory, PBC can be used along with intention, to predict behaviour (Ajzen, 1991) directly.

The EEM, on the other hand, has three differently defined specifications: perceived desirability (PD):referring to the degree to which an individual feels attracted to becoming an entrepreneur and reflecting individual preferences for this behaviour; perceived feasibility: referring to the degree to which individuals are confident they are personally able to start their own business and propensity to act upon opportunity: refers to an individual's disposition to act on a decision. This depends on individuals' perceptions of control as well as a preference for acquiring control by taking appropriate action (Schlaegel and Koenig, 2014; Shapero and Sokol, 1982). It is argued that the higher the perceived feasibility and PD, the higher the tendency to engage in entrepreneurial events (Krueger *et al.*, 2000; Matlay *et al.*, 2012).

Some researchers argue that there is an overlap between the specifying definitions of the two models. EEM's "perceived desirability" appears to resemble TPB's "attitude and subjective norm factors", while EEM's "perceived feasibility" seems like TPB's "PBC factor" (Kautonen *et al.*, 2015; Krueger *et al.*, 2000; Matlay *et al.*, 2012). However, other researchers emphasize that the two models represent distinct specifications, with different

effects on EI, and the terms should not be used interchangeably (Schlaegel and Koenig, 2014).

To enhance the explanatory power, clarity and robustness of EI models, some researchers recommend integrating the competing models (TPB and EEM) (Matlay *et al.*, 2012; Schlaegel and Koenig, 2014). This integration is suggested to help understand the interrelationship of intention between the two models and to advance EI-related theories (Schlaegel and Koenig, 2014). In their study, Solesvik *et al.* (2012) were able to enhance the explanation of variance in the EI dependent variable to 60% when using an integrated conceptual model (ICM) of both EEM and TPB, instead of 40% when using the EEM model or 55% when using the TPB model independently (Matlay *et al.*, 2012). The same finding was reached by Schlaegel and Koenig (2014), who discovered that the integrated model of both EEM and TPB explained more variance in EI. Thus, before choosing one of the two models, it is important to consider the cost of not gaining a full and complete understanding of the factors affecting EI and their interrelationship (Schlaegel and Koenig, 2014).

**Personality Characteristics**

Entrepreneurs Personality characteristics have been deminstrated to be intriguing but imperfect determinants of different aspects of entrepreneurship, including intending to start a new business, starting a new business and succeeding in running a new business (Shaver and Scott, 1991; Zhao *et al.*, 2010). In this study, we test the predictive value of two personality characteristics frequently associated with entrepreneurs: psychological

traits measured through autonomy and cognitive traits measured through creativity (Baron, 2000).

**Psychological Characteristics**

Psychological models are based on social cognition and the perceptual comprehensiveness of the "person-in-context" (Taylor, 1984). In other words, one perceives the world from different angles which interact and formulates one's attitudes, motivations and behaviour accordingly (Brough *et al.*, 2013). In entrepreneurs psychological reasons are seen to be main drivers of entrepreneurship intention (Carsrud and Brännback, 2011). Psychological factors can be seen as the way in which one perceives oneself – called self-perception (e.g., Krueger and Carsrud, 1993; Liñán and Chen, 2009); how society perceives one (Linan 2008), how someone perceives the process of starting up an enterprise and the personality traits which affect perceptions of things (Hsu *et al.*, 2017; Zhao *et al.*, 2010).

The distinguishing psychological factor among entrepreneurs is the perception of their ability to leave their group and start up a new business alone(Schjoedt, 2009), called **autonomy**. The concept of autonomy literally refers to the preference for creating regulations by and for oneself, which is the opposite of heteronomy, the preference for depending on well established and controlled regulation (Ryan and Deci, 2006). Autonomous people want to be self-regulated and build their own systems, whereas heteronomous people need to live in systems controlled and regulated by others (Bröckling, 2015). Thus, autonomous people are always dissatisfied by working for other organisations (Schjoedt, 2009). They feel restricted by the systems that they grew up in

(Schein and Schein, 1978). Accordingly, they actively try to build their own systems which can conflict with existing ones (Lumpkin & Dess, 1996, p. 140). Moreover, they are more prone to be independent and not in any sense reliant on others (e.g., financial or social) (Bolino, 2000). Unlike heteronomy, which is perceived to be correlated negatively with the satisfaction of running a business and positively with the intention to stop running a business (Benz and Frey, 2008), autonomy is associated with the intention to be an entrepreneur (Schein and Schein, 1978 ; Woo *et al.*, 1991; Lee *et al.*, 2011). Additionally, it has been perceived in the literature that autonomy can be one of the main reasons for leaving one's employment and starting up a business of one's own (Van Gelderen and Jansen, 2006). Moreover, business owners rate themselves as high in work-related autonomy that theyhave (Lange, 2012).

**Cognitive characteristics**

Entrepreneurs are also different from non-entrepreuners in their cognitive dimensions (Bullough *et al.*, 2014). The cognitive dimension is connected with the ability to imagine a different future (Tumasjan and Braun, 2012), that is, to have a perception of current reality which is different from the desired one (Haynie *et al.*, 2012); and to see how current solutions can be further developed to produce new solutions for future problems (Dheer and Lenartowicz, 2017). One of the most distinctive cognitive characteristics of successful entrepreneurs is **creativity** (Baron and Tang, 2011).

Creativity is the ability to see the world from a perspective which is not traditional (Edwards-Schachter *et al.*, 2015). Creative ability consists of the ability to understand the environment (Lee *et al.*, 2004) , learn about it from experience (Katz,2001), criticise it

and see new opportunities in it (Heinonen *et al.*, 2011). Thus, creativity, defined as the individual's ability to review and criticise current products, services, and business models, is the main source of innovative and new ideas (Fillis and Rentschler, 2010) and developing new business models (Puhakka, 2007). This is why creative people are more innovative than others (Sarooghi *et al.*, 2015). After surveying alumni, it was found that business owners rated higher in creativity than those who preferred the path of employment (Hull *et al.*, 1980). Caird (1991) shows a similar result: that business owners rated higher in creativity than others who drew relatively fixed salaries. Thus, creativity is highly correlated with entrepreneurship intention (Eid and Trueman, 2002; Yar Hamidi *et al.*, 2008), entrepreneurship (Sternberg and Krauss, 2014) and success in entrepreneurship (Baron and Tang, 2011).

**Entrepreneurs' Perceptions**

Based on TPB and EEM, three perceptions are proposed to influence the intention. Therefore, this research focuses on how the one perceives himself in the ability to control the environment, i.e. self-efficacy (Bandura, 1977), how the one perceives the desirability of the opportunity, and how the one perceives the workload of being an entrepreneur. First, according to prospect theory, the intention and behavior are determined mainly by the person perceptions and future expectations ( Eid, 2005). In other words, if the perception towards the entrepreneurship as being again and have an impact on social and financial position, the intention will be higher than those who perceive it as a useless process (Hsu *et al*.,2017).

Second, perceived desirability is defined as the extent to which an individual perceives the attractiveness of being an entrepreneur (Schlaegel and Koenig, 2014) and perceives starting up a new business is a desirable option (Bullough et al., 2014). it has been believed that the perceptions of desirability and feasibility are a primary antecedent to any entrepreneurial action (Krueger *et al*., 2000).

Finally, if the perception towards the entrepreneurship as a difficult process and entails many efforts, i.e. the workload, the intention may be affected negatively, especially if this associated with the belief of inability to do, i.e. low perceived controllability. The belief that "I can do" is the secret to many great achievements. In theory, it is called self-efficacy (Bandura, 1977). Self-efficacy in entrepreneurship literature defined as the belief that the one is able to perform the expected required tasks to be a successful entrepreneur (McGee et al., 2009). The key here could be the locus of control (Begley and Boyd, 1987) or the perception of the ease of activities. the entrepreneurs are found to have a higher internal locus of control than non-entrepreneurs (Shaver and Scott 1991). Regardless being an internal locus of control or perception of the ease of activities, perceived controlled behavior is a perception of being able to control the surrounding environment for successful starting up a new business.

**Research Model and Hypotheses**

Entrepreneurs are perceived in the literature to be fully autonomous (Schein and Schein, 1978; Woo *et al*., 1991; Feldman and Bolino, 2000). Indeed, one of the main reasons for being an entrepreneur is the desire for freedom and the avoidance of structured restrictions (Lee *et al*., 2011; Schein and Schein, 1978). This is why Benz and Frey(2008) find that

employees with a high level of autonomy are less satisfied than those without. Entrepreneurs generally feel a desire to be financially independent (Lee *et al.*, 2004) and perhaps socially as well (Schein and Schein, 1978). They have a strong desire to live their lives as they wish (Feldman and Bolino, 2000). Previous studies suggest that one key motivation in becoming self-employed is the desire for autonomy or some other inborn reason (e.g., Brush, 1992).

The theory here shows that being autonomous and perception of co-existence alone is highly correlated to being able to cope (Dworkin, 1988). In other words, one cannot leave the group without the sense of being able to live and co-exist alone without its members. If one has the desire to be autonomous and independent, but has a strong misgiving of being "unable to cope", one will reverse the decision and go back to the group (Skinner, 1971). If not, the perception of being able to control the environment, called the 'perception of controlled behaviour', is one of the main antecedents of EI (Kautonen *et al.*, 2015; Liñán and Chen, 2009). Accordingly, the perception of being independent enough is conditioned mainly by the perception of being able to control the environment (Shapero and Sokol, 1982) and control destiny in the current project. Therefore, we hypothesize that:

**Hypothesis 1**: Perceived behavioural control will mediate the relationship between autonomy and entrepreneurship intention

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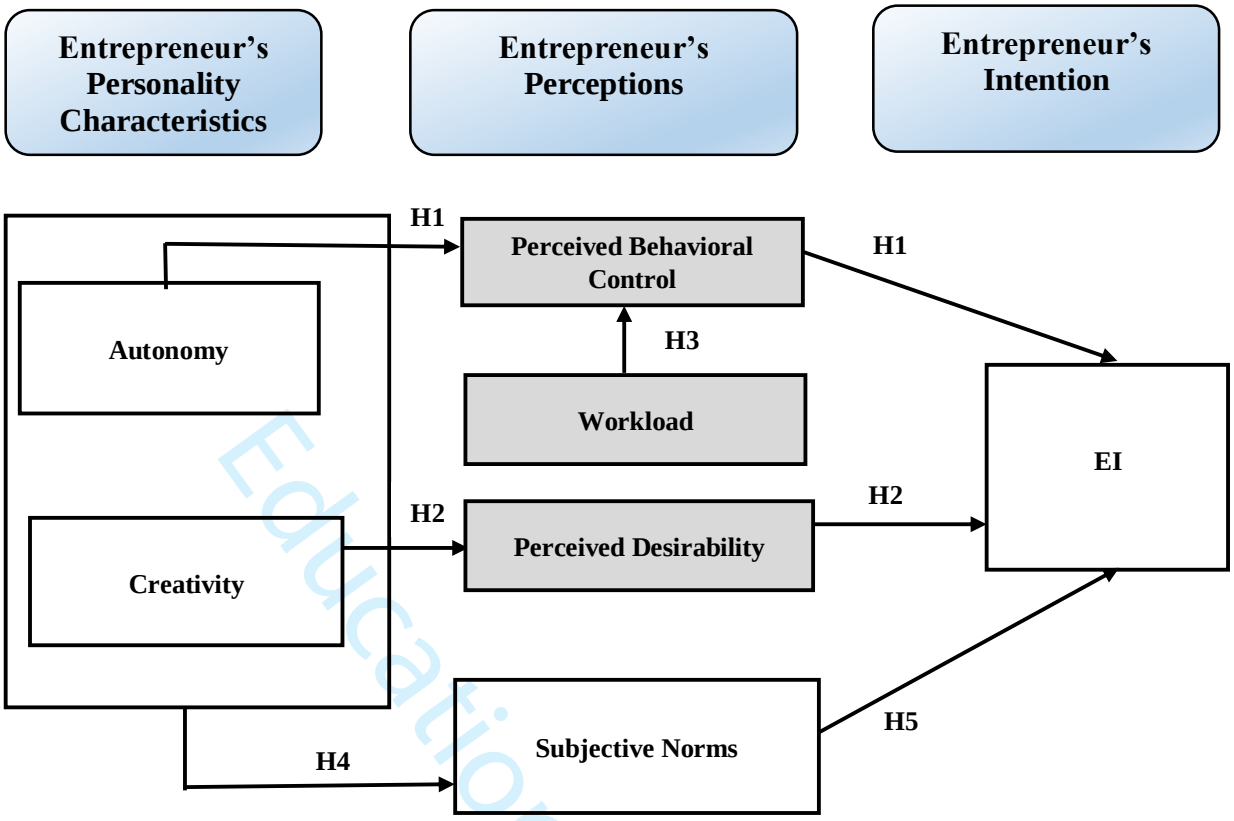



**Figure 1: Research Model**

Creativity and successful entrepreneurship have been widely covered in the literature (Yar Hamidi *et al*., 2008). The main reason for this is the ability to review and criticise current products, services, and business models (Katz, 2001). Thus, people with these qualities are more capable of delivering new products/services more effectively and efficiently than before (Heinonen *et al*., 2011) and discovering new market opportunities (Shane and Nicolaou, 2015). Creative people have more tendency to attempt challenging tasks than others have (Andrew, 1967). Likewise, creative entrepreneurs are found to be more risk-tolerant than other entrepreneurs (Block *et al*., 2015). Thus, they are more keen to see entrepreneurial opportunities as challenging and yet inviting (Shalley and Perry-Smith, 2008).

To connect these lines of theory, Creativity and EI are proposed to condition the perception of the desirability of starting up a new business. The relationship between the perception of the desirability of entrepreneurial action and the intention to engage in it is apparent (Bullough *et al.*, 2014; Schlaegel and Koenig, 2014). In other words, creative people are highly paid in their organizations and especially if they are highly intrinsically valued they can see that the opportunity cost of leaving the current state, while high, is worth paying (Amit *et al.*, 1995), (Carsrud and Brännback, 2011). Indeed, there is a negative relationship between a successful academic record and EI, because of the attractiveness of the employee market. Moreover, one experience of failure and lack of desirability of starting up a new business is a turning-point for many creative people (Hsu *et al.*, 2017). Thus, without the clear desirability of new opportunities, creativity does not translate into EI. Zampetakis (2008), in his study of 199 engineering students in Greek universities, finds that the perception of desirability mediates the relationship between creativity and EI. Therefore, we hypothesize that:

**Hypothesis 2**: Perception of desirability will mediate the relationship between creativity and EI.

Workload is the perception of the amount of future work required for being an entrepreneurs; thus, the higher the perception of the workload, the lower the desirability of the work proposed and also the lower the PBC. Future workload and perceived desirability are proposed as negative because the perception of the workload can be seen by some as undesirable. Perception of future pain, as a visceral factor (Loewenstein, 1996), influences economic behaviour, decisions and preferences (Loewenstein, 2000). In addition, the workload is perceived to be an important barrier, in a context of high



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bureaucracy (Van Yperen *et al.,* 2016). In other words, it can be seen as a cost which needs to be compensated for. Thus, this also is proposed as a discouraging factor in the choice of being an entrepreneur.

Since desire and pain are two contradictory states (Botti and Iyengar, 2004), the workload is proposed to have a negative effect on perceived desirability. Likewise, the perceived level of work and the ability to control the work are negatively correlated (Greenglass *et al*., 2003) and the perceived workload affects the perception of controlled behaviour. But the workload needs not be perceived as negative or painful; it can be perceived as a challenge by intrinsically motivated people (Van Yperen *et al*, 2016) and those who seek challenge. Thus, even without a clear perception of the workload as overwhelming or even painful, the impact of the workload diminishes the intention to be an entrepreneur. Accordingly, the following hypotheses are formulated:

**Hypothesis 3**: Workload will negatively influence perceived behavioural control and perceived desirability.

**Subjective Norms**

Ajzen and Fishbein (1975) define Subjective Norms in the TRA as individuals' perception of the importance of what others think about their engaging in a specific behaviour (or not doing so, as the case may be). Furthermore, Lee *et al.* (2011) conclude that subjective norms moderate the behavioural intention and the relationship between autonomy and creativity . Similarly, Gumel and Othmam (2013) argue that the effect of autonomy and creativity on behavioural intention will vary when subjective norms are set to moderate the relationship. This is because less innovative and independent people are

less open to entrepreneurship initiatives than highly innovative and independent people are. From the above discussion, the following hypothesis may be constructed:

**Hypothesis *4:*** The two personality characteristics, autonomy and creativity, will positively influence subjective norms

In the literature, families play a key role in influencing the EI and career choice of young Emiratis. Moreover, in a collectivist culture such as that of the UAE, one's closest (or immediate) family and one's extended family are suggested as having great influence (Moriano *et al.*, 2012). In addition, relevant groups in this context (close friends and colleagues) represent significant others in measuring subjective norms (Jaén and Liñán, 2013).

Some studies using the Theory of Reasoned Action model (TRA) have found that both attitude and subjective norm were the important determinants of people's intentions (Karahanna, *et al*., 1999). In addition, a number of studies have investigated the influence of subjective norms on various behaviours and situations, such as those involving intelligence and security information technology (Luarn and Lin, 2005); blogging (Wang *et al.*, 2011); education (Robinson and Doverspike, 2006) and communication (Webster and Trevino, 1995). These were found to have a direct effect on the behavioural intention to adopt such behaviours. Moreover, Hossain and De Silva (2009) infer that the influences of different peers has an effect on an individual's intention. Researchers, including Hsu *et al.* (2017) and Liao *et al*. (2007), implement the TPB as a theoretical basis for the adoption and use of ICT and find significant relationships between attitude, subjective norms, perceived behavioural control and behavioural intention. On this basis, it was possible to construct the following hypothesis:

**Hypothesis 5***:* Subjective norms will positively influence the EI.

## Research methodology

### Data collection

It was decided to choose a study population from UAE National Business and Engineering undergraduate students. We excluded all 1st and 2nd-year undergraduates and sent the survey to all the Emirati 3rd and 4th year business and engineering students. The reason here is that the first and second year students may have been less inclined to think in entrepreneurial terms than those in the third and fourth years. To gain survey information, a self-administered questionnaire method and convenience sampling technique (Salaheldin and Eid, 2007; Eid *et al*., 2006; Saunders *et al*., 2007) were adopted. 1000 questionnaires in total were distributed in such UAE universities as Dubai, Abu Dhabi, Ajman, Fujairah, Ras Al Khaimah, Sharjah and Umm Al Quwain, of which 705 were returned. 17 questionnaires had to be eliminated as outliers. A total of 688 valid questionnaires thus remained for further analysis. The effective response rate was 70.5 % (705/1000). This high response rate was due to the fact that our survey was designed to be completed in only 10 minutes. Our sample size meets the recommendation of Bartlett *et al.* (2001) and El-Adly and Eid (2017) that the sample size for a Structural Equation Modelling (SEM) study is traditionally recommended as a least 10 questionnaires per independent variable. Since we have 7 variables, the number of questionnaires and size of the research sample were suitable for using SEM.

Table 1 summarized the sample characteristics. As shown in table 1, most of the respondents (91.2%) in this survey were Emirati nationals and only 8.8% of them were non-national. It is noteworthy that although the study targeted only the nationals, some

non-national responses were received. Their rarity comes from the fact that few outstanding non-national students are accepted by the targeted government universities. Table 1 shows also that nearly half of the respondents (51.3%) were males and 48.7% were females. This indicates that there was a balance between the males and females within the sample and reflects the government orientation in the UAE to support the equal opportunity policy.

**Table 1**: Sample characteristics

| ***Age*** | ***%*** | ***National*** | | ***District*** | ***%*** |
|---|---|---|---|---|---|
| 18-20 | 12.6% | Nationals | 91.2% | Abu Dhabi | 62.1% |
| 21-23 | 71% | Non-National | 8.8% | Umm Al Quwain | 2.3% |
| 24-28 | 14.9% | ***University*** | ***%*** | Ajman | 4.7% |
| More than 28 | 1.5% | United Arab Emirates University | 46% | Dubai | 7.5% |
| ***Gender*** | ***%*** | Zayed University | 35.4% | Ras Al Khaimah, | 4% |
| Male | 51.3 | Higher Colleges of Technology | 18.6 | Sharjah | 3.1% |
| Female | 48.7 | **College** | **%** | Fujairah. | 4.2 |
| | | Business College | 72.2 | | |
| | | Engineering | 27.8 | | |

**Research Instrument Development—Measures**

Wherever possible, this research used validated measures that had been applied before. In conceptualizing entrepreneurs' personal characteristics, the literature shows that these include both autonomy and creativity. We followed Kolvereid (1996) and McNally *et al*. (2014) in defining them as two first-order constructs each measured by three items. We borrowed or adapted these items from Kolvereid (1996). Entrepreneurs' perceptions were conceptualized as a second-order construct consisting of three first-order components altogether. First, PBC was operationalized using seven items. We borrowed or adapted

these items from Jaén and Liñán (2013) and Liñán and Chen, (2009). Second, the workload was measured using three items. We borrowed or adapted these items from Kolvereid (1996) and McNally *et al*. (2014). Third, perceived desirability was conceptualized as a first order construct that included nine items. We borrowed or adapted these items from Ajzen (1991), Jaén and Liñán (2013) and Liñán and Chen (2009). The original scale of subjective norms devised by Jaén and Liñán (2013) was used in this study. However, on the basis of the literature review and the UAE context in mind, we added some items and split the effect of parents and siblings to measure their effects accurately and individually. Consequently, five items were used to measure the construct of subjective norms. Finally, EI was measured using the original scale of Jaén and Liñán (2013). Five items were used to measure it.

Next, our operationalized measures were purified by the work of a panel of four experts. This consisted of two entrepreneurs and two academic professors who specialized in entrepreneurship education. Tests of content validity were performed on each question and on the overall scale. Finally, exploratory factor analysis (EFA), a reliability assessment, and construct validity assessment were used to assess the reliability and validity of the constructs (Salaheldin and Eid, 2007).

**Data Analysis**

Before examining a model which includes all the dimensions at once, it is critical to highlight, that the methodology separated the analyses of every construct (measurement model), in order to refine the items used in their measurement. Having developed the dimensions, we made a confirmatory factor analysis (CFA). Thus we used both a

measurement model (in which each dimension has a separate model) and a structural model (which includes all the dimensions in one model) (Hair *et al*., 2006).

First, Cronbach's alpha reliability coefficient and items-to-total correlation were calculated to examine the psychometrical properties of our variables (Nunnally and Bernstein, 1994). This analysis led to the elimination of one item from the entrepreneurship intention scale, three items from the desirability scale and one item from the subjective norms construct, the inclusion of which reduced the value of the reliability coefficients. As can be seen in Table 2, all the scales have reliability coefficients ranging from 0.821 to 0.954, which all exceed the cut-off level of 0.65 set for basic research (Bagozzi, 1994, p. 96). The summary of reliability measures is in Table 2.

**Table 2: Reliability Analysis**

| **Constructs** | **N of Items** | **Mean** | **SD** | **Reliability %** |
|---|---|---|---|---|
| Autonomy | 3 | 3.990 | 1.001 | **83.2** |
| Creativity | 3 | 4.348 | 0.856 | **86.8** |
| PBC | 7 | 3.998 | 0.941 | **95.4** |
| Workload | 3 | 3.630 | 1.153 | **81.6** |
| Perceived Desirability | 6 | 4.536 | 0.711 | **82.6** |
| Subjective Norms | 4 | 4.396 | 0.770 | **82.1** |
| Entrepreneurship Intention | 4 | 4.076 | 0.994 | **89.6** |

Next, an exploratory factor analysis was conducted (see Appendix) on all of the items (using varimax rotation) to find whether the elements for a variable were suitable for making the Entrepreneurship Intention model [i.e. were unidimensional]. Elements which did not meet the following conditions were deleted: they had to have (1) dominant loadings greater than 0.5, and (2) cross-loadings less than 0.50 (Hair *et al*., 2006). Ten constructs were extracted (explaining more than 67.83% of the extracted variance) by using an eigenvalue of 1.0 as the cut-off point, and by a careful inspection of the scree

plot. The factor loadings were generally high; the lowest was equal to 0.637, while the result of the Kaiser-Meyer-Olkin test of factor analysis was substantial (0.853).

**Measurement-Model Testing**

Finally, to meet the requirements for satisfactory convergent and discriminant validity, confirmatory factor analysis was conducted to test the seven measures. Convergent validity describes the extent to which the items of a specific measure converge or share a high percentage of variance (Hair *et al.*, 2006). Convergent validity can be met if the average variance extracted (AVE) for a construct is more than 0.50. Table **3** summarizes the results of the convergent validity analysis. All measures had an acceptable convergent validity. Table **3** shows that the variances extracted by construct (AVE) were more than any squared correlation among the variables; this implied that the constructs were empirically distinct (Fornell and Larcker, 1981).

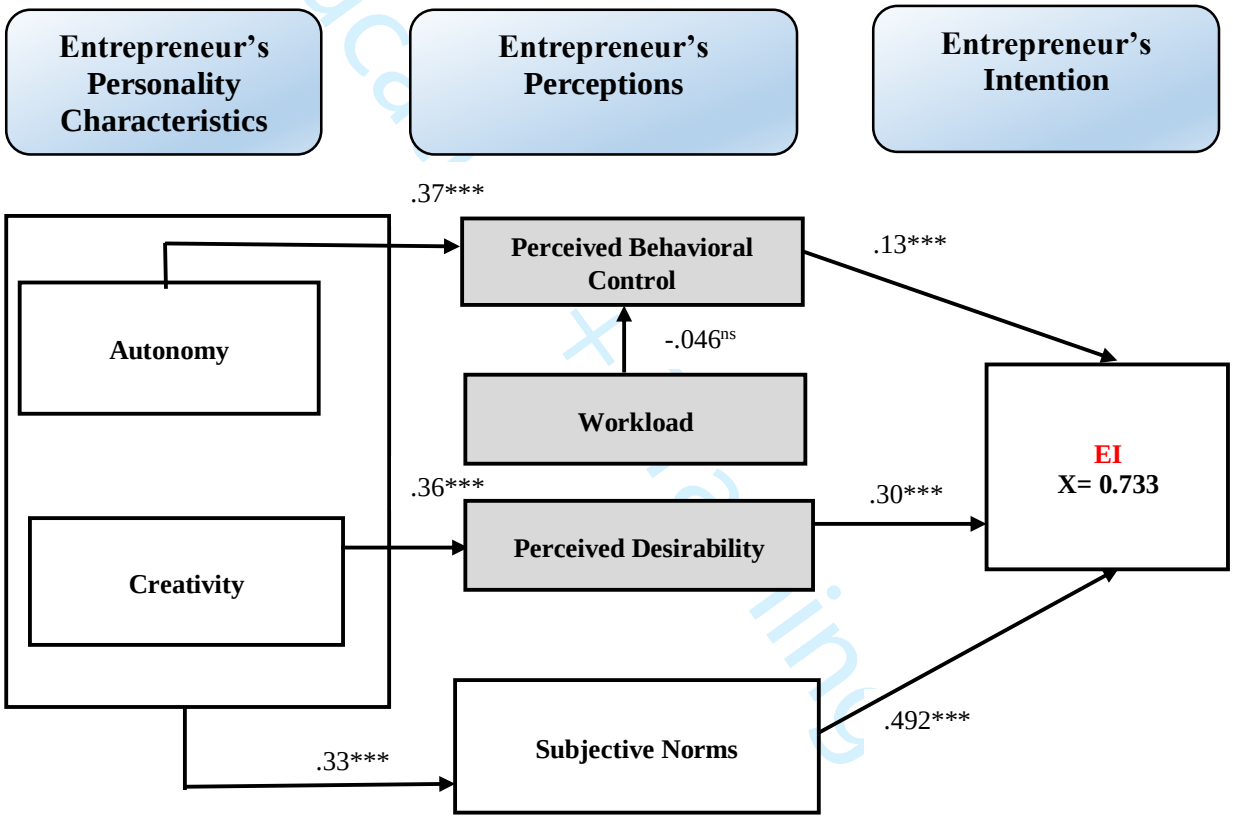
**Table 3: Measurement Model Results: Confirmatory Factor Analysis**

| | **Correlations** | | | | | | |
|---|---|---|---|---|---|---|---|
| | **AUT** | **CRT** | **PBC** | **WLD** | **PDS** | **SN** | **EI** |
| Autonomy | **.770** | | | | | | |
| Creativity | .145** | **.876** | | | | | |
| PBC | .042** | .124** | **0.757** | | | | |
| Workload | .029** | .002ns | .003ns | **0.772** | | | |
| Perceived Desirability | .062** | .158** | .107** | .005ns | **0.772** | | |
| Subjective Norms | .012** | .007* | .038** | .008* | .025** | **0.716** | |
| Entrepreneurship Intention | .071** | .132** | .080** | .001ns | .219** | .008* | **0.826** |
| **Coefficient Alpha** | .832 | .868 | .954 | .816 | .826 | .821 | .896 |

* Correlation is significant at the 0.05 level (2-tailed); ** Correlation is significant at the 0.01 level (2-tailed); ns Correlation is insignificant.
The diagonals represent the average variance extracted **(AVE)** and the lower cells represent the squared correlations among the constructs.

**Structural-Model Testing**

Given that the main aim of the research was to test the hypothesized causal relationships among the constructs of the model, we used the structural equation modeling package, AMOS 23 (see Figure 2). The factor scores were used as single item indicators to carry out path analysis, implementing the maximum likelihood estimates (MLE) method, following the guidelines proposed by Joreskog and Sorbom (1982). A more detailed analysis of the outputs and indicators for model fit is reported in Table 4.




** Significant at 0.10, **Significant at 0.05, ***Significant at 0.01, ns not significant and ˣ Squared Multiple Correlation*

**Figure 2: Results of Path Analysis**

Since there is no definitive standard of fit, different indicators are provided, together with suggested guidelines. The Chi-square test was not statistically significant, which reflected

a good fit. The other fit indicators, along with the squared multiple correlations, reflect a good overall fit with the data (GFI = .998, AGFI = .975, CFI = .999, NFI = .998, RMSEA = .040). Since these indices confirm that the overall fit of the model to the data was good, it was decided that the structural model was an appropriate basis for hypothesis testing.

**Table 4: Standardized Regression Weights**

| Predictor variables | Criterion Variables | Hypothesized relationship | Standardized coefficient | $R^{2a}$ |
|---|---|---|---|---|
| **Autonomy** | **PBC** | **H1.1** | **0.369*** ** | **0.324** |
| **Workload** | **PBC** | **H3** | **-0.046 ns** | |
| **Creativity** | **PD** | **H2.1** | **0.360*** ** | **0.291** |
| **Autonomy** | **SN** | **H4** | **0.382*** ** | **0.355** |
| **Creativity** | **SN** | **H4** | **0.327*** ** | |
| **PBC** | **EI** | **H1.2** | **0.129*** ** | |
| **PD** | **EI** | **H2.2** | **0.301*** ** | |
| **SN** | **EI** | **H5** | **0.492*** ** | |
| **Statistics** | | | **Suggested** | **Obtained** |
| Chi-Square Significance | | | ≥0.05 | 0.119 |
| Goodness-of-fit index (GFI) | | | ≥0.90 | 0.989 |
| Adjusted goodness-of- fit index (AGFI) | | | ≥0.80 | 0.975 |
| Comparative fit index (CFI) | | | ≥0.90 | 0.999 |
| Root Mean Square Residual (RMSEA) | | | ≤0.08 | 0.040 |
| | | | ≤0.08 | 0.040 |

***P<0.01, ns is not significant**

Undoubtedly, our findings generally support our conceptual model. The results give support to most of the hypotheses. Table 4 shows the estimated standardized parameters for the causal paths. First, apart from *workload* (**H3**) (Standardized Estimate=**-0.046**, P > 0.10), the suggested factor positively affects the *perceived behavioural control*, namely *autonomy* (**H1.1**) (Standardized Estimate=**0.369**, P< 0.001). Similarly, the suggested factor positively affects the *perceived desirability*, namely *autonomy creativity* (**H2.1**) (Standardized Estimate=**0.360**, P< 0.001).

Finally, the following suggested factors positively affect the *EI to set up a business*, namely, *perceived behavioural control* (**H1.2**) (Standardized Estimate=0.129, P> 0.001), *perceived desirability* (**H2.1**) (Standardized Estimate=*0.301*, P< 0.001) and *subjective norms* (**H7**) (Standardized Estimate= 0.492, P< 0.001).

Since the causal effects of the suggested factors (autonomy and creativity) may be either direct or indirect (i.e., mediated via the effects of other variable), or both, the total causal effects were computed. More specifically, the indirect effects are the multiplicative sum of the standardized path coefficients. The total effects are the sum of the direct effect and all the indirect effects. **Table 5** shows the direct, indirect and total effects of the suggested factors.

**Table 5: Direct, Indirect and Total Effect**

| Criterion Variable | Predictor variables | Direct Effect | Indirect Effect | Total Effect |
|---|---|---|---|---|
| **EI** | **Autonomy** | **0.071** | **0.317** | **0.388** |
| | **Creativity** | **0.097** | **0.307** | **0.404** |
| | **PBC** | **0.125** | **0.000** | **0.125** |
| | **PD** | **0.301** | **0.000** | **0.301** |
| | **SN** | **0.492** | **0.000** | **0.492** |

## Discussion

The particular novelty of this study resides in examining how well integrating TPB, EEM and the entrepreneurial personality characteristics which have been developed and validated in the Western world explains the entrepreneurship intention in an Arab setting (UAE context). This study extends the literature into personal differences and EI by considering a relatively new but potentially important dimension (entrepreneurs' personality characteristics of autonomy and creativity). Further, this research expands on the theme that has emerged in the entrepreneurship literature that the personal traits,



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attitudes and perceptions of entrepreneurs are considered important determinants of their intentions. The results of this study suggest that the autonomous and creative personality constructs may be a useful addition to the armament of entrepreneur's personality characteristics that predict EI.

The empirical analysis shows that most hypothesized relationships, as expected, are significant. The two suggested entrepreneurs' personal characteristics (autonomy and creativity) and the combined TPB and EEM variables (PBC, workload, perceived desirability and subjective norms) jointly explain 73.3% of the variance in the EI, which far exceeds the 30–55% typical in previous studies of EI (Kolvereid, 1996; Liñán and Chen,2009; Matlay *et al*., 2012; Schlaegel and Koenig, 2014; Van Gelderen and Jansen, 2006). Taken together, our results support the relevance of the suggested model in the context of EI. One major contribution of this study is thus to show that the two theories, which hitherto have been applied in numerous studies with implicit assumptions made about their capacity to predict subsequent intentions, can now be applied with demonstrated validity.

As expected, autonomy and creativity relate to a person's preference for self-employment (Kolvereid, 1996; McNally *et al*., 2014). That is to say, creativity and autonomy appear to have positive and direct effects on both PBC and the perceived desirability of a line of action. The above result indicates that creativity is considered an important motivational factor in attracting the UAE's young people to self-employment. This view is supported by Majumdar & Varadarajan (2013), who find that creativity is an important personality trait for EI (Majumdar & Varadarajan, 2013). Creativity is also suggested as one of the

important cultural factors in the Gulf region, which should relate closely to entrepreneurial potential and success (Rice, 2003).

Workload, which indicates, in contrast, the preference for organizational employment, is suggested to affect young Emiratis' EI negatively; it has been found to negatively affect the PBC (Hypothesis 3) and the perceived desirability of starting a business (Hypothesis 4). This supports the finding of McNally *et al.* (2014) that workload has a significantly negative effect on PCB and perceived desirability. Indeed, Autio *et al.*'*s* measurement for EI (2001) indicates the time needed to start a new venture in the future, and whether the consequent career will begin on a full-time or part-time basis. Accordingly, the effect of workload – as an indicator of a person's preference for organizational employment – is likely to be particularly clear in the UAE context, where there is a high tendency among young people to combine employment with entrepreneurship, as noted above and in the literature review (Horne *et al.*, 2013).

In line with the related literature, which argues that the more favourable the perceived desirability and PBC of the behaviour, the greater the EI (Ajzen, 1991; Autio *et al.*, 2001; Matlay *et al.*, 2012; Nishimura and Morales, 2011), the findings of this study suggest a close relationship between PBC and perceived desirability of entrepreneurial behaviour and the intention to engage in it.

Consistent with previous research findings, subjective norms (SN) were found to be a significant predictor of EI. The results reveal that subjective norms were a significant determinant of the use of EI in the research model. These results are in line with those of



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previous studies (e.g. Karahanna, *et al*., 1999; Hsu *et al*., 2017; Wang *et al*., 2011; Robinson and Doverspike, 2006; Liao *et al*., 2007). This means that the support of parents, family members and friends will help people who may want to become an entrepreneur. A person who gets such social support will probably have the intention and ismore likely to become an entrepreneur than one who does not get such support. Therefore, social support is important in the development of entrepreneurship intention, because it will increase the courage and confidence of would-be entrepreneurs (Turker and Selcuk, 2009).

A major practical implication of this research is its contribution to university students' EI, which is something that has not so far been well researched. It empirically assesses the direct effects of key variables that are related to the intention of university students to become entrepreneurs. The hypothesized direct and significant effects of PBC, workload, subjective norms and perceived desirability on the business students' intention to become entrepreneurs theoretically confirmed earlier research which has tested the TPB and EEM from the perspective of EI (Iakovleva and Solesvik, 2014).

Second, because the subjective norm in this study appears to affect the EI strongly, there is great need to include young people's families in any strategies or initiatives aimed to enhance young people's EI. Family, in the UAE context, plays an important role in shaping young people's career preferences. But if families are actively encouraging the younger generation to work only in the public sector, educational institutions or policy makers may have limited influence on such people's career choices and preference for entrepreneurship Thus, including the broader family may help to build a more

entrepreneurship-friendly culture that might favour young people's acceptance of self-employment as a career choice. Such involvement could also enhance students' confidence in their skill and ability to become successful entrepreneurs, activating the role of education in this regard.

The strong effect of the entrepreneurial antecedents of the combined TPB and EEM models were shown by senior university students in the UAE context. Since the findings were consistent with those of previous studies, our understanding of the antecedents of EI and of the factors affecting these antecedents is critical in improving the efforts to promote entrepreneurship amongst students in the UAE. This issue would be enhanced if education and training programmes could be designed to change the degree of entrepreneurialism in students' personality characteristics, personal traits and mindsets and would help them to consider entrepreneurship as a future career option. Such specific programmes could build the entrepreneurial qualities and capacity of the UAE students and expose them to entrepreneurial role models in order to enhance their autonomy and creativity. Creating such autonomous and creative personality would increase the university students' perception of behaviour control and attitudes to an entrepreneurial career as desirable and feasible (e.g. Anosike and and Eid, 2011; Solesvik, 2012; Solesvik *et al*., 2014).

**Limitations of the Study and Directions for Future Research**

Building on existing conceptualizations of entrepreneurial personality characteristics, entrepreneurial perceptions and entrepreneurial intentions, the study suggested and tested a model linking two main entrepreneurial personality characteristics (namely: autonomy

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and creativity); and entrepreneurial perceptions (namely: perceived behavioural control, workload, perceived desirability and subjective norms) with EI. The results of the study should, however, be interpreted with caution for a number of reasons. First, the study focused on senior university students from the UAE. The UAE is a unique country in many ways. It is a country with rich resources; it is also a fuel exporting country with rapid economic growth. Therefore, it is not sufficient to test the suggested model in this country alone. Future research should test the model in other countries with different economic and cultural settings and at different stages of development. We believe that conducting a cross-national study of EI would be a fruitful avenue for future research, since it would allow for both testing the validity of the suggested model and for comparing the prevalence of EI among senior university students in different Arab countries in the Middle Eastern region.

Second, it would be worthwhile to explore further in future studies the measurement of entrepreneurial personality characteristics. Entrepreneurs' personality characteristics are a broad construct, and there is still no agreement about its dimensions and operationalization. This research measured entrepreneurs' personality characteristics along two dimensions. A more comprehensive construct and measurement of such characteristics would be needed to discover other important personal traits such as the need for achievement (Crant, 1996; Zhao *et al.*, 2010), personal efficacy (de Pillis and Reardon, 2007) and proactivity (Göksel and Belgin, 2011).

Third, in its investigations this study targets only government universities. Future research is encouraged to target also private and other universities to strengthen the

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generalizability of the research findings. Moreover, targeting other universities and colleges to investigate the EI of senior students in different college majors is recommended.

Finally, the generalisability of the research findings is another area of limitation. This context of this research is Arabic young people studying business and engineering living in the Emirates' it could have a different significance if it were replicated in another context, such as Europe or Japan. Additionally, studying business and engineering could play a role in improving the significance of entrepeunerial intention due to the nature of the topics studied in these schools.

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**Reference**

Ajzen, I. (1991), "The theory of planned behavior", *Organizational Behavior and Human Decision Processes*, Vol.50 No.2, pp. 179–211.

Ajzen, I. and Fishbein, M. (1975), "A Bayesian analysis of attribution processes", *Psychological bulletin*, Vol. 82 No. 2, pp.261-278.

Amit, R., Muller, E., & Cockburn, I. (1995), "Opportunity costs and entrepreneurial activity", *Journal of Business Venturing*, Vol. 10 No. 2, pp. 95-106.

Anosike, U.P. and Eid, R. (2011), "Integrating internal customer orientation, internal service quality, and customer orientation in the banking sector: An empirical study", *The Service Industries Journal*, Vol.31No. 14, pp. 2487-2505.

Autio, E., H. Keeley, R., Klofsten, M., GC Parker, G. and Hay, M. (2001), "Entrepreneurial intent among students in Scandinavia and in the USA", *Enterprise and Innovation Management Studies*, Vol. 2 No. 2, pp. 45-160.

Bae, T. J., Qian, S., Miao, C. and Fiet, J. O. (2014), "The relationship between entrepreneurship education and EIs: A meta-analytic review", *Entrepreneurship Theory and Practice*, Vol. 38 No. 2, pp. 217-254.

Bagozzi, R. P. (1994), "Measurement in marketing research: Basic principles of questionnaire design", *Principles of marketing research*, Vol. 1, pp. 1-49.

Bandura, A. (1977), "Self-efficacy: toward a unifying theory of behavioral change", *Psychological review*, Vol.84 No. 2, p. 191.

Baron, R. A. (2000), "Psychological perspectives on entrepreneurship: Cognitive and social factors in entrepreneurs' success", *Current directions in psychological science*, Vol. 9 No. 1, pp. 15-18.

Baron, R. A., and Tang, J. (2011), "The role of entrepreneurs in firm-level innovation: Joint effects of positive affect, creativity, and environmental dynamism", *Journal of Business Venturing*, Vol. 26 No. 1, pp. 49-60.

Begley, T.M. and Boyd, D.P. (1987), "Psychological characteristics associated with performence in entrepreneurial firms and smaller businesses", *Journal of business venturing*, Vol. 2 No. 1, pp. 79-93.

Bem, D.J. (1972), "Self-perception theory", *Advances in experimental social psychology*, Vol. 6, pp. 1-62.

Benz, M. and Frey, B.S. (2008), "Being independent is a great thing: Subjective evaluations of self-employment and hierarchy", *Economica*, Vol. 75 No. 298, pp. 362-383.

Block, J., Sandner, P. and Spiegel, F. (2015), "How do risk attitudes differ within the group of entrepreneurs? The role of motivation and procedural utility", *Journal of Small Business Management*, Vol. 53 No. 1, pp. 183-206.

Botti, S. (2004), "The psychological pleasure and pain of choosing: when people prefer choosing at the cost of subsequent outcome satisfaction", *Journal of personality and social psychology*, Vol. 87 No. 3, p. 312.

Bray, I., Kenny, G., Pontin, D., Williams, R. and Albarran, J. (2016), "Family presence during resuscitation: validation of the risk-benefit and self-confidence scales for student nurses", *Journal of Research in Nursing*, Vol. 21 No. 4, pp. 306-322.

Bröckling, U. (2015), *The entrepreneurial self: Fabricating a new type of subject*. Sage.

Brough, P., Timms, C., Siu, O.L., Kalliath, T., O'Driscoll, M.P., Sit, C.H., Lo, D. and Lu, C.Q. (2013), "Validation of the Job Demands-Resources model in cross-national samples: Cross-sectional and longitudinal predictions of psychological strain and work engagement", *Human Relations*, Vol. 66 No. 10, pp. 1311-1335.

Brush, C.G. (1992), "Research on women business owners: Past trends, a new perspective and future directions", *Entrepreneurship: Theory and Practice*, Vol. 16 No. 4, pp. 5-31.

Bullough, A., Renko, M. and Myatt, T. (2014), "Danger zone entrepreneurs: The importance of resilience and self-efficacy for EIs", *Entrepreneurship Theory and Practice*, Vol. 38 No. 3, pp. 473-499.

Caird, S. (1991), "The enterprising tendency of occupational groups", *International Small Business Journal*, Vol. 9 No. 4, pp. 75-81.

Carsrud, A. and Bränback, M. (2011). "Entrepreneurial motivations: what do we still need to know?", *Journal of Small Business Management*, Vol. 49 No. 1, pp. 9-26.

Covin, J.G. and Slevin, D.P. (1991), "A conceptual model of entrepreneurship as firm behavior", *Entrepreneurship theory and practice*, Vol. 16 No. 1, pp.7-26.

Crant, J.M. (1996), "The proactive personality scale as a predictor of EIs", *Journal of small business management*, Vol. 34 No. 3, pp. 42-49.

de Pillis, E. and Reardon, K.K. (2007), "The influence of personality traits and persuasive messages on EI: A cross-cultural comparison", *Career Development International*, Vol. 12 No. 4, pp. 382-396.

Education + Training

Dheer, R.J. and Lenartowicz, T. (2018), Career decisions of immigrants: Role of identity and social embeddedness", *Human Resource Management Review*, Vol. 28 Vol. 2, pp.144-163.

Dworkin, G. (1988), *The theory and practice of autonomy*, New York: Cambridge

Edwards-Schachter, M., García-Granero, A., Sánchez-Barrioluengo, M., Quesada-Pineda, H. and Amara, N. (2015), "Disentangling competences: Interrelationships on creativity, innovation and entrepreneurship", *Thinking Skills and Creativity*, Vol. 16, pp. 27-39.

Eid, R. and Trueman, M. (2002), "The internet: New international marketing issues", *Management Research News*, Vol. 25 No. 12, pp. 54-67.

Eid, R. (2005), "International internet marketing: A triangulation study of drivers and barriers in the business-to-business context in the United Kingdom", Marketing Intelligence & Planning, Vol. 23 No. 3, pp. 266-280.

Eid, R., Trueman, M. and Ahmed, A.M. (2006), B2B international internet marketing: A benchmarking exercise", *Benchmarking: An International Journal*, Vol. 13 No. 1/2, pp. 200-213.

El-Adly, M.I. and Eid, R. (2017), "Dimensions of the perceived value of malls: Muslim shoppers' perspective", *International Journal of Retail & Distribution Management*, Vol. 45 No. 1, pp. 40-56.

Engle, R.L., Dimitriadi, N., Gavidia, J.V., Schlaegel, C., Delanoe, S., Alvarado, I., He, X., Buame, S. and Wolff, B. (2010), "Entrepreneurial intent: A twelve-country evaluation of Ajzen's model of planned behavior", *International Journal of Entrepreneurial Behavior & Research*, Vol. 16 No. 1, pp. 35-57.

Fayolle, A., and Liñán, F. (2014). "The future of research on EIs", Journal of Business Research, 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.

Fillis, I. and Rentschler, R. (2010), "The role of creativity in entrepreneurship", *Journal of Enterprising Culture*, Vol. 18 No. 1, pp. 49-81.

Fornell, C. and Larcker, D. (1981), "Evaluating structural equation models with unobservable variables and measurement error", *Journal of Marketing Research*, Vol. 18 No. 1, pp. 39–50.

Frese, M., Bausch, A., Schmidt, P., Rauch, A. and Kabst, R. (2012), "Evidence-based entrepreneurship: Cumulative science, action principles, and bridging the gap between science and practice", Foundations and Trends in Entrepreneurship, Vol. 8 No. 1, pp. 1-62.

GEM, *Global Entrepreneurship Monitor*, (n.d.), Retrieved December 9, 2016, from http://www.gemconsortium.org.

Göksel, A. and Belgin, A. (2011), "Gender, business education, family background and personal traits; amulti-dimensional analysis of their effects on entrepreneurial propensity: Findings from Turkey", International Journal of Business and Social Science, Vol. 2 No. 13, pp. 35–48.

Greenglass, E. R., Burke, R. J. and Moore, K. A. (2003), "Reactions to increased workload: Effects on professional efficacy of nurses", Applied psychology, Vol. 52 No. 4, pp. 580-597.

For Peer Review

Gumel, A.M. and Othman, M.A. (2013), "Reflecting customers' innovativeness and intention to adopt islamic banking in Nigeria", *Business Management Quarterly Review*, Vol. 4 No. 3, pp. 27-37.

Hair, J., Black, B, Babin, B., Ralph, A. and Ronald, T. (2006), *Multivariate Data Analysis*, 6th edition, London: Prentice-Hall.

Haynie, J.M., Shepherd, D.A. and Patzelt, H. (2012), "Cognitive adaptability and an entrepreneurial task: The role of metacognitive ability and feedback", Entrepreneurship Theory and Practice, Vol. 36 No. 2, pp. 237-265.

Heinonen, J., Hytti, U. and Stenholm, P. (2011), "The role of creativity in opportunity search and business idea creation", *Education+ Training*, Vol. 53 No. 8/9, pp. 659-672.

Horne, C. V., Huang, V. Z., and Awad, M. M. (2011), *GEM Report On United Arab Emirates, Abu Dhabi*, Khalifa Fund for Enterprise Development.

Hossain, L. and de Silva, A. (2009), "Exploring user acceptance of technology using social networks", *The Journal of High Technology Management Research*, Vol. 20 No. 1, pp. 1-18.

Hsu, D. K., Wiklund, J. and Cotton, R. G. (2017), "Success, Failure, and Entrepreneurial Reentry: An Experimental Assessment of the Veracity of Self-Efficacy and Prospect Theory", *Entrepreneurship Theory and Practice*, Vol. 41 No. 1, pp. 19-47.

Hull. D. L., Bosley, J. J., and Udell, G. G. (1980), "Reviewing the Heffalump: Identifying Potential Entrepreneurs by Personality Characteristics", *Journal of Small Business Management*, Vol. 18, pp. 11-18.

Iakovleva, T. and Solesvik, M.Z. (2014), "EIs in post-Soviet economies", *International Journal of Entrepreneurship and Small Business*, Vol. 21 No. 1, pp. 79-100.

Jaén, I. and Liñán, F. (2013), "Work values in a changing economic environment: the role of entrepreneurial capital", *International Journal of Manpower*, Vol. 34 No. 8, pp. 939-960.

Joreskog, K. and Sorbom, D. (1982), "Recent Developments in Structural Equation Modeling", *Journal of Marketing Research*, Vol. 19, pp. 404-416.

Karahanna, E., Evaristo, J.R. and Srite, M. (2006), "Levels of culture and individual behavior: An integrative perspective", *Advanced Topics in Global Information Management*, Vol. 5 No. 1, pp. 30-50.

Katz, H. (2001), *The relationship of intrinsic motivation, cognitive style and tolerance of ambiguity and creativity in scientists*, Seton Hall University Dissertations and Theses (ETDs). Paper 1734.

Kautonen, T., Gelderen, M. and Fink, M. (2015), "Robustness of the theory of planned behavior in predicting EIs and actions", *Entrepreneurship Theory and Practice*, Vol. 39 No. 3, pp. 655-674.

Kolvereid, L. (1996), "Prediction of employment status choice intentions", *Entrepreneurship: Theory and Practice*, Vol. 21 No. 1, pp. 47-58.

Krueger, N. F., Reilly, M. D. and Carsrud, A. L. (2000), "Competing models of EIs", *Journal of business venturing*, Vol.15 No. 5, pp. 411-432.

Lange, T. (2012), "Job satisfaction and self-employment: autonomy or personality?", *Small Business Economics*, Vol. 38 No. 2, pp. 65-177.

Langkamp Bolton, D. and Lane, M.D. (2012), "Individual entrepreneurial orientation: Development of a measurement instrument", *Education+ Training*, Vol. 54 No. (2/3), pp. 219-233.

For Peer Review Only

Lee, L., Wong, P. K., Der Foo, M. and Leung, A. (2011). "EIs: The influence of organizational and individual factors", *Journal of Business Venturing*, Vol. 26 No. 1, pp. 124–136.

Lee, S.Y., Florida, R. and Acs, Z. (2004), "Creativity and entrepreneurship: a regional analysis of new firm formation", *Regional studies*, Vol. 38 No. 8, pp. 879-891.

Liao, C., Chen, J.L. and Yen, D.C. (2007), "Theory of planning behavior (TPB) and customer satisfaction in the continued use of e-service: An integrated model", *Computers in human behavior*, Vol. 23 No. 6, pp. 2804-2822.

Liñán, F. and Chen, Y.W. (2009), "Development and Cross-Cultural application of a specific instrument to measure EIs", *Entrepreneurship theory and practice*, Vol. 33 No. 3, pp. 593-617.

Loewenstein, G. (1996). "Out of control: Visceral influences on behavior", *Organizational behavior and human decision processes*, Vol. 65 No. 3, pp. 272-292.

Loewenstein, G. (2000). "Emotions in economic theory and economic behavior", *The American Economic Review*, Vol. 90 No. 2, pp. 426-432.

Luarn, P. and Lin, H.H. (2005), Toward an understanding of the behavioral intention to use mobile banking", *Computers in human behavior*, Vol. 21 No. 6, pp. 873-891.

McGee, J.E., Peterson, M., Mueller, S.L. and Sequeira, J.M. (2009), "Entrepreneurial self-efficacy: refining the measure", *Entrepreneurship theory and Practice*, Vol. 33 No. 4, pp. 965-988.

McNally, J., Martin, B., Honig, B., Bergmann, H. and Piperopoulos, P. (2014), "Assessing Kolvereid's (1996) Measure of Entrepreneurial Attitudes", In *Academy of Management Proceedings* (Vol. 2014, No. 1, p. 12621). Academy of Management.

Miller, D. (1983), "The correlates of entrepreneurship in three types of firms", *Management science*, Vol. 29 No. 7, pp. 770-791.

Moriano, J.A., Gorgievski, M., Laguna, M., Stephan, U. and Zarafshani, K. (2012), "A cross-cultural approach to understanding EI", *Journal of career development*, Vol. 39 No. 2, pp. 162-185.

Packham, G., Jones, P., Miller, C., Pickernell, D. and Thomas, B. (2010), "Attitudes towards entrepreneurship education: a comparative analysis", *Education+ Training*, Vol. 52 No. 8/9, pp. 568-586.

Puhakka, V. (2007), "Effects of opportunity discovery strategies of entrepreneurs on performance of new ventures", *The Journal of Entrepreneurship*, Vol. 16 No. 1, pp. 9-51.

Rice, G. (2003), "The challenge of creativity and culture: a framework for analysis with application to Arabian Gulf firms", International Business Review, Vol. 12 No. 4, pp. 461-477.

Robinson, R.P. and Doverspike, D. (2006), "Factors predicting the choice of an online versus a traditional course", *Teaching of Psychology*, Vol.33 No. 1, pp. 64-68.

Rueda, S., Moriano, J.A. and Liñán, F. (2015), *Validating a theory of planned behavior questionnaire to measure EIs*. A. Fayolle, P. Kyrö yF. Liñán (Eds.), Developing, Shaping and Growing Entrepreneurship, pp.60-69.

Ryan, R. M. and Deci, E. L. (2006), "Self-regulation and the problem of human autonomy: does psychology need choice, self-determination, and will?", Journal of Personality, Vol. 74 No. 6, pp. 1557-1586.

Education + Training

Salaheldin, S. and Eid, R. (2007), "The implementation of world class manufacturing techniques in Egyptian manufacturing firms: An empirical study", *Industrial Management & Data Systems*, Vol. 107 No. 4, pp. 551-566.

Sarooghi, H., Libaers, D., & Burkemper, A. (2015), "Examining the relationship between creativity and innovation: A meta-analysis of organizational, cultural, and environmental factors", *Journal of business venturing*, Vol. 30 No. 5, pp. 714-731.

Schein, E.H. and Schein, E. (1978), *Career dynamics: Matching individual and organizational needs*, Reading, MA: Addison-Wesley.

Schjoedt, L. (2009), "Entrepreneurial job characteristics: an examination of their effect on entrepreneurial satisfaction", *Entrepreneurship theory and practice*, Vol.33 No. 3, pp. 619-644.

Schlaegel, C. and Koenig, M. (2014), "Determinants of entrepreneurial intent: a meta-analytic test and integration of competing models", *Entrepreneurship Theory and Practice*, Vol. 38 No. 2, pp. 291-332.

Shalley, C.E. and Perry-Smith, J.E. (2008), "The emergence of team creative cognition: the role of diverse outside ties, sociocognitive network centrality, and team evolution", *Strategic Entrepreneurship Journal*, Vol. 2 No. 1, pp. 23-41.

Shane, S. and Nicolaou, N. (2015), "Creative personality, opportunity recognition and the tendency to start businesses: A study of their genetic predispositions", *Journal of Business Venturing*, Vol. 30 No. 3, 407-419.

Shapero, A. and Sokol, L. (1982), *Social dimensions of entrepreneurship*, In C.A. Kent, D.L. Sexton, & K.H.Vesper (Eds.), The encyclopedia of entrepreneurship (pp. 72–90). Englewood Cliffs, NJ: Prentice-Hall.

Shaver, K.G. and Scott, L.R. (1991), "Person, process, choice: The psychology of new venture creation", Entrepreneurship theory and practice, Vol. 16 No. 2, pp. 23-45.

Skinner, B., F. (1971), *Beyond freedom and dignity*, New York: Knopf

Solesvik, M.Z., Westhead, P., Kolvereid, L. and Matlay, H. (2012), "Student intentions to become self-employed: the Ukrainian context", *Journal of Small Business and Enterprise Development*, Vol. 19 No. 3, pp. 441-460.

Sternberg, R. and Krauss, G. (Eds.). (2014), *Handbook of research on entrepreneurship and creativity*, Edward Elgar Publishing.

Taylor, S.E., Lichtman, R.R. and Wood, J.V. (1984), "Attributions, beliefs about control, and adjustment to breast cancer", *Journal of personality and social psychology*, Vol. 46 No. 3, p. 489.

Tumasjan, A. and Braun, R. (2012), "In the eye of the beholder: How regulatory focus and self-efficacy interact in influencing opportunity recognition", *Journal of Business Venturing*, Vol. 27 No. 6, pp. 622-636.

Turker, D. and Sonmez Selçuk, S. (2009), "Which factors affect EI of university students?", *Journal of European Industrial Training*, Vol. 33 No. 2, 142-159.

Van Gelderen, M. and Jansen, P. (2006), "Autonomy as a start-up motive", *Journal of Small Business and Enterprise Development*, Vol. 13 No. 1, pp. 23-32.

Van Yperen, N. W., Wörtler, B. and De Jonge, K. M. (2016), "Workers' intrinsic work motivation when job demands are high: The role of need for autonomy and perceived opportunity for blended working", *Computers in Human Behavior*, Vol. 60, pp. 179-184.

Wang, W., Lu, W. and Millington, J.K. (2011), "Determinants of EI among collegestudents in China and USA", *Journal of Global Entrepreneurship Research*, Vol. 1 No. 1, pp. 35–44.

For Peer Review Only

Webster, J. and Trevino, L.K. (1995), "Rational and social theories as complementary explanations of communication media choices: Two policy-capturing studies", *Academy of Management journal*, Vol. 38 No. 6, pp. 1544-1572.

Woo, C.Y., Cooper, A.C. and Dunkelberg, W.C. (1991), "The development and interpretation of entrepreneurial typologies", *Journal of business venturing*, Vol. 6 No. 2, pp. 93-114.

Yar Hamidi, D., Wennberg, K. and Berglund, H. (2008), "Creativity in entrepreneurship education", *Journal of Small Business and Enterprise Development*, Vol. 15 No. 2, pp. 304-320.

Zampetakis, L. A. (2008), "The role of creativity and proactivity on perceived entrepreneurial desirability", *Thinking Skills and Creativity*, Vol. 3 No. 2, pp. 154-162.

Zhao, H., Seibert, S. E. and Lumpkin, G. T. (2010), "The relationship of personality to EIs and performance: A meta-analytic review", *Journal of management*, Vol. 36 No. 2, pp. 381-404.

**Table 6 - Appendix. Scale items, factor loadings, and sources**

| Construct/Items | Factor Loading | Source |
|---|---|---|
| **Autonomy:** ***[variance extracted: 5.937%] 5*** | | Adopted from Kolvereid (1996) and McNally et al. (2014). |
| Q16_AUTONOMY1 | .768 | |
| Q16_AUTONOMY2 | .857 | |
| Q16_AUTONOMY3 | .820 | |
| **Creativity:** ***[variance extracted: 3.892%] 7*** | | Adopted from Kolvereid (1996). |
| Q16_CREATIVITY1 | .792 | |
| Q16_CREATIVITY2 | .842 | |
| Q16_CREATIVITY3 | 813 | |
| **Perceived Behavior Control*: [variance extracted: 25.057%] 1*** | | Adopted from Jaén and Liñán (2013) and Liñán and Chen, (2009). |
| Q19_PBCONTROL1 | .650 | |
| Q19_PBCONTROL2 | .760 | |
| Q19_PBCONTROL3 | .809 | |
| Q19_PBCONTROL4 | .797 | |
| Q19_PBCONTROL5 | .754 | |
| Q19_PBCONTROL6 | .804 | |
| Q19_PBCONTROL7 | .816 | |
| **Workload:** ***[variance extracted: 5.726%] 6*** | | Adopted from Kolvereid (1996). |
| Q16_WORKLOAD1 | .860 | |
| Q16_WORKLOAD2 | .866 | |
| Q16_WORKLOAD3 | .795 | |
| **Perceived Desirability:** ***[variance extracted: 10.310%] 2*** | | Adopted from Ajzen (1991), Jaén and Liñán (2013) |
| Q13_DESIRABILITY3 | .735 | |
| Q13_DESIRABILITY4 | .693 | |
| Q13_DESIRABILITY5 | .696 | |
| Q13_DESIRABILITY7 | .742 | |
| Q13_DESIRABILITY8 | .637 | |

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| | | |
|---|---|---|
| Q13_DESIRABILITY3 | .677 | and Liñán and Chen (2009) |
| **Subjective Norms*: 7.769%] 4*** | | |
| Q18_SUBJECTIVENORMS1 | .688 | Adopted from Jaén and Liñán (2013). |
| Q18_SUBJECTIVENORMS2 | .775 | |
| Q18_SUBJECTIVENORMS4 | .829 | |
| Q18_SUBJECTIVENORMS5 | .772 | |
| **Entrepreneurship Intention:** ***[variance extracted: 9.148%] 3*** | | |
| Q12_ENTINTENTION1 | .863 | Adopted from Jaén and Liñán (2013). |
| Q12_ENTINTENTION2 | .839 | |
| Q12_ENTINTENTION4 | .856 | |
| Q12_ENTINTENTION5 | .748 | |

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