The relationship between exposure to entrepreneurship education and entrepreneurial self-efficacy

M.J. Malebana & E. Swanepoel

A B S T R A C T

The purpose of this research was to investigate whether students with different levels of exposure to entrepreneurship education would perceive their own entrepreneurial self-efficacy differently from those without such exposure, and whether there is a relationship between perceived entrepreneurial self-efficacy and entrepreneurial intent. The study was carried out by means of a survey. The sample consisted of 355 final-year commerce students from two South African universities based in rural provinces, namely the Eastern Cape and Limpopo. SPSS was used to analyse the data. The results revealed that students who had had exposure to entrepreneurship education were statistically significantly different from those who had not in terms of the way in which they perceived their own entrepreneurial self-efficacy. Entrepreneurial self-efficacy had a statistically significant relationship with entrepreneurial intent.

Key words: entrepreneurship education, entrepreneurial self-efficacy, self-efficacy, social learning theory, South Africa, entrepreneurial intention, rural provinces

Introduction

South Africa as a developing country is faced with a high rate of unemployment, averaging 24.1% (Statistics South Africa 2014). The importance of entrepreneurship as a mechanism for economic growth and development is widely acknowledged (Bosma, Jones, Autio & Levie 2007). By starting new ventures, entrepreneurs create

Dr M.J. Malebana was a doctoral student at the University of South Africa. Prof E. Swanepoel is in the Department of Business Management, University of South Africa. E-mail: malebanaj@webmail.co.za; swanee1@unisa.ac.za

new job opportunities, which help in reducing unemployment and alleviating poverty (Herrington, Kew & Kew 2010). However, research findings indicate that the total entrepreneurial activity of South Africa from 2002 to 2012 was below average (Turton & Herrington 2013). Moreover, the country has very low percentages of people who believe that they have entrepreneurial capabilities (40%) and who have entrepreneurial intentions (14%) (Turton & Herrington 2013). Thompson (2009: 676) defines entrepreneurial intentions as "self-acknowledged convictions by individuals that they intend to set up new business ventures and consciously plan to do so at some point in the future". Previous research suggests that entrepreneurial intentions are the foundations for understanding the new venture-creation process (Bird 1988). It has also been reported that individuals start new ventures based on the belief that they have the necessary skills and knowledge to do so (Bosma et al. 2007).

In his social learning theory, Bandura (1997) postulates that perceived self-efficacy is a major determinant of intention and directly affects performance. Entrepreneurial self-efficacy is the degree to which individuals believe that they have the necessary skills to successfully start a new business venture (Brice & Spencer 2007). Perceived self-efficacy deals with the judgements relating to what individuals can do with the skills they possess. Self-efficacy beliefs affect individuals' choices, the level of effort they put into an activity, how long they persevere when they encounter obstacles and failures, their resilience to adversity and the level of accomplishments they realise (Bandura 1986).

Given the foregoing, rural provinces experience significantly lower entrepreneurial activity rates than their urban counterparts (Herrington et al. 2010). Low entrepreneurial activity rates in rural areas are exacerbated by the lack of infrastructure development, smaller markets and low level of skills. Efforts to encourage entrepreneurship in these provinces could be an effective method of reducing unemployment and stimulating rural economies. Henry, Hill and Leitch (2005) report that there is consensus among researchers that some aspects of entrepreneurship can be successfully taught. This belief has led to an increase in the number of entrepreneurship education and training programmes over the last two decades in both developed and developing countries (Fayolle, Gailly & Lassas-Clerc 2006). The United States Small Business Administration (US SBA) (2006) reports that there has been an enormous increase in the volume of empirical research on entrepreneurship education, especially research focusing on entrepreneurial intentions as the foundation for entrepreneurial behaviour. Entrepreneurship education facilitates the creation of start-ups by changing students' mindsets and developing their entrepreneurial orientation measured through entrepreneurial intentions (Fayolle 2004).

The purpose of this research was to investigate whether students with different levels of exposure to entrepreneurship education perceive their own entrepreneurial self-efficacy differently from those without such exposure, and whether there is a relationship between perceived entrepreneurial self-efficacy and entrepreneurial intent.

Literature review

This study was based on the view that intentions provide an understanding of how new ventures emerge. These intentions can be influenced positively by entrepreneurship education and enhanced entrepreneurial self-efficacy. As a result, the literature review draws primarily on entrepreneurial intent and self-efficacy theories, and the role of entrepreneurship education in the formation of entrepreneurial intent and the development of entrepreneurial self-efficacy.

Entrepreneurship as an intentional activity

According to Krueger, Reilly and Carsrud (2000), planned behaviours such as entrepreneurship can be predicted accurately using intention-based models. The two dominant and compatible entrepreneurial intention models are Shapero and Sokol's model of the entrepreneurial event (SEE) (Shapero & Sokol 1982) and Ajzen's theory of planned behaviour (TPB) (Ajzen 2005). The SEE model suggests that entrepreneurial intentions can be predicted from perceived desirability, perceived feasibility and propensity to act (Shapero & Sokol 1982; Krueger et al. 2000). According to this model, individuals' intentions to start a business derive from the personal attractiveness of starting a business, the extent to which they feel personally capable of starting a business and their personal predisposition to act on their own decisions (Krueger et al. 2000).

The theory of planned behaviour suggests that individuals' intentions are the most important immediate determinant of whether they will perform a particular action or not (Ajzen 2005). In the TPB, entrepreneurial intentions can be predicted with a high degree of accuracy from the attitude towards the behaviour, subjective norms and perceived behavioural control (Ajzen 2005). Intentions to engage in the entrepreneurial behaviour are formed based on an individual's favourable or unfavourable evaluation of the behaviour, perceived personal ability or difficulty in performing the behaviour, and perceived social pressure to perform or not to perform the behaviour.

In a comparison of the SEE model and the TPB model, Krueger et al. (2000) found that the two models are related in that they both have an element that is conceptually associated with perceived self-efficacy (perceived behavioural control in the TPB model and perceived feasibility in the SEE model). Both the SEE model and the TPB model have been widely applied in research that assessed the impact of entrepreneurship education on entrepreneurial intent (for example, Fayolle et al. 2006; Fayolle 2004; Liñán 2004; Peterman & Kennedy 2003).

Entrepreneurial self-efficacy and the phases and tasks in the entrepreneurial life-cycle

Researchers suggest that entrepreneurial self-efficacy should focus on individuals' perceptions regarding their ability to perform entrepreneurial tasks (Kickul, Gundry, Barbosa & Whitcanack 2009; Kickul & D'Intino 2005) or the skills required to launch a new venture (Sequeira, Mueller & McGee 2007). Research on entrepreneurial self-efficacy owes its existence to earlier research by Chen, Greene and Crick (1998) and De Noble, Jung and Ehrlich (1999). These researchers found that entrepreneurial self-efficacy is significantly associated with the likelihood of becoming an entrepreneur or entrepreneurial intention. These findings are supported by Sesen (2013), Akmaliah, Pihie and Bagheri (2013), and Douglas and Fitzsimmons (2013). Entrepreneurs should be capable of performing entrepreneurial tasks in the four phases of the entrepreneurial life-cycle. According to Kickul and D'Intino (2005), and McGee, Peterson, Mueller and Sequeira (2009), these phases include the searching phase, planning phase, marshalling phase and implementation phase. The venture-creation process begins with the development of a unique idea or identification of a special opportunity, followed by conversion of the idea into a feasible business plan or business concept, the marshalling of resources to bring the new venture into existence, and ultimately applying good management skills and principles to grow and ensure the survival of the venture (McGee et al. 2009).

Kickul and D'Intino (2005) found that entrepreneurial self-efficacy factors such as interpersonal and networking skills, uncertainty management skills, product development skills, and procurement and allocation of critical resources were significantly related to the instrumental tasks within the entrepreneurial process and the intention to start a new venture. Instrumental tasks that were related to intentions to start or launch a new business involved raising money to start a business, convincing others to invest in the business, and implementing tasks for managing a small business (Kickul and D'Intino 2005). McGee et al. (2009) found that nascent entrepreneurs were more confident in performing tasks in the four phases of the

entrepreneurial life-cycle than individuals in the general population who had not yet started pursuing entrepreneurship.

The influencing role of entrepreneurship education on entrepreneurial intent and entrepreneurial self-efficacy

An overwhelming majority of studies from several different countries have reported that exposure to entrepreneurship education impacts positively on the antecedents of entrepreneurial intent (Peterman & Kennedy 2003; Liñán 2004; Fayolle et al. 2006; Guerrero, Lavín & Álvarez 2009) and entrepreneurial self-efficacy (De Noble et al. 1999; Alvarez & Jung 2004; Ramayah & Harun 2005), and encourages students to start their own businesses (Souitaris, Zerbinati & Al-Laham 2007; Jones et al. 2008). Some authors report that entrepreneurship education is significantly related to entrepreneurial self-efficacy and entrepreneurial intention (Zhao, Hills & Seibert 2005; Dickson, Solomon & Weaver 2008; Muofhe & Du Toit 2011). Blackford, Sebora and Whitehill (2008) found that post-graduation start-up of a new firm by students who have taken an entrepreneurship course is directly related to entrepreneurial self-efficacy. According to Forbes (2005), entrepreneurial self-efficacy can influence an individual's decision to start a business and the effectiveness with which they manage their ventures once they have founded them. Research findings indicate that self-confidence in performing entrepreneurial tasks is strongly related to behaviour leading to the formation of a new venture (Sequeira et al. 2007; McGee et al. 2009).

Sources of entrepreneurial self-efficacy and entrepreneurship education

Bandura (1986) asserted that individuals' self-knowledge about their own efficacy depends on principal sources of information that include mastery experiences, vicarious experiences of observing the performances of others, verbal persuasion and judgement of physiological states. Previous research suggests that these sources of entrepreneurial self-efficacy can be developed through entrepreneurship education (Zhao et al. 2005; Radu & Loué 2008). Segal, Schoenfeld and Borgia (2007) found that certain educational activities have a positive impact on the key sources of self-efficacy. The fact that entrepreneurship education can enhance entrepreneurial self-efficacy by impacting on its sources has implications for entrepreneurship educators. It suggests that certain actions that entrepreneurship educators integrate into their teaching are vital in raising perceptions of entrepreneurial self-efficacy. Zhao et al. (2005) assert that entrepreneurship courses should incorporate a variety of learning experiences that promote the development of entrepreneurial self-efficacy.

Entrepreneurship educators can provide mastery experiences by allowing students to practise what they learn (Krueger 2000; Radu & Loué 2008) and learn from their own setbacks and failures (Bandura 2009). The use of case studies and exposing students to entrepreneurial role models provide vicarious experiences that increase their confidence in starting a new venture (Laviolette & Radu 2008). Interacting with entrepreneurial role models who may be invited as guest speakers enables students to learn through social comparison (Bandura 2009). Entrepreneurship educators can use social persuasion to increase students' beliefs in their ability to succeed in entrepreneurial tasks (Bandura 1986; Laviolette, Lefebvre & Brunel 2012). Luthans (2008) states that the way in which people feel, physically and emotionally, influences their capability assessments. Entrepreneurship educators can help students deal with their feelings by offering psychological and emotional support (Krueger & Brazeal 1994).

Research methodology

Data collection and measures

This study was conducted by means of survey research using a structured questionnaire. The questionnaire was designed based on validated questionnaires used in previous entrepreneurial intent studies that have focused on the key variables of this study, namely exposure to entrepreneurship education and entrepreneurial self-efficacy. All the entrepreneurial intent questions were adopted without alteration from the Entrepreneurial Intent Questionnaire developed by Liñán and Chen (2006, 2009) and used by Liñán (2008) and Guerrero et al. (2009). Entrepreneurial intent was measured using a five-point Likert scale (1=strongly disagree to 5=strongly agree). The use of five-point Likert scales is also found in previous entrepreneurial intent studies such as Gupta, Turban, Wasti and Sikdar (2009) and Schwarz, Wdowiak, Almer-Jarz and Breitenecker (2009). Table 1 shows the questions that were used to collect the data on entrepreneurial intent. The overall Cronbach's alpha coefficient for the entrepreneurial intent scale was 0.903.

Data on levels of exposure to entrepreneurship education were collected by means of a nominal scale: students who had had exposure to entrepreneurship education for a period of three years; those who had not been exposed to entrepreneurship education; and those who had been exposed to entrepreneurship education for a period of six months.

Entrepreneurial self-efficacy was measured by asking students to indicate their level of confidence in their ability to carry out entrepreneurial tasks in the four

Table 1: Questions measuring entrepreneurial intent

Items
1. I am ready to do anything to be an entrepreneur (Entint1).
2. My professional goal is to be an entrepreneur (Entint2).
3. I will make every effort to start and run my own business (Entint3).
4. I am determined to create a business venture in the future (Entint4).
5. I do not have doubts about ever starting my own business in the future (Entint5).
6. I have very seriously thought of starting a business in the future (Entint6).
7. I have a strong intention to start a business in the future (Entint7).
8. My qualification has contributed positively towards my interest in starting a business (Entint8).
9. I had a strong intention to start my own business before I started with my qualification (Entint9).

phases of the entrepreneurial life-cycle using a five-point Likert scale (1=very low confidence to 5=very high confidence) based on the measures adopted from McGee et al. (2009), Kickul and D'Intino (2005), and Kolvereid and Isaksen (2006), as illustrated in Table 2. The overall Cronbach's alpha coefficient for the entrepreneurial self-efficacy scale was 0.940. This suggests that the scale had a high level of reliability, which compares favourably with the scales used by McGee et al. (2009) and Kolvereid and Isaksen (2006).

The following demographic control variables were included in the study: gender; previous or current employment status (work experience); prior start-up experience (currently owns a business or has tried to start a business before); and entrepreneurial role models (in the family, friends who are currently running businesses, or knowledge of other people who are entrepreneurs). Previous research found that these variables are related to entrepreneurial self-efficacy (Muofhe & Du Toit 2011; Kickul, Wilson, Marlino & Barbosa 2008; Wilson, Kickul & Marlino 2007; Zhao et al. 2005; Boyd & Vozikis 1994).

Population and sampling method

The population comprised 814 third-year students registered for full-time studies in 2010 for the following three diplomas (or groups of diplomas): National Diploma: Entrepreneurship/Small Business Management (ND: E/SBM=120 students), National Diplomas: Internal Auditing, Cost and Management Accounting and Financial Information Systems (NDs: IAUD, CMA and FIS=514 students) and National Diploma: Management (ND: Management=180 students) at two selected universities in Limpopo province and the Eastern Cape province. The two universities, a comprehensive university in the Eastern Cape and a university of technology in Limpopo, both offer qualifications of the type presented by the former technikons. The researcher had intended to use a census survey of all 814 students, but owing to

Table 2: Measures of ESE and tasks in the entrepreneurial life-cycle

Items
Searching phase
1. Generate a new idea for a product or service (ESE1). 2. Identify the need for a new product or service (ESE2). 3. Design a product or service that will satisfy customer needs and wants (ESE3).
Planning phase
4. Estimate customer demand for a new product or service (ESE4). 5. Determine a competitive price for a new product or service (ESE5). 6. Estimate the amount of start-up funds and working capital necessary to start a business (ESE6). 7. Design an effective marketing/advertising campaign for a new product or service (ESE7).
Marshalling phase
8. Get others to identify with and believe in the vision and plans for a new business (ESE8). 9. Make contact with and exchange information with others (ESE9). 10. Clearly and concisely explain verbally/in writing the business idea in simple terms (ESE10). 11. Develop relationships with key people who are connected to sources of capital (ESE11). 12. Develop and maintain favourable relationships with potential investors (ESE12). 13. Identify potential sources of funding for investment in the business (ESE13).
Implementation phase
14. Recruit and train new employees (ESE14). 15. Delegate tasks and responsibilities to employees in the business (ESE15). 16. Supervise employees (ESE16). 17. Deal effectively with day-to-day problems and crises (ESE17). 18. Inspire, encourage and motivate employees (ESE18). 19. Develop a working environment that encourages people to try out new things (ESE19). 20. Persist in the face of adversity (ESE20). 21. Make decisions under uncertainty and risk (ESE21). 22. Organise and maintain the financial records of the business (ESE22). 23. Manage financial assets of the business (ESE23). 24. Read and interpret financial statements (ESE24).

circumstances beyond the researcher's control, only 355 students participated in the study.

Three groups of students from each university, representing the three levels of exposure to entrepreneurship education, participated in the study. ND: E/SBM students had Small Business Management as their major subject for three years, while NDs: IAUD, CMA and FIS students were exposed to Entrepreneurial Skills during the first semester of their three-year qualifications. The three-year exposure to entrepreneurship education offered through Small Business Management I (first year), II (second year) and III (third year) was extensive compared to the Entrepreneurial Skills course, which offered students introductory knowledge about entrepreneurial concepts for only six months. ND Management students were not

exposed to any content related to entrepreneurship in their qualification. Of the sample of 355 students, 70 were ND: E/SBM students with three years' exposure to entrepreneurship education; 221 were NDs: IAUD, CMA or FIS students with six months' exposure to entrepreneurship education; and 64 were ND: Management students without any exposure to entrepreneurship education.

In line with previous research on entrepreneurial intent, this sample of students from rural universities was chosen, because as final-year students they were facing important career decisions upon completion of their studies, and starting their own business was a possible option. Another reason for using this sample of students was their different levels of exposure to entrepreneurship education, which met the requirements for this study. The researcher requested permission from the Heads of Department at the two selected institutions to involve their lecturers and students in the research project. Students completed the questionnaires during their lectures and returned them immediately to their lecturers after completion. The only group that was given the questionnaires to complete at home was the entrepreneurship students in the Eastern Cape province.

Statistical analysis

The Statistical Package for the Social Sciences (SPSS) was used to analyse the data. Because the data did not have a normal distribution, non-parametric statistics were applied. Saunders, Lewis and Thornhill (2009) define non-parametric statistics as statistics designed for use when the data are not normally distributed. These statistical techniques include the Mann-Whitney *U* test, Kruskal-Wallis test and the Somer's d test. The Kruskal-Wallis test and Mann-Whitney *U* test were used to test differences in perceived entrepreneurial self-efficacy between the groups based on their different levels of exposure to entrepreneurship education. The reason for using the Kruskal-Wallis test was that it is suitable for testing differences between groups when the data are ordinal. Somer's d test was used to test the strength and statistical significance of the association between entrepreneurial self-efficacy and the intention of the respondents to start a business.

Results

Demographic profile of the sample

The respondents were 355 final-year commerce students who were registered full-time for the 2010 academic year. Of these, 77.7% were from a comprehensive university in

the Eastern Cape and 22.3% from a university of technology in Limpopo . In terms of the qualifications enrolled for at the two institutions, 19.7% were enrolled for the ND: E/SBM, 18% for the ND: Management and 62.3% for the NDs: IAUD, CMA or FIS. Within the sample from the comprehensive university in the Eastern Cape, 19.2% of the respondents were registered for the ND: E/SBM (three years' exposure to entrepreneurship education), 66.3% for the NDs: IAUD, CMA or FIS (six months' exposure to entrepreneurship education) and 14.5% for the ND: Management (no exposure to entrepreneurship education). Within the sample from the university of technology in Limpopo, 21.5% of the respondents were registered for the ND: E/SBM (three years' exposure to entrepreneurship education), 48.1% for the NDs: IAUD, CMA or FIS (six months' exposure to entrepreneurship education) and 30.4% for the ND: Management (no exposure to entrepreneurship education).

Of the respondents, 67.8% were female and 32.2% were male. The majority (76.1%) of the respondents were aged between 14 and 24 years; 22.5% were between 25 and 34 years; and just over 1% were between 35 and 64 years. The majority of the respondents had never been employed (69.8%), and 95.9% were currently unemployed. In terms of entrepreneurial knowledge, 6.6% of the respondents were 'currently running their own businesses'; 34% 'had family members who are running a business'; 28.1% 'had friends who are currently running businesses'; 57.8% 'knew other people who are entrepreneurs'; and 26.7% 'had tried to start a business before'. The overlap between the percentages of the respondents who were currently unemployed and those who were currently running their own businesses suggests that some respondents did not consider running one's own business as being employed.

The influencing role of demographic factors on perceived entrepreneurial self-efficacy

The nonparametric Mann-Whitney *U* test was used to determine whether the respondents differed statistically significantly from one another in perceived entrepreneurial self-efficacy based on demographic factors. The results revealed that these factors had a minimal effect on the entrepreneurial self-efficacy of the respondents. Male respondents differed statistically significantly (at the 1% and 5% level of significance) from female respondents on six entrepreneurial self-efficacy factors, which represented all four phases of the entrepreneurial life-cycle (ESE1, $p = 0.002$; ESE5, $p = 0.004$; ESE13, $p = 0.044$; ESE14, $p = 0.009$; ESE17, $p = 0.033$; ESE22, $p = 0.019$). The respondents differed statistically significantly (at the 5% level of significance) on six entrepreneurial self-efficacy factors as a result of work

experience (ESE7, p = 0.048; ESE13, p = 0.036; ESE14, p = 0.040; ESE16, p = 0.027; ESE20, p = 0.016; ESE21, p = 0.038).

The respondents from an entrepreneurial family background differed statistically significantly (at the 5% level of significance) from those who did not have an entrepreneurial family background on one entrepreneurial self-efficacy factor (ESE3, p = 0.034). Statistically significant differences were found between having friends who were entrepreneurs and entrepreneurial self-efficacy. The respondents who had friends who were entrepreneurs differed statistically significantly (at the 1% and 5% level of significance) from those who did not have friends who were entrepreneurs on three entrepreneurial self-efficacy factors (ESE1, p = 0.002; ESE10, p = 0.010; ESE17, p = 0.035). The results revealed statistically significant differences (at the 1% and 5% level of significance) between respondents who knew other people who were entrepreneurs and those who did not on six entrepreneurial self-efficacy factors (ESE1, p = 0.008; ESE2, p = 0.007; ESE3, p = 0.032; ESE8, p = 0.010; ESE9, p = 0.016; ESE10, p = 0.039).

The entrepreneurial self-efficacy of the respondents who were currently running a business and those who had tried to start a business before differed statistically significantly from those who did not have such experience. The respondents who were currently running a business differed statistically significantly (at the 5% level of significance) from those who were not running businesses on five entrepreneurial self-efficacy factors (ESE1, p = 0.044; ESE2, p = 0.033; ESE9, p = 0.034; ESE10, p = 0.013; ESE11, p = 0.045). The entrepreneurial self-efficacy of the respondents who had tried to start a business before differed statistically significantly (at the 1% and 5% level of significance) from those who did not have prior start-up experience on five entrepreneurial self-efficacy factors (ESE1, p = 0.009; ESE2, p = 0.004; ESE9, p = 0.034; ESE10, p = 0.040; ESE17, p = 0.009).

Differences in perceived entrepreneurial self-efficacy based on the qualifications of the respondents

The results in Table 3 indicate that statistically significant differences (at the 1% and 5% level of significance) between the groups were found on 14 of the 24 entrepreneurial self-efficacy factors (see Table 2). Statistically significant differences in perceived entrepreneurial self-efficacy between the three groups of respondents were recorded in the four phases of the entrepreneurial life-cycle as follows:

- *Searching phase:* Statistically significant differences in perceived entrepreneurial self-efficacy were found on all three entrepreneurial self-efficacy factors (ESE1, p = 0.0347; ESE2, p = 0.0086; ESE3, p = 0.0270). The results indicate that the

groups differed statistically significantly on their ability to develop a new business idea, recognise a business opportunity, and design a product or service to take advantage of that opportunity.

- *Planning phase:* The three groups of respondents differed statistically significantly on two of the four entrepreneurial self-efficacy factors (ESE4, $p = 0.0305$; ESE7, $p = 0.0039$). It seems that the differences pertain to marketing abilities rather than to financial abilities.
- *Marshalling phase:* Statistically significant differences in perceived entrepreneurial self-efficacy of the three groups of respondents were found on two of the six entrepreneurial self-efficacy factors: (ESE8, $p = 0.0320$; ESE13, $p = 0.0357$). Thus it seems that all the respondents had similar levels of confidence regarding their abilities to communicate and build interpersonal relationships, addressed by the last four entrepreneurial self-efficacy factors.
- *Implementation phase:* The three groups of respondents differed statistically significantly in perceived entrepreneurial self-efficacy factors on seven of the 11 factors: (ESE17, $p = 0.0093$; ESE18, $p = 0.0044$; ESE19, $p = 0.0106$; ESE20, $p = 0.0020$; ESE21, $p = 0.0205$; ESE22, $p = 0.0088$; ESE23, $p = 0.0252$). It could therefore be deduced that all the respondents had similar levels of confidence in recruiting and training employees, delegating tasks and responsibilities to employees and supervising them, as well as reading and interpreting financial statements.

It was evident that there were some statistically significant differences between respondents in terms of how they perceived their own entrepreneurial self-efficacy. The nonparametric Mann-Whitney *U* test was therefore used to determine how the groups of respondents differed from one another in perceived entrepreneurial self-efficacy based on their different levels of exposure to entrepreneurship education. The results in Table 4 revealed that the ND: E/SBM students (who had three years' exposure to entrepreneurship education) were statistically significantly different (at the 1% and 5% level of significance) from the ND: Management students (who had no exposure to entrepreneurship education) in perceived entrepreneurial self-efficacy on 12 of the 24 factors, which represented all phases of the entrepreneurial life-cycle. The ND: E/SBM students had higher mean rank values than the ND: Management students for these 12 entrepreneurial self-efficacy factors.

Table 3: Kruskal-Wallis test results for the differences between ND: E/SBM students, NDs: IAUD, CMA or FIS students and ND: Management students in perceived entrepreneurial self-efficacy

Entrepreneurial self-efficacy	Chi-square	Degrees of freedom	p-value
Searching phase			
ESE1: My ability to generate a new idea for a product or service.	6.7234	2	0.0347*
ESE2: My ability to identify the need for a new product or service.	9.5207	2	0.0086**
ESE3: My ability to design a product or service that will satisfy customer needs and wants.	7.2269	2	0.0270*
Planning phase			
ESE4: My ability to estimate customer demand for a new product or service.	6.9833	2	0.0305*
ESE7: My ability to design an effective marketing/ advertising campaign for a new product or service.	11.0711	2	0.0039**
Marshalling phase			
ESE8: My ability to get others to identify with and believe in my vision and plans for a new business.	6.8810	2	0.0320*
ESE13: My ability to identify potential sources of funding for investments in my business.	6.6672	2	0.0357*
Implementation phase			
ESE17: My ability to deal effectively with day-to-day problems and crises.	9.3852	2	0.0093**
ESE18: My ability to inspire, encourage and motivate my employees.	10.8696	2	0.0044**
ESE19: My ability to develop a working environment that encourages people to try out new things.	9.0958	2	0.0106*
ESE20: My ability to persist in the face of adversity.	12.4770	2	0.0020**
ESE21: My ability to make decisions under uncertainty and risk.	7.7739	2	0.0205*
ESE22: My ability to organise and maintain the financial records of my business.	9.4554	2	0.0088**
ESE23: My ability to manage the financial assets of my business.	7.3597	2	0.0252*

* $p<.05$ ** $p<.01$

Table 4: Differences between ND: E/SBM students and ND: Management students in perceived entrepreneurial self-efficacy

Entrepreneurial self-efficacy	**Mean rank**	**p-value**
Searching phase		
ESE2: My ability to identify the need for a new product or service.	ND: E/SBM = 73.55 ND: Management = 58.09	0.0122*
Planning phase		
ESE4: My ability to estimate customer demand for a new product or service.	ND: E/SBM = 72.95 ND: Management = 57.81	0.0169*
ESE7: My ability to design an effective marketing/ advertising campaign for a new product or service.	ND: E/SBM = 72.25 ND: Management = 59.45	0.0419*
Marshalling phase		
ESE8: My ability to get others to identify with and believe in my vision and plans for a new business.	ND: E/SBM = 73.79 ND: Management = 58.76	0.0175*
ESE10: My ability to clearly and concisely explain verbally/in writing my business idea in simple terms.	ND: E/SBM = 71.89 ND: Management = 58.49	0.0329*
ESE11: My ability to develop relationships with key people who are connected to sources of capital.	ND: E/SBM = 72.96 ND: Management = 59.64	0.0358*
ESE12: My ability to develop and maintain favourable relationships with potential investors.	ND: E/SBM = 72.88 ND: Management = 59.73	0.0393*
ESE13: My ability to identify potential sources of funding for investment in my business.	ND: E/SBM = 73.07 ND: Management = 57.70	0.0148*
Implementation phase		
ESE17: My ability to deal effectively with day-to-day problems and crises.	ND: E/SBM = 74.38 ND: Management = 56.95	0.0048**
ESE19: My ability to develop a working environment that encourages people to try out new things.	ND: E/SBM = 74.63 ND: Management = 57.87	0.0056**
ESE20: My ability to persist in the face of adversity.	ND: E/SBM = 74.52 ND: Management = 54.71	0.0018**
ESE21: My ability to make decisions under uncertainty and risk.	ND: E/SBM = 72.77 ND: Management = 56.60	0.0104*

* p<.05 ** p<.01

The NDs: IAUD, CMA or FIS students (who had six months' exposure to entrepreneurship education) were statistically significantly different (at the 1% and 5% level of significance) from the ND: Management students (who had no exposure to entrepreneurship education) in the way in which they perceived their own entrepreneurial self-efficacy, but only with regard to four of the 24 entrepreneurial self-efficacy factors, as illustrated in Table 5. These differences were found in the planning and implementation phases. The mean rank values of the group with six months' exposure to entrepreneurship education were higher than those of the group without any exposure to entrepreneurship education.

Table 5: Differences between NDs: IAUD, CMA or FIS students and ND: Management students in perceived ESE

Entrepreneurial self-efficacy	**Mean rank**	**p-value**
Planning phase		
ESE4: My ability to estimate customer demand for a new product or service.	ND: Management = 118.63 NDs: IAUD, CMA and FIS = 143.87	0.0200*
Implementation phase		
ESE20: My ability to persist in the face of adversity.	ND: Management = 64.54 NDs: IAUD, CMA and FIS = 86.23	0.0020**
ESE21: My ability to make decisions under uncertainty and risk.	ND: Management = 68.14 NDs: IAUD, CMA and FIS = 83.81	0.0245*
ESE23: My ability to manage the financial assets of my business.	ND: Management = 67.92 NDs: IAUD, CMA and FIS = 83.19	0.0208*

* p<.05 ** p<.01

The results of the nonparametric Mann-Whitney *U* test in Table 6 show that the ND: E/SBM students (who had three years' exposure to entrepreneurship education) differed statistically significantly (at the 1% and 5% level of significance) from the NDs: IAUD, CMA or FIS students (who had six months' exposure to entrepreneurship education) in perceived entrepreneurial self-efficacy. Statistically significant differences between these groups were found on 12 of the 24 entrepreneurial self-efficacy factors, which represented all four phases of the entrepreneurial life-cycle. The NDs: IAUD, CMA or FIS students differed statistically significantly from the ND: E/SBM students on ESE22 and ESE23. This is not surprising, since the NDs: IAUD, CMA and FIS students were registered for qualifications in the accounting field. This means that their qualifications had equipped them with the skills to be

able to organise and maintain the financial records and manage the financial assets of a business.

Table 6: Differences between ND: E/SBM students and NDs: IAUD, CMA or FIS students in perceived entrepreneurial self-efficacy

Entrepreneurial self-efficacy	**Mean rank**	**p-value**
Searching phase		
ESE1: My ability to generate a new idea for a product or service.	ND: E/SBM = 162.32 NDs: IAUD, CMA and FIS = 134.88	0.0106*
ESE2: My ability to identify the need for a new product or service.	ND: E/SBM = 164.46 NDs: IAUD, CMA and FIS = 132.96	0.0032**
ESE3: My ability to design a product or service that will satisfy customer needs and wants.	ND: E/SBM = 163.54 NDs: IAUD, CMA and FIS = 134.36	0.0069**
Planning phase		
ESE7: My ability to design an effective marketing/advertising campaign for a new product or service.	ND: E/SBM = 167.71 NDs: IAUD, CMA and FIS = 131.24	0.0007**
Marshalling phase		
ESE8: My ability to get others to identify with and believe in my vision and plans for a new business.	ND: E/SBM = 158.77 NDs: IAUD, CMA and FIS = 134.64	0.0232*
Implementation phase		
ESE14: My ability to recruit and train new employees.	ND: E/SBM = 157.95 NDs: IAUD, CMA and FIS = 134.22	0.02767*
ESE16: My ability to supervise employees.	ND: E/SBM = 156.31 NDs: IAUD, CMA and FIS = 133.48	0.0304*
ESE17: My ability to deal effectively with day-to-day problems and crises.	ND: E/SBM = 160.76 NDs: IAUD, CMA and FIS = 133.31	0.0091**
ESE18: My ability to inspire, encourage and motivate my employees.	ND: E/SBM = 163.42 NDs: IAUD, CMA and FIS = 130.35	0.0040**
ESE19: My ability to develop a working environment that encourages people to try out new things.	ND: E/SBM = 160.75 NDs: IAUD, CMA and FIS = 133.31	0.0078**
ESE22: My ability to organise and maintain the financial records of my business.	ND: E/SBM = 67.76 ND: IAUD, CMA and FIS = 88.14	0.0027**
ESE23: My ability to manage the financial assets of my business.	ND: E/SBM = 70.71 NDs: IAUD, CMA and FIS = 85.97	0.0219*

* $p<.05$ ** $p<.01$

The results in Tables 4, 5 and 6 indicate that the ND: E/SBM students (who had three years' exposure to entrepreneurship education) differed statistically significantly from both the ND: Management students (who had no exposure to entrepreneurship education) and the NDs: IAUD, CMA or FIS students (who had six months' exposure to entrepreneurship education) on five of the entrepreneurial self-efficacy factors, which included the ability to 'identify the need for a new product or service' (ESE2), 'design an effective marketing/advertising campaign for a new product or service' (ESE7), 'get others to identify with and believe in the vision and plans for a new business' (ESE8), 'deal effectively with day-to-day problems and crises' (ESE17) and 'develop a working environment that encourages people to try out new things' (ESE19). Both the ND: E/SBM students and the NDs: IAUD, CMA or FIS students differed statistically significantly from the ND: Management students on three entrepreneurial self-efficacy factors, which included the ability to 'estimate customer demand for a new product or service' (ESE4), 'persist in the face of adversity' (ESE20) and 'make decisions under uncertainty and risk' (ESE21).

Relationship between entrepreneurial self-efficacy and entrepreneurial intent

Somer's d test was used to test whether entrepreneurial self-efficacy is statistically significantly related to the intention of the respondents to start a business. Each of the 24 entrepreneurial self-efficacy factors (ESE1 to ESE24) was tested individually against the nine statements (Entint1 to Entint9) constituting entrepreneurial intent. The results (Table 7) revealed that a statistically significant relationship (at the 1% and 5% level of significance) exists between some of the entrepreneurial self-efficacy factors and some of the entrepreneurial intent factors. The relationship was either weak (Somer's d values were above 0.2 but less than 0.4) or very weak (Somer's d values below 0.2). Of the 24 entrepreneurial self-efficacy factors associated with the four phases of the entrepreneurial life-cycle (Table 2), the results showed that the intention of the respondents to start a business was statistically significantly related to the way in which they perceived their own entrepreneurial self-efficacy on 18 factors.

The statistical results indicated that all three entrepreneurial self-efficacy factors (ESE1, ESE2 and ESE3) in the searching phase had a statistically significant relationship with all nine entrepreneurial intent factors. Three of the four entrepreneurial self-efficacy factors in the planning phase (ESE4, ESE6 and ESE7) had a statistically significant relationship with all nine entrepreneurial intent factors with the exception of ESE5, which had a statistically significant relationship with seven of the nine entrepreneurial intent factors. All six entrepreneurial self-

efficacy factors (ESE8, ESE9, ESE10, ESE11, ESE12 and ESE13) in the marshalling phase had a statistically significant relationship with all nine entrepreneurial intent factors. With regard to entrepreneurial self-efficacy factors in the implementation phase, six of the 11 factors had a statistically significant relationship with all nine entrepreneurial intent factors, while two of the remaining five entrepreneurial self-efficacy factors (ESE20 and ESE21) had a statistically significant relationship with eight of the nine entrepreneurial intent factors.

Table 7: Relationship between entrepreneurial self-efficacy and entrepreneurial intent

Entrepreneurial self-efficacy (ESE)		**Entrepreneurial intent (significant relationships)**								
		Entint1	EntInt2	Entint3	Entint4	Entint5	Entint6	Entint7	Entint8	Entint9
ESE1	Somer's d value	0.145	0.243	0.199	0.192	0.159	0.237	0.204	0.195	0.237
	P-value	0.002	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000
ESE2	Somer's d value	0.173	0.225	0.228	0.219	0.213	0.218	0.255	0.235	0.287
	P-value	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ESE3	Somer's d value	0.103	0.180	0.146	0.167	0.164	0.196	0.195	0.204	0.174
	P-value	0.036	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000
ESE4	Somer's d value	0.100	0.161	0.130	0.120	0.153	0.183	0.200	0.179	0.137
	P-value	0.045	0.001	0.005	0.007	0.001	0.000	0.000	0.000	0.004
ESE5	Somer's d value	–	0.103	0.140	–	0.125	0.148	0.171	0.137	0.160
	P-value	–	0.039	0.004	–	0.010	0.003	0.000	0.001	0.001
ESE6	Somer's d value	0.139	0.147	0.180	0.168	0.188	0.189	0.196	0.180	0.128
	P-value	0.003	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.008
ESE7	Somer's d value	0.185	0.247	0.187	0.166	0.164	0.194	0.186	0.171	0.171
	P-value	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ESE8	Somer's d value	0.177	0.193	0.177	0.140	0.149	0.190	0.241	0.161	0.165
	P-value	0.000	0.000	0.000	0.001	0.001	0.000	0.000	0.000	0.000
ESE9	Somer's d value	0.190	0.190	0.194	0.285	0.19	0.230	0.223	0.205	0.188
	P-value	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ESE10	Somer's d value	0.220	0.197	0.211	0.194	0.178	0.208	0.197	0.192	0.197
	P-value	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Table 2 continued

Table 2 continued

Entrepreneurial self-efficacy (ESE)		**Entrepreneurial intent (significant relationships)**								
		Entint1	Entint2	Entint3	Entint4	Entint5	Entint6	Entint7	Entint8	Entint9
ESE11	Somer's d value	0.196	0.186	0.179	0.243	0.200	0.212	0.165	0.222	0.172
	P-value	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ESE12	Somer's d value	0.181	0.187	0.200	0.259	0.218	0.245	0.207	0.205	0.176
	P-value	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ESE13	Somer's d value	0.214	0.248	0.211	0.235	0.224	0.246	0.261	0.242	0.143
	P-value	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ESE14	Somer's d value	0.132	0.204	0.187	0.204	0.130	0.201	0.213	0.192	0.174
	P-value	0.005	0.000	0.000	0.000	0.004	0.000	0.000	0.000	0.000
ESE15	Somer's d value	0.114	0.168	0.131	0.161	0.133	0.166	0.145	0.205	0.146
	P value	0.017	0.000	0.004	0.000	0.003	0.000	0.002	0.000	0.001
ESE16	Somer's d value	0.158	0.213	0.200	0.197	0.180	0.195	0.209	0.237	0.168
	P value	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ESE17	Somer's d value	0.204	0.212	0.202	0.195	0.217	0.194	0.221	0.210	0.181
	P value	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ESE18	Somer's d value	0.200	0.215	0.172	0.232	0.227	0.245	0.191	0.119	0.186
	P value	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.023	0.000
ESE19	Somer's d value	0.171	0.244	0.177	0.210	0.192	0.236	0.209	0.190	0.161
	P value	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001
ESE20	Somer's d value	0.127	0.162	0.146	0.128	0.177	0.181	0.239	0.124	–
	P value	0.029	0.006	0.008	0.020	0.001	0.001	0.000	0.023	–
ESE21	Somer's d value	–	0.172	0.158	0.156	0.174	0.216	0.219	0.190	0.123
	P value	–	0.002	0.003	0.004	0.001	0.000	0.000	0.000	0.038
ESE22	Somer's d value	–	–	0.126	0.123	0.205	–	0.218	–	0.175
	P value	–	–	0.028	0.026	0.000	–	0.000	–	0.002
ESE23	Somer's d value	–	–	–	–	0.165	0.144	0.147	0.134	–
	P value	–	–	–	–	0.006	0.017	0.015	0.024	–
ESE24	Somer's d value	–	–	–	–	0.132	–	0.134	0.125	–
	P value	–	–	–	–	0.041	–	0.040	0.041	–

Discussion

The aim of this study was to examine whether students who were exposed to entrepreneurship education would perceive their own entrepreneurial self-efficacy differently from those who did not have such exposure and to determine the relationship between perceived entrepreneurial self-efficacy and entrepreneurial intent. The results showed that respondents with exposure to entrepreneurship education perceived their own entrepreneurial self-efficacy differently from those without such exposure. Respondents with three years' exposure to entrepreneurship education differed statistically significantly from those with six months' exposure and those without such exposure. These findings suggest the need to increase the timeframe for exposure to entrepreneurship education in order to allow students sufficient time to develop entrepreneurial self-efficacy. Perceived entrepreneurial self-efficacy was also found to be statistically significantly related to the intention of the respondents to start a business.

These results supported earlier research findings that entrepreneurship education is significantly related to entrepreneurial self-efficacy (US SBA 2006; Ramayah & Harun 2005; Alvarez & Jung 2004; Zhao et al. 2005) and that entrepreneurial self-efficacy is positively related to entrepreneurial intent (Sesen 2013; Kickul et al. 2008; Wilson et al. 2007; Kickul & D'Intino 2005; Zhao et al. 2005). The results suggested that entrepreneurship education enhances perceptions of entrepreneurial self-efficacy, which in turn influences the intention to start a business. This is in line with the findings of Zhao et al. (2005) and Sequeira et al. (2007). In the South African context, the findings supported those of Muofhe and Du Toit (2011), indicating the importance of entrepreneurship education as a valuable tool for developing an entrepreneurial mindset and capability. It is worth noting that this study did not test cause and effect relationships, but sought mainly to establish the relationship between entrepreneurship education and entrepreneurial self-efficacy, and the way in which entrepreneurial self-efficacy is associated with entrepreneurial intent. However, the use of respondents with different levels of exposure to entrepreneurship education strengthened the view that entrepreneurship education positively impacts on entrepreneurial self-efficacy. The respondents with three years' exposure to entrepreneurship education and those with six months' exposure differed statistically significantly in perceived entrepreneurial self-efficacy from those without such exposure.

The results further showed that demographic factors such as gender, work experience, prior business start-up experience, entrepreneurial family background, having friends who are entrepreneurs and knowing other people who are entrepreneurs play a role in perceptions of entrepreneurial self-efficacy. These findings supported

the findings of previous research by Kickul et al. (2008), Wilson et al. (2007) and Zhao et al. (2005). While the results differed from those of Chen et al. (1998) with regard to the relationship between having an entrepreneurial parent or sibling and entrepreneurial self-efficacy, they offered support for the findings that previous start-up experience is positively related to entrepreneurial self-efficacy. According to Boyd and Vozikis (1994), enactive mastery acquired through previous career experience and the presence of entrepreneurial role models is positively associated with entrepreneurial self-efficacy.

Limitations

The study was cross-sectional rather than longitudinal. Changes in entrepreneurial intent over a protracted time could therefore not be measured. It was also not possible to measure whether the students' intention to start a business would in fact translate into new ventures. The findings could not be generalised to all final-year commerce students at higher education institutions in the rural provinces of South Africa, because the study used convenience samples. Future research might consider examining how perceived entrepreneurial self-efficacy influences the growth intentions of existing entrepreneurs, or the relationship between perceived entrepreneurial self-efficacy and small business growth. This would shed light on the role of entrepreneurial self-efficacy in the realisation of new venture performance, as pointed out by McGee et al. (2009).

Conclusion

The findings contribute to the body of knowledge by examining the role of entrepreneurship education in enhancing entrepreneurial self-efficacy in the four phases of the entrepreneurial life-cycle, and the relationship between entrepreneurial self-efficacy and entrepreneurial intent. The study thus validated the applicability of the measure of entrepreneurial self-efficacy developed by McGee et al. (2009) in the South African context. The results indicated that entrepreneurship education that equips students with skills to perform entrepreneurial tasks in the searching, planning, marshalling and implementation phases of the entrepreneurial life-cycle is vital to stimulating and improving the entrepreneurial activity. More specifically, such education has to equip students with the necessary skills to start, manage and grow new ventures. This is line with Krueger and Brazeal's (1994: 102) view that "entrepreneurs are made, not born". This means that entrepreneurship educators should use pedagogical methods that influence sources of entrepreneurial self-

efficacy. Entrepreneurship educators should use student-centred methods that build confidence among students and develop skills that are essential in executing the entrepreneurial process (De Noble et al. 1999).

The government could contribute to increasing the number of entrepreneurs who are capable of identifying and exploiting opportunities by making entrepreneurship a compulsory subject in all commercial courses. The content should include important concepts that prepare students for the dynamic entrepreneurial world. For example, in order to provide students with mastery experiences, the government would have to make financial resources available to higher education institutions to enable students to experiment with their ideas. This would assist in enhancing the development of entrepreneurial self-efficacy. As Krueger (2000) points out, efforts to increase self-efficacy extend beyond just teaching competencies, and also involve providing students with the opportunity to internalise competencies by experiencing the mastery of skills. By enhancing entrepreneurial self-efficacy, the probability of entrepreneurial action will be increased (Boyd & Vozikis 1994). This is particularly crucial in South Africa, where the unemployment rate is high. Since the act of starting a business does not depend only on having skills and intention, the results of this study imply that policy-makers should make it possible for potential entrepreneurs to start their own businesses. This would require policy-makers to make various types of support available and clearly indicate the requirements for accessing them.

Acknowledgements

The research was conducted with financial assistance from the National Research Foundation.

References

Ajzen, I. 2005. *Attitudes, Personality and Behaviour* (2nd edition). Berkshire, England: Open University Press. Akmaliah, Z., Pihie, L. & Bagheri, A. 2013. 'Self-efficacy and entrepreneurial intention: The mediation effect of self-regulation', *Vocations and Learning,* 6: 385–401.

Alvarez, R.D. & Jung, D. 2004. Educational curricula and self-efficacy: Entrepreneurial orientation and new venture intentions among university students in Mexico. [Online] Available at: http://www.babson.edu/entrep/fer/BABSON2003/IX/Ix-S2/ix-s2.htm Accessed: 24 February 2006.

Bandura, A. 1986. *Social Foundation of Thought and Action: A Social Cognitive Theory.* Englewood Cliffs, NJ: Prentice- Hall.

Bandura, A. 1997. *Self-efficacy: The Exercise of Control*. New York: Freeman and Company.

Bandura, A. 2009. 'Cultivate self-efficacy for personal and organisational effectiveness', In Locke, E.A. (Ed.), *Handbook of Principles of Organisation Behaviour*. New York: Wiley.

Bird, B. 1988. 'Implementing entrepreneurial ideas: The case for intention', *Academy of Management Review,* 13(3): 442–453.

Blackford, B.J., Sebora, T.C. & Whitehill, T. 2008. The effects of collegiate entrepreneurship education on post-graduation start-up of new ventures: A first look. [Online] Available at: http://www.sbaer.uca.edu/pages/research-archive/usasbe/2008/2008 Accessed: 1 September 2008.

Bosma, N., Jones, K., Autio, E. & Levie, J. 2007. *Global Entrepreneurship Monitor: 2007 Executive Report*. [Online] Available at: http://www.gemconsortium.org Accessed: 19 January 2008.

Boyd, N.G. & Vozikis, G.S. 1994. 'The influence of self-efficacy on the development of entrepreneurial intentions and actions', *Entrepreneurship Theory and Practice,* Summer: 63–74.

Brice, J. & Spencer, B. 2007. 'Entrepreneurial profiling: A decision policy analysis of the influence of entrepreneurial self-efficacy on entrepreneurial intent', *Academy of Entrepreneurship Journal,* 13(2): 47–64.

Chen, C.C., Greene, P.G. & Crick, A. 1998. 'Does entrepreneurial self-efficacy distinguish entrepreneurs from managers?', *Journal of Business Venturing,* 13: 295–316.

De Noble, A.F., Jung, D. & Ehrlich, S.B. 1999. Entrepreneurial self-efficacy: The development of a measure and its relationship to entrepreneurial action. [Online] Available at: http://www.babson.edu/entrep/fer/papers99/I/I_C/IC%20Text.htm Accessed: 23 February 2006.

Dickson, P.H., Solomon, G.T. & Weaver, K.M. 2008. 'Entrepreneurial selection and success: Does education matter?', *Journal of Small Business and Enterprise Development,* 15(2): 239–258.

Douglas, E.J. & Fitzsimmons, J.R. 2013. 'Intrapreneurial intentions versus entrepreneurial intentions: Distinct constructs with different antecedents', *Small Business Economics,* 41: 115–132.

Fayolle, A. 2004. Value creation in changing student state of mind and behaviour: New research approaches to measure the effects of entrepreneurship education. [Online] Available at: http://www.kmu.unisg.ch/rencontres/RENC2004/Topics/Fayolle_Renc_2004_Topic_D.pdf Accessed: 1 August 2006.

Fayolle, A., Gailly, B. & Lassas-Clerc, N. 2006. 'Assessing the impact of entrepreneurship education programmes: A new methodology', *Journal of European Industrial Training,* 30(9): 701–720.

Forbes, D.P. 2005. 'The effects of strategic decision making on entrepreneurial self-efficacy', *Entrepreneurship Theory and Practice,* September: 599–622.

Guerrero, M., Lavín, J. & Álvarez, M. 2009. 'The role of education on start-up intentions: A structural equation model of Mexican university students', Paper presented at Association for Small Business and Entrepreneurship 35th Annual Conference.

Gupta, V.K., Turban, D.B., Wasti, S.A. & Sikdar, A. 2009. 'The role of gender stereotypes in perceptions of entrepreneurs and intentions to become an entrepreneur', *Entrepreneurship Theory and Practice,* March: 397–415.

Henry, C., Hill, F. & Leitch, C. 2005. 'Entrepreneurship education and training: Can entrepreneurship be taught? Part I', *Education and Training,* 47(2): 98–111.

Herrington, M., Kew, J. & Kew, P. 2010. Tracking entrepreneurship in South Africa: A GEM perspective. [Online] Available at: http://www.gemconsortium.org/docs/604/gem-south-africa-2009-report. Accessed: 15 June 2010.

Jones, P., Jones, A., Packham, G. & Miller, C. 2008. 'Student attitudes towards enterprise education in Poland: A positive impact', *Education and Training,* 50(7): 597–614.

Kickul, J. & D'Intino, R.S. 2005. 'Measure for measure: Modelling entrepreneurial self-efficacy onto instrumental tasks within the new venture creation process', *New England Journal of Entrepreneurship,* Fall, 8(2): 39–47.

Kickul, J., Gundry, L.K., Barbosa, S.D. & Whitcanack, L. 2009. 'Intuition versus analysis? Testing differential models of cognitive style on entrepreneurial self-efficacy and the new venture creation process', *Entrepreneurship Theory and Practice,* March: 439–453.

Kickul, J., Wilson, F., Marlino, D. & Barbosa, S.D. 2008. 'Are misalignments of perceptions and self-efficacy causing gender gaps in entrepreneurial intentions among our nation's teens?', *Journal of Small Business and Enterprise Development,* 15(2): 321–335.

Kolvereid, L. & Isaksen, E. 2006. 'New business start-up and subsequent entry into self-employment', *Journal of Business Venturing,* 21: 866–885.

Krueger, N.F. 2000. 'The cognitive infrastructure of opportunity emergence', *Entrepreneurship Theory and Practice,* Spring: 5–23.

Krueger, N.F. & Brazeal, D.V. 1994. 'Entrepreneurial potential and potential entrepreneurs', *Entrepreneurship Theory and Practice,* Spring: 91–104.

Krueger, N.F., Reilly, M.D. & Carsrud, A.L. 2000. 'Competing models of entrepreneurial intentions', *Journal of Business Venturing,* 15: 411–432.

Laviolette, E.M. & Radu, M. 2008. 'Symbolic role models and entrepreneurial intention', Paper presented at the 2008 International Council for Small Business Conference, 22–25 June, Halifax, Nova Scotia, Canada.

Laviolette, E.M., Lefebvre, M.R. & Brunel, O. 2012. 'The impact of story bound entrepreneurial role models on self-efficacy and entrepreneurial intention', *International Journal of Entrepreneurial Behaviour and Research,* 18(6): 720–742.

Liñán, F. 2004. Intention-based models of entrepreneurship education. [Online] Available at: http://alojamientos.us.es/gpyde/DOWNLOAD/a9.pdf. Accessed: 8 March 2009.

Liñán, F. 2008. 'Skill and value perceptions: How do they affect entrepreneurial intentions?', *International Entrepreneurship and Management Journal,* 4: 257–272.

Liñán, F. & Chen, Y. 2006. Testing the entrepreneurial intention model on a two-country sample. [Online] Available at: http://www.recercat.net/bitstream/2072/2213/1/UABDT06-7.pdf Accessed: 28 August 2007.

Liñán, F. & Chen, Y. 2009. 'Development and cross-cultural application of a specific instrument to measure entrepreneurial intentions', *Entrepreneurship Theory and Practice,* May: 593–617.

Luthans, F. 2008. O*rganisational Behaviour* (11th edition). New York: McGraw-Hill.

McGee, J.E., Peterson, M., Mueller, S.L. & Sequeira, J.M. 2009. 'Entrepreneurial self-efficacy: Refining the measure', *Entrepreneurship Theory and Practice,* July: 965–988.

Muofhe, N.J. & Du Toit, W. 2011. 'Entrepreneurial education's and role models' influence on career choice', *South African Journal of Human Resource Management,* 9(1), Art. #345, 15 pages. [Online] Available at: http://dx.doi.org/10.4102/sajhrm.v9i1.345.

Peterman, N.E. & Kennedy, J. 2003. 'Enterprise education: Influencing students' perceptions of entrepreneurship', *Entrepreneurship Theory and Practice,* Winter: 129–144.

Radu, M. & Loué, C. 2008. 'Motivational impact of role models as moderated by "ideal" vs. "ought self-guides" identifications', *Journal of Enterprising Culture,* 16(4): 441–465.

Ramayah, T. & Harun, Z. 2005. 'Entrepreneurial intention among the students of Universiti Sains Malaysia (USM)', *International Journal of Management and Entrepreneurship,* 1(1): 8–20.

Saunders, M., Lewis, P. & Thornhill, A. 2009. *Research Methods for Business Students* (5th edition). Harlow, England: Pearson Education.

Schwarz, E.J., Wdowiak, M.A., Almer-Jarz, D.A. & Breitenecker, R.J. 2009. 'The effects of attitudes and perceived environment conditions on students' entrepreneurial intent: An Austrian perspective', *Education and Training,* 51(4): 272–291.

Segal, G., Schoenfeld, J. & Borgia, D. 2007. 'Using social cognitive career theory to enhance students' entrepreneurial interests and goals', *Proceedings of the Academy of Entrepreneurship,* 13(1): 69–74.

Sequeira, J., Mueller, S.L. & McGee, J.E. 2007. 'The influence of social ties and self-efficacy in forming entrepreneurial intentions and motivating nascent behaviour', *Journal of Developmental Entrepreneurship,* 12(3): 275–293.

Sesen, H. 2013. 'Personality or environment? A comprehensive study on the entrepreneurial intentions of university students', *Education and Training,* 55(7): 624–640.

Shapero, A. & Sokol, L. 1982. 'The social dimensions of entrepreneurship', In Kent, C., Sexton, D. & Vesper, K. (Eds), *Encyclopedia of Entrepreneurship.* Englewood Cliffs, NJ: Prentice-Hall.

Souitaris, V., Zerbinati, S. & Al-Laham, A. 2007. 'Do entrepreneurship programmes raise entrepreneurial intention of science and engineering students?': The effect of learning, inspiration and resources', *Journal of Business Venturing,* 22: 566–591.

Statistics South Africa. 2014. *Labour Force Survey, Quarter 4.* [Online] Available at: www.statssa.gov.za. Accessed: 11 February 2014.

Thompson, E.R. 2009. 'Individual entrepreneurial intent: Construct clarification and development of an internationally reliable metric', *Entrepreneurship Theory and Practice,* May: 669–694.

Turton, N. & Herrington, M. 2013. *Global Entrepreneurship Monitor 2012 – South Africa*. [Online] Available at: http://www.gemconsortium.org/docs/2801/gem-south-africa-2012-report Accessed: 20 May 2013.

US SBA (United States Small Business Administration). 2006. Entrepreneurship and entrepreneurship education: What is known and not known about the links between education and entrepreneurial activity. [Online] Available at: http://www.sba.gov/advo/research/sbe_06_ch05.pdf. Accessed: 5 March 2008.

Wilson, F., Kickul, J. & Marlino, D. 2007. 'Gender, entrepreneurial self-efficacy, and career intentions: Implications for entrepreneurship education', *Entrepreneurship Theory and Practice,* May: 387–406.

Zhao, H., Hills, G.E. & Seibert, S.E. 2005. 'The mediating role of self-efficacy in the development of entrepreneurial intentions', *Journal of Applied Psychology,* 90(6): 1265–1272.