

Entrepreneurial mindset and the role of universities as strategic drivers of entrepreneurship

Evidence from the United Arab Emirates

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Abstract

Purpose – The purpose of this paper is to provide insight into the factors that influence the mindset of youth in the United Arab Emirates (UAE) in choosing entrepreneurship as their future employment. It also suggests the pathway to improve the role of the universities as strategic drivers in inducing an entrepreneurial mindset.

Design/methodology/approach – An exhaustive literature review of extant research followed by an exploratory study was conducted. Furthermore, to understand factors influencing the role of universities, interpretive structural modelling methodology is applied to evolve a hierarchy-based relationship among the strategic factors.

Findings – The results of empirical research suggest that young people in the UAE rank entrepreneurship as their first employment choice. However, most of them have not attended any formal entrepreneurship-related course in school or in college. The study also suggests that individual and environmental factors influence the entrepreneurial mindset of both males and females in the UAE. The structural model developed in the study indicates that to give an impetus to the entrepreneurial mindset, the government must create a supporting environment with UAE universities playing the role of a catalyst.

Practical implications – Professional entrepreneurship instruction is seen as a strategic tool to stimulate financial and societal growth. The results could provide insights for both entrepreneurship educators and policymakers and will boost their commitment to promote the entrepreneurial mindset within UAE society by enhancing and developing traits associated with entrepreneurial success. The results support recognition of the factors that induce educational programmes and economic incentives targeted at the development of sustainable entrepreneurial culture and ventures in the UAE.

Originality/value – The study is an effort to highlight the role of higher education in envisaging and cultivating entrepreneurs in a fast-growing developing country through a survey and a hierarchy-based model.

Keywords United Arab Emirates, Universities, Interpretive structural modelling, Youth, Entrepreneurial mindset

Paper type Research paper

Introduction

Young people hold the key to society's future, and investment in them today is an investment in the future of a nation (Pereznieto and Harding, 2013). A strong argument for scaling up investment in youth development is made by various international organizations (International Labour Organization (ILO), 2015). The majority (almost 85 per cent) of the



world's young people live in developing countries, with approximately 60 per cent in Asia alone, and by 2025, it is projected that the number of young people living in developing countries will grow to 89 per cent. In the Asian regions and in the Middle East and North Africa (MENA), youth unemployment rates worsened between 2012 and 2014 (ILO, 2015). Entrepreneurship has gained recognition as a progress engine across the globe (Carree and Thurik, 2010; Ali, 2013), and due to its ability to create jobs and enhance living standards, it has recently been viewed as a valuable solution to youth unemployment and social exclusion. Previous scholars and policymakers have considered promoting entrepreneurship as a means of improving young people's livelihoods in MENA and developing countries (Awogbenle and Iwuamadi, 2010; Setti, 2014) and have recognized the value of entrepreneurship education and training in identifying and nurturing the entrepreneurial potential among youths (Rasheed, 2002; ILO, 2015; Mohamad *et al.*, 2015; Varamäki *et al.*, 2015). Harnessing innovative talents and stimulating the entrepreneurial spirit is pivotal for fostering youth participation in the economic growth and development of any country (Mahadea *et al.*, 2011). Formal entrepreneurship education is considered a strategic tool to boost a nation's development (Muhammad *et al.*, 2011). Hence, countries across the globe have started formulating various policies to sustain entrepreneurship education and training (Ali, 2013).

Entrepreneurial intent has been verified to be a key predictor of impending entrepreneurial behaviour (Krueger *et al.*, 2000). Consequently, exploring what influences entrepreneurial intent is a critical factor in entrepreneurship research. Previous researchers (Franke and Luthje, 2004; Caliendo and Kritikos, 2012) have broadly discussed the determining factors of entrepreneurial intent linked to person and environment. A considerable number of studies have also addressed factors that influence students' entrepreneurial intention (Chen *et al.*, 2010; David and Naomi, 2013; Majumdar and Varadarajan, 2013; Altinay *et al.*, 2014; Tolentino *et al.*, 2014; Kakouris, 2016). Kakouris (2016) reported that beyond expected dependencies on individual entrepreneurial competencies and motives, university students usually display variances in views that can be reduced through entrepreneurship education. Walter and Block (2016) contributed to an institutional view of entrepreneurship education and mapped out how entrepreneurship education is more likely to result in entrepreneurial activity in a business environment that is not entrepreneurship friendly. The present study sets out to offer insight about the various factors that influence the mindset of United Arab Emirates (UAE) young people in choosing entrepreneurship as an employment option, as well as to suggest a pathway to improve the role of the higher education institutions in encouraging the entrepreneurial mindset.

The UAE: higher education and youth

Approximately, 31 per cent of the UAE population is under the age of 25; over the coming years, the country will witness a steep increase in the youth population, which will pressure the job markets and other areas of the economy. In response to the changing world, education has evolved dramatically. According to a World Bank Report (2014), the employment-to-population ratio of UAE young people is 48. The total number of students in the Gulf Cooperation Council (GCC) region, including the UAE, is expected to grow from an estimated 10.2 million in 2011 to 11.6 million in 2016, a compound annual growth rate of 2.7 per cent. Educational facilities are receiving more investment, and more international universities are opening branch campuses in the region (*Khaleej Times*, 2015). In the UAE, the number of licensed higher education institutions has increased sharply over the last two decades and now stands at 71. Business studies are the most covered specialization areas offered by these educational institutions (UAE Ministry of Higher Education, 2014). However, out of 71 universities, only few offer an

entrepreneurship major/minor in their business programmes (Ashour, 2016). This is scant considering the importance of entrepreneurship to the growth of the UAE economy. The global entrepreneurship monitor shows that the total early stage entrepreneurial activity (TEA) in the UAE is at a similar level as in some of the innovation-driven economies, such as Singapore and Norway. However, UAE's TEA score is lower in comparison to a number of innovation-driven (e.g. the USA, Australia, Netherlands, etc.) and efficiency-driven economies such as Chile (Khalifa Fund, 2013). Furthermore, the strong preference of Emiratis for public sector jobs has been established through various survey-based evidence (Al-Waqfi and Forstenlechner, 2012). Despite the recognition that entrepreneurship is vital to job creation and economic growth, there is a lack of direction to promote entrepreneurial culture among young people in the UAE (Majumdar and Varadarajan, 2013). In addition, limited research (Ryan *et al.*, 2011) has been conducted regarding student attitudes towards entrepreneurship in the UAE. Hence, there is a need to create awareness and instil interest among UAE young people about the entrepreneurial opportunities that exist within the UAE by integrating entrepreneurship in the education system from elementary school to the university level. This study is an attempt to redress the current gap and the findings will contribute to the formulation of policies and the design of support programmes that will assist and motivate UAE young people to start and expand small businesses.

The main objectives of this paper are:

- (1) to identify the factors that influence UAE young people's entrepreneurial mindset;
- (2) to identify strategic factors that affect the role of universities in improving entrepreneurial mindset;
- (3) to establish the relationship among these identified strategic factors using interpretive structural modelling (ISM); and
- (4) to discuss the practical implications of this research.

The paper is structured as follows. The next section contains a review of the relevant literature. Thereafter, the methodology used within the study is outlined. The following section provides the results of the research alongside the key themes of the results and use of ISM method. The study concludes in providing a discussion and conclusion on the significance of the study, which are contrasted against the extant knowledge.

Literature review

It is widely accepted that entrepreneurship and new venture creation are the driving forces of economic growth (Matlay, 2010). In the age of the knowledge economy, elevating entrepreneurship and improving domestic innovation systems are the keys to promote a country's productivity, competitiveness, and economic growth (Chen *et al.*, 2010). Developing countries such as India, China and Malaysia have begun recognizing entrepreneurship as a focus for governments, financial institutions, and academic institutions (Goel *et al.*, 2007; Mohamad *et al.*, 2015). Hence, academics and practitioners alike have augmented their efforts to stimulate an entrepreneurial outlook and ethos within society due to its significant nature (Gallant *et al.*, 2010; Davey *et al.*, 2011).

Individual and familial characteristics influencing the entrepreneurial mindset

To a certain extent, a proper understanding of the elements that influence attitudes towards entrepreneurship and entrepreneurial intent could expedite the effective development of these initiatives. Intentions are consistent predictors of entrepreneurial action; hence, it is imperative to understand the factors related to entrepreneurial intentions

(Krueger *et al.*, 2000). Goel *et al.* (2007) claimed that outlook towards entrepreneurship is the essential basis for upcoming entrepreneurial action. This would be impacted by the individual's familial background and entrepreneurial development, including the region's education system. The interaction of personal characteristics (risk-taking, creativity, and need for achievement) with perceptions of competencies and familiarity (entrepreneurial experience, knowledge, awareness, and interest) become critical to assessing students' entrepreneurial potential (Majumdar and Varadarajan, 2013).

Demographic factors such as gender, household income, and status were positively related to Chinese students' explicit internet entrepreneurship intentions (Millman *et al.*, 2010). Individual characteristics may lead to entrepreneurial behaviour if environmental conditions permit (Busenitz *et al.*, 2003). Shane *et al.* (2003) assumed that entrepreneurship is not entirely the result of human intervention, but external factors play an important role as well. Previous entrepreneurial research (Schwarz *et al.*, 2009) highlighted the personality characteristics of individuals and recognized various personality factors such as need for achievement, risk-taking propensity, internal locus of control, or innovativeness as pertinent to entrepreneurial intent and accomplishment. Ryan *et al.* (2011) revealed a strong correlation between the need for achievement and entrepreneurial potential among UAE students. In another study, Majumdar and Varadarajan (2013) reported the effect of some personality traits in the career choice of young UAE males and females.

According to the theory of planned behaviour (TPB) (Ajzen, 1991), current and upcoming actions are intensely indomitable by behavioural intentions. The TPB contemplates entrepreneurial intentions to be unswervingly influenced by three perceptions: entrepreneurial personal attitude, entrepreneurial perceived behavioural control, and perceived subjective norm (Krueger *et al.*, 2000; Hindle *et al.*, 2009). In their study on university business students, Krueger *et al.* (2000) supported the theory of planned behaviour and affirmed that entrepreneurial acts and self-efficacy, in particular, serve as significant predictors of entrepreneurial intention. Elali and Al-Yacoub (2016) affirmed that social networking, risk tolerance, the need for achievement and self-efficacy play a significant role in the entrepreneurial intentions of Kuwaiti nationals. The determining factor of entrepreneurial intention is the attitude towards entrepreneurship. Bandura (2001) advocated social cognitive theory and stated that the social environment nearby individuals plays a vital role in shaping their perception and, eventually, the behaviour (De Carolis and Saparito, 2006). The importance of social networks, image in society, and socio-cultural norms are the external factors that will influence an individual's interest in becoming an entrepreneur (Luthje and Franke, 2003; Morris and Schindehutte, 2005). A study by Sharma (2014) has focussed on the socioeconomic status, and on the familial background and its link to youth's entrepreneurial intention. An individual's socialization occurs at home, at the place of education, and in other spheres of interaction. Early communication received and imbedded by an individual from the family would influence career choices by motivating individuals to choose a career in which they are viewed positive by society. Career adaptability and entrepreneurial intentions via entrepreneurial self-efficacy were found stronger for individuals with prior exposure to family business (Tolentino *et al.*, 2014) and family support (Jabeen *et al.*, 2015). Parental socialization was seen to be a compelling force influencing the consequent monetary objectives and actions of their children (Shim *et al.*, 2010). However, a gap between both genders in entrepreneurial involvement has been acknowledged (Hughes *et al.*, 2012; McGee *et al.*, 2009), and globally female participation in entrepreneurship is found to be lower than that of men (Hindle *et al.*, 2009). A significant positive relationship was found between self-employed parents and self-employed offspring (Chlosta *et al.*, 2012), and males' entrepreneurial intention is higher when both parents are self-employed, whereas females' entrepreneurial intention

was found to be high when only one parent was self-employed (Polin *et al.*, 2016). However, Santos *et al.* (2016) found that the foundation of entrepreneurial intentions is analogous in males and females, although males steadily show more positive intentions than females.

The role of universities in improving an entrepreneurial mindset

Education plays a prominent role in entrepreneurs' perception, confidence, ability, and level of conviction (Iglesias-Sánchez *et al.*, 2016). Universities as centres of higher education can promote entrepreneurship, which is more likely to increase entrepreneurial self-efficacy, self-employment, and risk-taking among graduates, thus leading to positive outcomes for individuals, firms, and society (Gerba, 2012). Universities can play three major roles related to entrepreneurship. The first is by creating a culture of entrepreneurship that permeates all activities. The second is by providing specific courses where students can learn more about entrepreneurship itself. The final role is through specific training courses for individuals who want to start their own venture (Klofsten, 2000). In addition, for improving entrepreneurial intentions, universities should provide cross-curricular courses accompanied by more specific training on business creation (Iglesias-Sánchez *et al.*, 2016). Piperopoulos (2012) found that students with university education are more likely to pursue self-employment compared to their non-university educated counterparts. Entrepreneurship-specific education encourages students to accumulate the human capital assets required for entrepreneurship (Solesvik *et al.*, 2014) and Westhead and Solesvik (2016) in their study found that students with entrepreneurial education (EE) reported high intention, but EE did not explicitly benefit all participants belonging to both genders. Various researchers (Matlay, 2008; Mohamad *et al.*, 2015) agreed that although entrepreneurship education has a significant effect towards producing actual graduate entrepreneurs, there are still negative relationships among higher academic achievement of graduates towards their intention to become entrepreneurs. A majority of business studies students from Australia, Portugal, Finland, Germany, Slovenia, Poland, England and the UAE exhibited entrepreneurial intentions and felt that investment in university-based entrepreneurship education was valuable and beneficial (Varadarajan *et al.*, 2010).

Studies such as Rasmussen and Borch (2010) found that to support students' entrepreneurial behaviour, some universities establish stronger links to incubators and science parks while some focus on integrated technology transfer activities with entrepreneurship education (Lundqvist and Middleton, 2013). In Taiwan, with the support of the government, universities have established incubation centres that account for more than 80 per cent of incubation centres in the country. The role of universities in improving entrepreneurship mindset is to provide support to research partnerships with small and medium enterprises. In Korea, more than half of university-industry collaborations were conducted in small and medium enterprises (Mok, 2012). Focus of the university role should be about enhancing entrepreneurship by developing higher level skills and nurturing analytic ability. Academics can develop theories based on the experiences of entrepreneurs to provide a better understanding on how to start successful businesses (Anderson, 2011). It can be said that the major role of universities in improving entrepreneurial culture is to improve awareness and understanding of entrepreneurship as a process that increases students' desire to become entrepreneurs (Hamidi *et al.*, 2008). However, according to Trivedi (2016), the role of universities in providing an environment that fosters entrepreneurial intention leading to new venture creation has not been studied. In addition, the question of what strategic drivers enhance the role of universities in improving entrepreneurial mindset among students" remains largely unanswered.

Strategic drivers enhancing the role of universities in inducing an entrepreneurial mindset

Several external and internal factors shape an individual's decision-making to engage in enterprising behaviour (Westhead *et al.*, 2011). In recent years, research on factors

influencing entrepreneurial intent has gained momentum. Previous researchers (Belwal *et al.*, 2015) have argued that early exposure in entrepreneurial studies is an essential consideration in developing successful entrepreneurs. Proper care should be taken in designing curricula to include courses on decision-making, effective communication, entrepreneurial negotiation, leadership, effective and efficient use of sources, new product development, creativity and critical thinking, and service-based and technological innovation (Buli and Yesuf, 2015). The choice of a particular pedagogy inside an educational programme can also have an impact on the development of entrepreneurial potential; hence, the ways in which entrepreneurship programmes are delivered should also be given consideration (Varamäki *et al.*, 2015). Entrepreneurship education should mainly be practically oriented in order to cultivate students' proficiency and resilience in their skills (Henry and Treanor, 2012; Neck and Greene, 2011). This can be achieved through a consulting-based learning model, a triangulation approach that emphasizes the important role played by the university as the centre of excellence that helps students to understand and learn the necessary skills required for working in small firms and encourages them to start their own ventures (Hynes and Richardson, 2007).

Due to the scarcity of resources, students must accrue and organize particular human capital to achieve the entrepreneurial opportunities (Westhead *et al.*, 2011). Social context shapes access to resources that can either promote or slow an individual's desire to become an entrepreneur, as well as their subsequent career in entrepreneurship. Practitioners may assume that the supply (and quality) of entrepreneurs can be increased if the external environment is manipulated to encourage more people to gain access to information, education, and training that foster an entrepreneurial mindset and the accumulation and mobilization of resources required for a career as an entrepreneur (Solesvik *et al.*, 2013). Klinger and Schündeln (2011) argue that potential entrepreneurs face many obstacles, including regulations, lack of infrastructure, macroeconomic uncertainty, and a number of other constraints such as early stage and long-term financing. Madichie and Gallant (2012) found that encouraging changes in government policies and the socio-cultural environment has resulted in an increase of Emirati entrepreneurs.

Students' willingness to run a business and their sociable attitude, confidence, and effective connections with established entrepreneurs were observed as enablers in the Omani context (Belwal *et al.*, 2015). Successful role models reinforce role model identification and generate favourable attitudes towards the message, thus enhancing self-efficacy and entrepreneurial intention. Exposure to fictional role models favourably impacts self-efficacy and behavioural intentions if students identify with role models, hold favourable attitudes towards the message, and experience positive emotional arousal (Laviolette *et al.*, 2012).

Mutsuddi (2012) reported that the commitment of students and faculties, formation of networks with entrepreneurs and business organizations, and optimal use of university resources are important for entrepreneurial success. For nurturing the entrepreneurial environment, students must be engaged in enterprise-building activities. Organization of events and competitions within and across institutions such as developing a business plan, supervised mainly by experienced academics or existing business owners, will help students to apply their learning to real-life situations (Belwal *et al.*, 2015). Developing synergies by combining students from different faculties (e.g. engineering and business) could help in boosting the entrepreneurial skills by exchanging ideas, information, and experience (Kailer, 2009). Based on the literature review, ten strategic drivers were identified (as shown in the list below) and used in the development of an ISM-based framework.

Strategic drivers for improving the role of universities in inducing an entrepreneurial mindset:

- (1) soft skills enhancement;
- (2) establishing incubation centres in universities;

- (3) embedding entrepreneurial courses across the curriculum;
- (4) positive interventions by the Government;
- (5) strengthening university-industry interaction;
- (6) providing a platform for budding entrepreneurs to interact;
- (7) providing opportunities to interact with role models;
- (8) developing synergies (inter- and intra-university);
- (9) technical skills improvement; and
- (10) innovation skills development.

Methodology

To achieve the research objectives, a questionnaire-based survey and ISM method were used. These methodologies and their results are discussed in the following sections.

Questionnaire survey

To assess the entrepreneurial intention, the scale developed by Goel *et al.* (2007) was used to collect the data, which comprised mainly the answers to closed-ended questions. To assess the personality traits of UAE young people, a modified scale of Big Five Personality Inventory (John and Srivastava, 1999) was used. Prior to survey administration, the face validity of these scales was evaluated in a series of meetings among the researchers. A list of Likert-scale items was produced and reviewed by the researchers, which ensured that items are clear and appropriately worded. The researchers conducted a formal “pre-test” of the questionnaire for clarity, comprehension, consistency, and the appropriateness of items on the questionnaire before the official data collection. As a result of the pre-test, several measures were modified and adjusted, and a final set was generated. The items show satisfactory internal reliability with a Cronbach's α of 0.802.

Questions elicited information on young people's demographic profile, socioeconomic and family background, acquired skills, experience in and exposure to a small business, and interest in starting a business in the future. The questionnaire consists of five sections: demographic details, socioeconomic status, family occupational background, personality traits, and entrepreneurial mindset. Demographic questions included age, gender, educational level, including entrepreneurship education, nationality, and work experience. There are approximately 71 higher education institutions across seven emirates in the UAE, most of which are located in Dubai and Abu Dhabi (UAE Ministry of Higher Education, 2014). The respondents were first- and second-year business students, aged 18-24 years, at public and private universities based in two major Emirates: Abu Dhabi and Dubai. A stratified sampling method was used to select the respondents based on their grades (B and above) from four public and four private universities. A total of 400 questionnaires were distributed in person and by e-mail, of which 244 were received with a response rate of 61 per cent. The data were collected between 2013 and 2015, and were analysed using SPSS software.

ISM

The ISM model allows the managers to prioritize firm resources in managing the issue at hand. Models developed using the ISM technique facilitate effective planning, scheduling, monitoring and control, thereby improving the effectiveness of the strategic process (Faisal and Talib, 2016). ISM has the strength that it can be either used as group learning process, or individually (Sage, 1977). Various steps involved in the ISM methodology can be

summarized as follows (Mandal and Deshmukh, 1994; Faisal and Al-Esmael, 2014; Khan *et al.*, 2015):

- Variables that are relevant to the problem or issues identified by exhaustive literature review, opinion of experts or survey.
- Brainstorming is carried out to arrive at contextual relationships among the variables, leading to the development of structural self-interaction matrix (SSIM).
- Initial and final reachability matrices are developed from the SSIM, keeping the transitive links in view. Transitive links are investigated by applying the rule that if a variable *X* impacts *Y* and *Y* impacts *Z*, then *X* necessarily has an impact on *Z*.
- Based on the relationships as deducted in the reachability matrix, a directed graph (DIGRAPH) is drawn and transitive links are removed.
- The resultant digraph is converted into an ISM by replacing element nodes with statements.
- The ISM model is reviewed to check for conceptual inconsistency, and the necessary modifications are made.

Findings of the empirical study

Respondent profile

Respondents comprised males 42 per cent and females 58 per cent to reflect the attitudes and preferences of both genders in the population of young people. Among the male respondents, 54 per cent were working and among the female respondents only 27 per cent were working. Only 37 per cent of males and females had attended entrepreneurship-related courses (Table I).

The data were analysed by two subgroups of males and females to understand their attitude towards entrepreneurship. Due to multiple responses for family occupation, only the responses in the business field were taken into consideration. The respondents were categorized into business and non-business familial background, and were also classified on the basis of their socioeconomic status as rich to upper middle class (50 per cent in males and 45 per cent in females) and middle to lower middle class (50 per cent in males and 55 per cent in females). The respondent profile breakdown by nationality is UAE nationals (36 per cent males and 7 per cent females), Arab expats (43 per cent males and 64 per cent females), and other countries (21 per cent males and 29 per cent females).

Respondents' employment preferences

Young people perceived entrepreneurship to be respected, rewarding, and a desirable employment opportunity to contribute towards the nation's development. The findings show that UAE's young people showed the strongest preference for starting their business. It is apparent that business students have an entrepreneurial mindset and an appetite for EE as a means to acquire relevant knowledge that they can utilize to inform career choice as proposed by previous studies in various national contexts (Jones *et al.*, 2011).

Category	Males		Females	
	Average	SD	Average	SD
Age	23.40	4.23	22	2.83
Years of stay in UAE	22.27	7.92	19.54	6.45
Total	102		142	

Table I.
Respondent profile

However, young males demonstrated a greater inclination towards starting their own businesses compared to the young females. This can be attributed to the gender differences that are highly influenced by the macro-level environment, specifically in the traditional culture. Empirical studies in MENA countries show that women demonstrate a lower likelihood of becoming entrepreneurs than their male counterparts (El Harbi *et al.*, 2009; Hattab, 2012). Gender roles assigned by society expect men to support their families and women to take care of house and family (Hattab, 2012). In addition, the business environment in most MENA countries is still highly dominated by men (Hattab, 2012). Hence, these informal cultural barriers still influence women's entrepreneurial behaviour such as becoming an entrepreneur or intending to grow their business in a traditional culture (Hattab, 2012; Calás *et al.*, 2009; El Harbi *et al.*, 2009). Similar findings were reported by Dabic *et al.* (2012) in their ten-country study, which showed that female students are less willing to start their own businesses, and despite of ample support by their families, they are less self-confident, more apprehensive, and more reluctant about entrepreneurship.

The second ranking employment preference was to work with a large multinational company and to have a government job in the UAE. The result is very positive and surprising, as government jobs are considered the most preferred and safe career options in the UAE and GCC region (Kirdar, 2010; Tahseen Consulting, 2014). The positive entrepreneurial intent shown in the above findings reflect the change in the mindset of UAE young people. The reasons can be numerous and varied, and can include government efforts to promote EE and various support provided by institutions for start-up ventures. In addition, social media and technology have played a pivotal role in creating awareness about the benefits of being an entrepreneur. The results reported are not in alignment with the previous studies by Goel *et al.* (2007), which reported that Indian and Chinese young people preferred entrepreneurship less in comparison to jobs with multinational companies, government, banks, etc. The reason can be attributed to the cultural differences in the Middle Eastern and Asian contexts. This also points to substantial differences in attitudes across countries. Attitudes towards entrepreneurship may be affected by the level of business and entrepreneurship skills and experience in a country, an economy's administrative framework for entry and growth, and bankruptcy regulations, as they shape perceived barriers and risks to business start-ups (The Innovation Policy Platform, 2015).

Furthermore, young people's attitude towards entrepreneurship was tested using the statements in the questionnaire from 1 to 9. The agreement reported here is a combination of "strongly agree" and "agree" choices. Similarly, disagreement was calculated by combining "strongly disagree" and "disagree" options. The results are expressed as frequency counts for the parameters which demonstrate positive attitude towards entrepreneurship. The critical value is $\chi^2 = 3.841$ with $\alpha = 0.05$ and degree of freedom equal to 1 (Table II).

The results from Table II show a significant outcome, such as both genders belonging to high and upper middle socioeconomic classes and being of the opinion that entrepreneurship is better than working for others. Furthermore, a significant result was observed in the case of females from high and upper middle classes who were of the opinion that entrepreneurs have good family life, are popular, and receive greater rewards in comparison to the hard work required. However, males from high and upper middle socioeconomic classes believe that entrepreneurship is respected in their society whereas no such significant result was observed in the case of females. This is very surprising and is in contrast to their previous opinion which points to a good family life and the popularity of being an entrepreneur. No significant result was observed when the respondents were asked their opinion on "my friends and I need to become entrepreneurs to make the United Arab Emirates prosperous". This reflects the idea that the respondents, while attending business courses, were nevertheless unable to establish a connection between the roles of

Variables	Socioeconomic status				Family occupational background			
	High to upper middle	Middle to lower middle	Test statistic	High to upper middle Females	Middle to lower middle Females	Test statistic	Non business Males	Non business Females
Entrepreneurship is better than working for others	55 (86%)	32 (94%)	5.0178*	64 (97%)	49 (75%)	6.793*	46 (85%)	61 (84%)
Entrepreneurs have a good family life	39 (81%)	35 (71%)	1.293	54 (95%)	49 (63%)	18.35**	42 (78%)	52 (71%)
Entrepreneurs are popular among my friends and my family members	42 (86%)	38 (78%)	1.088	59 (95%)	53 (66%)	17.521**	45 (83%)	55 (75%)
The rewards from entrepreneurship are greater in comparison to the hard work required	38 (78%)	36 (75%)	0.087	48 (77%)	46 (74%)	4.903*	40 (74%)	54 (74%)
Entrepreneurship is respected in my society	48 (98%)	43 (86%)	4.765*	86 (91%)	72 (92%)	0.172	50 (93%)	61 (86%)
Entrepreneurs pay their employees poorly	32 (67%)	33 (66%)	0.005	39 (65%)	47 (59%)	0.565	36 (67%)	48 (67%)
My friends and I need to become entrepreneurs to make the UAE prosperous	35 (74%)	42 (84%)	1.345	42 (68%)	49 (64%)	0.256	40 (74%)	52 (71%)
When looking for a life partner for my sister/cousin sister we would prefer an entrepreneur over a person who has a job	36 (64%)	29 (59%)	0.288	29 (47%)	37 (48%)	0.022	27 (50%)	38 (52%)
Entrepreneurs are rich	47 (80%)	20 (51%)	2.312	45 (73%)	44 (56%)	4.254*	34 (63%)	45 (62%)
Notes: * $p < 0.05$; ** $p < 0.001$								

Table II. Agreement (in %) with statements about entrepreneurship by socioeconomic status and family occupational background for males and females

entrepreneurship in economic development of a country. This finding requires further investigation as well as focus on the role of universities in establishing a practical linkage and a clear understanding between entrepreneurship and a nation's development. In the case of family occupational background, no significant results were observed in both genders.

Respondents' entrepreneurial mindset and socioeconomic status

To evaluate the relationships between socioeconomic status and attitudes towards entrepreneurship, the test statistic and critical value were measured for each of the nine statements by two subgroups male and female. The differences between the socioeconomic status were significant at $\alpha = 0.05$ for two out of nine statements for males and five out of nine statements for females. Overall, for the male subgroup the test statistic is 3.921, and for female subgroup the test statistic is 33.585 (Table III).

The socioeconomic status influences attitudes towards entrepreneurship and was well supported by both males and females. The significance level is more evident in the female subgroup than in the male subgroup (Table III). Several studies indicate that family plays an important role in the mobilization of financial resources during the initial stage (Steier and Greenwood, 2000). The career choice preference of an individual is at its highest point during student life and as such the influence of others, especially family and society, can determine entrepreneurial intention (Gelderen *et al.*, 2008; Leffel and Darling, 2009). Several scholars (Wilson *et al.*, 2007; Mueller, 2006) have argued that family role models influence the preferences for self-employment. Cetindamar *et al.* (2012) state that family capital can be beneficial especially in facilitating an individual's entrepreneurial entry in developing countries. In conclusion, previous studies on the relationship between individuals' household income and entrepreneurial activities reveal that both are positively correlated (Wiseman and Young, 2011).

To evaluate the relationships between familial occupational backgrounds and attitudes towards entrepreneurship, the test statistic and critical value were measured for each of the nine statements by two subgroups of males and females. The differences between the occupational backgrounds were non-significant for both males and females. Furthermore, the test statistic does not fall within the critical region. Overall, for the male subgroup the test statistic is 0.71 and for female subgroup the test statistic is 2.23 (Table IV).

The row variables are the five personality types and the column variables are the respondents with business/non business as their preferred career choice. In the data

Table III.
Summary statistics by
socioeconomic status

Socioeconomic status	Males Level of agreement	Female Level of agreement
Rich to upper middle	372 (79.3%)	466 (79.25%)
Poor to middle	308 (73.6%)	446 (64.5%)
Test statistic	3.921*	33.585**

Notes: * $p < 0.05$; ** $p < 0.00$

Table IV.
Summary statistics
by occupational
background

Family occupational background	Males Level of agreement	Female Level of agreement
Business	371 (66%)	359 (71%)
Non-business	307 (69%)	316 (66%)
Test statistic	0.71	2.23

analysis, raw scores obtained for each personality trait are converted to Z scores to enable to profile the personality of the respondents. Respondents who have ranked business as their career were profiled on the basis of their personality. Two-way ANOVA is conducted to test any interaction between various personality measures and career choice. The high p -value of the column variable in Table V denotes that there is no effect from the column factor (Table V). The p -value = 0.05 of row variable suggests that there is an interaction between the personality traits of young male respondents and their choice of career. Respondents who chose business as their career were found to be active, enthusiastic, and assertive at above average levels, suspicious and depressed at average levels, and emotionally unstable at below average levels. Respondents who did not choose business as their first career choice showed similar personality characteristics with the exception of suspicious and depressed traits below average levels.

The p -value of the column variable > 0.05 suggests that there is no effect from the column factor. In addition, the p -value = 0.052 of row variable suggests an interaction between the personality traits of young female respondents on their choice of career. Respondents who chose business as their career were found to have an average level of activity and depression, above average enthusiasm and assertiveness, and below average in trust and emotional instability. Respondents who did not choose business as their first career choice showed similar personality characteristics with the exception of depressed traits at above average levels. The results indicate an effect of personality traits in the career choice of young UAE males and females, which is also supported by previous studies (Majumdar and Varadarajan, 2013).

Interpretive structural model development

The main notion of ISM is to use experts' experience and knowledge to frame a complicated system into several sub-systems and construct a multilevel structural model (Bouzon *et al.*, 2015). In this study, we solicited experts' help both from academia and industry. From academia, six professors with active research interests in the area of entrepreneurship and small business management from four UAE-based universities were contacted. From industry, we approached ten entrepreneurs who received a bachelors or master's degree in business management from UAE-based universities. To keep our panel broad based, we tried to bring entrepreneurs from a variety of industries with a mix of manufacturing and services. After an initial discussion that involved explanation of the research objectives, four academics and six entrepreneurs agreed to support us in developing the ISM model. To familiarize these experts with the strategic drivers and the ISM process, a document was circulated. Finally, a brainstorming session was organized to develop the initial model by identifying the mutual relationships among the strategic drivers. In this session only three academicians and four entrepreneurs participated, the others cited some urgency for being unavailable. After several iterations, a consensus was reached regarding the final model based on the mutual relationships. The detailed step-wise methodology is mentioned in the following paragraphs.

Source	SS	MS	Test stat F	Critical F	p -value
<i>Males</i>					
Row variable	1.0456	1.0456	17.4119	18.5128	0.0529
Column variable	0.1478	0.0739	1.2306	19.000	0.4483
<i>Females</i>					
Row variable	0.7021	0.7021	17.5839	18.5128	0.052
Column variable	0.968	0.484	12.1226	19.000	0.076

Table V.
Two-way ANOVA
summary for male
and female
respondents

SSIM

To analyse the relationships among the strategic drivers, a contextual relationship of the “positive impact” type is considered. The relationship between any two strategic drivers (*i* and *j*) and the direction of this relationship is developed for all the variables. This would lead to the development of SSIM. Four symbols shown in Table VI are used to denote the direction of relationship between the strategic drivers (*i* and *j*).

Using the above analogies, Table VII depicts the existence and nature of relationships among the ten strategic drivers.

Reachability matrix

The SSIM as shown in Table VII is transformed into a binary matrix, called the initial reachability matrix (Table IX), by substituting *V*, *A*, *X*, *O* by 1 and 0 as per the rules mentioned in Table VIII. The transitive links are also considered and are indicated by *.

Table IX, which is the final reachability matrix, also provides the driving power and the dependence of each strategic driver, which are the sum of entries across row and column for each strategic driver. Driving power indicates the total number of drivers (including self), which a strategic driver can positively impact. Dependence of a strategic driver is the total number of strategic drivers (including self) that may be positively impacting it.

Nature of relationship		Symbol
<i>i</i> positively impacts <i>j</i>		<i>V</i>
<i>j</i> positively impacts <i>i</i>		<i>A</i>
<i>i</i> and <i>j</i> positively impact each other		<i>X</i>
<i>i</i> and <i>j</i> are unrelated		<i>O</i>

Table VI.
Nature of relationship
and the symbol

$\downarrow$ <i>i</i> Enablers	$j \longrightarrow$									
	10	9	8	7	6	5	4	3	2	
1. Soft skills enhancement	<i>O</i>	<i>X</i>	<i>O</i>	<i>X</i>	<i>X</i>	<i>A</i>	<i>O</i>	<i>A</i>	<i>A</i>	
2. Establishing incubation centres in universities	<i>X</i>	<i>V</i>	<i>A</i>	<i>O</i>	<i>V</i>	<i>A</i>	<i>A</i>	<i>X</i>		
3. Embedding entrepreneurial courses across the curriculum	<i>X</i>	<i>V</i>	<i>A</i>	<i>V</i>	<i>O</i>	<i>A</i>	<i>O</i>			
4. Positive interventions by the government	<i>O</i>	<i>O</i>	<i>V</i>	<i>O</i>	<i>O</i>	<i>V</i>				
5. Strengthening university-industry interaction	<i>V</i>	<i>V</i>	<i>X</i>	<i>V</i>	<i>V</i>					
6. Providing platform for budding entrepreneurs to interact	<i>O</i>	<i>X</i>	<i>A</i>	<i>X</i>						
7. Providing opportunities to interact with role models	<i>A</i>	<i>X</i>	<i>A</i>							
8. Developing synergies (inter- and intra-university)	<i>V</i>	<i>V</i>								
9. Technical skills improvement	<i>A</i>									
10. Innovation skills development										

Table VII.
Structural
self-interaction
matrix (SSIM)

	(<i>i</i> , <i>j</i>) entry in SSIM	(<i>i</i> , <i>j</i>) entry	(<i>j</i> , <i>i</i>) entry
Table VIII. Rules for transforming SSIM into a reachability matrix	<i>V</i>	1	0
	<i>A</i>	0	1
	<i>X</i>	1	1
	<i>O</i>	0	0

Table IX.
Final reachability
matrix

$i \downarrow$ strategic drivers	$j \rightarrow$	1	2	3	4	5	6	7	8	9	10	Driving power
1. Soft skills enhancement		1	0	0	0	0	1	1	0	1	0	4
2. Establishing incubation centres in universities		1	1	1	0	0	1	1 ^a	0	1	1	7
3. Embedding entrepreneurial courses across the curriculum		1	1	1	0	0	1 ^a	1	0	1	1	7
4. Positive interventions by the government		1 ^a	1	1 ^a	1	1	1 ^a	1 ^a	1	1 ^a	1 ^a	10
5. Strengthening university-industry interaction		1	1	1	0	1	1	1	1	1	1	9
6. Providing platform for budding entrepreneurs to interact		1	0	0	0	0	1	1	0	1	0	4
7. Providing opportunities to interact with role models		1	0	0	0	0	1	1	0	1	0	4
8. Developing synergies (inter- and intra-university)		1 ^a	1	1	0	1	1	1	1	1	1	9
9. Technical skills improvement		1	0	0	0	0	1	1	0	1	0	4
10. Innovation skills development		1 ^a	1	1	0	0	1 ^a	1	0	1	1	7
Dependence		10	6	6	1	3	10	10	3	10	6	

Level partitions

The final reachability matrix as shown in Table IX is utilized to develop the reachability set and antecedent set for each strategic driver. The reachability set can be found by examining the row of the reachability matrix while antecedent set consists of all the elements found in the column of each strategic driver (Warfield, 1974). Furthermore, an intersection of these two sets is also developed. Once this is completed for all the elements, an analysis is performed to determine the element for which the entries of the intersection set and the reachability are identical. These element(s) would be considered as the topmost element(s) in the hierarchy. This element would then be removed from the reachability set and the antecedent set of all the remaining elements. This iterative process is continued until the levels of all the variables under study are identified (iterations ii-iv) (Tables X and XI).

Deriving the final ISM-based model

From the literature review it is clear that the role of universities in improving entrepreneurial mindset among young people in the UAE is dependent on a number of strategic drivers and thus in place of considering their individual effect it would be helpful if the relationship among these strategic variables is presented in a form of a model. A digraph has been developed utilizing the entries in Table IX, after removal of transitive links the ISM model emerges as shown in Figure 1.

Enabler p_i	Reachability set $R(p_i)$	Antecedent set $A(p_i)$	Intersection set $R(p_i) \cap A(p_i)$	Level
1	1,6,7,9	1,2,3,4,5,6,7,8,9,10	1,6,7,9	I
2	1,2,3,6,7,9,10	2,3,4,5,8,10		
3	1,2,3,6,7,9,10	2,3,4,5,8,10		
4	1,2,3,4,5,6,7,8,9,10	4		
5	1,2,3,5,6,7,8,9,10	4,5,8		
6	1,6,7,9	1,2,3,4,5,6,7,8,9,10	1,6,7,9	I
7	1,6,7,9	1,2,3,4,5,6,7,8,9,10	1,6,7,9	I
8	1,2,3,5,6,7,8,9,10	4,5,8		
9	1,6,7,9	1,2,3,4,5,6,7,8,9,10	1,6,7,9	I
10	1,2,3,6,7,9,10	2,3,4,5,8,10		

Table X.
Iteration I (level
partitions)

Table XI.
Iteration ii-iv

Discussion on the ISM model

Understanding the strategic drivers of the role of universities in positively affecting the entrepreneurial mindset and the structural relationships among these strategic drivers would assist in understanding the complexity of the impacts and would help policymakers to develop strategies accordingly. Although entrepreneurship is accorded prime importance by the government in the UAE to reduce reliance of young people on government jobs, the role of universities in motivating young people to adopt entrepreneurship as an option is currently limited. The model presented in this study indicates that the most important strategic drivers in improving the role of universities in positively affecting entrepreneurial mindset are positive interventions by the government, strengthening university-industry interaction, and inter- and intra-university collaboration. The government should support universities in establishing incubation centres, as well as provide funds to create new courses focussed on entrepreneurship in both public and private universities across the UAE. The model shows that universities should establish incubation centres where young people with innovative ideas get the necessary support for start-ups. The model also shows that entrepreneurship should be embedded across the curriculum rather than be limited to business courses. From the final reachability matrix, it is clear that variables such as technical skills improvement, soft skills improvement, and providing a platform for budding entrepreneurs to interact and share ideas are dependent on lower-level variables as they have low driving power and high dependence. Thus, focus should be to improve variables with high driving power and low dependence, which are at the base of the ISM model as these variables will have maximum impact in improving the overall system.

Enabler p_i	Iteration	Reachability set $R(p_i)$	Antecedent set $A(p_i)$	Intersection set $R(p_i) \cap A(p_i)$	Level
2	ii	2,3,10	2,3,4,5,8,10	2,3,10	II
3	ii	2,3,10	2,3,4,5,8,10	2,3,10	II
4	iv	4	4	4	V
5	iii	5,8	4,5,8	5,8	IV
8	iii	5,8	4,5,8	5,8	IV
10	ii	2,3,10	2,3,4,5,8,10	2,3,10	II

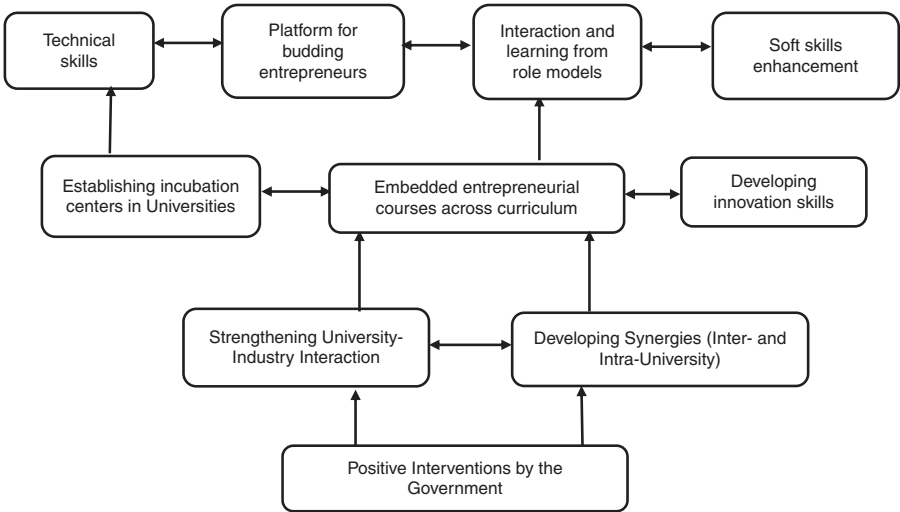


Figure 1.
ISM-based model for
the strategic drivers
improving the role
of universities in
enhancing the
entrepreneurial
mindset among young
people in the UAE

Implications of the research

The theoretical contribution of this study is that it adds to the empirical evidence on the cognitive characteristic of individuals as a predictor of behavioural intention given that intention predicts behaviour. The study also revealed that socioeconomic conditions are an influential factor in the entrepreneurial start-up process, and affirms the role of education in entrepreneurial development in a collectivistic society. The practical implications of the findings will influence business practices and educational training. Business schools can use the findings to design robust courses and school activities to enhance entrepreneurial understanding at the foundation level. Furthermore, the study provides insights about the entrepreneurial perception of young people in the UAE, and would help policymakers in designing/formulating suitable strategies that will encourage young males and females to become entrepreneurs. The study reveals that the majority of the respondents were not aware of the entrepreneurship courses/education offered by the universities and have not attended it in their first or second year of their educational journey. It must be mentioned here that a limited number of UAE higher educational institutions offer entrepreneurship-related courses in either their third or fourth year of undergraduate studies (Ashour, 2016). Thus, this study will encourage UAE higher education institutions to formulate specific entrepreneurship courses in their first and second year curricula.

The study shows that if an educational institution provides adequate knowledge and inspiration for entrepreneurship, the possibility that young people might choose an entrepreneurial career might increase. It is obvious that this result confirms the key role of education in the development of entrepreneurial intention. UAE's youth, regardless of nationality, were positive about the decision to become entrepreneurs. These results clearly point to the influence of early exposure to entrepreneurship education. Early exposure to EE can help develop skills and attitudes that could enable them to approach their lives and careers with broader strokes and to consider more possibilities and opportunities, including the option to start their own businesses. Furthermore, to capitalize on the effectiveness of education and nurturing students' entrepreneurial intentions, entrepreneurship education programmes should be tailored to meet the needs of both genders and accentuate dynamics that are prominent to each group. In setting up programmes and designing intervention to encourage entrepreneurship it may be best to provide inputs at the higher secondary school level rather than after the person has completed professional/graduate level education or when the person has failed to get a job, which is unfortunately the target of most entrepreneurship development institutions. The ISM model presented in this study will give an impetus to UAE policymakers and educational institutions to improve the variables with high driving power and hence will improve the overall system of promoting youth entrepreneurship in the UAE.

Limitations and scope for future research

While this paper has provided fruitful initial insights of the entrepreneurial intent of young people in the UAE, the study admittedly has a number of limitations. The findings stem from the study of young people from only two Emirates; therefore, the results while relevant for the UAE and the Gulf region may not be generalizable to countries in other regions. Future research could therefore also explore the entrepreneurial mindset of youths with formal entrepreneurial training through a specific course or youths who take business but are perhaps supported in other ways to consider entrepreneurial behaviour. Future research should address these limitations and focus on larger samples from within all Emirates, with a broader range of variables, and expand into the GCC countries.

Conclusions

This study reveals a positive attitude among UAE young people towards entrepreneurship. Young people perceived entrepreneurship to be respected and rewarding and a desirable

way to contribute to the country's development. This is evident from the rankings where entrepreneurship was the most preferred career choice of UAE young people. The findings suggest that there is no difference in the entrepreneurial intention of young people coming from a business occupational background and those coming from a non-business background. The findings are in alignment with the study by Sharma (2014) in the context of developing countries. The reason can be attributed to the youth awareness and education and their growing involvement in the country's economic development.

This study extensively summarizes and corroborates many previous findings in entrepreneurship research. The strongest and most direct influence on the probability of being an entrepreneur among young people in the UAE is attributed to gender. Hence, young males in MENA countries have stronger entrepreneurial intention than young females. Females exhibit a lower likelihood of establishing their own business compared to men, and this seems to be a general phenomenon (Setti, 2014; Santos *et al.*, 2016). Furthermore, we found strong evidence that socioeconomic status has a significant and a positive impact on entrepreneurial intention among UAE young people. The ISM model specifies that the most important strategic drivers are progressive government interferences, strengthening an interface between corporate-educational institutions, and inter- and intra-university collaboration. The research findings are in alignment with previous research by Cheraghi and Scott (2015), who reported that entrepreneurial teaching is equally important during pre- and post-schooling, and is extremely useful in increasing proficiencies during professional phases.

The results of this study will help strengthen the argument that entrepreneurship is influenced by the past activities in the target region. Simple announcement of concessions and other policies may not lead to entrepreneurial activity unless people are convinced of the benefits of becoming entrepreneurs. The entrepreneurship journey will be pleasant if it comes from exposure, presence of role models, and a vibrant economy that is able to absorb risks and encourage risk-taking, etc. Therefore, existing entrepreneurs and tacit knowledge about running enterprises would be a good source of motivation and information for people who would be interested in entrepreneurial activity. Based on this study, the educational system and the business community can be encouraged to invest in training to develop and nurture entrepreneurship at an early age. Investment in entrepreneurship should therefore have long-term positive effects on economic development and global competitiveness by creating an entrepreneurial culture for our young people. Nevertheless, this study has made a modest and novel contribution in the effort to promote youth entrepreneurship in the UAE.

References

- Ajzen, I. (1991), "The theory of planned behavior", *Organizational Behavior and Human Decision Processes*, Vol. 50 No. 2, pp. 179-211.
- Ali, D.F. (2013), "The process of impact of entrepreneurship education and training on entrepreneurship perception and intention", *Education + Training*, Vol. 55 Nos 8/9, pp. 868-885.
- Altinay, L., Madanoglu, M., Daniele, R. and Lashley, C. (2014), "The influence of family tradition and psychological traits on entrepreneurial intention", *International Journal of Hospitality Management*, Vol. 31 No. 2, pp. 489-499.
- Al-Waqfi, M.A. and Forstenlechner, I. (2012), "Of private sector fear and prejudice", *Personnel Review*, Vol. 41 No. 5, pp. 609-629.
- Anderson, A.R. (2011), "The university's role in developing Chinese entrepreneurship", *Journal of Chinese Entrepreneurship*, Vol. 3 No. 3, pp. 175-184.
- Ashour, S. (2016), "Social and business entrepreneurship as career options for university students in the United Arab Emirates: the drive-preparedness gap", *Cogent Education*, Vol. 3 No. 1, pp. 1-18.

-
- Awogbenle, A.C. and Iwuamadi, K.C. (2010), "Youth unemployment: entrepreneurship development programme as an intervention mechanism", *African Journal of Business Management*, Vol. 4 No. 6, pp. 831-835.
- Bandura, A. (2001), "Social cognitive theory: an agentic perspective", *Annual Review of Psychology*, Vol. 52, pp. 1-26.
- Belwal, R., Al Balushi, H. and Belwal, S. (2015), "Students' perception of entrepreneurship and enterprise education in Oman", *Education + Training*, Vol. 57 Nos 8/9, pp. 924-947.
- Bouzon, M., Govindan, K. and Rodriguez, C.M.T. (2015), "Reducing the extraction of minerals: reverse logistics in the machinery manufacturing industry sector in Brazil using ISM approach", *Resources Policy*, Vol. 46 No. 1, pp. 27-36.
- Buli, B.M. and Yesuf, W.M. (2015), "Determinants of entrepreneurial intentions", *Education + Training*, Vol. 57 Nos 8/9, pp. 891-907.
- Busenitz, L.C., West, G.P. III, Shepherd, D., Nelson, T., Chandler, G.N. and Zacharakis, A. (2003), "Entrepreneurial research in emergence: past trends and future directions", *Journal of Management*, Vol. 29 No. 3, pp. 285-308.
- Calás, M.B., Smircich, B., Bourne, L. and Kristina, A. (2009), "Extending the boundaries: reframing 'entrepreneurship as social change' through feminist perspectives", *Academy of Management Review*, Vol. 34 No. 3, pp. 552-569.
- Caliendo, M. and Kritikos, A. (2012), "Searching for the entrepreneurial personality: new evidence and avenues for further research", *Editorial/Journal of Economic Psychology*, Vol. 33 No. 2, pp. 319-324.
- Carree, M.A. and Thurik, R.A. (2010), "The impact of entrepreneurship on economic growth", in Acs, Z.J. and Audretsch, D.B. (Eds), *Handbook of Entrepreneurship Research*, International Handbook Series on Entrepreneurship, Springer, Berlin, pp. 557-594.
- Cetindamar, D., Gupta, V.K., Karadeniz, E.E. and Egrican, N. (2012), "What the numbers tell: the impact of human, family and financial capital on women and men's entry into entrepreneurship in Turkey", *Entrepreneurship and Regional Development*, Vol. 24 Nos 1/2, pp. 29-51.
- Chen, W.U., Weng, C.S. and Hsu, W. (2010), "A study of the entrepreneurship of Taiwanese youth by the Chinese entrepreneur aptitude scale", *Journal of Technology Management in China*, Vol. 5 No. 1, pp. 26-39.
- Cheraghi, M. and Scott, T. (2015), "Education and training benefiting a career as entrepreneur: gender gaps and gendered competencies and benefits", *International Journal of Gender and Entrepreneurship*, Vol. 7 No. 3, pp. 321-343.
- Chlosta, S., Patzelt, H., Klein, S.B. and Dormann, C. (2012), "Parental role models and the decision to become self-employed: the moderating effect of personality", *Small Business Economics*, Vol. 38 No. 1, pp. 121-138.
- Dabic, M., Daim, T., Bayraktaroglu, E., Novak, I. and Basic, M. (2012), "Exploring gender differences in attitudes of university students towards entrepreneurship: an international survey", *International Journal of Gender and Entrepreneurship*, Vol. 4 No. 3, pp. 316-336.
- Davey, T., Plewa, C. and Struwig, M. (2011), "Entrepreneurship perceptions and career intentions of international students", *Education + Training*, Vol. 53 No. 5, pp. 335-352.
- David, R. and Naomi, R.W.S. (2013), "How does enterprise and entrepreneurship education influence postgraduate students' career intentions in the new era economy?", *Education + Training*, Vol. 55 Nos 8/9, pp. 926-948.
- De Carolis, D.M. and Saparito, P. (2006), "Social capital, cognition, and entrepreneurial opportunities: a theoretical framework", *Entrepreneurship Theory and Practice*, Vol. 30 No. 1, pp. 41-56.
- El Harbi, S., Anderson, A. and Mansour, N. (2009), "The attractiveness of entrepreneurship for females and males in a developing Arab muslim country; entrepreneurial intentions in Tunisia", *International Business Research*, Vol. 2 No. 3, pp. 47-53.
- Elali, W. and Al-Yacoub, B. (2016), "Factors affecting entrepreneurial intentions among Kuwaitis", *World Journal of Entrepreneurship, Management and Sustainable Development*, Vol. 12 No. 1, pp. 18-34.

- Faisal, M.N. and Al-Esmael, B.A. (2014), "Modeling the enablers of organizational commitment", *Business Process Management Journal*, Vol. 20 No. 1, pp. 25-46.
- Faisal, M.N. and Talib, F. (2016), "E-government to m-government: a study in a developing economy", *International Journal of Mobile Communications*, Vol. 14 No. 6, pp. 568-592.
- Franke, N. and Luthje, C. (2004), "Entrepreneurial intentions of business students: a benchmarking study", *International Journal of Innovation and Technology Management*, Vol. 1 No. 3, pp. 269-288.
- Gallant, M., Majumdar, S. and Varadarajan, D. (2010), "Outlook of female students towards entrepreneurship: an analysis of a selection of business students in Dubai", *Education, Business and Society: Contemporary Middle Eastern Issues*, Vol. 3 No. 3, pp. 218-230.
- Gelderen, M., Brand, M., Praag, M., Bodewes, W., Poutsam, E. and Gils, A. (2008), "Explaining entrepreneurial intentions by means of theory of planned behavior", *Career Development International*, Vol. 13 No. 6, pp. 538-559.
- Gerba, D.T. (2012), "The context of entrepreneurship education in Ethiopian universities", *Management Research Review*, Vol. 35 Nos 3/4, pp. 225-244.
- Goel, A., Vohra, N., Zhang, L. and Arora, B. (2007), "Attitudes of the youth towards entrepreneurs and entrepreneurship: a cross-cultural comparison of India and China", *Journal of Asia Entrepreneurship and Sustainability*, Vol. 3 No. 1, pp. 29-63.
- Hamidi, D.Y., Wennberg, K. and Berglund, H. (2008), "Creativity in entrepreneurship education", *Journal of Small Business and Enterprise Development*, Vol. 15 No. 2, pp. 304-320.
- Hattab, H.W. (2012), "Towards understanding female entrepreneurship in Middle Eastern and North African countries: a cross-country comparison of female entrepreneurship", *Education, Business and Society: Contemporary Middle Eastern Issues*, Vol. 5 No. 3, pp. 171-186.
- Henry, C. and Treanor, L. (2012), "Exploring entrepreneurship education within veterinary medicine: can it be taught?", *Journal of Small Business and Enterprise Development*, Vol. 19 No. 3, pp. 484-499.
- Hindle, K., Klyver, K. and Jennings, D.F. (2009), "An 'informed' intent model: incorporating human capital, social capital, and gender variables into the theoretical model of entrepreneurial intentions", in Carsrud, A. and Brännback, M. (Eds), *Understanding the Entrepreneurial Mind: Opening the Black Box*, Springer, Dordrecht, Heidelberg, and New York, NY, pp. 35-50.
- Hughes, K.D., Jennings, J.E., Brush, C.G., Carter, S. and Welter, F. (2012), "Extending women's entrepreneurship research in new directions", *Entrepreneurship Theory and Practice*, Vol. 36 No. 3, pp. 429-442.
- Hynes, B. and Richardson, I. (2007), "Entrepreneurship education: a mechanism for engaging and exchanging with the small business sector", *Education and Training*, Vol. 49 Nos 8/9, pp. 732-744.
- Iglesias-Sánchez, P.P., Jambrino-Maldonado, C., Velasco, A.P. and Kokash, H. (2016), "Impact of entrepreneurship programmes on university students", *Education+Training*, Vol. 58 No. 2, pp. 209-228.
- International Labour Organization (ILO) (2015), "Global employment trends for youth 2015: scaling up investments in decent jobs for youth", available at: www.ilo.org/wcmsp5/groups/public/-dgreports/-dcomm/-publ/documents/publication/wcms_412015.pdf (accessed 6 January 2015).
- Jabeen, F., Katsioloudes, M.I. and Das, S.S. (2015), "Is family the key? Exploring the motivation and success factors of female Emirati entrepreneurs", *International Journal of Entrepreneurship and Small Business*, Vol. 25 No. 4, pp. 375-394.
- John, O.P. and Srivastava, S. (1999), "The big-five trait taxonomy: history, measurement, and theoretical perspectives", in Pervin, L.A. and John, O.P. (Eds), *Handbook of Personality: Theory and Research*, Guilford Press, New York, NY, pp. 102-138.
- Jones, P., Miller, C., Jones, A., Packham, G., Pickernell, D. and Zbierowski, P. (2011), "Attitudes and motivations of polish students towards entrepreneurial activity", *Education and Training*, Vol. 53 No. 5, pp. 416-432.

- Kailer, N. (2009), "Entrepreneurship education: empirical findings and proposals for the design of entrepreneurship education concepts at universities in German-speaking countries", *Journal of Enterprising Culture*, Vol. 17 No. 2, pp. 201-231.
- Kakouris, A. (2016), "Exploring entrepreneurial conceptions, beliefs and intentions of Greek graduates", *International Journal of Entrepreneurial Behavior and Research*, Vol. 22 No. 1, pp. 109-132.
- Khaleej Times* (2015), "Right education, right direction: making UAE's youth stand out", available at: www.khaleejtimes.com/nation/education/right-education-right-direction-making-uae-s-youth-stand-out (accessed 23 June 2016).
- Khalifa Fund (2013), "Youth and entrepreneurship in the UAE", available at: <http://adeforum.com/wp-content/uploads/2013/10/Youth-Entrepreneurship-Presentation.pdf> (accessed 26 June 2016).
- Khan, H., Talib, F. and Faisal, M.N. (2015), "An analysis of the barriers to the proliferation of m-commerce in Qatar: a relationship modeling approach", *Journal of Systems and Information Technology*, Vol. 17 No. 1, pp. 54-81.
- Kirdar, S. (2010), "Women's education in the GCC – the road ahead", *Higher Education and the Middle East: Empowering Under-served and Vulnerable Populations (Viewpoints Special Edition)*, The Middle East Institute, Washington, DC, pp. 18-21.
- Klinger, B. and Schündeln, M. (2011), "Can entrepreneurial activity be taught? Quasi-experimental evidence from Central America", *World Development*, Vol. 39 No. 9, pp. 1592-1610.
- Klofsten, M. (2000), "Training entrepreneurship at universities: a Swedish case", *Journal of European Industrial Training*, Vol. 24 No. 6, pp. 337-344.
- Krueger, N.F.J., Reilly, M.D. and Carsrud, A.L. (2000), "Competing models of entrepreneurial intention", *Journal of Business Venturing*, Vol. 15 Nos 5/6, pp. 411-432.
- Lavolette, E.M., Lefebvre, M.R. and Brunel, O. (2012), "The impact of story bound entrepreneurial role models on self-efficacy and entrepreneurial intention", *International Journal of Entrepreneurial Behavior and Research*, Vol. 18 No. 6, pp. 720-742.
- Leffel, A. and Darling, J. (2009), "Entrepreneurial versus organizational employment preferences: a comparative study of European and American respondents", *Journal of Entrepreneurship Education*, Vol. 12, pp. 79-92.
- Lundqvist, M.A. and Middleton, K.L.W. (2013), "Academic entrepreneurship revisited – university scientists and venture creation", *Journal of Small Business and Enterprise Development*, Vol. 20 No. 3, pp. 603-617.
- Luthje, C. and Franke, N. (2003), "The 'making' of an entrepreneur: testing a model of entrepreneurial intent among engineering students at MIT", *R&D Management*, Vol. 33 No. 2, pp. 135-47.
- 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.
- Madichie, N. and Gallant, M. (2012), "Broken silence: a commentary on women's entrepreneurship in the United Arab Emirates", *International Journal of Entrepreneurship and Innovation*, Vol. 13 No. 2, pp. 81-92.
- Mahadea, D., Ramroop, S. and Zewotir, T. (2011), "Assessing entrepreneurship perceptions of high school learners in Pietermaritzburg, Kwazulu-Natal", *South African Journal of Economics and Management Science*, Vol. 14 No. 1, pp. 66-79.
- Majumdar, S. and Varadarajan, D. (2013), "Students' attitude towards entrepreneurship: does gender matter in the UAE?", *Foresight*, Vol. 15 No. 4, pp. 278-293.
- Mandal, A. and Deshmukh, S.G. (1994), "Vendor selection using interpretive structural modeling (ISM)", *International Journal of Operations and Production Management*, Vol. 14 No. 6, pp. 52-59.
- Matlay, H. (2008), "The impact of entrepreneurship education on entrepreneurial outcomes", *Journal of Small Business and Enterprise Development*, Vol. 15 No. 2, pp. 382-396.
- Matlay, H. (2010), "Introduction: contemporary perspectives on entrepreneurship education and training", *Journal of Small Business and Enterprise Development*, Vol. 17 No. 4, pp. 127-145.

- Millman, C., Li, Z., Matlay, H. and Wong, W. (2010), "Entrepreneurship education and students' internet entrepreneurship intentions: evidence from Chinese HEIs", *Journal of Small Business and Enterprise Development*, Vol. 17 No. 4, pp. 569-590.
- Mohamad, N., Lim, H., Yusof, N. and Soon, J. (2015), "Estimating the effect of entrepreneur education on graduates' intention to be entrepreneurs", *Education + Training*, Vol. 57 No. 8/9, pp. 874-890.
- Mok, K.H. (2012), "The quest for innovation and entrepreneurship: the changing role of university in East Asia", *Globalisation, Societies and Education*, Vol. 10 No. 3, pp. 317-335.
- Morris, M. and Schindehutte, M. (2005), "Entrepreneurial values and the ethnic enterprise: an examination of six subcultures", *Journal of Small Business Management*, Vol. 43 No. 4, pp. 453-479.
- Mueller, P. (2006), "Entrepreneurship in the region: breeding ground for nascent entrepreneurs?", *Small Business Economics*, Vol. 27 No. 1, pp. 41-58.
- Muhammad, A., Akbar, S. and Dalziel, M. (2011), "The journey to develop educated entrepreneurs: prospects and problems of Afghan businessmen", *Education + Training*, Vol. 53 No. 5, pp. 433-447.
- Mutsuddi, I. (2012), "Starting entrepreneurship cells in business schools: roadmap and challenges", *Sona Global Management Review*, Vol. 6 No. 4, pp. 61-75.
- Neck, H. and Greene, P. (2011), "Entrepreneurship education: known worlds and new frontiers", *Journal of Small Business Management*, Vol. 49 No. 10, pp. 55-70.
- Pereznieto, P. and Harding, J.H. (2013), *Investing in Youth in International Development Policy: Making the Case*, Overseas Development Institute, London.
- Piperopoulos, P. (2012), "Could higher education programmes, culture and structure stifle the entrepreneurial intentions of students?", *Journal of Small Business and Enterprise Development*, Vol. 19 No. 3, pp. 461-483.
- Polin, B.A., Ehrman, C.M. and Kay, A. (2016), "Understanding parental and gender impact on entrepreneurial intentions", *Journal of Small Business and Entrepreneurship*, Vol. 28 No. 4, pp. 267-283.
- Rasheed, H.S. (2002), "Developing entrepreneurial characteristics in youth: the effects of education and enterprise experience", available at: <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.197.3346&rep=rep1&type=pdf> (accessed 29 December 2013).
- Rasmussen, E. and Borch, O.J. (2010), "University capabilities in facilitating entrepreneurship: a longitudinal study of spin-off ventures at mid-range universities", *Research Policy*, Vol. 39 No. 5, pp. 602-612.
- Ryan, J.C., Tipu, S.A. and Zeffane, R.M. (2011), "Need for achievement and entrepreneurial potential: a study of young adults in the UAE", *Education, Business and Society: Contemporary Middle Eastern Issues*, Vol. 4 No. 3, pp. 153-166.
- Sage, A.P. (1977), *Interpretive Structural Modeling: Methodology for Large-Scale Systems*, McGraw-Hill, New York, NY.
- Santos, F.J., Roomi, M.A. and Liñán, F. (2016), "About gender differences and the social environment in the development of entrepreneurial intentions", *Journal of Small Business Management*, Vol. 54 No. 1, pp. 49-66.
- 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: an Austrian perspective", *Education + Training*, Vol. 51 No. 4, pp. 272-291.
- Setti, Z. (2014), "Entrepreneurial intentions among youth in MENA countries: effects of gender, education, occupation, income", *YIRCoBS'14 Conference, Istanbul, 14-15 November*.
- Shane, S., Locke, E.A. and Collins, C.J. (2003), "Entrepreneurial motivation", *Human Resource Management Review*, Vol. 13 No. 2, pp. 257-279.
- Sharma, L. (2014), "Impact of family capital and social capital on youth entrepreneurship – a study of Uttarakhand state, India", *Journal of Global Entrepreneurship Research*, Vol. 4 No. 14, pp. 1-18.
- Shim, S., Barber, B.L., Card, N.A., Xiao, J.J. and Serido, J. (2010), "Financial socialization of first-year college students: the roles of parents, work, and education", *Journal of Youth and Adolescence*, Vol. 39 No. 12, pp. 1457-1470.

- Solesvik, M., Westhead, P. and Matlay, H. (2014), "Cultural factors and entrepreneurial intention", *Education + Training*, Vol. 56 Nos 8/9, pp. 680-696.
- Solesvik, M.Z., Westhead, P., Matlay, H. and Parsyak, V.N. (2013), "Entrepreneurial assets and mindsets", *Education + Training*, Vol. 55 Nos 8/9, pp. 748-762.
- Steier, L. and Greenwood, R. (2000), "Entrepreneurship and the evolution of angel financial networks", *Organization Studies*, Vol. 21 No. 1, pp. 163-192.
- Tahseen Consulting (2014), "Female labor market participation", available at: <http://tahseen.ae/blog/?tag=female-labor-market-participation> (accessed 6 January 2016).
- The Innovation Policy Platform (2015), "Attitudes towards entrepreneurship", available at: www.innovationpolicyplatform.org/content/attitudes-towards-entrepreneurship (accessed 9 January 2016).
- Tolentino, L.R., Sedoglavich, V., Lu, V., Garcia, P.R.J.M. and Restubog, S.L.D. (2014), "The role of career adaptability in predicting entrepreneurial intentions: a moderated mediation model", *Journal of Vocational Behavior*, Vol. 85 No. 3, pp. 403-412.
- Trivedi, R. (2016), "Does university play significant role in shaping entrepreneurial intention? A cross-country comparative analysis", *Journal of Small Business and Enterprise Development*, Vol. 23 No. 3, pp. 790-811.
- UAE Ministry of Higher Education (2014), "The UAE Higher Education Factbook 2013/2014", available at: www.mohe.gov.ae/En/ServicesIndex/Documents/UAE-factbook24Feb-en-CDversion.pdf (accessed 23 June 2016).
- Varadarajan, D., Majumdar, S. and Gallant, M. (2010), "Relevance of education for potential entrepreneurs: an international investigation", *Journal of Small Business and Enterprise Development*, Vol. 17 No. 4, pp. 626-640.
- Varamäki, E., Joensuu, S., Tornikoski, E. and Viljamaa, A. (2015), "The development of entrepreneurial potential among higher education students", *Journal of Small Business and Enterprise Development*, Vol. 22 No. 3, pp. 563-589.
- Walter, S.G. and Block, J.H. (2016), "Outcomes of entrepreneurship education: an institutional perspective", *Journal of Business Venturing*, Vol. 31 No. 2, pp. 216-233.
- Warfield, J.W. (1974), "Developing interconnected matrices in structural modeling", *IEEE Transactions on Systems Man and Cybernetics*, Vol. 4 No. 1, pp. 51-81.
- Westhead, P. and Solesvik, M.Z. (2016), "Entrepreneurship education and entrepreneurial intention: do female students benefit?", *International Small Business Journal*, Vol. 34 No. 8, pp. 979-1003, doi: 10.1177/0266242615612534.
- Westhead, P., Wright, M. and McElwee, G. (2011), *Entrepreneurship: Perspectives and Cases*, Pearson Education Limited, Harlow.
- Wilson, F., Kickul, J. and Marlino, D. (2007), "Gender, entrepreneurial self efficacy and entrepreneurial career intentions: implication for entrepreneurship education", *Entrepreneurship: Theory and Practice*, Vol. 31 No. 3, pp. 387-406.
- Wiseman, T. and Young, A.T. (2011), "Economic freedom, entrepreneurship and income levels: Some US state-level empirics", Working Papers 11-03, Department of Economics, West Virginia University.
- World Bank Report (2014), "Employment to population ratio", available at: <http://data.worldbank.org/indicator/SL.EMP.1524.SP.ZS?locations=AE> (accessed 2 November 2016).

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