

# An investigation into youth entrepreneurship in selected South African secondary schools: An exploratory study

A.G. Steenekamp, S.P. van der Merwe & R. Athayde

## ABSTRACT

This research paper examines the status of entrepreneurship education in selected South African secondary schools to determine the impact thereof on young learners' attitude towards entrepreneurship and their future plans. It highlights some challenges facing youth entrepreneurship development in Sedibeng secondary schools. The study is based on the attitude approach to entrepreneurship research and discusses the results of an empirical study involving 1 748 grade 10 learners. South African youth appear to have a positive attitude towards entrepreneurship and the existence of opportunities for new venture creation, but seem to have inflated expectations with respect to their future academic qualifications and less interest than would be expected in starting their own businesses. Statistical analysis of the data revealed that entrepreneurship education in the sample schools was largely infrequent and without depth or focus. The results indicated that catalytic factors, such as exposure to entrepreneurship at school and having self-employed parents, have not had any effect on learners in the sample, thus re-emphasising the urgent need for entrepreneurship training programmes of value. The paper concludes with recommendations for further research on entrepreneurship education in South African secondary schools.

---

Mr A.G. Steenekamp is a doctoral student at the Potchefstroom Business School, North-West University. Prof. S.P. van der Merwe is at the Potchefstroom Business School, North-West University and Ms R. Athayde is at the Small Business Research Centre, Kingston University, Surrey, United Kingdom.  
E-mail: [stephan.vandermerwe@nwu.ac.za](mailto:stephan.vandermerwe@nwu.ac.za)

## Introduction

The encouragement of the ‘enterprise spirit’ among young people was designated by the European Union (EU 2002:10) as a pre-condition for success in employment, growth, competitiveness and innovation. For South Africa, suffering from high levels of unemployment (Stats SA 2007: ii) and an increasing number of discouraged work-seekers among young South Africans (Stats SA 2007: xxi), this pre-condition can be linked to an urgent need for the promotion of enterprising activity as a potential solution to youth unemployment.

According to the *Global Entrepreneurship Monitor (GEM) South African Report 2007* (Maas & Herrington 2008), level of education and school grades were regarded by respondents as important factors in securing employment. This finding has been a consistent theme in all GEM reports (Maas & Herrington 2008) and can therefore be earmarked as one of the most important factors for the promotion of youth entrepreneurship in South Africa.

A matriculation certificate, however, does not guarantee employment for those wishing to enter the labour market after school. Horn (2006: 113) offered several reasons for this phenomenon: ill-prepared learners; an inferior schooling system; teachers with insufficient motivation and knowledge to transfer the skills required for the modern world of work; an economy that is not conducive to job creation; affirmative action; and other causes such as increased mechanisation by industry.

In addition, the “traditional classroom delivery” method of basic education in South Africa (Co & Mitchell 2006: 348) may not be conducive to the development of an enterprising spirit among young learners. Gibb (1993: 30) proposed that enterprising approaches to small business education and training may be important for programmes aimed at promoting business initiation. Young people participating in such programmes often have as their main objective the setting up of their own business, but acquiring the required knowledge and skills is a means to this end rather than a goal in itself. It can, therefore, be argued that the transfer of enterprising knowledge and skills should be ingrained in the goals of basic education if young learners completing school are expected to participate meaningfully in economic activity.

The importance of small businesses, as the driver of sustainable job and wealth creation, has been confirmed by various authors (for example, Burger, Mahadea & O’Neill 2004: 203; Döckel & Ligthelm 2005: 54; Jeppesen 2005: 468–470; Naudé & Krugell 2003: 5). Mkhize (2010: 10) added that entrepreneurship, as a possible solution to the growing problem of joblessness, is necessary to ensure the success of small, micro- and medium-sized enterprises (SMMEs) in South Africa.

It follows, as put forward by Marais (2005: 28) and Petrakis (2005: 243), that the start-up and sustainability of small businesses are crucial for economic development and poverty alleviation in South Africa. Van der Merwe and De Swardt (2008: 450) extended this notion by stating that more successful entrepreneurs are needed to enhance the small business sector in South Africa. The importance of youth development is also recognised by the South African government, as evident from the statement by current President Jacob Zuma that "...we [South Africa] need to invest in our youth to ensure a skilled and capable workforce to support growth and job creation ...” (Zuma 2010).

## Problem statement

Young South Africans face many challenges, but the prospect of long-term unemployment after school paints a particularly bleak picture for social development and the future of our youth. Very few research results are available on young South African learners' attitudes towards entrepreneurship and their future plans, and consequently more information is required for the development of suitable interventions to improve the employability of learners exiting school.

The problem statement central to this study is the expectation that exposure to entrepreneurship at school (or the lack thereof) will influence young learners' attitudes towards entrepreneurship as a career choice, and subsequently, their plans for the future. Accordingly, the research question for this paper is the status of exposure to entrepreneurship in secondary schools situated in the Sedibeng district of Gauteng.

## Research objectives

The main objective of this study was to examine the status of exposure to entrepreneurship in secondary schools of the Sedibeng district. The following secondary objectives were formulated in support of the main objective:

- To conduct a brief literature review on entrepreneurship, entrepreneurship education and suitable approaches for research on youth entrepreneurship.
- To gather data on young learners' exposure to entrepreneurship in Sedibeng secondary schools and their plans for the future.
- To employ an existing, validated instrument to examine the relationships between the constructs of entrepreneurial attitude and certain demographical variables using paired tests and effect sizes.

- To make practical recommendations for further research on youth entrepreneurship in South African secondary schools.

## Literature review

The importance of youth development is evident from the demographic composition of the South African population. Youth unemployment constitutes 70% of total unemployment (Maas & Herrington 2008: 15–16), and Herrington (2009a: 53) estimates that two-thirds of the South African population between 18 and 35 years of age are unemployed. In addition, youth entrepreneurship in South Africa is impaired by, among other causes, high levels of bureaucracy limiting access to finance, a shortage of skills in the country and a general lack of innovation (Herrington 2009b: 2).

Notwithstanding these challenges, Maas and Herrington (2008: 4) conclude that the youth in South Africa are positive about entrepreneurship, and Mpafa (2008: 11) indicates that the youth increasingly venture into business not out of necessity, but because of perceived opportunities they want to pursue.

These findings point towards the importance of education as the potential panacea to bridge the gap between the positive view of the South African youth on entrepreneurship as a career choice on the one hand, and large-scale youth unemployment on the other. This suggestion is supported by the findings of Isaacs, Visser, Friedrich and Brijlal (2007: 613) that education is key to the success of establishing a culture of entrepreneurship in South Africa.

## Entrepreneurship, education and training

Definitions of entrepreneurship abound in the academic literature (for example, Deo 2005; Gibb 2007: 3; Hawley 1901: 615; Krueger, Reilly & Carsrud 2000: 411; Mitchell & Busenitz 2007: 3; Nieman & Nieuwenhuizen 2009; Timmons & Spinelli 2007: 79; Visser, De Coning & Smit 2005: 53; Watt 2003: 8). Concurrently, many scholars argue that there is no universally accepted definition of entrepreneurship and the entrepreneur (for example, Anderson & Jack 2008: 263; Cromie 2000: 7; Gartner 1989: 48; Gibb 2002: 235; Howorth, Tempest & Coupland 2005: 30; Kobia & Sikalieh 2010: 110; Nafukho & Muyia 2010: 99; Ripsas 1998: 113).

Gibb (2007: 2), however, concludes that there is almost universal agreement that the way in which individuals and organisations create and implement new ideas and ways of doing things, and the way in which they respond proactively to the environment and provoke change involving various degrees of complexity and

uncertainty, are central to the concept of entrepreneurship. The approach to this study is based on Gibb's (2007: 3) definition of entrepreneurship for educational purposes as "...behaviours, skills and attributes applied individually and/or collectively to help individuals and organisations of all kinds to create, cope with and enjoy change and innovation involving higher levels of uncertainty and complexity as a means of achieving personal fulfilment."

In consideration of the purpose of this study, it is also important to distinguish between education and training. According to Feinstein, Mann and Corsun (2002: 739), education is a process whereby knowledge is transferred to students primarily in theory-based lectures, while developing critical thinking skills and the ability to ask questions and formulate answers, whereas training includes practical decision-making, communication skills and on-the-job action. It follows that the main difference between education and training relates to focus: whereas education focuses on the product rather than the process, training is more concerned with the process.

These diverging (yet seemingly complementary) focal points beg the question whether education (and related awareness of entrepreneurship) will contribute more to business start-up than specific training and skills development. To answer this question, the relationships between entrepreneurial attitudes, intentions, self-efficacy and education warrant examination.

Firstly, some research suggests that early formal entrepreneurship education affects the attitudes of students, which in turn direct them towards certain future careers (Do Paco, Ferreira, Raposo, Rodrigues & Dinis 2008: 4). Furthermore, according to Kourilsky and Walstad (1998), the early stimulation of these attitudes can even encourage entrepreneurship. Lewis (2005: 474) supports this link by maintaining that while technological skills can be attained during tertiary education, the attitudinal and motivational aspects of entrepreneurship need to be developed at the primary and secondary school levels.

Secondly, these underlying attitudes influence intentions towards target behaviour in line with the Theory of Planned Behaviour (Ajzen 1991). Intentions have proved to be the best predictors of planned behaviour, moreover when the particular behaviour is difficult to observe or unpredictable, which is evidently the case with entrepreneurial activities (Krueger et al. 2000). As an example, Müller (2008: 20) concludes that entrepreneurial intentions can be promoted through entrepreneurship training, subject to course content and teaching methods being conducive to targeted and effective learning.

Thirdly, entrepreneurial self-efficacy has a direct and reciprocal relationship with entrepreneurial intentions (Rosenblatt, Bergman, Erez & De-Haan 2008: 4, 21). Krueger and Brazeal (1994) propose that entrepreneurial self-efficacy is a key

prerequisite for potential entrepreneurs, while Boyd and Vozikis (1994: 66) describe the role of entrepreneurial self-efficacy as "...an important explanatory variable in determining both the strength of entrepreneurial intentions and the likelihood that those intentions will result in entrepreneurial actions."

Finally, evidence suggesting a positive link between education and entrepreneurship appears to be robust (Do Paco et al. 2008: 4; Müller 2008: 2). Research has indicated that education has the most profound effect on the propensity of students to start a business (Ferreira, Do Paco, Raposo & Rodrigues 2007; Raposo, Ferreira, Do Paco & Rodrigues 2008) and that entrepreneurship education plays an important role in the promotion of entrepreneurial intentions (Bhandari 2006; Florin, Karri & Rossiter 2007; Hmieleski & Corbett 2006).

It follows from the preceding discussion that entrepreneurship education can promote business start-up on at least three levels: firstly, at the attitudinal level directing students towards certain career choices; secondly, at the intentional level where planned behaviour can be predicted; and thirdly, at the practical level where it increases the propensity of students to start a business.

Is it important to debate whether a higher number of start-ups would result from entrepreneurship education or from entrepreneurship training. Perhaps more important is that entrepreneurship education from an early age has the potential to develop an 'entrepreneurial product', whereas entrepreneurial training is best suited to refine the 'entrepreneurial process'. In other words, it is put forward that a more holistic approach is required for the construction of a developmental pipeline to connect knowledge transfer (education) to skills development (training), and enable the free flow of an enterprising spirit among young people in South Africa.

## Can entrepreneurship be taught?

Several studies (Athayde 2009a; Dickson, Solomon & Weaver 2008; Frank, Korunka, Lueger & Mugler 2005; Henry, Hill & Leitch 2005a; 2005b) suggest that entrepreneurship, or at least some aspects of entrepreneurship, can be taught successfully in general education.

According to Dickson et al. (2008), there is a significant and positive relationship between education and entrepreneurial performance, whereas Peterman and Kennedy (2003: 129) support the inclusion of exposure to entrepreneurship education as a variable in entrepreneurship intention models. While maintaining that it is easier to influence entrepreneurial orientation than start-up inclinations, Frank et al. (2005: 259) concede that the education process as well as students' immediate and

general environment can be used to influence entrepreneurial orientation and the inclination to start a new business.

Some empirical findings (for example, Athayde 2004, 2009a, 2009b; Lewis 2005; Peterman & Kennedy 2003) also suggest that early entrepreneurship education has a positive impact on the potential for entrepreneurial activity. Peterman and Kennedy (2003: 129, 141) measured the perceptions of a sample of secondary school learners enrolled in the Young Achievement Australia (YAA) enterprise programme and concluded that participants' perceptions of the desirability and feasibility of entrepreneurship had increased, in turn providing support for the implementation of enterprise education programmes in secondary schools.

Lewis (2005) evaluated the Young Enterprise Scheme (YES) in New Zealand and found that participation in YES did, at least to some extent, influence the choices made by students about future studies and work opportunities. In addition, Lewis (2005: 481) concludes that the impact of YES appeared to be more influential on students exposed to enterprising role models among their family and friends.

A study by Athayde (2009a) examined the impact of participation in a Young Enterprise Company Programme (YE) based on the American Junior Achievement model in six secondary schools in London and produced similar results. The results indicate that the enterprise programme increased the enterprise potential of participants, providing further support for the notion that enterprise education in secondary schools can promote young people's inclination towards self-employment (Athayde 2009a: 495).

It would thus appear that entrepreneurship, or at least some aspects of entrepreneurship, can be taught or demonstrated ('shown how') during basic education. This finding raises another important question: What should be taught in entrepreneurship education to stimulate entrepreneurial activity among young people in South Africa?

## Requirements for successful youth entrepreneurship education

Firstly, it is clear that basic education in South Africa (with entrepreneurship education as an underlying, yet critical, component) faces grotesque challenges. As evidence of this, Horn (2006: 113) raises the concern that only between 5% and 7% of successful grade 12 candidates in South Africa find employment in the formal sector, and therefore argues that educational reform is necessary in an effort to "bring school and work closer together". Burger et al. (2004: 203) support this view by concluding that South Africa does not suffer from a lack of creative spirit, but rather a lack of

business education and entrepreneurial skills that can empower individuals in an enabling environment.

Further evidence of these challenges can be inferred from a statement by North (2002: 27) that the implementation of a new curriculum *inter alia* focused on entrepreneurship will be a problem for some years to come, and that care should be exercised to prevent entrepreneurship education from becoming yet another activity where predominantly theoretical knowledge is acquired. Furthermore, the low morale and high stress levels of teachers present a significant challenge to entrepreneurship (and basic) education in South Africa (Horn 2006: 121).

Against these challenges, it has been argued extensively, and successfully so, that entrepreneurship education and training at school must fulfil a primary role in preparing young South Africans to contribute towards economic growth (Isaacs et al. 2007: 613); that schools have an important role to play in the lives of learners by instilling “relevant academic, business and positive life-long skills” (Burger et al. 2004: 201); and that attention should be paid to “formal learning, informal learning and practical experience” if previously disadvantaged groups are to be supported in bridging the existing gaps (Burger, O’Neill & Mahadea 2005: 93).

What would then be a suitable approach to surmount these challenges and promote youth entrepreneurship in South Africa from an educational point of view? The recommendations found in the academic literature are wide ranging, including an integrated approach to entrepreneurship programmes linking classroom experience to market experience and networks with students, business and mentors (Müller 2008: 21); a focus on changing personal attitudes and the creation of pedagogical materials related to entrepreneurship (Do Paco et al. 2008: 17); the use of mixed teaching methods to allow learning from past experience, learning by doing, and building up confidence to transform learning skills into knowledge (Vij & Ball 2008); and the integration of entrepreneurial leadership programmes to develop the skills required to start and run successful businesses (Kroon, De Klerk & Dippenaar 2003: 319).

The ideal entrepreneurial-directed teaching approach is described by Nieuwenhuizen and Groenewald (2008: 140) as one where the instructor becomes a learning facilitator by including role-playing, management simulations, structured exercises and focused feedback to minimise the traditional ‘listen and take notes’ role of learners. Müller (2008: 21) agrees that educators play a central role in the successful delivery of entrepreneurial programmes, and emphasises that entrepreneurship education is also about personal enablement and providing an environment allowing learners to discover their own potential.

Combined with an enabling environment where business planning activities, role models, student-oriented teaching and feedback processes are employed to increase entrepreneurial intentions through its antecedents (Müller 2008: 1), other competencies to be developed in successful entrepreneurship education include social and civic skills; communication in a foreign language; mathematical and accounting capacities; digital competencies; creative and artistic skills; and cultural awareness (Do Paco et al. 2008: 17).

In addition, training on perseverance and positive attitude is highlighted as an important facet of entrepreneurship education as entrepreneurs are ‘doers’ and prefer to learn in an environment where they can “experiment, reflect and be active in the learning process” (Nieuwenhuizen & Groenewald 2008: 142), as well as addressing perceptions regarding failure to enable potential entrepreneurs to accept mistakes and persevere in their objectives (Burger et al. 2004: 203). In essence, the challenge for entrepreneurship in the classroom is to allow young people to experience and feel the concept rather than just learning about it in the conventional sense (Gibb 2007: 8). Kirby (2004: 517) agrees that the development of entrepreneurs in the classroom requires the development of enterprising environments and approaches to learning in which entrepreneurial aptitudes and skills can be promoted together with business acumen and understanding. It follows, according to Kirby (2004: 514), that entrepreneurship education should not be ‘about’, but rather ‘for’ entrepreneurship.

In agreement with Müller (2008: 5-7), it is concluded that successful youth entrepreneurship education requires an educational approach directed at changing the behaviours and attitudes of learners, while being student-oriented with judicious levels of experiential learning.

## **Approaches to research on youth entrepreneurship**

Academic research on entrepreneurship traditionally focused on the personality traits, characteristics and ‘special’ skills of entrepreneurs (Caird 1991; Cromie 2000; Cromie & Johns 1983; Hisrich & Brush 1986; Lüthje & Franke 2003; Moen, Rahman, Salleh & Ibrahim 2004). However, many scholars have argued that trait approaches have not been successful in entrepreneurship research (Ajzen 1991; Athayde 2009a; Bjerke 2007; Cromie 2000; Gartner 1989; Johnston, Andersen, Davidge-Pitts & Ostensen-Saunders 2009; Robinson, Stimpson, Huefner & Hunt 1991; Van Wyk & Boshoff 2004).

This study employed the attitude approach to entrepreneurship research based on the evidence presented earlier that early formal entrepreneurship education affects the attitudes of students (Do Paco et al. 2008), that these underlying attitudes influence intentions towards target behaviour (Ajzen 1991) and that entrepreneurial

self-efficacy has a direct and reciprocal relationship with entrepreneurial intentions (Rosenblatt et al. 2008). The Attitude Toward Enterprise (ATE) Test (Athayde 2004, 2009a, 2009b) was identified as a suitable instrument for employment in a study of this nature based on the finding of Athayde (2009a: 481) that entrepreneurship among young people under 25 represents a relatively “untapped source of new business start-ups and economic growth”.

The ATE Test was developed by Athayde (2009a: 483) to measure young people’s attitudes towards a collection of constructs (leadership; achievement; personal control; creativity; and intuition) similar to those in the Entrepreneurial Attitude Orientation scale (achievement; personal control; self-esteem; and innovation) developed by Robinson et al. (1991) and employed by Moen et al. (2004), Van Wyk and Boshoff (2004) and Van Wyk, Boshoff and Bester (2003), as well as the Entrepreneurial Opportunity Recognition scale (achievement; personal control; self-esteem; innovation; risk-taking; and opportunity recognition) of McCline, Bhat and Baj (2000), but taking into account the need for an instrument to measure enterprise potential in young people instead of actual adult entrepreneurs.

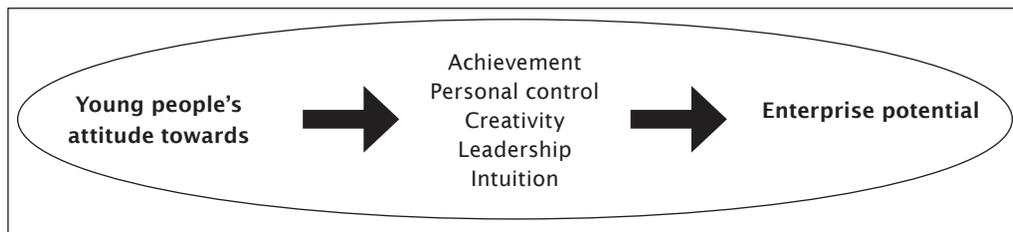
The ATE Test constructs are not uncommon as variables of attitude frequently used in research on business motivation and entrepreneurship. Mentoor and Friedrich (2007: 221) list the need for achievement, innovation, locus of control and self-esteem as commonly used variables of attitude, whereas Visser et al. (2005: 54) identify six dominant themes together with their concomitant attitudes and behaviours as determination, leadership, opportunity obsession, tolerance of risk, creativity and motivation to excel. In a similar trend, Rosenblatt et al. (2008: 3) highlight the role of achievement, risk-taking, creativity and personal initiative in differentiating between entrepreneurs and non-entrepreneurs and predicting entrepreneurial success.

Furthermore, the emphasis by Athayde (2009a: 483) that the ATE Test measures attitudes associated with enterprise, and not the dimension itself, is crucial for the interpretation of results. The focus of measurement, therefore, is not on the actual traits of the entrepreneur, but rather on respondents’ attitudes towards using achievement, personal control, creativity, leadership and intuition (Athayde 2009b: 1). The resulting model of enterprise potential in young people is shown in Figure 1.

## Research methodology

### Measuring instrument

This study employed the Enterprise Attitude Questionnaire to measure the status of entrepreneurship education in Sedibeng secondary schools, as well as the attitudes



Source: Athayde (2009a: 484)

**Figure 1:** A model of enterprise potential in young people

of grade 10 learners towards entrepreneurship (Steenekamp 2009). The measuring instrument incorporated the Attitude Toward Enterprise Test (ATE Test)<sup>1</sup> developed by Athayde (2004, 2009a, 2009b), a section to gather data for comparison with 43 Global Entrepreneurship Monitor (GEM) countries (Bosma, Acs, Autio, Coduras & Levie 2009) and a demographical section to gather data on respondents' personal backgrounds and future plans (Steenekamp 2009).

## Study population and sample

Sixteen schools from a population of 74 secondary schools registered with the Department of Education (DoE) in the Sedibeng district of Gauteng province participated in the study, resulting in the gathering of 1 748 usable questionnaires (Steenekamp 2009: 88, 90).

Convenience sampling was employed, as all the responding schools (with exclusion of a special school for learners with behavioural problems) participated in the study (16 schools from a population of 74 schools: 21.62%). A total of 1 756 questionnaires were completed, but eight questionnaires were removed from the dataset due to inadequate information provided by respondents, resulting in a final sample of 1 748 responses ( $n = 1\,748$ ).

## Data collection

In consideration of the minor status of grade 10 learners, only schools where the principal had provided written permission for learners to participate in the study by returning the completed questionnaire were included in the empirical study.

Dates for the presentation of the questionnaires to responsible teachers or for the completion of the questionnaires were arranged during telephonic conversations. The responsible teachers were given the opportunity to select the method of completion in an attempt to secure their full cooperation. Hence, the data were gathered during

school hours under the supervision of the responsible teacher after a meeting to discuss the requirements and procedures for the completion of the questionnaires, or under the supervision of the researchers in this instance.

Learners were informed, prior to the questionnaires being handed out, that participation in the study was not compulsory. The responsible teachers provided supervision during completion of the questionnaires, but did not intervene in the presence of the researchers.

## Statistical analysis

The results presented in this paper are limited to descriptive statistics of the sample demographics and statistical analysis (Statsoft 2008; SPSS 2008) of the ATE Test results using effect sizes (d-values) to examine the relationship between demographic variables and the extracted factors (Steenekamp 2009: 91).

## Results and discussion

### Demographic profile

The demographic profile of the sample is presented in Table 1.

**Table 1:** Demographic profile of the Sedibeng sample

Characteristic	Category	Frequency	Percentage
Gender	Female	947	54.18
	Male	783	44.79
	Not answered	18	1.03
	<b>Total</b>	<b>1 748</b>	<b>100.00</b>
Ethnic group	Asian	16	0.92
	Black	974	55.72
	Coloured	53	3.03
	White	668	38.21
	Other	22	1.26
	Not answered	15	0.86
	<b>Total</b>	<b>1 748</b>	<b>100.00</b>

The demographic profile of the sample appeared representative of the gender balance in the total population of Sedibeng, which has a gender spread of 50.7% males and 49.3% females. However, the sample was not representative with respect

to the ethnic composition of the population of Sedibeng, namely 82% black Africans, 16% whites, 1% coloureds and 1% Asians (Sedibeng 2008: 8).

### Expected highest academic qualification

The measuring instrument asked respondents about the highest academic qualification they expected to achieve. The results are presented in Table 2.

**Table 2:** Highest qualification expected by respondents

Highest qualification expected	Frequency	Percentage
Finish school	74	4.23
Trade certificate	74	4.23
Diploma	111	6.35
Degree	428	24.49
Higher degree	750	42.91
Other	102	5.83
Not answered	209	11.96
<b>Total</b>	<b>1 748</b>	<b>100.00</b>

The majority of respondents (67.40%) indicated that they expected to obtain a university degree or a higher degree as shown in Table 2. Only 74 learners (4.23%) indicated that they were not planning to study further after finishing school, which in itself suggests a positive trend for higher education in South Africa.

However, if one considers the proportion of people in South Africa over the age of 20 years with a high school or higher qualification (whites: 65%; Asians: 40%; coloureds: 17%; black Africans: 14%) (South Africa Info 2010), it stands to reason that the expectations of learners in the Sedibeng sample are far removed from the realities of the current South African environment.

The results in Table 2 also raise concerns with respect to the trade professions and the future availability of apprentices for industry in South Africa, as only 74 learners (4.23%) indicated that they were expecting to qualify in some trade. In addition, 209 respondents (11.96%) did not provide any answer in this instance, in turn suggesting uncertainty about their expectations for the future.

### Future plans of respondents

Part B of the Enterprise Attitude Questionnaire asked respondents to indicate whether they agree or disagree with seven statements identical to those posed to respondents

in 43 GEM countries in 2008 (Bosma et al. 2009). The responses to three of these statements were deemed as indicative of learners’ attitude towards entrepreneurship as a career choice and their future plans, as shown in Table 3.

**Table 3:** Learners’ attitude towards entrepreneurship as a career choice and future plans

Statement	Response	Results	
		Number	%
There are good opportunities in South Africa to start my own business.	Agree	1 218	69.68
	Disagree	517	29.58
	Not answered	13	0.74
	<b>Total</b>	<b>1 748</b>	<b>100.00</b>
I think entrepreneurship is a desirable career choice.	Agree	1 017	58.18
	Disagree	710	40.62
	Not answered	21	1.20
	<b>Total</b>	<b>1 748</b>	<b>100.00</b>
I plan to start my own business as soon as I finish school.	Agree	591	33.81
	Disagree	1 138	65.10
	Not answered	19	1.09
	<b>Total</b>	<b>1 748</b>	<b>100.00</b>

Table 3 reveals that the majority of respondents saw good opportunities in South Africa to start their own business (69.68%) and perceived entrepreneurship as a desirable career choice (58.18%), but at the same time, only 33.81% agreed that they were planning to start their own business as soon as they finish school.

This finding suggests a positive attitude towards entrepreneurship among grade 10 learners in the Sedibeng sample, but simultaneously warns of an impending failure to transform these positive attitudes into corresponding career choices and entrepreneurial action.

### Exposure to entrepreneurship at school

In order to examine the prevalence of entrepreneurial activity in Sedibeng secondary schools, the respondents were asked whether they had ever participated in any

activity at school with the word ‘entrepreneur’ included in the name of the activity. The results are shown in Table 4.

**Table 4:** Exposure to entrepreneurship at school

Variable	Category	Frequency	Percentage
Exposure to any programme with entrepreneurship in title	Yes	920	52.63
	No	779	44.57
	Not answered	49	2.80
	<b>Total</b>	<b>1 748</b>	<b>100.00</b>

The results presented in Table 4 initially suggested a positive sign for entrepreneurship development in secondary schools, as the majority of learners (52.63%) indicated that they had indeed participated in such activities. However, when asked to qualify the nature of their exposure to entrepreneurship, a different scenario became evident, as shown in Table 5.

**Table 5:** Nature of entrepreneurship exposure at school

Nature of exposure	Frequency	Percentage
Participated in entrepreneurs’ day at school	180	19.57
Sold goods at school (sweets, artwork, etc.)	466	50.65
Has entrepreneurship as a subject at school	9	0.98
Generated a business idea or business plan	31	3.37
Attended entrepreneurship training at school	62	6.74
Visited an existing business	11	1.20
Participated in a competition at school	7	0.76
Participated in a fund-raising event at school	7	0.76
Developed ways to assist the less fortunate	4	0.43
Put a business idea into practice	19	2.06
Ran an imaginary business	4	0.43
Has business subjects at school	24	2.61
Participated in sport / music / chess / dancing	26	2.83
Activity not specified	70	7.61
<b>Total</b>	<b>920</b>	<b>100.00</b>

Of the 920 learners who responded that they had been exposed to entrepreneurship at school, the majority (70.22%) perceived their exposure as selling goods (50.65%) or participating in an entrepreneurs' day (19.57%) at school. Although these activities are conversant with experiential learning (that is, 'experiencing and feeling the concept'), as proposed by Gibb (2007: 8), the exact scope and depth of participation were not qualified. The only indication of value-adding experiential learning on entrepreneurship was the invention of a business idea that was put into practice at school (2.06%) and field trips to existing businesses (1.20%).

Learners' exposure to desk-based learning included entrepreneurship as a subject at school (0.98%), entrepreneurship training at school (6.74%) and the generation of a business idea or the drafting of a business plan (3.37%). These figures suggest that desk-based learning on entrepreneurship in schools in the Sedibeng sample is limited.

The learners in the Sedibeng sample were then asked how often they had participated in these entrepreneurial activities at school. The results presented in Table 6 reveal that the percentage of participating learners declined significantly as the frequency of participation increased.

**Table 6:** Frequency of entrepreneurship exposure at school

Frequency of exposure	Frequency	Percentage
Only once	491	28.09
Yearly	247	14.13
Monthly	98	5.61
Weekly	82	4.69
Daily	82	4.69
Never	748	42.79
<b>Total</b>	<b>1 748</b>	<b>100.00</b>

Table 6 indicates that only a small percentage of learners in the sample perceived their exposure to entrepreneurship at school as a daily (4.69%), weekly (4.69%) or monthly (5.61%) event. This finding suggests that exposure to entrepreneurship in schools remains a sporadic event and it is therefore presumed to have a negligible effect on youth entrepreneurship development.

## Existence of entrepreneurial role models

In order to examine the existence of entrepreneurial role models that could positively influence respondents' inclination towards self-employment, learners were asked to provide the employment profile of their parents or legal guardians, as shown in Figure 2.

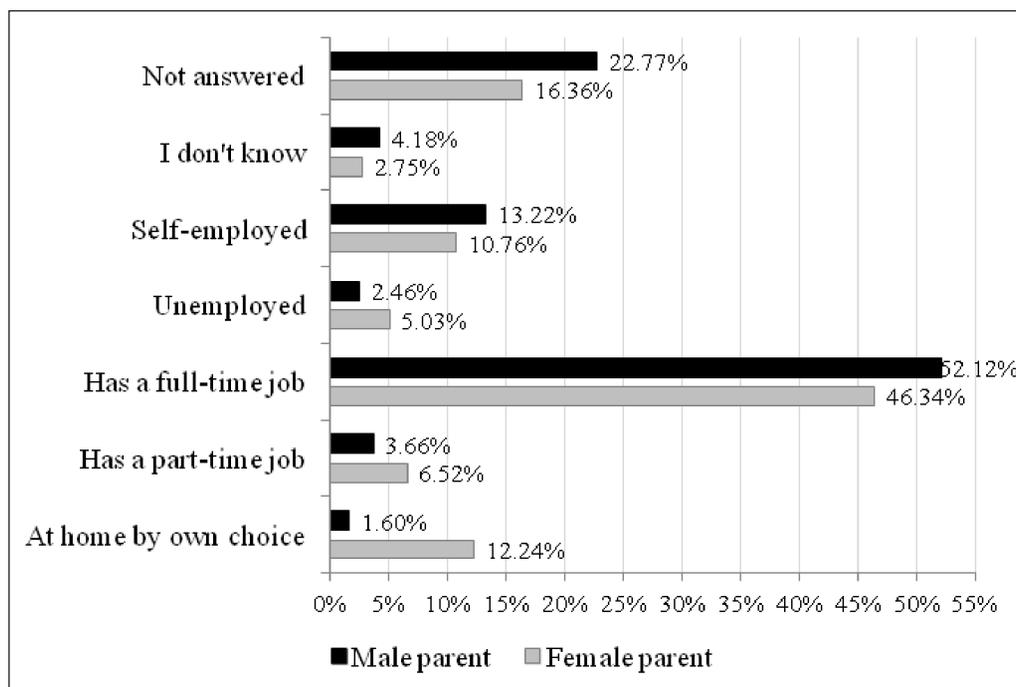


Figure 2: Employment profile of parents or legal guardians

Figure 2 reveals that the largest proportion of parents or guardians in the Sedibeng sample have a full-time job, and that unemployment of 5.03% females and 2.46% males is significantly lower than the national statistic of 22.70% in 2007 (Stats SA 2007: ii). In terms of potential entrepreneurial role models, 13.22% of learners indicated that their male parents or guardians were self-employed, whereas 10.76% of female parents or guardians were reported as being self-employed. A point of concern, though, is the high combined percentages of learners who did not answer or did not know what their parents or guardians do for a living (males 26.95%; females 19.11%).

## Results of the ATE Test

The ATE Test (Athayde 2004, 2009a, 2009b) is based on a seven-point Likert-scale on which respondents have to indicate the extent to which they agree or disagree with 30 statements developed to measure their attitude towards entrepreneurship. An in-depth discussion of the statistical analysis of the ATE Test results does not fall within the scope of this research paper (see Steenekamp 2009: 102–119; Steenekamp, Van der Merwe & Athayde 2011). However, the findings of Athayde (2009a), Gird and Bagraim (2008: 711), Lewis (2005: 481) and Moen et al. (2004) that catalytic factors such as exposure to entrepreneurship at school and having self-employed parents have a positive effect on the entrepreneurial attitudes of young people are of crucial importance for this paper on youth entrepreneurship development in South Africa.

Accordingly, exploratory factor analysis (EFA, Varimax with Kaiser normalisation) was conducted (Statsoft 2008) on the data obtained from the Sedibeng sample to assess the discriminant validity of the 30 items measuring entrepreneurial attitudes among young people. Kaiser's criterion, stipulating that factors with eigenvalues greater than one should be retained, was used to determine the number of factors to be extracted (Field 2005: 735), and factor loadings greater than 0.35 were considered significant (Field 2005: 637–638).

The first exploratory factor analysis resulted in the extraction of seven factors. Although all 30 items demonstrated discriminant validity by loading to a sufficient extent, it was evident that the reverse score items in the ATE Test loaded separately from the factors identified by Athayde (2009a), and in addition, several items loaded on more than one factor. A second EFA was performed excluding the reverse score items that had loaded on to separate factors, resulting in the extraction of five factors with eigenvalues greater than one, explaining 45.38% of the variance before rotation.

Rotation (converged in six iterations) resulted in these factors being identified as latent variables in the measurement of the entrepreneurial attitudes of young people, namely the theoretical dimensions of *leadership*, *achievement*, *personal control*, *creativity* and *intuition*. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy of 0.871 indicated that patterns of correlation were compact, and that factor analysis should yield reliable factors (Field 2005: 640). Bartlett's test of sphericity yielded a significant p-value smaller than 0.0001, indicating that the correlation between variables was sufficient for factor analysis.

The exploratory factor analysis, combined with the interpretability of the five factors, provided some evidence of construct validity, thus indicating that the measuring instrument had acceptable levels of construct validity for exploratory research.

Cronbach's alpha coefficients were calculated to assess the internal consistency between the 23 remaining items of the measuring instrument. Generally, a Cronbach's alpha of 0.7 is the minimum acceptable reliability for preliminary research (Peterson 1994: 381), whereas Bland and Altman (1997: 2) regard values of 0.7 to 0.8 as satisfactory for groups. The University of California (UCLA 2009: 2) agreed by noting that a reliability coefficient of 0.7 or higher is mostly considered acceptable in social science research. However, Field (2005: 688) argued that questionnaires designed to measure knowledge and intelligence should have Cronbach's alphas above the customary cut-off value of 0.7, but that instruments designed to measure attitudes (as in this study) may have lower alphas and still have acceptable levels of reliability.

All 1 748 participants' responses were used to determine the reliability of the extracted factors, subject to software-generated exclusions by list-wise deletion based on all variables in the procedure. The resulting Cronbach's alphas were 0.721 (0.809) for *leadership*; 0.627 (0.750) for *achievement*; 0.591 (0.725) for *personal control*; 0.589 (0.752) for *creativity*; and 0.318 (not presented) for *intuition* (Cronbach's alphas in brackets from the study by Athayde [2009a: 490] are included for comparison). A decision was made to exclude the *intuition* factor as a result of the low Cronbach's alpha, earlier supported in the study by Athayde (2009a) where 'intuition in problem solving' was also removed from the statistical analysis for similar reasons.

Following exclusion of the *intuition* factor, the reliability of the measuring instrument was accepted based on the concession by Field (2005: 688) that instruments designed to measure attitudes (such as the ATE Test) may have Cronbach's alphas lower than 0.70 and still have acceptable levels of reliability.

Finally, the relationships between the four remaining constructs (*leadership*, *achievement*, *personal control* and *creativity*) were examined by calculating Pearson correlation coefficients. Using guidelines by Cohen (1992: 155–159) for the interpretation of effect sizes, the analysis showed statistically significant correlations between the constructs at the 0.01 level. Based on the analysis following Cohen's (1992) guidelines and statistical significance ( $p < 0.01$ ), it was concluded that there was sufficient correlation (relationships) between *leadership*, *achievement*, *personal control* and *creativity* as constructs measured in the ATE Test.

Following the tests for validity, reliability and correlation, the differences in the means between the extracted factors *leadership* (self-perceptions of ability to lead others), *achievement* (achievement orientation in project work), *personal control* (perceived personal control over career) and *creativity* (perceptions about creativity at school) for the demographic variables 'exposure to entrepreneurship' and 'self-

employed parents or guardians' were examined by conducting t-tests and calculating effect sizes (d-values).

The effect sizes (d) were interpreted according to Cohen's guidelines (Cohen 1992: 155–159; Ellis & Steyn 2003: 52; Field 2005: 32), where  $d = 0.2$  is a small effect;  $d = 0.5$  is a medium effect; and  $d = 0.8$  is a large effect. In terms of interpretation, results with medium effects ( $0.5 \leq d \leq 0.8$ ) were regarded as visible effects, and  $d \geq 0.8$  as practically significant, since it was the result of a difference causing a large effect.

Statistical analysis was conducted to determine whether entrepreneurship exposure at school has had any influence on the entrepreneurial attitudes of grade 10 learners. The results are shown in Table 7.

**Table 7:** Difference in means for entrepreneurship exposure at school

Exposure	Yes			No			Comparison	
	n	$\bar{x}$	s	n	$\bar{x}$	s	p**	d**
Leadership	918	5.142	0.978	779	4.917	1.051	0.000	0.21
Achievement	919	6.088	0.690	779	6.071	0.644	0.604	0.02
Personal control	920	6.314	0.726	779	6.348	0.664	0.307	0.05
Creativity	920	5.733	0.850	779	5.770	0.903	0.383	0.04

\*\* Equal variances assumed

The results in Table 7 revealed a statistically significant difference ( $p < 0.05$ ) in the mean values between the perceptions of learners who had been exposed to entrepreneurship and those who had not for the construct *leadership* ( $p = 0.000$ ). Although learners who had been exposed to entrepreneurship at school rated leadership higher than those who had not been exposed, the difference between the mean values was not practically significant, as indicated by only a small effect ( $d = 0.21$ ).

Respondents were then asked what their parents or guardians do during weekdays to determine whether self-employed parents or guardians have had any influence on the entrepreneurial attitudes of learners. The results are shown in Tables 8 and 9.

The results for the demographic variable 'self-employed mother or female guardian' in Table 8 confirmed statistically significant differences ( $p < 0.05$ ) in the mean values for the constructs *leadership* ( $p = 0.001$ ) and *personal control* ( $p = 0.019$ ), but no practically significant difference, as indicated by small effects ( $d = 0.25$  and  $d = 0.18$  respectively).

The difference in the means between the constructs for the demographic variable 'self-employed father or male guardian' produced no statistically significant difference

**Table 8:** Differences in means for self-employed mother or female guardian

Self-employed	Yes			No			Comparison	
	n	$\bar{x}$	s	n	$\bar{x}$	s	p**	d**
Leadership	188	5.236	0.957	1 271	4.975	1.025	0.001	0.25
Achievement	188	6.103	0.642	1 272	6.116	0.615	0.793	0.02
Personal control	188	6.450	0.551	1 274	6.330	0.674	0.019	0.18
Creativity	188	5.814	0.860	1 274	5.745	0.862	0.305	0.08

\*\* Equal variances assumed

in the mean values between the perceptions of learners with regard to any of the four constructs ( $p > 0.10$  in all cases), as shown in Table 9.

**Table 9:** Differences in means for self-employed father or male guardian

Self-employed	Yes			No			Comparison	
	n	$\bar{x}$	s	n	$\bar{x}$	s	p**	d**
Leadership	231	5.092	0.984	1 116	4.978	0.998	0.114	0.11
Achievement	231	6.062	0.668	1 117	6.109	0.640	0.315	0.07
Personal control	231	6.352	0.605	1 119	6.322	0.684	0.541	0.04
Creativity	231	5.718	0.866	1 119	5.759	0.863	0.512	0.05

\*\* Equal variances assumed

The results presented in Tables 7, 8 and 9 were interpreted as indicating that exposure to entrepreneurship at school and having a self-employed parent had not had any impact on learners in the Sedibeng sample, contrary to the findings of Athayde (2009a), Gird and Bagraim (2008: 711), Lewis (2005: 481) and Moen et al. (2004).

## Conclusions

The literature review demonstrated that education is of crucial importance for social and economic development in South Africa (Burger et al. 2005; Isaacs et al. 2007; Maas & Herrington 2008), but also highlighted several challenges impairing youth development and entrepreneurship training in South African schools (Burger et al. 2004; Herrington 2009b; Horn 2006: 113; North 2002). It is evident that more

successful entrepreneurs are needed to set up and grow SMMEs as the driver of sustainable jobs and wealth creation; hence a major paradigm shift is required towards focused and sustainable youth entrepreneurship development in South Africa (Burger et al. 2004; Marais 2005; Mkhize 2010).

It is concluded that some aspects of entrepreneurship, in particular the motivational and attitudinal aspects, can be taught in secondary schools (Athayde 2009a; Dickson et al. 2008; Do Paco et al. 2008; Ferreira et al. 2007; Henry et al. 2005a, 2005b; Kourilsky & Walstad 1998; Lewis 2005; Peterman & Kennedy 2003; Raposo et al. 2008). Research has shown that entrepreneurship training programmes, such as the YAA programme in Australia (Peterman & Kennedy 2003), the YES programme in New Zealand (Lewis 2005) and the YE programme in the United Kingdom (Athayde 2009a) have the potential to increase young learners' perceptions of entrepreneurship as a desirable career choice.

However, the outcome of this study did not produce any evidence of such potential in Sedibeng secondary schools. Compared to the proportion of people in South Africa over the age of 20 years with a high school or higher qualification (South Africa Info 2010), learners in the Sedibeng sample appeared to have inflated expectations for their future academic qualifications, as is evident in the majority expecting to achieve a university degree or a higher degree. Although the majority of learners saw good opportunities in South Africa to start a business and perceived entrepreneurship as a desirable career choice, only one-third of learners were planning to start a business as soon as they finish school.

Whereas the majority of learners in the sample indicated that they had been exposed to entrepreneurial activity at school (revealing a positive trend for youth entrepreneurship development at school), analysis of the nature of exposure indicated that it was neither deep nor focused enough to qualify as value-adding experiential (less than 4% of reported activities) or desk-based learning (11% of reported activities). Some of the activities reported by learners, such as participating in sport, music, chess and dancing (2.83%), have little to do with entrepreneurship or entrepreneurship education. Furthermore, 7.61% of learners who claimed they had been exposed to entrepreneurship at school did not specify the nature of their exposure, in turn suggesting that they could not relate their positive answer to any actual activity at school in which they had participated.

It is therefore concluded that perceptions of exposure to entrepreneurship in the Sedibeng sample were predominantly based on learners' personal perceptions of entrepreneurship, and therefore either incongruent with entrepreneurial activity or insufficient to have any real effect in practice. The frequency of entrepreneurial activity in Sedibeng schools showed that a quarter of learners had been exposed

only once, with percentages of participating learners declining significantly as the frequency of exposure increased. This appears to be the status of exposure to entrepreneurship in Sedibeng schools, and accordingly, it is concluded that exposure to entrepreneurship at school remains a sporadic event presumed to have insufficient focus and outcomes for favourable comparison with youth entrepreneurship training programmes in countries such as Australia, New Zealand and the United Kingdom.

Two major concerns emanated from the statistical analysis of the differences in the means between the extracted factors for the demographic variables related to 'exposure to entrepreneurship at school' and 'having self-employed parents or guardians'. Whereas previous research discussed in the literature review indicated that these factors have a positive impact on the entrepreneurial attitudes and inclinations of young learners (Athayde 2009a; 2009b; Gird & Bagraim 2008: 711; Lewis 2005: 481; Moen et al. 2004; Peterman & Kennedy 2003: 141), this study, firstly, produced no evidence of any practically significant differences in the entrepreneurial attitudes of grade 10 learners who had been exposed to entrepreneurial activity and those who had not participated in such activities. Secondly, no practically significant differences could be determined between the entrepreneurial attitudes of learners with self-employed parents or guardians and those whose parents or guardians are not self-employed.

The absence of any practically significant differences leads to the conclusion that the current nature of exposure to entrepreneurship at school and the influence of self-employed parents have not had any practical effect on learners in the Sedibeng sample. This finding exclaims a severe shortfall in the South African education system in so far as entrepreneurial learning is concerned, as well as a wake-up call for self-employed parents regarding the contribution they can and should make towards the future of their children.

## Limitations and recommendations for further research

This study set out to make a contribution to the body of knowledge on the entrepreneurial attitudes and future plans of young learners in South African secondary schools. It can be regarded as a step towards understanding the challenges facing both youth entrepreneurship education and research on youth entrepreneurship in South Africa.

There are, however, a number of limitations associated with this study that need to be acknowledged. There are some concerns relating to the ATE Test's capability to accurately measure the concept of 'enterprise potential', as Athayde (2009a: 496) acknowledged weaknesses in the procedures for identifying the underlying structures as well as tests for reliability and validity.

The 16 schools that participated in the study cannot be considered representative of all schools and grade 10 learners in the Sedibeng district, and furthermore, in South Africa as a whole. Care should therefore be exercised in the interpretation and utilisation of the results, as the findings of this study should not be generalised.

The Enterprise Attitude Questionnaire, including the ATE Test, was administered in English and Afrikaans as the languages of tuition in secondary schools. However, consideration should be given to the wide array of cultures and languages in South Africa, as it is possible (and even likely) that many respondents did not fully understand the statements in the ATE Test. Further employment of the ATE Test in South African schools should therefore include a brief explanation of each construct and the underlying statements prior to administration of the questionnaire. In addition, it is suggested that the reverse score items in the ATE Test, although purposefully included by Athayde (2009a) to prevent acquiescence in the completion of the questionnaire, be changed to positive statements to improve respondents' understanding of the instrument.

The results of the ATE Test were used to examine the differences in means for the demographic variables 'exposure to entrepreneurship at school' and 'having a self-employed parent'. Firstly, the scope and intensity of exposure to entrepreneurship at school were not qualified in the study, and consequently, it should be considered that respondents agreeing that they had been exposed could have done so based on their personal perceptions of entrepreneurship.

The lack of focused entrepreneurship training programmes in the sample schools, combined with the absence of pre- and post-testing against a control group of similar design, made it almost impossible to determine the potential impact of such an intervention. Accordingly, it is suggested that learners in future studies be subjected to a selected entrepreneurship training programme after pre-testing and prior to post-testing using a control-group design. This will enable researchers to determine whether exposure to a specific entrepreneurship training programme indeed has the capacity to improve the entrepreneurial attitudes of young learners for comparison with other interventions described in academic research.

Secondly, the results with respect to the influence of self-employed parents on the entrepreneurial attitudes of learners in the Sedibeng sample may also be flawed. The category of self-employment (for example, corporate owner; formal small business owner; informal business owner; street vendor) was not qualified during the research; hence the real impact of actual entrepreneurs on the entrepreneurial attitudes of their children could not be isolated. Future research should therefore ensure that self-employment among parents is suitably qualified in an effort to examine the impact

of the diverse types of self-employed parents found in South Africa on their young children.

## Endnotes

1. The Intellectual Property Rights for the Attitude Toward Enterprise Test (ATE Test) belongs to the Small Business Research Centre (SBRC) at Kingston University, London, United Kingdom.

## References

- Ajzen, I. 1991. 'The theory of planned behaviour', *Organizational Behaviour and Human Decision Processes*, 50(2): 179–211.
- Anderson, A.R. & Jack, S.L. 2008. 'Role typologies for enterprising education: The professional artisan?', *Journal of Small Business and Enterprise Development*, 15(2): 259–273.
- Athayde, R. 2004. Attitudes to enterprise test code. London: Small Business Research Centre, Kingston University. Available from the author at r.athayde@kingston.ac.uk. E-mailed to A. Steenekamp (andre@arcspray.co.za): 13 May 2009.
- Athayde, R. 2009a. 'Measuring enterprise potential in young people', *Entrepreneurship Theory and Practice*, 33(2): 481–500.
- Athayde, R. 2009b. Briefing paper on ATE test. London: Small Business Research Centre, Kingston University. Available from the author at r.athayde@kingston.ac.uk. E-mailed to A. Steenekamp (andre@arcspray.co.za): 13 May 2009.
- Bhandari, N. 2006. 'Intention for entrepreneurship among students in India', *Journal of Entrepreneurship*, 15(2): 1–11.
- Bjerke, B. 2007. *Understanding Entrepreneurship*. Cheltenham, UK: Edward Elgar.
- Bland, J.M. & Altman, D.G. 1997. 'Statistics notes: Cronbach's alpha', *BMJ*, 314: 572. [Online] Available at: <http://www.bmj.com/cgi/content/ful/314/7080/5672>. Accessed: 4 September 2009.
- Bosma, N., Acs, Z.J., Autio, E., Coduras, A. & Levie, J. 2009. *Global Entrepreneurship Monitor 2008 Executive Report*. [Online] Available at: <http://www.gemconsortium.org>. Accessed: 6 March 2009.
- Boyd, N.G. & Vozikis, G.S. 1994. 'The influence of self-efficacy on the development of entrepreneurial intentions and actions', *Entrepreneurship Theory and Practice*, 18(4): 63–90.
- Burger, L., Mahadea, D. & O'Neill, C. 2004. 'Perceptions of entrepreneurship as a career option in South Africa: An exploratory study among grade 12 learners', *South African Journal of Economic and Management Sciences*, 7(2):187–205.

## Investigation into youth entrepreneurship in selected South African secondary school

- Burger, L., O'Neill, C. & Mahadea, D. 2005. 'The impact of previous knowledge and experience on the entrepreneurial attitudes of grade 12 learners', *South African Journal of Education*, 25(2): 89–94.
- Caird, S. 1991. 'Testing enterprising tendency in occupational groups', *British Journal of Management*, 2(4): 177–186.
- Co, M.J. & Mitchell, B. 2006. 'Entrepreneurship education in South Africa: A nationwide survey', *Education and Training*, 48(5): 348–359.
- Cohen, J. 1992. 'A power primer', *Psychological Bulletin*, 112(1): 155–159.
- Cromie, S. 2000. 'Assessing entrepreneurial inclinations: Some approaches and empirical evidence', *European Journal of Work and Organizational Psychology*, 9(1): 7–30.
- Cromie, S. & Johns, S. 1983. 'Irish entrepreneurs: Some personal characteristics', *Journal of Occupational Behaviour*, 4(4): 317–324.
- Deo, S. 2005. *Challenges for small business entrepreneurs: A study in the Waikato region of New Zealand*. [Online] Available at: <http://www.sbaer.uca.edu/research/icsb/2005/056.pdf>. Accessed: 2 June 2009.
- 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.
- Do Paco, A., Ferreira, J., Raposo, M., Rodrigues, R.G. & Dinis, A. 2008. Entrepreneurial intention among secondary students: findings from Portugal. Paper presented at the Internationalizing Entrepreneurship Education and Training (IntEnt2008) Conference, Oxford, Ohio, USA, 17–20 July 2008. [Online] Available at: [http://www.intent-conference.com/DWD/\\_621/upload/media\\_1993.pdf](http://www.intent-conference.com/DWD/_621/upload/media_1993.pdf). Accessed: 13 July 2011.
- Döckel, J.A. & Ligthelm, A.A. 2005. 'Factors responsible for the growth of small businesses', *South African Journal of Economic and Management Sciences*, 8(1): 54–62.
- Ellis, S.M. & Steyn, H.S. 2003. 'Practical significance (effect sizes) versus or in combination with statistical significance (p-values)', *Management Dynamics*, 12(4): 51–53.
- EU (European Union) 2002. Final report of the Expert Group on Education for Entrepreneurship. Making progress in promoting entrepreneurial attitudes and skills through Primary and Secondary Education. Luxembourg: Office for Official Publications of the European Communities. [Online] Available at: [http://ec.europa.eu/enterprise/policies/sme/files/support\\_measures/training\\_education/doc/entrepreneurship\\_education\\_final\\_en.pdf](http://ec.europa.eu/enterprise/policies/sme/files/support_measures/training_education/doc/entrepreneurship_education_final_en.pdf). Accessed: 29 March 2010.
- Feinstein, A.H., Mann, S. & Corsun, D.L. 2002. 'Charting the experiential territory: Clarifying definitions and uses of computer simulation, games and role play', *Journal of Management Development*, 21(10): 732–744.
- Ferreira, J., Do Paco, A., Raposo, M. & Rodrigues, R. 2007. Entrepreneurship education and business creation propensity: Testing a structural model. Paper presented at the 17<sup>th</sup> Internationalizing Entrepreneurship Education and Training (IntEnt2007) Conference, Gdansk, Poland, 8–11 July 2011.
- Field, A. 2005. *Discovering Statistics Using SPSS*. London: Sage.

- Florin, J., Karri, R. & Rossiter, N. 2007. 'Fostering entrepreneurial drive in business education: An attitudinal approach', *Journal of Management Education*, 31(1): 17–42.
- Frank, H., Korunka, C., Lueger, M. & Mugler, J. 2005. 'Entrepreneurial orientation and education in Austrian secondary schools: Status quo and recommendations', *Journal of Small Business and Enterprise Development*, 12(2): 259–273.
- Gartner, W.B. 1989. "'Who is an entrepreneur?'" is the wrong question', *Entrepreneurship Theory and Practice*, 13(4): 47–68.
- Gibb, A.A. 1993. 'Enterprise culture and education: Understanding enterprise education and its links with small business, entrepreneurship and wider educational goals', *International Small Business Journal*, 11(3): 11–34.
- Gibb, A.A. 2002. 'In pursuit of a new 'enterprise' and 'entrepreneurship' paradigm for learning: Creative destruction, new values, new ways of doing things and new combinations of knowledge', *International Journal of Management Reviews*, 4(3): 233–269.
- Gibb, A.A. 2007. 'Enterprise in education. Educating tomorrow's entrepreneurs', *Pentti Mankinen 2007*. [Online] Available at: <http://www.enorssi.fi/hankkeet/yrittajyykskasvatus/pdf/Gibb.pdf>. Accessed: 1 May 2010.
- Gird, A. & Bagraim, J.J. 2008. 'The theory of planned behaviour as predictor of entrepreneurial intent amongst final-year university students', *South African Journal of Psychology*, 38(4): 711–724.
- Hawley, F.B. 1901. 'Final objections to the risk theory of profit: A reply', *Quarterly Journal of Economics*, 15(4): 603–620.
- Henry, C., Hill, F. & Leitch, C. 2005a. 'Entrepreneurship education and training: Can entrepreneurship be taught?', Part I. *Education and Training*, 47(2): 98–111.
- Henry, C., Hill, F. & Leitch, C. 2005b. 'Entrepreneurship education and training: Can entrepreneurship be taught?', Part II. *Education and Training*, 47(3): 158–169.
- Herrington, M. 2009a. Positive signs. [Online] Available at: <http://www.gemconsortium.org/document.aspx?id=871>. Accessed: 6 March 2009.
- Herrington, M. 2009b. Access to finance is still a big problem. [Online] Available at: <http://www.gemconsortium.org/document.aspx?id=870>. Accessed: 6 March 2009.
- Hisrich, R.D. & Brush, C. 1986. 'Characteristics of the minority entrepreneur', *Journal of Small Business Management*, 24(4): 1–8.
- Hmieleski, K. & Corbett, C. 2006. 'Proclivity for improvisation as a predictor of entrepreneurial intentions', *Journal of Small Business Management*, 44(1): 45–63.
- Horn, G. 2006. 'Educational solutions to improve the employability of senior high school learners', *South African Journal of Education*, 26(1): 113–128.
- Howorth, C., Tempest, S. & Coupland, C. 2005. 'Rethinking entrepreneurship methodology and definitions of the entrepreneur', *Journal of Small Business and Enterprise Development*, 12(1): 24–40.

- Isaacs, E., Visser, K., Friedrich, C. & Brijlal, P. 2007. 'Entrepreneurship education and training at the Further Education and Training (FET) level in South Africa', *South African Journal of Education*, 27(4): 613–629.
- Jeppesen, S. 2005. 'Enhancing competitiveness and securing equitable development: Can small, micro and medium-sized enterprises (SMEs) do the trick?', *Development in Practice*, 15(3&4): 463–474.
- Johnston, K.A., Andersen, B.K., Davidge-Pitts, J. & Ostensen-Saunders, M. 2009. 'Identifying student potential for ICT entrepreneurship using Myers-Briggs personality type indicators', *Journal of Information Technology Education*, 8(1): 29–43.
- Kirby, D.A. 2004. 'Entrepreneurship education: Can business schools meet the challenge', *Education and Training*, 46 (8&9): 510–519.
- Kobia, M. & Sikalich, D. 2010. 'Towards a search for the meaning of entrepreneurship', *Journal of European Industrial Training*, 34(2): 110–127.
- Kourilsky, M.L. & Walstad, W.B. 1998. 'Entrepreneurship and female youth: Knowledge, attitudes, gender differences and educational practices', *Journal of Business Venturing*, 13(1): 7–8.
- Kroon, J., De Klerk, S. & Dippenaar, A. 2003. 'Developing the next generation of potential entrepreneurs: Co-operation between schools and businesses', *South African Journal of Education*, 23(4): 319–322.
- Krueger, N.F. (Jr) & Brazeal, D.V. 1994. 'Entrepreneurial potential and potential entrepreneurs', *Entrepreneurship Theory and Practice*, 18(3): 91–104.
- Krueger, N.F. (Jr), Reilly, M.D. & Carsrud, A.L. 2000. 'Competing models of entrepreneurial intentions', *Journal of Business Venturing*, 15(5&6): 411–432.
- Lewis, K. 2005. 'The best of intentions: Future plans of Young Enterprise Scheme participants', *Education and Training*, 47(7): 470–483.
- Lüthje, C. & Franke, N. 2003. 'The making of an entrepreneur: Testing a model of entrepreneurial intent among engineering students at MIT', *R&D Management*, 33(2): 135–147.
- Maas, G. & Herrington, M. 2008. *Global Entrepreneurship Monitor South African Report 2007*. Cape Town: University of Cape Town Graduate School of Business.
- Marais, J. 2005. "Maatskaplike entrepreneurs 'maak 'n verskil'", *Sake-Beeld*: 28, 10 May.
- McCline, R.L., Bhat, S. & Baj, P. 2000. 'Opportunity recognition: An exploratory investigation of a component of the entrepreneurial process in the context of the health care industry', *Entrepreneurship Theory and Practice*, 25(2): 81–94.
- Mentoor, E.R. & Friedrich, C. 2007. 'Is entrepreneurial education at South African universities successful? An empirical example', *Industry and Higher Education*, June: 221–232.
- Mitchell, R.K. & Busenitz, L.W. 2007. 'The central question in entrepreneurial cognition research 2007', *Entrepreneurship Theory and Practice*, 31(1): 1–27.
- Mkhize, F. 2010. 'Shaping the nation through small business: Focus on budget 2010', *Finweek*, 25 February.

- Moen, J.A., Rahman, I.H.A., Salleh, M.F.M. & Ibrahim, R. 2004. 'A study on entrepreneurial attitudes among youths in Malaysia: Case study of the Institute Kemahiran Belia Negara, Malaysia', *Journal of American Academy of Business, Cambridge*, 4(1/2): 192–197.
- Mpafa, D. 2008. Youth positive about being entrepreneurs. [Online] Available at: <http://www.gem.consortium.org/document.aspx?id=778>. Accessed: 6 March 2009.
- Müller, S. 2008. Increasing entrepreneurial intention: Effective entrepreneurship course characteristics. Paper presented at the Internationalizing Entrepreneurship Education and Training (IntEnt2008) Conference, Oxford, Ohio, USA, 17–20 July 2008. [Online] Available at: [http://www.intent-conference.com/DWD/\\_621/upload/media\\_1998.pdf](http://www.intent-conference.com/DWD/_621/upload/media_1998.pdf). Accessed: 13 July 2011.
- Nafukho, F.M. & Muyia, M.A.H. 2010. 'Entrepreneurship and socioeconomic development in Africa: A reality or myth?', *Journal of European Industrial Training*, 34(2): 96–109.
- Naudé, W.A. & Krugell, W.F. 2003. 'The small business challenge facing Africa', *Small Business Monitor*, 1(1): 64–69.
- Nieman, G. & Nieuwenhuizen, C. 2009. *Entrepreneurship: A South African Perspective* (2<sup>nd</sup> edition). Pretoria: Van Schaik.
- Nieuwenhuizen, C. & Groenewald, D. 2008. 'Entrepreneurs' learning preferences: A guide for entrepreneurship education', *Acta Commercii*, 8: 128–144.
- North, E. 2002. 'A decade of entrepreneurship education in South Africa', *South African Journal of Education*, 22(1): 24–27.
- Peterman, N.E. & Kennedy, J. 2003. 'Enterprise education: Influencing students' perceptions of entrepreneurship', *Entrepreneurship Theory and Practice*, 28(2): 129–144.
- Peterson, R.A. 1994. 'A meta-analysis of Cronbach's coefficient alpha', *Journal of Consumer Research*, 21(2): 381–391.
- Petrakis, P.E. 2005. 'Growth, entrepreneurship, structural change, time and risk', *Journal of American Academy of Business, Cambridge*, 7(1): 243–250.
- Raposo, M., Ferreira, J., Do Paco, A. & Rodrigues, R. 2008. 'Propensity to firm creation: Empirical research using structural equations', *International Entrepreneurship and Management Journal*, 4(4): 485–504.
- Ripsas, S. 1998. 'Towards an interdisciplinary theory of entrepreneurship', *Small Business Economics*, 10(2): 103–115.
- Robinson, P.B., Stimpson, D.V., Huefner, J.C. & Hunt, H.K. 1991. 'An attitude approach to the prediction of entrepreneurship', *Entrepreneurship Theory and Practice*, 15(4): 13–31.
- Rosenblatt, Z., Bergman, N., Erez, M. & De-Haan, U. 2008. The impact of entrepreneurship training on entrepreneurial competences of high-school students. Paper presented at the Internationalizing Entrepreneurship Education and Training (IntEnt2008) Conference, Oxford, Ohio, USA, 17–20 July 2008. [Online] Available at: [http://www.intent-conference.com/DWD/\\_621/upload/media\\_1987.pdf](http://www.intent-conference.com/DWD/_621/upload/media_1987.pdf). Accessed: 13 July 2011.
- Sedibeng (Sedibeng District Municipality, South Africa). 2008. *Sedibeng Annual Report 2007–2008*. Online Available at: <http://www.sedibeng.gov.za/keydocuments.html>. Accessed: 10 May 2009.

## Investigation into youth entrepreneurship in selected South African secondary school

- South Africa Info. 2010. Education in South Africa. [Online] Available at: <http://www.southafrica.info/about/education/education.htm>. Accessed: 28 February 2010.
- SPSS (Statistical Package for the Social Sciences). 2008. *SPSS 17.0 for Windows*. Chicago, IL: SPSS.
- Stats SA (Statistics South Africa) 2007. *Labour Force Survey September 2007*. (Statistical release, P0210). [Online] Available at: [http://www.statssa.gov.za/publications/P0210/P0210 September2007.pdf](http://www.statssa.gov.za/publications/P0210/P0210%20September2007.pdf). Accessed: 17 November 2008.
- Statsoft. 2008. *STATISTICA (Data Analysis Software System)*. Release 8. [Online] Available at: <http://www.statsoft.com>. Accessed: 17 November 2008.
- Steenekamp, A.G. 2009. An exploratory study of the entrepreneurial attitudes of secondary school learners. Unpublished MBA dissertation, North-West University, Potchefstroom.
- Steenekamp, A.G., Van der Merwe, S.P. & Athayde, R. 2011. 'Application of the Attitude Toward Enterprise (ATE) test on secondary school learners in South Africa', *South African Journal of Economic and Management Sciences* (in press).
- Timmons, J.A. & Spinelli, S. 2007. *New Venture Creation: Entrepreneurship for the 21<sup>st</sup> Century* (7<sup>th</sup> edition). New York, NY: McGraw-Hill.
- UCLA (University of California). 2009. 'SPSS FAQ: What does Cronbach's alpha mean?' *UCLA Academic Technology Services*. [Online] Available at: [http://www.statssa.gov.za/publications/P0210/P0210 September2007.pdf](http://www.statssa.gov.za/publications/P0210/P0210%20September2007.pdf). Accessed: 4 September 2009.
- Van der Merwe, S.P. & De Swardt, G. 2008. 'Small business owner-managers' perceptions of entrepreneurship in the Emfuleni district', *South African Journal of Economic and Management Sciences*, 11(4): 449–464.
- Van Wyk, R. & Boshoff, A.B. 2004. 'Entrepreneurial attitudes: A distinction between two professional groups', *South African Journal of Business Management*, 35(2): 33–38.
- Van Wyk, R., Boshoff, A.B. & Bester, C.L. 2003. 'Entrepreneurial attitudes: What are their sources?', *South African Journal of Economic and Management Sciences*, 6(1): 1–24.
- Vij, V. & Ball, S. 2008. Exploring how to 'spice up' entrepreneurial learning. Paper presented at the Internationalizing Entrepreneurship Education and Training (IntEnt2008) Conference, Oxford, Ohio, USA, 17–20 July 2008. [Online] Available at: [http://www.intent-conference.com/DWD/\\_621/upload/media\\_2002.pdf](http://www.intent-conference.com/DWD/_621/upload/media_2002.pdf). Accessed: 13 July 2011.
- Visser, D.J., De Coning, T.J. & Smit, E.v.d.M. 2005. 'The relationship between the characteristics of the transformational leader and the entrepreneur in South African SMEs', *South African Journal of Business Management*, 36(3): 51–64.
- Watt, B. 2003. 'A helping hand for young entrepreneurs', *Businessdate*, 11(4): 8.
- Zuma, J. 2010. State of the Nation Address 2010. [Online] Available at: <http://www.info.gov.za/speeches/2010/10021119051001.htm>. Accessed: 13 February 2010.