

The moderating role of gender in shaping entrepreneurial intentions: Implications for vocational guidance

Afsaneh Bagheri · Zaidatol Akmaliah Lope Pihie

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Abstract This study examines the relationships among attitude toward entrepreneurship, entrepreneurial self-efficacy, subjective norms, social valuation of entrepreneurship, and entrepreneurial intentions and how gender affects the relationships. Structural equation modeling was used to analyze the responses obtained from 719 Malaysian students across five universities. The results suggest gender significantly moderates the relationship between students' entrepreneurial intention and its antecedents. While entrepreneurial attitude and self-efficacy had greater effects on males' intentions to become entrepreneurs, entrepreneurial attitude and subjective norms had stronger impact on females' entrepreneurial intentions. Furthermore, social valuation of entrepreneurship had an indirect relationship with entrepreneurial intention through self-efficacy and subjective norms.

Résumé. Le rôle modérateur du genre dans le façonnement des intentions entrepreneuriales: Implications pour le conseil et l'orientation. Cette étude examine les relations entre les attitudes envers l'entrepreneuriat, le sentiment d'efficacité personnelle entrepreneurial, les normes subjectives, la valeur sociale de l'entrepreneuriat et les intentions entrepreneuriales, ainsi que la manière dont le genre influence ces relations. Des modèles d'équations structurales sont utilisés pour analyser les réponses de 719 étudiants Malaisiens provenant de cinq universités. Les résultats suggèrent que le genre modère de manière significative la relation entre l'intention entrepreneuriale des étudiants et ses antécédents. Alors que les attitudes entrepreneuriales et le sentiment d'efficacité personnelle ont un plus grand effet sur les attitudes entrepreneuriales des hommes, les attitudes entrepreneuriales et les

A. Bagheri (✉)
Faculty of Entrepreneurship, University of Tehran, Tehran, Iran
e-mail: af.bagheri@ut.ac.ir

Z. A. Lope Pihie
Faculty of Educational Studies, University Putra Malaysia, Serdang, Malaysia

normes subjectives ont davantage d'impact sur les attitudes entrepreneuriales des femmes. De plus, la valeur sociale de l'entrepreneuriat est indirectement liée aux intentions entrepreneuriales au travers du sentiment d'efficacité personnelle et des normes subjectives.

Zusammenfassung. Die moderierende Rolle von Geschlecht in der Gestaltung von unternehmerischen Absichten: Implikationen für die Berufsberatung. Diese Studie untersucht die Beziehungen zwischen der Einstellung zum Unternehmertum, unternehmerischer Selbstwirksamkeit, subjektiven Normen, sozialer Bewertung von Unternehmertum, unternehmerischen Absichten und wie das Geschlecht die Beziehungen beeinflusst. Für die Analyse der 719 malaysischen Studenten von fünf Universitäten wurden Strukturgleichungsmodelle verwendet. Die Ergebnisse deuten darauf hin, dass das Geschlecht die Beziehung zwischen der unternehmerischen Absicht der Studenten und deren Prädiktoren signifikant moderiert. Während die unternehmerische Einstellung und Selbstwirksamkeit eine größere Auswirkung auf die Absicht Unternehmer zu werden bei den Männern aufzeigte, wiesen unternehmerische Einstellung und subjektive Normen eine stärkere Auswirkung auf die unternehmerischen Absichten der Frauen auf. Darüber hinaus hatte die soziale Bewertung des Unternehmertums vermittelt durch Selbstwirksamkeit und die subjektive Normen eine indirekte Beziehung mit der unternehmerischen Absicht.

Resumen. El efecto del género en la formación del espíritu emprendedor: Implicaciones para la orientación profesional. Este trabajo estudia las relaciones entre la actitud frente al emprendedurismo, la autosuficiencia emprendedora, la subjetividad, la valoración del emprendedurismo a nivel social y el propio espíritu emprendedor, así como el efecto del género sobre dichas relaciones. Se analizaron las respuestas de 719 estudiantes malayos de cinco universidades distintas mediante un procedimiento de modelización por ecuación estructural (*structural equation modeling*). Los resultados obtenidos parecen indicar que el género influye de manera significativa en la relación entre la actitud previa o tradicional de los estudiantes frente al emprendedurismo y su espíritu emprendedor. En el caso de los hombres, el espíritu emprendedor y la confianza en uno mismo determinaron mayoritariamente la voluntad de emprender. En el caso de las mujeres, los factores determinantes resultaron ser el espíritu emprendedor y las barreras subjetivas. Además de esto, se detectó una influencia indirecta entre la valoración social del emprendedurismo y la voluntad emprendedora, a través de los factores de autoconfianza y subjetividad.

Keywords Entrepreneurial intention · Entrepreneurial attitude · Self-efficacy

Within the last few decades, entrepreneurial intention has received an increasing international interest specifically among entrepreneurship scholars (e.g., DeClercq, Benson, & Martin, 2012, in Canada; Douglas, 2013, in Thailand; Lope Pihie & Bagheri, 2013, in Malaysia). Several comparative studies have also investigated

entrepreneurial intentions across different countries (e.g., Gupta, Turban, Wastiand, & Sikdar, 2009; Verheul, Thurik, Grilo, & Zwan, 2012; Zellweger, Sieger, & Halter, 2011). The increasing attention given to exploring entrepreneurial intention is due to the critical importance of intention for predicting individuals' choice of vocation, entrepreneurial goals, plans, and efforts (Ajzen, 1991; Elfving, Brännback, & Carsrud, 2009; Kickul, Wilson, & Marlino, 2008) and consequently their real engagement in entrepreneurship (Verheul et al., 2012). This attention is also due to the significant role that entrepreneurship, defined as creating new ventures (Schumpeter, 1965), plays in socio and economic growth of both developed and developing countries, including Malaysia (Cheng, Chan, & Mahmood, 2009; Mastura & Abdul Rashid, 2008; Matlay, 2006). Entrepreneurship has also been considered as an effective solution to various economic and social concerns that the country is struggling with; in particular, increasing graduate unemployment (Firdaus, Hamali, Rahman Deen, Saban, & Abg Abdurahman, 2009; Mastura & Abdul Rashid, 2008). As such, Malaysian policy makers have been developing various strategies to encourage and support people, and especially women, to establish their own businesses (Teoh & Chong, 2008). However, globally, women are less interested and involved in entrepreneurship (Gupta et al., 2009; Verheul et al., 2012), and women in Malaysia are no exception (Teoh & Chong, 2008).

A robust body of literature has examined the factors that create the gap between males and females in their entrepreneurial intentions particularly among university students (Gupta et al., 2009; Gupta, Turban, & Bhawe, 2008; Wilson, Kickul, & Marlino, 2007). Exploring these factors at the earlier stages before starting the process of entrepreneurship is of crucial importance in order to enhance students' intentions and abilities to become entrepreneurs and foster women's entrepreneurship from when the first acts on career interests and choices take shape (DeClercq et al., 2012; Wilson et al., 2007). Some researchers looked at the influence of personal factors such as self-efficacy and cognitive styles on the association between gender and students' entrepreneurial intentions (e.g., BarNir, Watson, & Hutchins, 2011; DeClercq et al., 2012; Kickul, Gundry, Barbosa, & Whitcanack, 2009). While others examined the impact of contextual factors such as gender stereotypes, family environment, and education on enhancing students' intentions to pursue an entrepreneurship career path (Gupta et al., 2008; Wu & Wu, 2008; Zellweger et al., 2011). However, despite the vital importance of how personal and environmental factors interact to shape strong entrepreneurial intentions in students, research examining these interaction effects is scarce (Fitzsimmons & Douglas, 2011; Liñán, 2008). Furthermore, previous research has mostly investigated the direct relationship between gender and students' entrepreneurial career intentions (Chen, Greene, & Crick, 1998; Kickul et al., 2009; Wilson et al., 2007; Zhao, Seibert, & Hills, 2005). Verheul et al. (2012) emphasized that "Although this approach has its merits, it does not provide us with information on the origin of gender differences" (p. 326).

In the current study, we integrated the theory of planned behaviour (Ajzen, 1991) and social cognitive theory (Bandura, 1997). We examined how personality developed and society-constructed and learned factors, such as attitude toward entrepreneurship (ATE), entrepreneurial self-efficacy (ESE), subjective norms of

entrepreneurship (SNE), and social values of entrepreneurship (SVE), influenced students' entrepreneurial intentions and how gender affects the interactions among these factors.

Theory of planned behaviour

The theory of planned behaviour (Ajzen, 1991) has predominantly been used as a reliable theoretical framework to examine students' entrepreneurial intentions (e.g., Zellweger et al., 2011). Research has shown the explanatory power of the theory to determine the factors that influence students' decision to become an entrepreneur (Guerrero, Rialp, & Urbano, 2008) and individuals' actual involvement in entrepreneurship (Verheul et al., 2012). Based on the theory, one's intention to adopt behaviour such as students' selection into entrepreneurship is a function of the interactions among three main factors. The first factor is Attitude toward entrepreneurship (ATE)—that is, students' awareness of the importance of creating a new venture and indicates if they evaluate entrepreneurship and its consequences as favourable or unfavourable. Previous research has highlighted students' ATE as a significant factor that affect their entrepreneurial career choice (Harris & Gibson, 2008; Watchravesringkan, Hodges, Yurchisin, Hegland, Karpova, Marcketti, & Yan, 2013). Control over entrepreneurial behaviour is the second factor that constructs students' entrepreneurial intentions. This refers to students' perceptions toward having the competences and skills to perform the tasks and roles of an entrepreneur and their persistence in the face of problems through the process of creating their own venture. Researchers consistently have shown the significant influence of students' perceived entrepreneurial skills and abilities on their entrepreneurial career intentions (e.g., Harris & Gibson, 2008; Liñán, 2008).

Finally, subjective and social norms have been defined “as a function of the perceived normative beliefs of significant others, such as family, friends, and co-workers, weighted by the individual's motive to comply with each normative belief” (Elfving et al., 2009, p. 25). Research on the impact of subjective norms on entrepreneurial intentions has focused mostly on parents playing the role as an entrepreneur (Verheul et al., 2012). The results indicated that exposure to a family business affects entrepreneurial intentions by improving students' awareness about, preference for, and self-efficacy in entrepreneurship (Verheul et al., 2012; Carr & Sequeira, 2007; White, Thornhill, & Elizabeth, 2007). Recently, Ferreira, Raposo, Rodrigues, Dinis, and Paço (2012) related the impact of subjective norms on students' decision to become entrepreneurs to a broader group of people in the close environment (i.e., family, friends, and colleagues). These researchers showed that subjective norms did not have a significant direct impact on students' entrepreneurial intentions, but positively affected their perceived control over the entrepreneurship process.

While studies consistently have shown the significant relationship between subjective norms and entrepreneurial intentions, research findings on the association between social norms and entrepreneurial intentions are contradictory (Elfving et al., 2009). For example, Carsrud, Krueger, Brännback, Kickul, and Elfving (2007)

showed that both family and social norms affect one's intention to become an entrepreneur. Krueger and Kickul (2006) found a small relationship between social norms and entrepreneurial intentions. Chen and He (2011) and Krueger, Reilly, and Carsrud (2000) could not find a significant relationship between social norms and entrepreneurial intentions. In Liñán's (2008) study, SVE had an indirect effect on students' entrepreneurial intentions through its impact on entrepreneurial skills. These contradictory results indicated the possibility of intervening factors and interaction effects among SVE and other factors that affect entrepreneurial intentions.

Entrepreneurial self-efficacy

From its first conceptualization in entrepreneurship domain (Scherer, Adams, Carley, & Wiebe, 1989), self-efficacy has been mostly used to explain entrepreneurial intention and behaviour (e.g., Chen et al., 1998; DePillis & Reardon, 2007; Tyszka, Ciešlik, Domurat, & Macko, 2011). Self-efficacy indicates one's level of confidence in his/her abilities to successfully perform an intended and planned task (Bandura, 1997). Self-efficacy beliefs take shape through a cognitive process of evaluating abilities and task requirements as well as expectations of the consequences of a task accomplishment and highly motivates and directs individuals' thoughts, efforts, and behaviour, particularly when they choose to carry out a challenging and novel task such as entrepreneurship (Bandura, 2012). The influential impact of self-efficacy as the strongest predictor of behaviour is evident because it highly affects how people act both directly and indirectly through its effects on other factors, such as attitudes toward selection and execution of the behaviour and perceptions of competence in performing the behaviour (Bandura, 1997).

ESE has been identified as the key personal trait that determines one's selection into entrepreneurship, endeavours to launch a new venture, and persistence in the face of challenges and crisis throughout the entrepreneurship process (Barbosa, Gerhardt, & Kickul, 2007; DePillis & Reardon, 2007; McGee, Peterson, Mueller, & Sequeira, 2009). It has been defined as an individual's confidence in their abilities to successfully perform the tasks and roles of an entrepreneur (Chen et al., 1998). Specifically, ESE has been examined in order to provide insights on how to guide and enable students to develop the requisite knowledge and skills for the entrepreneurship process and to use their acquired skills to successfully establish a new venture (Bandura, 2012; Chen et al., 1998).

Research has recently highlighted the mediating role that self-efficacy plays in shaping entrepreneurial intention by carrying the impact of other factors such as family business experiences, role models, and education (BarNir et al., 2011; Carr & Sequeira, 2007; Zhao et al., 2005). However, our knowledge about the interactions among self-efficacy and other factors causing the formation of entrepreneurial intention, such as subjective and social norms, is limited (Mauer, Neergaard, & Linstad, 2009). Furthermore, only few researches have measured different dimensions of ESE (Barbosa et al., 2007; McGee et al., 2009).

Gender and entrepreneurial intention

Despite the significant differences between male's and female's entrepreneurial intentions (e.g., Chen et al., 1998; Gupta et al., 2009; Teoh & Chong, 2008), our knowledge about the factors that cause these differences and how these factors interact in shaping students' intentions to become entrepreneurs is limited (Zhao et al., 2005). Exploring these factors and the nature of their interactions is of critical importance because it helps in guiding students to set career goals, make plans, and develop their abilities based on their strengths and interests before they start the process of entrepreneurship (Proyer, Sidler, Weber, & Ruch, 2012). In particular, it assists in enhancing females' entrepreneurial interests and intentions (Wilson et al., 2007). Using a sample of 8,000 individuals across 29 countries, Verheul et al. (2012) found a significant difference between males and females in their entrepreneurial attitudes and real behaviour in creating a new venture so that females were lower than males in both preference for and involvement in entrepreneurship. They related females' lower entrepreneurial preference and involvement to two main reasons. First, females have less risk tolerance and perceive themselves as less capable of performing entrepreneurial tasks and second, they perceive greater obstacles and complexities in the process of launching their own businesses than males. Gender has also been found to have a significant relationship with students' ATE such that males have higher personal control and innovation than females (Harris & Gibson, 2008; Wilson et al., 2007).

Empirical evidence has also been found with regard to the influential impact of gender on students' ESE and consequently their entrepreneurial intentions. However, the findings are inconsistent. While some studies have shown that males have higher ESE (BarNir et al., 2011; Wilson et al., 2007), others concluded that there were no significant direct relationship between gender and ESE (Zhao et al., 2005; Wilson, Marlino, & Kickul, 2004). These contradictory results may partially be due to the interaction effects of males' and females' ESE beliefs with other factors such as ATE (Bandura, 2012; Carr & Sequeira, 2007; Liñán, 2008) and subjective norms (Liñán, 2008).

Recent research findings also indicate the impact of gender on the relationship between subjective norms and entrepreneurial intentions where females with self-employed parents have less preference for becoming an entrepreneur and are less likely to establish their own businesses (Verheul et al., 2012). Gupta et al. (2009) conducted a cross cultural survey to examine the impact of gender differences on entrepreneurial intentions. The findings showed that gender had no significant relationship with entrepreneurial intentions. Chen and He (2011) and Krueger et al. (2000) also failed to find a significant relationship between social norms and entrepreneurial intentions. In Liñán's (2008) study social norms (SVE) had an indirect impact on students' entrepreneurial intentions through its effect on entrepreneurial skills.

Based on the current literature discussed above, we assumed ATE, ESE, and SNE play key roles in shaping entrepreneurial intention by their direct and indirect effects on the factor. Furthermore, we expected gender affects the relationships among the factors. Finally, we assumed indirect relationships between SVE and entrepreneurial intention through its impact on ATE, ESE, and SNE.

Method

Participants

The target population for this research included students from all public and private universities in Klang Valley, Malaysia, where the majority of public and private universities are located. The participants were selected from five universities (three public and two private universities) and consisted of 719 university students. From the students, 377 (52.43 %) were male and 342 (47.56 %) were female. The majority of both males' and females' age ranged between 16 and 25 years old ($M = 24.73$, $SD = 7.25$). The students had various academic backgrounds: information technology (22.55 %), economy, business administration, marketing, and accounting (41.82 %), and education of agriculture science (29.51 %). The male participants had taken less entrepreneurship courses ($n = 173$, 45.89 %) and had less business experiences ($n = 109$, 28.91 %) than their female counterparts ($n = 175$, 51.47 %, and $n = 101$, 29.71 % respectively).

Instruments

Entrepreneurial intentions

Nineteen items from the Entrepreneurial Intention Questionnaire developed by Liñán (2008) were used to measure students' intentions to become entrepreneurs, ATE, SNE, and SVE. The questionnaire measures students' entrepreneurial intentions using six items; ATE using five items; SNE using three items on the extent to which family, friends, and colleagues support their decision to become an entrepreneur; and SVE using five items, that indicating the degree of value and support of entrepreneurship in the country and by the people. Liñán's findings indicated that the questionnaire was highly valid and reliable to measure entrepreneurial intentions and its components among university students in Spain ($\alpha > .80$). The students were asked to indicate the extent to which they agreed or disagreed with each item based on a five-point Likert-type scale ($1 = strongly disagree$, $5 = strongly agree$).

Entrepreneurial self-efficacy (ESE)

We measured students' ESE using the self-efficacy skills scale developed by Scherer et al. (1989). The scale consisted of five items measuring one's perceived abilities to perform the tasks and roles related to running a business including marketing, accounting, human resources, production, and organizational management tasks. A five-point Likert-type scale was also used to measure this variable ranging from ($1 = strongly disagree$, $5 = strongly agree$).

Procedure

Participation in this study was entirely voluntary, and all questionnaires were completed anonymously. Data collection was conducted during the 2011–2012

academic year and 800 students were asked to provide demographic information such as age, gender, education, and previous business experience in addition to the questionnaire. Permission to conduct the research was obtained from the Ministry of Higher Education and the Vice chancellor of each university. From the 800 questionnaires administered, 719 (90 %) were used in the final analysis, and 81 (10 %) questionnaires were omitted because more than ten percent of the items were not completed.

Results

Data analysis

Due to the multivariate nature of our model as well as the need to simultaneously assess the validity and structure of the substantive relationships among variables proposed by the theories, structural equation modelling (SEM) was employed using AMOS Version 20. A two-step technique was adopted to analyse the data (Hair, Black, Babin, Anderson, & Tatham, 2010). In the first step, the structure and loadings of the factors to each of the five constructs in the model (ATE, ESE, SNE, SVE, and entrepreneurial intention) were assessed by performing confirmatory factor analysis (CFA) for each construct. Through this step, the items with low loadings (<.50) to the factors were eliminated. Out of the six items measuring entrepreneurial intentions, three were deleted (INT3, INT5, INT6). Two items from ATE (ATT1, ATT3), two items from SVE (SVE2, SVE3), and one item from ESE (SE2) were also eliminated due to their low loadings to the factors. Subsequently, we tested the measurement model with all the latent variables and the remaining items included in one measurement model. In the second step, we examined the structural model and expected relationships among the variables.

Model fit for measurement model

The measurement model fit for the individual constructs including ATE, ESE, SNE, SVE, and entrepreneurial intention were examined to ensure the relationships among the latent and observed variables were supported by the data. Table 1 shows

Table 1 Means, standard deviations, and correlations of study variables

Variables	Mean	SD	1	2	3	4	5
ATE	18.28	2.85	1				
ESE	17.41	3.35	.39**	1			
Subjective norms	10.61	1.93	.53**	.35**	1		
SVE	17.52	2.56	.15**	.11**	.21**	1	
Entrepreneurial intentions	19.87	3.45	.65**	.44**	.49**	.15**	1

** Indicate correlation is significant at the 0.01 level (2-tailed)

Table 2 Validity and reliability statistics for entrepreneurial intention scale

Constructs	Items	Mean	SD	Factor loadings	Cronbach's α	AVE
ATE	ATE2	3.76	.92	.73	.74	.70
	ATE4	3.59	.94	.70		
	ATE5	3.66	.91	.67		
ESE	ESE1	3.63	.92	.71	.80	.72
	ESE3	3.56	.85	.76		
	ESE4	3.47	.85	.74		
	ESE5	3.56	.85	.73		
Subjective norms (SNE)	SUN1	3.53	.76	.64	.78	.54
	SUN2	3.62	.82	.75		
	SUN3	3.54	.79	.73		
SVE	SOV1	3.43	.85	.73	.77	.73
	SOV2	3.40	.83	.74		
	SOV3	3.41	.88	.73		
Entrepreneurial intentions	INT1	3.43	.95	.77	.80	.58
	INT2	3.58	.94	.80		
	INT4	3.58	.90	.71		

AVE Average variance extracted

means, standard deviations, and correlations for all the constructs in the model. In general, males had higher ESE ($M = 18.03$, $SD = 3.4$) and less positive ATE ($M = 17.94$, $SD = 2.86$) than their female counterparts ($M_{ESE} = 17.31$, $SD = 2.89$; $M = 18.80$, $SD = 3.26$). The correlations among all the variables studied were significant indicating the interrelations among the constructs in the study (Schreiber, Nora, Stage, Barlow, & King, 2006).

CFA was performed for each of the five measurement models in order to test factor loadings and model fit indices for each construct. Table 2 presents the statistics obtained for the scale constructs and items. All of the items had loadings higher than the .50 threshold (Hair et al., 2010). Analysis of the measurement model developed with all constructs in this research indicated that the model fits the data well because χ^2/df was less than 3, all of the goodness of fit indices were higher than .90 and RMSEA was less than the .05 threshold (Byrne, 2010), χ^2 (109) = 215.816, $p < .001$, $\chi^2/df = 1.98$, GFI = .96, AGFI = .95, CFI = .97, NFI = .95, TLI = .96, and RMSEA = .037). The Cronbach's α also showed that all of the constructs scored higher than .70, indicating good scale reliability. More precisely, ATE was best described by three items which included attractiveness of entrepreneurship as a career, satisfaction of becoming an entrepreneur, and advantages of entrepreneurship for students.

ESE was described by four items including students' perceived abilities in marketing, human resources, production, and organizational management tasks. SNE was best described by three items which comprised the approval students received for their decision to become an entrepreneur by their immediate family, friends, and colleagues. Three items which best described SVE included favourability of

entrepreneurial activities in the culture of the country, value of entrepreneurs' role in the economy of the country, and acceptability of pursuing entrepreneurship as a career path by the people in the country. Finally, three items on willingness to do anything to become an entrepreneur, putting in effort to start a business, and having the determination to create a business venture best explained students' entrepreneurial intentions.

Convergent validity, the portion of the construct variance explained by its indicators, for each construct of the scale was also measured by average variance extracted (AVE). All of the constructs scored higher than .50 (see Table 2) indicating that majority of the variance in each construct was explained by its items (Hair et al., 2010). In addition, discriminant validity was examined to ensure the items in the scale measured different constructs (Kline, 2010). All of the items of the constructs in the scale had the highest loadings to their construct and did not have high correlations with the items of other constructs indicating discriminant validity of the questionnaire. There were relatively high correlations between items on entrepreneurial intention and ATE due to strength of the relationship between the two constructs. This high correlation between the constructs should be considered in future studies.

Model fit for structural model

To examine the role of gender in shaping students' entrepreneurial intentions and the assumed relationships among the constructs, the five measurement models were incorporated into the full structural model and a maximum likelihood technique was used to perform the analysis (Schreiber et al., 2006). The model fit indicators for the full structural model supported a good model fit, $\chi^2(96) = 165.92$, $p < .001$, GFI = .97, AGFI = .96, CFI = .98, NFI = .96, TLI = .97, and RMSEA = .032. As shown in Table 3, the direct relationships among ATE ($\beta = .47$), ESE ($\beta = .25$), SNE ($\beta = .63$), and entrepreneurial intentions were significant, $p < .001$. Furthermore, the direct relationship between SVE and entrepreneurial intentions was not significant ($\beta = .02$, $p = .52$). SNE also significantly affected

Table 3 Standard regression weights for the full structural model

Constructs			Estimate	SE	CR	<i>p</i>
Intentions	<—	ATE	.47	.068	6.93	<.001
Intentions	<—	ESE	.25	.049	5.10	<.001
Intentions	<—	SNE	.63	.097	6.50	<.001
Intentions	<—	SVE	.02	.046	6.34	.526
ESE	<—	SNE	.54	.086	6.35	<.001
ATE	<—	SNE	.74	.092	8.05	<.001
ESE	<—	SVE	.21	.056	3.76	<.001
SNE	<—	SVE	.33	.042	8.06	<.001
ATE	<—	SVE	.13	.053	2.44	.015

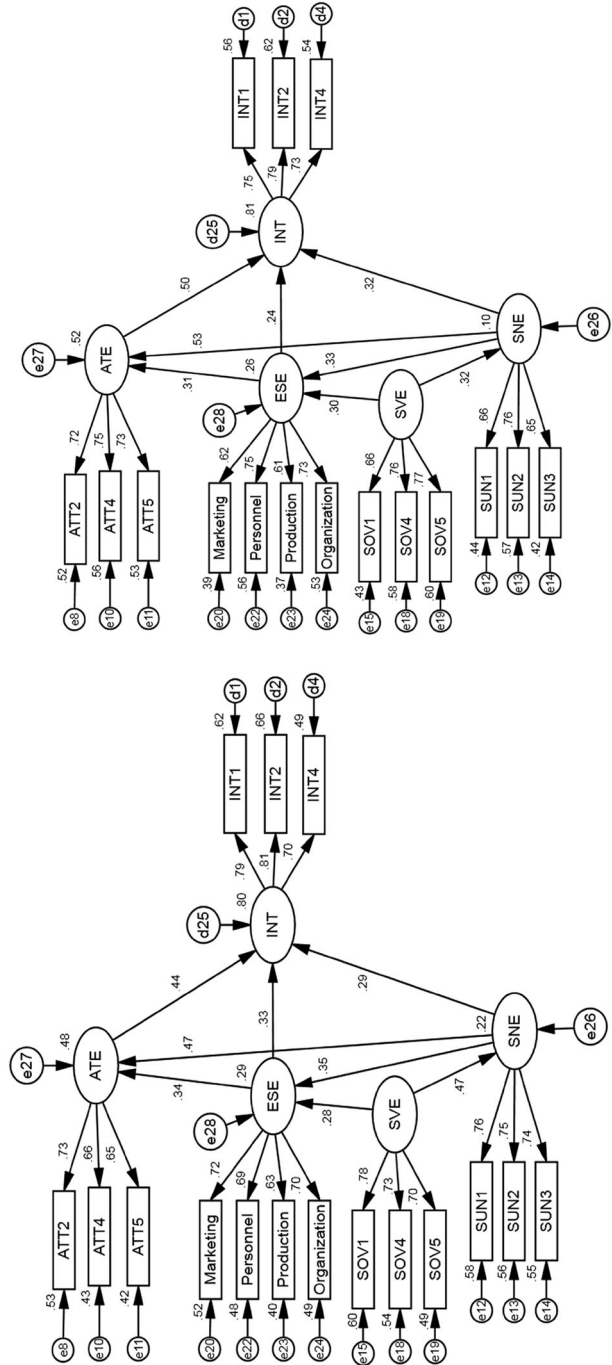
ESE ($\beta = .54, p < .001$) and ATE ($\beta = .74, p < .001$). In addition, SVE had significant impact on ESE and SNE ($\beta = .21, p < .001, \beta = .33, p < .001$ respectively). But SVE did not significantly influence ATE ($\beta = .13, p = .015$). Alternative models were tested to examine if these models better fit the data. This was done through regressing ESE to SNE, ATE to ESE, and ATE to SNE one at a time, though these models were not supported by previous research findings (Boomsma, 2000). The findings indicated a significant relationship between ESE and SNE ($\beta = .26, p < .001$), though the impact of SNE on ESE was higher ($\beta = .54, p < .001$), and the model fit indices indicated a better fit with the data. This shows there exists a reciprocal relationship between ESE and SNE which requires further investigations. But the relationship between ATE and ESE and ATE and SNE were not significant ($\beta = .22, p = .05; \beta = -.46, p = .188$ respectively).

We adopted an invariance approach to test for moderation effect of gender on the full model and individual relationships among ATE, ESE, SNE, SVE, and students’ entrepreneurial intentions (Byrne, 2010). Adopting a multi-group approach, we constrained a series of the constructs to equal values and tested the unconstrained model (assuming a significant difference between males and females) against the measurement residuals model (assuming no significant difference between males and females). The unconstrained model was significantly better than the measurement residuals model because the χ^2 for unconstrained model was less than the χ^2 for measurement residuals model and the difference was significant ($244.27 < 333.34, p < .001$). Furthermore, the model fit indices highly supported a good fit of the model, $\chi^2 (192) = 244.27, p < .001, \chi^2/df = 1.27, GFI = .96, AGFI = .94, CFI = .98, NFI = .94, TLI = .98, \text{ and } RMSEA = .01$. Therefore, gender significantly moderates the relationship between ATE, ESE, SNE, SVE, and students’ entrepreneurial intentions. Finally, we examined the effect of gender on individual relationships among the constructs in this study. Table 4 presents the standardized regression weights for unconstrained models for males and females. As the table shows, all of the constructs in this study have significant relationships with students’ entrepreneurial intentions and their effects are different for males and females. Figure 1 provides the full structural models with standardized regression weights and observed variables

Table 4 Standardized regression weights for unconstrained model for males and females

Constructs	Males					Females			
	Estimate	SE	CR	<i>p</i>	Estimate	SE	CR	<i>p</i>	
SNE ← SVE	.42	.062	6.917	<.001	.28	.065	4.377	<.001	
ESE ← SVE	.27	.071	3.786	<.001	.28	.072	3.943	<.001	
ESE ← SNE	.37	.079	4.680	<.001	.35	.085	4.219	<.001	
ATE ← ESE	.35	.077	4.554	<.001	.37	.088	4.305	<.001	
ATE ← SNE	.52	.086	6.158	<.001	.70	.109	6.437	<.001	
Intentions ← ATE	.49	.089	5.490	<.001	.54	.096	5.700	<.001	
Intentions ← ESE	.38	.072	5.323	<.001	.31	.082	3.861	<.001	
Intentions ← SNE	.36	.083	4.361	<.001	.45	.113	4.054	<.001	

Figure 1 Structural equation model with standardized coefficients estimates and observed variables for males and females (*ATE* Attitude toward entrepreneurship, *ESE* entrepreneurial self-efficacy, *SNE* subjective norms of entrepreneurship, *SVE* social valuation of entrepreneurship, *INT* intention)



for males and females respectively. We included observed variables in the models to show their impact on the factors that shape students' entrepreneurial intentions (Boomsma, 2000).

As shown in the figures, entrepreneurial intentions of both males and females are highly shaped by three factors including ATE, ESE, and SNE. More specifically, ATE, ESE, and SNE contribute 80 % variance of males' entrepreneurial intentions. ATE accounts for 44 % of males' entrepreneurial intention variance. ESE contributes 33 % variance of males' entrepreneurial intentions and 34 % of their ATE variance. SNE also accounts for 29 % variance in males' entrepreneurial intentions, 47 % variance in their ATE, and 35 % variance in their ESE. SVE explains 28 % of variance in males' ESE and 47 % of variance in SNE. For females, 81 % of variance in entrepreneurial intentions is explained by ATE, SNE, and ESE.

More particularly, ATE is seen as the strongest influencing factor on females' intentions to become entrepreneurs (50 %). SNE also explains 32 % of variance in females' entrepreneurial intentions, 53 % of variance in their ATE, and 33 % of variance in their ESE. ESE accounts for 24 % of variance in females' entrepreneurial intentions and 31 % of the variance in their ATE. SVE has a 30 % contribution to females' ESE and a 32 % effect on SNE. A comparison between the models for males and females indicates that the impact of ATE and SNE on entrepreneurial intentions is higher for females than males. However, males' ESE has a greater contribution to their entrepreneurial intentions and their ATE. SNE, on the other hand, has a greater contribution to ATE for females but it has less impact on their ESE. While SVE has a higher effect on females' ESE, SVE has a higher relationship with SNE for males.

Therefore, compared with females, ESE of males had higher significant contributions to their entrepreneurial intentions ($\beta = .33, p < .001$) and their ATE ($\beta = .34, p < .001$). SNE had higher impact on males' ESE ($\beta = .35, p < .001$) and SVE had a higher significant effect on their SNE ($\beta = .47, p < .001$). While for females, ATE and SNE had greater influence on their entrepreneurial intentions ($\beta = .50, p < .001$ and $\beta = .32, p < .001$, respectively), SNE had a higher contribution to their ATE ($\beta = .47, p < .001$), and SVE had higher impact on their ESE ($\beta = .30, p < .001$). However, the influence of gender on the relationships between ATE and ESE ($\beta = .22, p = .05$) and SVE and ATE ($\beta = .01, p = .049$) was not supported by the data.

Discussion

The impact of gender on two personal (ATE and ESE) and two contextual (SNE and SVE) factors that shape entrepreneurial intentions were tested in this study. Analysis of the results suggest that ATE and ESE have the strongest effect in shaping males' entrepreneurial intentions while, ATE and SNE have more influence on building females' intentions to become entrepreneurs. This highlights ATE as the strongest influential factor that affects both males' and females' entrepreneurial intentions. Therefore, an individual's decision to become an entrepreneur is highly formed by his or her desire and interest to do so. This finding emphasized the importance of

individuals' interests in making career decisions and highlights the necessity of guiding students based on their vocational interests and strengths in order to improve their career satisfaction and performance (Proyer et al., 2012).

Furthermore, gender significantly moderates the relationships among ATE, ESE, SNE, SVE, and students' entrepreneurial intentions. Gender had a significant effect on the relationship between ATE and entrepreneurial intentions such that females' ATE had a greater contribution to their intentions to become entrepreneurs compared with males. This finding confirms the significant direct relationship between ATE and students' entrepreneurial intentions (Liñán, 2008; Watchravesringkan et al., 2013). However, it is in contrast with research findings indicating that males have higher entrepreneurial attitudes and interests (Harris & Gibson, 2008; Verheul et al., 2012).

Our finding extended previous research on the relationship between ATE and entrepreneurial intentions (Harris & Gibson, 2008; Liñán, 2008) by exploring the moderating role that gender plays in the relationship between the factors. The higher contribution of ATE to entrepreneurial intentions for females may be partially because they have more experiences in entrepreneurship and have taken more entrepreneurship courses that may improve their awareness of the importance of a business ownership for their future livelihood and enhanced their interests in running their own businesses (Souitaris, Zerbinati, & Al-Laham, 2007). As shown in our model, this difference can also be related to the impact of other factors such as SNE that has a higher effect on females' ATE and improves their desire and interest in starting their own ventures. The stronger relationship between ATE and entrepreneurial intentions for females necessitates providing them more attractive and enabling education and training programs in order to improve their entrepreneurial intentions (Watchravesringkan et al., 2013; Wilson et al., 2007).

In addition, gender had a significant moderating impact on the relationship between ESE and entrepreneurial intentions such that males' ESE had a stronger contribution to their intentions to become entrepreneurs. This confirms that males' confidence in their abilities to perform the tasks required for running their own businesses has a higher contribution to their entrepreneurial intentions (BarNir et al., 2011; Chen et al., 1998; Wilson et al., 2007). With the high ESE, males are more likely to set entrepreneurship as their career goal and plan to establish their own businesses (Elfvig et al., 2009). Career counselling can help males explore their career strengths and guide them throughout the process of developing their confidence and capabilities to become entrepreneurs (Proyer et al., 2012). The higher males' ESE can also be related to greater support they may receive from their family, friends, and colleagues of their decision to become entrepreneurs, as shown in our model.

The lower contribution of females' ESE to their intentions to pursue entrepreneurship can be a reflection of their lower confidence in their abilities and skills to perform entrepreneurial tasks as well as their lower expectations of success in establishing their own ventures (Wilson et al., 2007). Females' lower ESE can also be related to the lower support that they may receive from their family and friends to become entrepreneurs. It may also indicate that females are conditioned from early in their childhood to avoid challenging and risky tasks and situations such as

entrepreneurship (Mauer et al., 2009). Lower ESE of females can also imply the pressures, expectations, and roles that society may impose on them and the stereotypes that relate entrepreneurship to more masculine characteristics (Carr & Sequeira, 2007; Gupta et al., 2008, 2009). Mauer et al. (2009) emphasized that females' lower ESE can be due to their role and social identities that limit their engagement in entrepreneurship. These constraints dictated by their close family and society may compel females to limit their efforts to learn entrepreneurial skills and gather information and experiences required for running their own ventures (Gupta et al., 2009; Wilson et al., 2007).

In contrast to previous research findings (Wilson et al., 2007), the results of this study showed that females' ESE had a lower impact on their intentions to become entrepreneurs. Such a result may be due to the fact that females perceive more impediments and barriers such as economic obstacles and administrative difficulties in the process of establishing their own businesses than males (Verheul et al., 2012). It may also be because of the interactions among ESE and other factors (SNE, SVE, and ATE) in our model that cause females' ESE to have lower impact on their entrepreneurial intentions. These interactions indicated that females receive less support from the influential others to establish their own businesses and in particular their family failed to develop a strong desire and capacity in them to become entrepreneurs (Mauer et al., 2009; Verheul et al., 2012). Because self-efficacy beliefs take shape at the early ages and once shaped it is resident to change (Bandura, 1997), there is an urgent need to develop the culture in the family and among the people in the country which values and supports women entrepreneurship (Gupta et al., 2008, 2009). Furthermore, lack of a strong ESE among females can be related to SVE that may impose more constraints for females to enter the entrepreneurship process such as entrepreneurship is considered less favourable and acceptable for females in the culture of the country and the role of female entrepreneurs in the economy of the country has not been well-recognized and established.

Since values and supports of entrepreneurship in a nation affects the way family raises the children (Mauer et al., 2009), developing the culture that values and supports women entrepreneurship can help females improve their sense of ESE. Introducing female entrepreneur role models and highlighting their roles in improving the economy of the country through public media can also improve females' ESE and consequently their entrepreneurial intentions (Gupta et al., 2008; Mauer et al., 2009; Teoh & Chong, 2008). Entrepreneurship education can also play critical roles in enhancing females' ESE by providing them with more experiential learning opportunities (Wilson et al., 2007). Additionally, career counselling can assist in exploring females' entrepreneurial potential and improving their strengths in entrepreneurial skills (Proyer et al., 2012). Females' ESE can also be improved through offering them extra or complementary entrepreneurship skill development programs and training provided by women entrepreneurship development organizations and associations (Teoh & Chong, 2008).

The findings of the current study also supported the significant gender differences on the impact of ESE on students' ATE such that males' ESE had a stronger contribution to their ATE. The finding, along with previous studies, not only supported the critical role that ESE plays in shaping entrepreneurial intentions by its

both direct and indirect effects (BarNir et al., 2011; Fayolle, Gailly, & Lassas-Clerc, 2006; Kickul et al., 2009; Zhao et al., 2005), but it also contributed empirical evidence for the impact of ESE on ATE (Bandura, 2012). This emphasized ESE as one of the most influential factors in building students' entrepreneurial intentions. Entrepreneurship educators can use the complementary and associative relationship between ESE and ATE to more effectively improve students' intentions to become entrepreneurs. In addition, our findings supported the assumed impact of SNE on shaping students' entrepreneurial intentions directly as well as indirectly through its influence on their ATE and ESE (Ferreira et al., 2012; Carr & Sequeira, 2007; Liñán, 2008). However, our results showed a significant impact of gender on the relationship between SNE and students' entrepreneurial intentions such that SNE had a greater influence on females' entrepreneurial intentions and their ATE. This reflects the fundamental role that value and support of entrepreneurship by the family, friends and colleagues plays in improving females' interests and efficacy in establishing their own businesses (Carr & Sequeira, 2007; Chen & He, 2011; Verheul et al., 2012).

In contrast to previous studies that could not find a significant relationship between SVE and other factors that build students' entrepreneurial intentions (Chen & He, 2011; Krueger et al., 2000), our results supported the contribution of SVE to ESE (Liñán, 2008). These differences in the impact of SVE on entrepreneurial intentions across cultures and countries may indicate the extent to which these countries support entrepreneurial activities and provide the facilities and infrastructures for those who intend to start their own businesses (Krueger & Kickul, 2006). The significant impact of SVE on SNE for both males and females highlights how society and family can be incorporated to enhance entrepreneurial intentions and how the synergy among these factors can develop the motivation and abilities in students to become entrepreneurs. Interestingly, we found a significant influence of gender on the relationships among SVE, ESE and SNE such that SVE had higher impact on SNE for males and less influence on their ESE. In other words, favourability of entrepreneurial activities in the culture of the country, value of entrepreneurs' roles in the economy of the country, and acceptability of pursuing entrepreneurship as a career path by the people in the country had greater contributions to the degree of encourages and supports that males received from the significant people in their close environment of their decisions to become entrepreneurs. However, the values and support of entrepreneurship in the society had less impact on building males' ESE. In turn, SVE is seen to improve females' ESE but is less effective in terms of the support they receive from their close environment to launch their own ventures. This result highlights the importance of SVE in enhancing females' ESE and necessitates the development of the culture in the country that value and supports females to become entrepreneurs.

Conclusion

In line with findings from previous studies, it can be concluded that students' entrepreneurial intentions shape through complex and dynamic interactions among

personal, social, and cultural factors that develop the desire and ability to become entrepreneurs in different ways between males and females (DeClercq et al., 2012; Gupta et al., 2009; Krueger & Kickul, 2006). Furthermore, the influence and predictive power of the factors that shape entrepreneurial intentions vary by gender. This study provided one of the first empirical findings on the interactions among the factors that affect students' entrepreneurial intentions and how gender moderates these interactions (BarNir et al., 2011; Verheul et al., 2012). The findings also provide insights into the underlying mechanisms that create gender gap in entrepreneurial intentions and the strength of the connections among the variables that shape males' and females' entrepreneurial intentions. This study contributed to the theory of planned behaviour (Ajzen, 1991) by providing empirical evidence on the direct and indirect influences of subjective and social norms on entrepreneurial intention. Specifically, our findings highly contributed to the knowledge on the significant impact of subjective and social norms on students' ESE and subsequently their entrepreneurial intentions about which limited knowledge exists (Mauer et al., 2009). Furthermore, this study extended our understanding of the effect of SVE in shaping entrepreneurial intentions through its significant impact on ESE and SNE. The findings of this study also indicated that the effects of subjective and social norms on students' ESE differ among males and females.

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