Does entrepreneurship education matter for the enhancement of entrepreneurial intention?

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ABSTRACT

The purpose of this paper was to establish whether rural university students in South Africa who have had different levels of exposure to entrepreneurship education differ in entrepreneurial intention, attitude towards becoming an entrepreneur, perceived behavioural control, subjective norms and entrepreneurial competencies. A survey was conducted using a convenience and purposive sample of 355 South African university students from a comprehensive university in the Eastern Cape and a university of technology in Limpopo. A structured questionnaire was used to collect the data, which were analysed by means of SPSS. The respondents with three years' exposure to entrepreneurship education were statistically significantly different from those with six months' exposure to entrepreneurship education and those with no exposure to entrepreneurship education in entrepreneurial intention, attitude towards becoming an entrepreneur, perceived behavioural control and subjective norms. In addition, the respondents with three years' exposure to entrepreneurship education were statistically significantly different from those with no exposure to entrepreneurship education in entrepreneurial competencies in terms of the ability to recognise and evaluate opportunities in the market. The results suggest that long-term exposure to entrepreneurship education is vital in stimulating entrepreneurial intention.

Key words: entrepreneurship education, entrepreneurial intention, entrepreneurial competencies, Limpopo, Eastern Cape, rural entrepreneurial activity, theory of planned behaviour

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Introduction

In recent years there has been an increase in the volume of empirical research that evaluates the impact of entrepreneurship education on entrepreneurial intention as the foundation for entrepreneurial behaviour (e.g. Liñán 2004; Fayolle, Gailly & Lassas-Clerc 2006a; Zhang, Duysters & Cloodt 2014; Bae, Qian, Miao & Fiet 2014; Rauch & Hulsink 2015). Since entrepreneurial tendencies are not inborn, researchers agree that some aspects of entrepreneurship can be successfully learnt and taught (Henry, Hill & Leitch 2005; Kuratko 2005).

Entrepreneurial activity is considered an intentionally planned behaviour (Krueger, Reilly & Carsrud 2000) that involves the discovery, evaluation and exploitation of market opportunities (Shane & Venkataraman 2000). Recent research supports this view by indicating a significant relationship between entrepreneurial intention and entrepreneurial behaviour in terms of new venture creation (Delanoë 2013), involvement in activities aimed at launching a new venture (Kautonen, Van Gelderen & Tornikoski 2013; Kautonen, Van Gelderen & Fink 2015; Rauch & Hulsink 2015) and venture growth (Neneh & Van Zyl 2014). Since entrepreneurial intention precedes the performance of entrepreneurial activities that result in new venture emergence (Douglas 2013; Shook, Priem & McGee 2003), it is imperative to evaluate the effectiveness of entrepreneurship education on the basis of its impact on the formation of entrepreneurial intention.

Entrepreneurship education could be used to prepare individuals for their entrepreneurial career by making entrepreneurship attractive and equipping them with the knowledge, skills and competencies required for starting, managing and growing their own businesses (Fayolle & Gailly 2008; Kickul, Wilson, Marlino & Barbosa 2008; Morris, Webb, Fu & Singhal 2013). More specifically, entrepreneurship education should enhance the ability of individuals to discover, evaluate and exploit opportunities in the market (Niyonkuru 2005; Shane & Venkataraman 2000). Prior research indicates that individuals start new ventures on the basis of their belief that they have the necessary skills and knowledge to do so (Bosma, Jones, Autio & Levie 2007). Evaluation of the effectiveness of entrepreneurship education in stimulating the entrepreneurial career choice is more relevant in South Africa because of the high unemployment rate of 25.5% (Statistics South Africa 2015), the low entrepreneurial activity rate of 7.0% and the low percentage of individuals who have entrepreneurial intentions of about 11.8% (Herrington, Kew & Kew 2015).

The purpose of this paper was to establish whether rural university students in the Eastern Cape and Limpopo with exposure to entrepreneurship education would have higher intentions to start their own businesses than those who had not had such exposure. The relationship between exposure to entrepreneurship education

and entrepreneurial intention was examined on the basis of the theory of planned behaviour (TPB). Use of this theory as an evaluation framework is also valuable in establishing the effect of entrepreneurship education on the antecedents of entrepreneurial intention. In addition, the study determined whether or not there are significant differences in entrepreneurial competencies based on the varying levels of exposure to entrepreneurship education. In the next sections the theoretical background that draws primarily from the entrepreneurial intention theory and studies that assessed the impact of entrepreneurship education is presented. This is followed by a discussion of the research methodology, research findings, limitations, conclusions and recommendations relating to this study.

Literature review

This section begins with an explanation of the entrepreneurial intention models that researchers use to evaluate entrepreneurship education. Thereafter the impact of entrepreneurship education in the formation of entrepreneurial intention and the development of entrepreneurial competencies is discussed.

Entrepreneurial intention models for evaluating entrepreneurship education

Shapero and Sokol's entrepreneurial event (SEE) model and the TPB are dominant entrepreneurial intention models used by researchers to evaluate the impact of entrepreneurship education (e.g. Liñán 2004; Peterman & Kennedy 2003; Fretschner & Weber 2013). Empirical tests of these models revealed that they are compatible and equally useful in studying entrepreneurial intention (Krueger et al. 2000; Miralles, Riverola & Giones 2012) and can therefore be integrated into one model (Kolvereid, Iakovleva & Kickul, 2007; Schlaegel & Koenig 2014). According to the SEE model, entrepreneurial intentions are determined by perceived desirability, perceived feasibility and propensity to act (Shapero & Sokol 1982; Krueger et al. 2000). In this model, individuals' intention to start a business develops from the personal attractiveness of starting a business and the degree to which they feel personally capable of doing so. Propensity to act is the personal predisposition to act on one's decisions (Krueger et al. 2000).

The TPB suggests that the most important immediate determinant of action is a person's intention to perform or not perform that action (Ajzen 2005). The theory states that entrepreneurial intentions can be predicted with high accuracy from the attitude towards behaviour, subjective norms and perceived behavioural

control (Ajzen 2005). Attitude towards behaviour is the extent to which an individual has a favourable or unfavourable evaluation of performing a particular behaviour. Perceived behavioural control is an individual's perceived capability for performing a behaviour that involves consideration of the presence or absence of the factors that can facilitate or impede the performance of the behaviour. Subjective norms refer to perceived social pressure felt by an individual to perform or not perform the behaviour (Ajzen 2005). This social pressure occurs as a result of individuals' beliefs that specific individuals or groups would approve or disapprove of performing a particular behaviour or whether these specific individuals or groups engage or do not engage in the same behaviour. The more individuals believe that their social referents would approve of performing a particular behaviour and they are motivated to comply with these social referents' expectations, the higher the perceived social pressure to perform the behaviour will be.

Exposure to entrepreneurship education and its impact on entrepreneurial intention

The majority of research that examines the value of entrepreneurship education focuses on entrepreneurial intention and its antecedents. In South Africa, Moufhe and Du Toit (2011) integrated the TPB and the social cognitive career theory to establish the relationship between entrepreneurship education and entrepreneurial intention based on a sample of final-year students in Gauteng. Their findings indicated significant correlations between entrepreneurship education, entrepreneurial intention and the antecedents of entrepreneurial intention. Prior research based on the SEE model indicates that entrepreneurship education increases the perceived desirability and perceived feasibility of starting a business (Audet 2004; Peterman & Kennedy 2003; Byabashaija & Katono 2011; Boukamcha 2015).

Entrepreneurship education equips individuals with entrepreneurial knowledge that directly influences the perceived desirability, perceived feasibility or self-efficacy of starting a business and entrepreneurial intention (Liñán 2004; Roxas 2014; Zhang, Cao & Zeng 2014). However, it should be pointed out that the effect of entrepreneurship education on entrepreneurial intention and its antecedents varies on the basis of the unique cultures of different countries regarding entrepreneurship (Lee, Chang & Lim 2005), whether or not the population studied had prior entrepreneurial exposure (Mueller 2011; Fayolle et al. 2006b) and how the courses are taught (Audet 2004; Mueller 2011). Entrepreneurship educators should apply experiential and student-centred approaches in order to be effective in influencing entrepreneurial intention and its antecedents (Mueller 2011; Segal, Schoenfeld & Borgia 2007; Sherman, Sebora & Digman 2008).

The TPB has been proposed as an evaluation framework for evaluating the design and impact of entrepreneurship education, with specific reference to entrepreneurial

intention and its antecedents (Fayolle et al. 2006a; Fayolle, Gailly & Lassas-Clerc 2006b). Researchers who concur with this view have found full support for the TPB in terms of the positive effect of entrepreneurship education on entrepreneurial intention, personal attitude, perceived behavioural control and subjective norms (Gerba 2012; Otuya, Kibas, Gichira & Martin 2013). Other studies support the TPB as an evaluation tool for entrepreneurship education on perceived behavioural control and the attitude towards the behaviour (Basu & Virick 2008; Guerrero, Lavín & Álvarez 2009; Solesvik 2013) and the intention to start a business (Rauch & Hulsink 2015). In addition, it has been found that the effect of entrepreneurship education varies between a compulsory and an elective course, with an elective course having a greater effect on entrepreneurial intention, subjective norms and perceived behavioural control than a compulsory course (Karimi, Biemans, Lans, Chizari & Mulder 2016).

While the majority of studies measured the effects of entrepreneurship education once, researchers who conducted pre- and post-measurements indicate that the impact of subjective norms and perceived behavioural control on entrepreneurial intention decreases after exposure to entrepreneurship education (Fretschner & Weber 2013). Moreover, the results of pre- and post-measurements have shown that entrepreneurship education has a positive effect on entrepreneurial intention and subjective norms only (Souitaris, Zerbinati & Al-Laham 2007). Despite most studies indicating the positive effects of entrepreneurship education on entrepreneurial intention and the antecedents of entrepreneurial intention, these effects have been found to be minimal when pre- and post-measurements are compared (Bae et al. 2014).

The impact of entrepreneurship education on entrepreneurial competencies

Apart from stimulating entrepreneurial intention by changing the antecedents of entrepreneurial intention, entrepreneurship educators should enhance the entrepreneurial competencies of students since these competencies can be learnt and developed (Man, Lau & Chan 2002; Morris et al. 2013; Volery, Müller, Oser, Naepflin & Del Rey 2013). Entrepreneurial competence refers to "a higher-level characteristic encompassing personality traits, skills and knowledge that can be seen as the total ability of the entrepreneur to perform a job role successfully" (Man et al. 2002: 124). Individuals with high levels of entrepreneurial competencies are more likely to display strong entrepreneurial intentions (Brice & Spencer 2007) and become business owners (Xiang 2009).

Entrepreneurial competencies are vital in starting and running a business (Katz & Green 2007) and they also contribute to long-term business performance (Ahmad, Ramayah, Wilson & Kummerow 2010; Man et al. 2002; Man, Lau & Snape 2008;

Ahmod et al. 2010). While acknowledging many entrepreneurial competencies in entrepreneurship research (Katz & Green 2007; Malebana 2012), entrepreneurial competencies that have been identified by Man et al. (2002) and Man and Lau (2005) are widely researched and tested (e.g. Ahmad et al. 2010; Man et al. 2008; Xiang 2009). These entrepreneurial competencies include opportunity competencies, relationship competencies, conceptual competencies, organising competencies, strategic competencies, analytical competencies, personal strength competencies and learning competencies (Ahmad et al. 2010; Man et al. 2002; Man & Lau 2005; Man et al. 2008). According to Izquierdo and Buyens (2008) and Onstenk (2003), entrepreneurial competencies that are crucial to the entrepreneurial process include identification and evaluation of opportunities, and networking/social and communication competencies. In addition, prospective entrepreneurs should be able to make personal sacrifices to ensure that their businesses are able to start. This means that they must possess commitment competencies (Brice & Spencer 2007; Man et al. 2002).

Methodology

Research design

A descriptive research design which followed a quantitative research approach was adopted for the study. A cross-sectional survey was conducted among final-year commerce students in Limpopo and the Eastern Cape. The chosen research design and approach were necessary in order to collect the data on the demographic characteristics, beliefs, perceptions and attitudes from a large number of respondents so that the data could be analysed statistically and used to describe the individuals studied.

Data collection and measures

A structured questionnaire was used to collect the data. The questionnaire was designed on the basis of Liñán and Chen's (2009) validated entrepreneurial intention questionnaire that was developed solely to measure entrepreneurial intention and its key antecedents in the TPB as they are applied to entrepreneurship. The same questionnaire was also used by other researchers, as indicated in Malebana and Swanepoel (2015). Questions on entrepreneurial competencies were designed on the basis of the existing literature (Izquierdo & Buyens 2008; Man et al. 2002; Onstenk 2003). Entrepreneurial intention, the attitude towards becoming an entrepreneur, perceived behavioural control, subjective norms and entrepreneurial competencies were measured using a five-point Likert scale (1 = strongly disagree; 5 = strongly

agree). Data on the levels of exposure to entrepreneurship education were collected by means of a nominal scale: no exposure to entrepreneurship education = 0; six months' exposure to entrepreneurship education = 1; and three years' exposure to entrepreneurship education = 2. The reliability of the measuring instrument was tested by means of Cronbach's alpha. Cronbach's alpha values for the variables were as follows: entrepreneurial competencies (0.819); perceived behavioural control (0.818); subjective norms (0.826); the attitude towards becoming an entrepreneur (0.872); and entrepreneurial intention (0.903. Since these values were above 0.7, the measuring instrument was deemed reliable for use in this study (Field 2013).

Population and sampling method

The population comprised 814 third-year students registered for full-time studies in 2010 for commercial qualifications that included National Diplomas: Entrepreneurship/Small Business Management (ND: E/SBM), Internal Auditing, Cost and Management Accounting and Financial Information Systems (NDs: IAUD, CMA and FIS) and Management (ND: Management), as indicated in Table 1. The respondents were sourced from two universities, a comprehensive university in the Eastern Cape and a university of technology in Limpopo, which 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 the lack of cooperation of some lecturers at other campuses and absenteeism by students from lectures, 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 had been 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 of entrepreneurial concepts for only six months. ND Management students were not exposed to any content relating to entrepreneurship in their qualification. Of the sample of 355 students, 70 were ND: E/SBM students with three years' exposure to entrepreneurship education (3YrExp group); 221 were NDs: IAUD, CMA or FIS students with six months' exposure to entrepreneurship education (6MExp group); and 64 were ND: Management students without any exposure to entrepreneurship education (NoExp group).

In line with previous research on entrepreneurial intention (Krueger et al. 2000; Liñán 2004; Liñán & Chen 2009), 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.

Table 1: Study population and sample

Exposure to entrepreneurship education	University of technology students			Comprehensive university students			Total number of respondents/ Total response rate (%)
	Population size	Actual number surveyed	Response rate (%)	Population size	Actual number surveyed	Response rate	
Three years' exposure: ND E/SBM	30	17	56.7%	90	53	58.9%	70 (58.3%)
Six months' exposure: ND IAUD, CMA and FIS	45	38	84.4%	469	183	39%	221 (43%)
No exposure: ND Management	30	24	80%	150	40	26.7%	64 (35.6%)
Total number of students	105	79	75.2%	709	276	38.9%	355 (43.6%)

Statistical analysis

The Statistical Package for the Social Sciences (SPSS) version 23 was used to analyse the data. Because the data did not have a normal distribution, non-parametric statistics were applied (Saunders, Lewis & Thornhill 2009). These statistical techniques include the Kruskal-Wallis test and the Mann-Whitney *U* test, which were used to test the differences in entrepreneurial intention and the antecedents of entrepreneurial intention in the TPB between the groups, based on their different levels of exposure to entrepreneurship education. Exploratory factor analysis was conducted using principal component analysis in order to reduce the large number of variables into a smaller number of factors and to understand the underlying factor structure. Principal component analysis extracted a six-factor solution with eigenvalues greater than one, which in combination accounted for 59.4% of the variance. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was 0.883, which was well above the acceptable limit of 0.5 (Field 2013). Bartlett's test of

sphericity was highly significant ($p < 0.001$). Overall, the results suggest that factor analysis was appropriate for the data.

Additionally, discriminant analysis was conducted in order to determine whether entrepreneurship education discriminated between the entrepreneurial intention, the antecedents of entrepreneurial intention and entrepreneurial competencies of the respondents. The results revealed one discriminant function for entrepreneurial intention, which explained 100% of the variance, canonical R^2=0.02. This function significantly differentiated the entrepreneurial intention of the 3YrExp group, 6MExp group and NoExp group (Wilk's lambda = 0.98, $X^2(2) = 7.4$, p = 0.023). One discriminant function explained 100% of the variance in the attitude towards becoming an entrepreneur, canonical R^2=0.04, which significantly differentiated the attitudes of the groups (Wilk's lambda = 0.96, $X^2(2) = 14.07$, p = 0.001). With regard to perceived behavioural control, the results revealed one discriminant function, which explained 100% of the variance, canonical R^2=0.02, and marginally differentiated the perceived behavioural control of the groups (Wilk's lambda = 0.98, $X^2(2) = 5.70$, p = 0.058). The results for subjective norms and entrepreneurial competencies were not significant.

Results

Demographic profile of the respondents

This study involved a total of 355 final-year commerce students who were registered for the 2010 academic year. The results in Table 2 illustrate the descriptive statistics of the respondents in terms of province, gender, age, exposure to entrepreneurship education and prior entrepreneurial experience. The majority of the respondents (77.7%) were from the comprehensive university in the Eastern Cape with a higher percentage of females (68.1%) and a lower percentage of males (27.2%) than a university of technology in Limpopo. With regard to age, 98.6% fell in the youth category (between 18 and 34 years). The majority of the respondents (66.3% and 48.1% respectively) for both the comprehensive university in the Eastern Cape and a university of technology in Limpopo were the 6MExp group. In terms of prior entrepreneurial experience, 6.6% of the respondents were running their own businesses; 34% had family members who were running a business; 28.1% had friends who were running businesses; 57.8% knew other people who were entrepreneurs; and 26.7% had tried to start a business before.

Table 2: Table 2: Descriptive statistics of the respondents

Percentage per province	**Eastern Cape = 77.7%**		**Limpopo = 22.3%**	
Gender	*Male = 27.2%	*Female = 68.1%	Male = 44.3%	Female = 55.7%
Age	Between 18 and 24 years = 76.1%	Between 25 and 34 years = 22.5%	Between 35 and 64 years = 1.4%	
Entrepreneurship education per province	3YrExp group	19.2%	3YrExp group	21.5%
	6MExp group	66.3%	6MExp group	48.1%
	NoExp group	14.5%	NoExp group	30.4%
Prior entrepreneurial experience/exposure	Currently runs a business			6.6%
	Family members run a business			34%
	Friends run a business			28.1%
	Knows other people who were entrepreneurs			57.8%
	Has tried to start a business before			26.7%

* Percentages differ slightly because 13 respondents did not indicate their gender.

Differences in entrepreneurial intention based on exposure to entrepreneurship education

The results of the Kruskal-Wallis test (Table 3) show that the 3YrExp group, the 6MExp group and the NoExp group were statistically significantly ($p < 0.001$; $p < 0.01$ & $p < 0.05$) different in their intention to start a business on eight out of nine entrepreneurial intention factors. These results were then followed by the nonparametric Mann-Whitney *U* test in order to determine whether the three groups of students differed significantly from each other in their intentions to start a business by comparing the mean rank values of two qualification groups at a time. The 3YrExp group and 6MExp group differed statistically significantly on all entrepreneurial intention factors. The entrepreneurial intention of the 3YrExp group differed statistically significantly ($p < 0.001$; $p < 0.01$ & $p < 0.05$) from the entrepreneurial intention of the NoExp group on six out of nine entrepreneurial intention factors. The results suggest that the two groups were more or less similar on the remaining non-significant factors. The 6MExp group and the NoExp group were statistically significantly ($p < 0.05$) different only on the intention to start a business before the respondents had started with their qualifications, with the NoExp group having higher entrepreneurial intention before they started with their qualifications than the 6MExp group.

Table 3: Differences on entepreneurial intention based on exposure to entrepreneurship education

Variables	Kruskal-Wallis test mean rank values				Mann-Whitney U test mean rank values								
Entrepreneurial intention	**3YrExp group**	**6MExp group**	**NoExp group**	**P value**	**3YrExp group**	**6MExp group**	**P value**	**3YrExp group**	**NoExp group**	**P value**	**6MExp group**	**NoExp group**	**P value**
I am ready to do anything to be an entrepreneur	216.19	162.72	175.81	0.000***	176.71	133.14	0.000***	73.98	58.55	0.014*	139.08	149.76	n.s
My professional goal is to be an entrepreneur	235.51	155.95	172.28	0.000***	191.64	127.03	0.000***	78.37	53.89	0.000***	137.42	150.89	n.s
I will make every effort to start and run my own business	212.12	158.97	183.15	0.000***	174.59	131.49	0.000***	72.54	61.03	n.s	134.98	154.62	n.s
I am determined to create a business venture in the future	206.44	167.00	171.59	0.010*	168.18	135.80	0.002**	72.76	59.84	0.034*	140.69	144.24	n.s
I do not have doubts about ever starting my own business in the future	197.64	166.56	176.87	n.s	162.34	136.94	0.019*	69.80	61.90	n.s	138.62	146.98	n.s
I have very seriously thought of starting a business in the future	208.32	166.89	161.34	0.003**	168.06	134.45	0.002**	74.76	56.54	0.003**	140.93	136.80	n.s
I have a strong intention of ever starting a business in the future	211.84	165.47	157.39	0.001**	170.24	132.54	0.000***	75.60	54.75	0.001**	140.93	134.63	n.s
My qualification has contributed positively towards my interest to start a business	213.96	163.88	160.56	0.000***	172.34	131.89	0.000***	75.63	54.73	0.001**	139.99	137.83	n.s
I had a strong intention to start my own business before I started with my qualification	198.82	160.90	192.23	0.005**	165.28	134.78	0.006**	67.54	64.39	n.s	134.62	160.34	0.022*

* $P < 0.05$ ** $P < 0.01$ *** $P < 0.001$

Differences in the antecedents of entrepreneurial intention based on exposure to entrepreneurship education

The Kruskal-Wallis test results (Table 4) revealed that the 3YrExp group, the 6MExp group and the NoExp group differed statistically significantly ($p < 0.001$ & $p < 0.05$) on all six attitude factors. The results of the Mann-Whitney *U* test show that the 3YrExp group were statistically significantly ($p < 0.001$ & $p < 0.01$) different from the 6MExp group and the NoExp group on all six attitude factors. No statistically significant differences were found between the 6MExp group and the NoExp group in their attitudes towards becoming entrepreneurs. The findings indicate that the 6MExp group had a minimal or no impact on the attitude towards becoming an entrepreneur. This could possibly be explained by the accounting qualification choice of the 6MExp group, which is aimed at preparing students for an accounting career. Generally, the results suggest that the three years' exposure to entrepreneurship education had a positive effect on the attitude towards becoming entrepreneurs than the six months' entrepreneurship module.

With regard to perceived behavioural control, the findings revealed statistically significant ($p < 0.001$; $p < 0.01$ & $p < 0.05$) differences between the 3YrExp group, the 6MExp group and the NoExp group on six factors. The 3YrExp group were statistically significantly different ($p < 0.001$; $p < 0.01$ & $p < 0.05$) from the 6MExp group and the NoExp group on six and five perceived behavioural control factors, respectively. The 6MExp group did not differ significantly from the NoExp group on all of the nine perceived behavioural control factors. The findings indicate that long-term exposure to entrepreneurship education is vital in enhancing perceived capability for starting a business.

Moreover, the three groups differed statistically significantly ($p < 0.05$) in subjective norms only in terms of the perception that their immediate families would approve of their decision to start a business. The 3YrExp group differed statistically significantly ($p < 0.05$) from the 6MExp group on the perception that their immediate families would approve of their decision to start a business. In addition, the 3YrExp group differed statistically significantly ($p < 0.05$) from the NoExp group on the perception that their immediate families and friends would approve of their decision to start a business. No significant differences were found between the 6MExp group and the NoExp group in subjective norms. The findings suggest that long-term exposure to entrepreneurship education increases perceived social pressure to start a business, especially from members of the immediate family.

Table 4: Differences on the antecedents of entrepreneurial intention based on exposure to entrepreneurship education

Variables	Kruskal-Wallis test mean rank values				Mann-Whitney U test mean rank values								
Attitudes towards becoming an entrepreneur	3YrExp group	6MExp group	NoExp group	P value	3YrExp group	6MExp group	P value	3YrExp group	NoExp group	P value	6MExp group	NoExp group	P value
Being an entrepreneur implies more advantages than disadvantages to me	205.95	167.65	167.62	0.013*	167.21	135.56	0.003**	72.74	58.95	0.028*	141.59	141.18	n.s
A career as an entrepreneur is totally attractive to me	226.98	158.77	169.02	0.000***	185.63	128.92	0.000***	75.85	55.37	0.001**	138.35	145.65	n.s
If I had the opportunity and resources, I would like to start a business	219.34	162.69	169.75	0.000***	178.82	132.48	0.000***	75.02	56.26	0.001**	139.70	145.49	n.s
Amongst various options, I would rather be an entrepreneur	229.86	157.14	167.80	0.000***	186.73	127.68	0.000***	76.62	52.83	0.000***	137.97	146.98	n.s
Being an entrepreneur would give me great satisfaction	231.31	155.05	162.81	0.000***	187.56	125.55	0.000***	76.75	50.64	0.000***	137.00	143.68	n.s
My qualification has contributed positively to my attitude towards becoming an entrepreneur	225.39	162.34	154.67	0.000***	180.92	129.46	0.000***	77.97	51.41	0.000***	141.38	135.25	n.s
Perceived behavioural control	3YrExp group	6MExp group	NoExp group	P value	3YrExp group	6MExp group	P value	3YrExp group	NoExp group	P value	6MExp group	NoExp group	P value
To start a business and keep it working would be easy for me	195.03	169.65	166.22	n.s	158.35	137.51	n.s	71.18	60.41	n.s	140.64	137.81	n.s
I am able to control the creation process of a new business	185.51	167.71	174.91	n.s	152.01	137.55	n.s	67.50	63.37	n.s	137.66	143.54	n.s

Table 4 continued

Table 4 continued

Attitudes towards becoming an entrepreneur	3YrExp group	6MExp group	NoExp group	P value	3YrExp group	6MExp group	P value	3YrExp group	NoExp group	P value	6MExp group	NoExp group	P value
I believe I would be completely able to start a new business	207.49	164.26	168.34	0.003**	168.82	133.52	0.001**	73.17	58.26	0.013*	138.74	142.08	n.s
I am prepared to do anything to be an entrepreneur	216.90	158.40	179.11	0.000***	178.44	130.70	0.000***	72.46	58.10	0.020*	136.21	153.01	n.s
I know all about the necessary practical details needed to start a business	210.23	166.53	155.47	0.001**	168.25	133.16	0.001**	75.98	54.36	0.001**	141.37	133.11	n.s
If I wanted to, I could easily start and run a business	185.85	161.55	187.64	n.s	154.85	134.82	n.s	64.00	65.02	n.s	133.73	154.63	n.s
If I tried to start a business, I would have a high chance of being successful	197.73	165.30	170.63	0.046*	161.00	134.86	0.015*	70.23	59.52	n.s	138.44	143.10	n.s
It would be very easy for me to develop a business idea	196.93	167.57	157.98	0.035*	158.81	134.85	0.025*	71.62	56.92	0.016*	140.22	132.56	n.s
My qualification has provided me with sufficient knowledge to start a business	228.55	161.69	158.42	0.000***	183.68	129.07	0.000***	78.87	52.52	0.000***	141.12	138.40	n.s
Subjective norms	3YrExp group	6MExp group	NoExp group	P value	3YrExp group	6MExp group	P value	3YrExp group	NoExp group	P value	6MExp group	NoExp group	P value
My immediate family would approve of my decision to start a business	198.46	168.98	161.97	0.049*	160.12	136.27	0.028*	72.85	58.61	0.024*	140.71	135.36	n.s
My friends would approve of my decision to start a business	194.80	170.25	158.83	n.s	156.56	136.71	n.s	72.74	58.72	0.026*	141.03	132.10	n.s
My colleagues would approve of my decision to start a business	184.10	171.72	157.18	n.s	147.88	137.46	n.s	70.72	60.90	n.s	140.25	128.28	n.s

* $P < 0.05$ ** $P < 0.01$ *** $P < 0.001$

Differences in entrepreneurial competencies based on exposure to entrepreneurship education

The results of the Kruskal-Wallis test (Table 5) indicate that the 3YrExp group, the 6MExp group and the NoExp group differed statistically significantly ($p = 0.040$, $p < 0.05$) only on the ability to recognise and evaluate opportunities in the market. These results were then followed by the non-parametric Mann-Whitney *U* test in order to determine whether the three groups of students differed significantly from one another in perceived entrepreneurial competencies by comparing the mean rank values of two qualification groups at a time. No significant differences were found between the 3YrExp group and the 6MExp group on all entrepreneurial competencies. In addition, the 6MExp group did not differ significantly from the NoExp group on entrepreneurial competencies. The 3YrExp group differed statistically significantly ($p = 0.022$, $p < 0.05$) from the NoExp group in the ability to recognise and evaluate opportunities in the market. The results suggest that the 3YrExp group were more confident in their ability to recognise and evaluate opportunities in the market than the NoExp.

Table 5: Differences on entrepreneurial competencies based on exposure to entrepreneurship education

Variables	**Kruskal-Wallis test mean rank values**				**Mann-Whitney U test mean rank values**								
Entrepreneurial competencies	3YrExp group	6MExp group	NoExp group	P value	3YrExp group	6MExp group	P value	3YrExp group	NoExp group	P value	6MExp group	NoExp group	P value
The ability to recognise and evaluate opportunities in the market	121.67	113.61	96.00	0.040*	83.24	76.82	n.s	71.93	57.74	0.022*	83.30	70.26	n.s
The ability to develop relationships with other business people for mutual learning and collaborative working to achieve common objectives	119.62	114.52	98.45	n.s	82.45	78.22	n.s	71.17	59.47	n.s	82.80	70.98	n.s
The ability to persuade and discuss with various stakeholders the issues that involve the business	115.64	111.76	105.04	n.s	81.20	78.28	n.s	67.94	61.92	n.s	79.97	75.12	n.s
The ability to make sacrifices to ensure that the business gets started	118.33	110.73	103.72	n.s	82.79	77.14	n.s	69.04	60.77	n.s	80.09	74.95	n.s

* $P < 0.05$ ** $P < 0.01$ *** $P < 0.001$

Discussion

The purpose of this study was to determine whether rural university students in the Eastern Cape and Limpopo with different levels of exposure to entrepreneurship education differed in entrepreneurial intention, the antecedents of entrepreneurial intention and entrepreneurial competencies. The findings indicate that the 3YrExp group differed statistically significantly from the 6MExp group and the NoExp group in entrepreneurial intention and the antecedents of entrepreneurial intention. These findings contradict the results of Bae et al. (2014) who could not find a significant relationship between the duration of entrepreneurship education and entrepreneurial intention. The entrepreneurial competencies of the 3YrExp group differed statistically significantly from the NoExp group on the ability to recognise and evaluate opportunities in the market. This means that entrepreneurship education enhances one's ability to recognise and evaluate opportunities in the market. The results concur with those of previous research that reported a positive relationship between entrepreneurship education and entrepreneurial competencies (Morris et al. 2013).

The findings suggest that entrepreneurship education could be a valuable intervention for stimulating entrepreneurial intention in the rural provinces of South Africa, especially when individuals are exposed to this type of education over a long-term rather than a short-term period. It is therefore vital to increase the timeframe for exposure to entrepreneurship education in order to allow sufficient time for the development of entrepreneurial intention and positive changes in the antecedents of entrepreneurial intention and entrepreneurial competencies. The results support earlier research that found that exposure to entrepreneurship education is positively associated with entrepreneurial intention and the antecedents of entrepreneurial intention (e.g. Basu & Virick 2008; Gerba 2012; Guerrero et al. 2009; Karimi et al. 2016; Otuya et al. 2013; Solesvik 2013). The findings concur with those of Muofhe and Du Toit (2011) in terms of the significant differences between the entrepreneurship and non-entrepreneurship groups with regard to entrepreneurial intentions and the attitude towards becoming an entrepreneur.

The lack of significant differences between the 6MExp group and NoExp group could be attributed to the fact that the 6MExp group was registered for the qualification that prepared them for a career in the accounting field, while the NoExp group was registered for a general management qualification that did not have a specific career focus. Hence entrepreneurship was more of an alternative career option for the NoExp group than it was for the 6MExp group. The results might have also been affected by physical presence bias whereby students rated themselves favourably in order to please their lecturers who were distributing the questionnaires to them.

Limitations

The first shortcoming of this study was in its cross-sectional nature. It was therefore impossible to establish whether the 3YrExp group would eventually start their own businesses compared with the 6MExp group and the control group. Secondly, the researcher relied on the self-reports of students on entrepreneurial competency. However, self-reports have also been used in previous research (Ahmad et al. 2010; Morris et al. 2013). Thirdly, owing to the use of convenience samples, it would not be possible to generalise the results to all rural university students in South Africa.

Conclusion

The findings of this study indicate that the TPB is a valuable model in understanding the role of exposure to entrepreneurship education in the formation of entrepreneurial intention. As the study used a sample of university students from predominantly rural provinces, the results have implications for entrepreneurship educators and policymakers in their efforts to improve rural entrepreneurial activity. More students should be exposed to entrepreneurship education in order to increase the number of people with the intention to start a business. The role of entrepreneurship educators should be to change the perceptions of rural students in order to view entrepreneurship as a viable career option that is both desirable and feasible. Entrepreneurship educators could strengthen the effect of long-term exposure to entrepreneurship education on entrepreneurial intention and its antecedents by using experiential learning methods. These methods would also assist students to acquire the necessary entrepreneurial competencies for starting and managing a business.

In addition to having strong entrepreneurial intentions, entrepreneurial competencies, positive attitudes towards entrepreneurship and enhanced perceived capability for starting a business, potential entrepreneurs could benefit from support programmes to access the necessary resources for starting a business. Policymakers could benefit from the TPB model by using it to evaluate the impact of support programmes on entrepreneurial intention, the antecedents of entrepreneurial intention and ultimately entrepreneurial activity.

This study is the first of its kind in South Africa that used the TPB to examine how the different levels of exposure to entrepreneurship education are related to entrepreneurial intention, the attitude towards becoming an entrepreneur, perceived behavioural control and subjective norms. The study also developed a measure of entrepreneurial competencies and tested the effect of different levels of exposure to entrepreneurship education on these entrepreneurial competencies.

The findings of this study should contribute to the body of knowledge because they show that long-term exposure to entrepreneurship education not only stimulates entrepreneurial intention, but also positively influences the attitude towards becoming an entrepreneur, perceived behavioural control and subjective norms, and enhances the ability to recognise and evaluate opportunities in the market. Since Muofhe and Du Toit (2011) could not find significant differences between the entrepreneurship group and non-entrepreneurship group on subjective norms and perceived behavioural control, the results of this study call for further investigation of the role of entrepreneurship education in the development of entrepreneurial intention in South Africa based on the TPB. This would help validate the findings of this study and the TPB as a valuable model for evaluating the effect of entrepreneurship education.

Unlike the majority of previous research that used single or two samples (experimental and control groups), this study analysed the effect of entrepreneurship education on entrepreneurial intention and its antecedents using three groups that varied in terms of their level of exposure to entrepreneurship education. The study sets the scene for longitudinal studies that could investigate the link between entrepreneurial intention of students who received entrepreneurship education and entrepreneurial behaviour. Hence future research could apply the TPB to examine the impact of entrepreneurship education on entrepreneurial behaviour.

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