

---

## Entrepreneurial knowledge and aspirations of dentistry students in South Africa: The influences of gender and race

Pradeep Brijlal and Priscilla Brijlal

### **Abstract:**

An investigation of the intentions and knowledge of entrepreneurship of final-year university dentistry students is reported, with particular regard to the factors of gender and race. A questionnaire survey was used with final-year dentistry students, over two years, at the University of the Western Cape in South Africa. The findings show that dentistry students across race and gender groups believed that entrepreneurship education was important. At least half of the students showed an interest in starting a business practice soon after their graduation and completion of a mandatory one-year internship, with more male students indicating an interest in starting a business than female students. More Black African students indicated interest compared to other race groups (Coloureds, Whites and Indians). There were no significant differences between male and female students with regard to knowledge of entrepreneurship, but there were significant differences with regard to race in the scores for knowledge of entrepreneurship, with White students scoring the highest and African students the lowest. The authors conclude that entrepreneurship education should be included in the curriculum in the final year of dentistry studies to encourage business practice start-up soon after the one-year internship period, with the aim of contributing to growth in employment.

Entrepreneurship is now a mainstream topic in many countries around the world. It provides individuals with career options and has the potential to help societies to become self-sustaining (Scott, 2003). In South Africa the small business sector accounts for a significant proportion of economic activity. In general, higher education institutions (HEIs) in South Africa provide courses and qualifications which serve the needs of industry well, in that they educate students to become employees, typically in large businesses, rather than to consider the creative or innovative opportunities related to setting up their own businesses and becoming employers themselves. As a result, HEIs in South Africa are now increasingly obliged to redefine their role in the national economy, with instilling a greater entrepreneurial awareness and desire in the students now regarded as their primary function. It has been argued elsewhere that HEIs should also strive to consider local development needs carefully and support the promotion of entrepreneurial education initiatives (Nicolaidis, 2011).

It is recognized that a career as an entrepreneur offers significant opportunities for individuals to achieve financial independence, and entrepreneurship has been recognized as an important element in the dynamics of all economies. Entrepreneurship education has itself become an important academic research field; and entrepreneurship has been encouraged as a means of revitalizing stagnated economies, of stimulating developing economies and of addressing the challenges of unemployment and poverty by creating new job opportunities. Gurol and Atsan (2006) argue that in developing economies entrepreneurship is seen as an engine of economic progress, job creation and social adjustment. In South Africa, the government has recognized the need to support entrepreneurship in order to boost economic growth and create employment. The focus is on the small business sector because this sector, of which dental practices are a part, creates more jobs than large businesses and it has the potential to contribute to national economic growth.

Defining both 'entrepreneurship' and an 'entrepreneur' is a difficult task and researchers have not yet agreed on universal definitions. Various authors have contributed to the definition of entrepreneurship, including, for example, Hisrich *et al* (2005), Timmons and Spinelli (2004), Van Aardt *et al* (2000), and Bygrave and Hoffer (1991). For the purpose of this research the definition of 'entrepreneur' by Nieman (2000) was used, which states that an entrepreneur is a person who sees an opportunity in the market, gathers resources and starts and sustains or grows a business venture to satisfy these needs. Entrepreneurs accept the risks associated with the venture – and are rewarded with the financial profits if it succeeds.

According to Singh and Purohit (2011) a successful entrepreneur in health care is someone who is willing to risk their money, understands the health care market, has a clear vision about the future of their business practice and works hard, typically for long hours, to succeed.

The decision to start a business practice is influenced by certain aspects of the potential entrepreneur; and two key factors have been recognized as having an influence on the initiative to start a business: capital and the role of an institution. Economic capital, in terms of access to finance, and cultural capital, in terms of knowledge, skills and attitude, are critical with regard to the decision-making process in starting up a business.

The reason for low entrepreneurial rates among social class, race and gender groups in South Africa is that not only has the subjugation of Black, Coloured and Indian citizens during the apartheid era left South Africa polarized with regard to skin colour, but also that these racial divisions overlap with social divisions and this increases the level of polarization in a highly visible manner (Bond, 2004). Race as a category continues to stigmatize people in post-apartheid South Africa through a hierarchy in which past inequalities continue to worsen (McKinney and Soudien, 2010).

According to Zuma (2013), the president of South Africa, and the World Bank (2008), the three major development challenges facing South Africa are high levels of poverty, income

inequality and unemployment. More than 35% of the economically viable population of South Africa remains unemployed – the majority of which is Black South Africans (Bertelsmann, 2012). It has been estimated that some 56% of Black people are classified as ‘poor’ compared to around 36% of Coloured people, 15% of Indian people and 7% of White people (Bond, 2004). According to the World Bank Report in 2012, poverty in South Africa was more prevalent amongst women than men; and the Black African population was the most severely affected by poverty, with nearly 62% living below the poverty line (World Bank, 2012). These inequalities affect access to wealth and social benefits such as quality of neighbourhood, parental occupation and levels of education (Khwesa, 2009) and, therefore, access to financial resources necessary to start a business. In addition, severe economic constraints influence the quality and quantity of social or parental support, with resultant effects on opportunities for children and how they are raised and oriented towards education (Khwesa, 2009), all of which also have an effect on the ability to start a business practice.

Tertiary institutions or HEIs have a central role to play in offering entrepreneurship education which should result in students developing initiative and drive towards entrepreneurship, to prepare them to become successful and useful in the economy. According to Wilson *et al* (2007), entrepreneurship education can increase student interest in entrepreneurship as a career option. These authors state that the following objectives should be achieved through entrepreneurship education:

- Improvement of the entrepreneurship mindset of young people, to enable them to be more creative and self-confident in whatever they undertake and to improve their attractiveness for employers;
- Encouraging innovative business start-ups; and
- Improvement of individual roles in society and the economy.

The study by Wilson *et al* (*ibid*) shows that entrepreneurship education stimulates the intentions of individuals, with the expectation of improving the key entrepreneurship competences – which will have an impact not only on the role of the individual in the economy (working life) but also in society (social and personal life). Future HEI graduates have an important role to play in terms of their involvement in dealing with the economic problems of the nation. Instilling adequate insight and business skills has the potential to increase ambition and interest in entrepreneurship which, in turn, will lead to job creation.

As indicated earlier, students who enrol at tertiary institutions are generally socialized and educated, or trained, to become employees rather than business owners or employers after they graduate (Van Aardt and Van Aardt, 1997). According to Friedrich and Visser (2005) the ratio of business owners to employees in South Africa, a developing nation, is approximately 1 to 52: in most developed nations it is approximately 1 to 10. This large disparity in the ratios is a matter of major concern for the government and policy makers and it is therefore vitally important for tertiary institutions or HEIs to create an environment that encourages entrepreneurship to address the problem.

Professionally qualified people – such as dentists – soon realize that after graduating they have to choose between becoming employed or, alternatively, opening their own business practice (and perhaps, eventually, employing others). Limited attention has been given to developing or training dentistry students to become employers soon after their internship years, although there is significant potential for them to be self-employed and create employment. However, little is known about final year dentistry students' intentions and knowledge with regard either to entrepreneurship or to starting a business practice shortly after they complete their internship.

It is assumed that dentistry students, after graduating, have limited 'know-how' concerning how to establish their business practice; and have little if any knowledge about basic business management. Under normal circumstances dentists, due to their professional qualification, have relatively easier access to finance because they are regarded as low-risk clients by banks. This would imply that it is relatively easy for dentistry students to start a practice, with regard to securing the necessary funding.

We would therefore argue that dentistry students should be encouraged to consider entrepreneurship as a viable career option in dental education. Dentistry students are generally of an age at which the inherent risks associated with becoming an entrepreneur or starting a business practice are at their lowest levels. Educating them early enough would also give them sufficient time to acquire skills and experience that can prepare them for starting a business practice soon after they complete their internship.

The relationship between gender and entrepreneurship has received considerable attention over recent years. Trends and projections reported in the literature suggest that although women will play an increasingly important role in the entrepreneurial development of the economy, little is known about what young women in dentistry either understand or think with regard to starting a business practice. The attitudes of young women about entrepreneurship and their knowledge of the economy are likely to shape the entrepreneurial revolution and South Africa's economic future, given that they comprise more than 52% of its population (Census South Africa, 2011). However, in the current economic and social climate in South Africa, the lack of representation of male and female and Black African and Coloured dentists suggests that entrepreneurship initiatives will be skewed with regard to race and gender (Lalloo *et al*, 2005).

Given the above considerations, this study was designed to collect data from a sample of final year dentistry students concerning their intentions towards and knowledge of entrepreneurship. The data were then used to investigate whether there were gender differences and differences among the various race groups with regard to starting a business practice.

### **Literature review**

Herrington *et al* (2009) pointed out that given the failure of the formal and public sector to absorb the growing number of job seekers in the country, increasing attention was being

given to entrepreneurship and new enterprise creation and its potential for contributing to economic growth and job creation. Tertiary institutions or HEIs can be seen as an environment that can prepare students, including dentistry students, to start and operate a business practice, by providing the necessary knowledge and skills. Education about and for entrepreneurship will increase the interest of dentistry students in becoming self-employed at some stage after graduation. According to Krueger and Brazeal's (1994) model of entrepreneurial potential, entrepreneurship education should improve the perceived feasibility of entrepreneurship by increasing the knowledge of students, building confidence and promoting self-efficacy. The model argues that predicting potential entrepreneurs on the basis of demographics, personality or other criteria could prove difficult in an enacted environment: the beliefs or attitudes of potential entrepreneurs are driven by perceptions more than objective measures. Similarly, Krueger *et al* (2000) argue that entrepreneurial activity can be predicted more accurately by studying intentions rather than personality traits, demographic characteristics or situational factors.

A perceived lack of relevant experience and a lack of self-confidence are two reasons often cited for new graduates not engaging in entrepreneurship soon after graduation. The HEI experience should be capable of addressing both these needs (European Commission, 2008). The university experience should also improve the perceived desirability of entrepreneurship by showing students that it is highly regarded and socially accepted by the community and that it can be personally rewarding work.

Another reason for introducing dentistry students to entrepreneurship through structured education during their university years is related to their careers. Dyer (1994) discusses the different dimensions of a theory of careers and applies those ideas to entrepreneurship. He notes that a vital dimension of socialization that contributes to entrepreneurial careers is the education and training that the individual receives. Hussain *et al* (2008) found that the two most compelling motivations for starting a business were being one's own boss and financial reward (profit). Similarly Franco *et al* (2010) found that independence, autonomy, self-realization and family tradition were all important influences on the decision to start a business; in contrast, demographic profile, social background and participation in entrepreneurship education were not related, with statistical significance, to starting a business. Having self-employed parents increases the propensity of offspring to become self-employed (Birdthistle, 2008). Harris and Gibson (2008) and Basu and Virick (2008) point out that those students with experience of a family business had better-developed entrepreneurial attitudes.

Entrepreneurship education in higher education also tends to have a transformative effect on participating students because it may lead to increased numbers of business start-ups and the development of unique, life-long learning skills that form the basis of the attributes expected by society at large (Jones, 2010). Similarly, Niyonkuru (2005) reports that education is important in creating a more entrepreneurial mindset among young people and that promoting entrepreneurial skills and attitudes provides benefits to society beyond their immediate application to new business ventures.

Driver *et al* (2001) reported that there was an overall lack of entrepreneurship elements in the education system in South Africa. Some of the factors that contribute to an entrepreneurial culture have been found to be attitudes towards entrepreneurship, business role models, negative mind-sets regarding self-confidence, initiative and creativity, and negative perceptions about entrepreneurship as a career choice (Brijlal, 2008).

Most studies on entrepreneurship have been conducted in developed nations. As such it was felt it would be of interest to conduct studies in a developing nation, such as South Africa, to determine whether the results obtained would be in agreement with those of developed nations. This study will thus add to the various debates in the broad field of entrepreneurship, with particular reference to the issues of gender and race. Studies comparing entrepreneurial intentions and knowledge with regard to the different race groups and to gender are rare in a developing nation such as South Africa, although a recent study by Brijlal (2011) revealed significant differences in knowledge of entrepreneurship across the various disciplines, the various population groups and genders. This current study focuses on final-year dentistry students and attempts to determine to what extent entrepreneurial intentions and knowledge differ across the different race groups and between men and women. It is hoped that the outcomes from the research will add value to institutional programmes in terms of how students are engaged with regard to becoming and working as entrepreneurs.

## Methodology

The study used a random sample of final-year dental students, over two years, at the University of the Western Cape, this being the only institution that offers dentistry in the province. The survey questionnaire was sent to 216 registered students and 205 completed questionnaires were returned, a response rate of 95%. The survey questionnaire included questions similar to those used by Kourilsky and Walstad (1998) in their study of gender differences in entrepreneurship: it was adapted to suit the South African context. The reliability and validity of the questions in the survey had been established in previous studies conducted by Walstad and Kourilsky (1996) with both High School students and adults. For the present programme a pilot study with five students and two academics was conducted before the final questionnaire was distributed; and the questionnaire was also validated by two academics in the field of business management. Participation in the questionnaire survey was voluntary, anonymous and confidential.

Table 1. Demographics of survey respondents.

Gender		Race group			
Male	Female	Coloured	African	Indian	White
44%	56%	20%	12%	31%	37%

The final version of the questionnaire was distributed to final-year students, during class times. Data from the questionnaires were captured on a spreadsheet and analysed using the SPSS package.<sup>1</sup> Statistical techniques of univariable analyses (frequencies and percentages) and bivariable analyses (cross tabulations) were used. A descriptive analysis was used to describe and highlight the variables, with inferential statistical tools used in the analysis of the relationships between variables of interest. Intentions towards entrepreneurship were measured using a Likert-style scale with values ranging from 1 ('not at all important') to 5 ('very important'); and knowledge was measured using a nominal scale. For the purposes of this study the term 'entrepreneurship' was regarded as synonymous with setting up a business practice.

Given the background and literature review, the following hypotheses were developed.

- *Hypothesis 1.* The intentions of final-year dentistry students with regard to starting a business practice are the same for men and women.
- *Hypothesis 2.* The intentions of final-year dentistry students with regard to a business practice are the same across different race groups.
- *Hypothesis 3.* Knowledge of final-year dentistry students about entrepreneurship does not differ among different race groups.
- *Hypothesis 4.* Knowledge of final-year dentistry students about entrepreneurship does not differ between men and women.

## **Results and analysis**

The final questionnaire comprised three sections.

- Section A: was based on demographic variables.
- Section B: sought feedback on the importance of entrepreneurship education at tertiary institutions,
  - personal intentions with regard to starting a business practice, views on entrepreneurs being philanthropic and whether or not students were personally acquainted, through family or otherwise, with business owners.
- Section C: included general questions about knowledge of entrepreneurship.

The results were as follows, dealing with each section in turn.

### ***Demographics***

The profiles of the students in terms of race and gender are shown in Table 1. White (37%) and Indian (31%) students together represented the greater proportion, a result clearly not representative of the population of South Africa where Africans represent 79.2% of the total population, Coloured and White groups each represent 8.9% and the 'Indian/Asian/other population' group 3%. With regard to gender, more female (56%) than male (44%) students responded.

### ***The need for entrepreneurship education***

Eighty-eight per cent of male students and eighty-nine per cent of female students indicated the need for entrepreneurship education that would equip them to become business owners soon after graduation. This is in agreement with results from the recent study by Brijlal (2011) which indicated that dentistry students showed the greatest need for entrepreneurship education compared to those from other disciplines.

Table 2 shows, using a 5-point Likert-style scale, the responses of the students on their perceptions of the importance of and need for teaching entrepreneurship in HEIs. The African students indicated the highest perceived need for entrepreneurship education (77%) and the White students showed the lowest (59%). The need for entrepreneurship education was regarded as more important by Africans (81%) than by Whites (59%), suggesting perhaps that the non-White students recognized their lack of skills with regard to business start-up and their need to acquire such skills, compared with the White students.

**Table 2. Perceptions of need for entrepreneurship education.**

	Gender		Race			
	Male	Female	Coloured	African	Indian	White
Important	88%	89%	68%	77%	72%	59%
Not important	12%	11%	32%	23%	28%	41%

**Table 3. Intention to start-up a business.**

	Gender		Race			
	Male	Female	Colored	African	Indian	White
Yes	66%*	45%*	54%	64%	59%	45%
No	34%	55%	46%	36%	41%	55%

Note: \*  $p < 0.05\%$ .

It could also be interpreted as an indication of a lower level of interest in starting a business practice amongst the White students than in the African group. Further analysis revealed that there were no significant differences in the responses of men and women on the need for entrepreneurship education. The findings, not reported in Table 2, also revealed that the greater majority (86%) of the students felt that it was important for the HEI to offer entrepreneurship education in their final year of study.

### ***Intention to start own business practice***

Table 3 reports the responses, according to gender and race, of the students to the question about whether or not they planned to start a business practice soon after graduation: 50% of those responding reported that they intended to do so. Regarding gender, there was a significant difference in intention to start a business practice ( $p < 0.05$ ), with 66% male students, compared with 45% of female students, indicating their intention to do so. This result was surprising, given that male and female students gave very similar levels of



response – 88% and 89% respectively – on the need for entrepreneurship education as part of their curriculum. The fact that fewer females indicated an interest in starting a business may relate to the informal observation that women generally may have a lower risk propensity and are therefore more cautious when it comes to starting a business. This supports the findings of other researchers, including for instance Kourilsky and Walstad (1998), Delmar and Davidsson (2000), de Bruin *et al* (2007) and Wilson *et al* (2007), who found that men had a significantly stronger preference for self-employment than women.

There was no significant difference in intentions among the various race groups with regard to wanting to start a business practice soon after graduation. Sixty-four per cent of African students stated that they would like to do so and this result supports those of a study by Kollinger and Minniti (2006) who also found that Africans were more likely to try starting businesses than Whites. Similarly, Wilson *et al* (2004) reported a higher level of interest in entrepreneurship among young Black (African) people than among young White people in the USA. This finding is important because it suggests that constraints and not preferences lie behind racial differences in business ownership. The finding also seems to suggest that African students perceive themselves and their entrepreneurial environment in a much more optimistic light than White students. Furthermore, these results suggest that there is a large potential pool of African students who may decide to start a business practice soon after graduation in the field of dentistry. These African students may therefore need the necessary entrepreneurship education and encouragement if they are to follow up and act on their interest.

### ***Philanthropy (social responsibility)***

Seventy-seven per cent of those responding indicated that dentists currently in practice should be demonstrating social responsibility. The responses indicate that African and Indian students felt strongly that entrepreneurs, and dentists in private practice, should be involved in philanthropy. There was no significant difference with regard to social responsibility from a gender perspective. Forty-three per cent of the male students, compared to 39% of the female students, rated social responsibility as important. African students had the highest response with regard to philanthropy; that is, expressing the view that entrepreneurs and dentists in the private sector should be involved in socially beneficial activities beyond simply creating employment for others.

### ***Role models***

There was a significant difference ( $p < 0.05$ ) between the different race groups with regard to knowledge of entrepreneurs or business role models. The Indian students were most acquainted (95%) and the African students least (67%) with entrepreneurs or those running a business practice. Of those who responded 'yes' to wanting to start a business, 85% knew someone who already owned a business. Knowing someone who already runs a successful business can influence the intention to start a business.

**Table 4. Knowledge of entrepreneurship.**

Topics addressed	Gender		Race group			
	Male	Female	Coloured	African	Indian	White
Description of entrepreneur	85%	78%	88%	86%	75%	84%
Small business and job creation	42%	58%	58%*	46%*	53%*	73%*
Start-up capital	12%	10%	3%*	14%*	21%*	6%*
Business survival	87%	86%	85	11	86	90
Example of franchise	87%	81%	83	77	82	89
Purpose of profits	67%	59%	45%*	73%*	61%*	71%*
Price determination	58%	47%	48	64	51	52
Demand and price	60%	64%	58	73	62	60
<b>Mean %</b>	<b>62%</b>	<b>60%</b>	<b>59%</b>	<b>56%</b>	<b>61%</b>	<b>66%</b>

Note: \*  $p < 0.05\%$ .

Many studies, such as those by Bosma *et al* (2012), Walstad and Kourilsky (1998) and Green and Pryde (1990), have reported that role models often influence those thinking about starting a business. Thus it appears that the better a person knows someone who has been successful in a business start-up, the more likely it is that they will be interested in starting a business, because they have a role model to follow. The fact that a significant number of students had such a role model might suggest that these students would be inclined to start a business practice soon after graduation.

### ***Knowledge of entrepreneurship***

Eight multiple-choice questions were included in the survey questionnaire to determine levels of basic knowledge about entrepreneurship. This was done on the premise that knowledge of basic business concepts could have an influence on the intention to start a business. Table 4 lists the general topics covered by these eight questions and shows the percentage of correct responses for each item, with regard to gender and race.

There was no significant difference among the different race groups or between men and women with regard to knowledge of entrepreneurship. So, for instance, male and female students had similar levels of knowledge, scoring mean values of 62% and 60% respectively. The results shown in Table 4 show that whilst the White students obtained the highest mean score (66%) and the African students obtained the lowest mean score (56%), there were significant differences for the individual questions ( $p < 0.05$ ); in particular, with regard to the questions about job creation (Whites, 73%; Africans, 46%) start-up capital (Indians, 21%; Coloured, 3%) and purpose of profits (Africans, 73%; Coloured, 45%).

It is interesting to note that the majority of the students answered that in South Africa the banks were the main source of finance for starting a business practice. In reality, most start-up capital comes from personal savings or family funds (Beck *et al*, 2006; Still and Walker, 2006; Peterson and Rajan, 1994). This incorrect perception needs to be changed, because raising finance is considered to be one of the main problems with regard to starting a business and students need to be aware that it is more likely to be the case that sources of funding other than the banks will be used.

Students were also questioned about what would motivate them most if they did set up their own business. Four categories were offered as choices: 'to build something myself', 'a desire to make money', 'to be my own boss' and 'family influence'. For the Coloured and White students the most popular was 'to build something myself'; for African students it was 'to build something myself' coupled with 'to be my own boss'; for Indian students it was 'a desire to make money'. From a gender perspective the most popular motivation for men was the 'a desire to make money'; for women it was 'to build something myself'.

According to Galloway and Brown (2005), the numbers of student graduates starting up entrepreneurial ventures may be low because, among other reasons, students often have loans to pay off, have no collateral, lack relevant experience and have other personal priorities. Dentistry students are required to undertake one year of internship at a state institution and this may deter them from starting their own business practice because they become accustomed to being employed early in their careers.

### **Testing the hypotheses**

Having investigated the intentions, knowledge and gender differences of final-year dentistry students with regard to entrepreneurship or starting a business practice, the hypotheses proposed and the outcomes are as follows.

*Hypothesis 1.* The intentions of final-year dentistry students with regard to starting a business practice is the same across gender. *This hypothesis was not supported.* There was a significant difference between male and female students in wanting to start a business: men (66%) were more likely than women (45%) to start a business practice.

*Hypothesis 2.* The intentions of final-year dentistry students with regard to a business practice are the same across the different race groups. *This hypothesis was not supported.* African students (64%) showed a greater interest in wanting to start a business practice than other race groups.

*Hypothesis 3.* The knowledge of final-year dentistry students about entrepreneurship does not differ among the different race groups. *This hypothesis was not supported.* White students scored the highest and African students scored the lowest.

*Hypothesis 4.* The knowledge of final-year dentistry students about entrepreneurship does not differ between men and women. *This hypothesis was supported.* Male and female students had equal knowledge of the concepts of entrepreneurship.

### **Conclusions**

The findings from this study show that both men and women dentistry students and those from all race groups believe that entrepreneurship education is important. Although more than 50% of the students expressed an intention to become entrepreneurs soon after graduation, in reality the actual number doing so may be significantly lower.

The intention to start a business practice differed significantly with regard to gender: more male than female students were interested in starting a business practice, although there was no significant difference between the men and women regarding knowledge of entrepreneurship.

More African students wanted to start a business compared to other race groups; and White students showed the best results in answering questions on knowledge of entrepreneurship. There were significant differences in the responses to individual questions on knowledge of entrepreneurship, with the White students scoring the highest and African students scoring the lowest.

### **Recommendations**

Higher education institutions play a key role in influencing the intentions of final-year students with regard to starting a business practice. Offering entrepreneurship education in the final year of studies for dentistry students in the HEI involved in this present study might therefore increase the propensity to start a business practice soon after graduation. We would therefore argue that the Dentistry Faculty concerned should attempt to improve the perceptions and knowledge of business start-up of its dentistry students.

In order to create and to support entrepreneurship as an option after graduation, we suggest that the HEI concerned might find it helpful to consider some of the following options.

1. Include a credit-bearing module in entrepreneurship education in the final year, dealing with how to start a dental practice or business: this should also include job shadowing. Souitaris *et al* (2007) argue that entrepreneurship educational programmes significantly raise students' subjective norms and intentions toward starting a business.
2. Specific attention should be given to female students because it was found that they were less inclined to want to start a business practice soon after graduation.
3. If inclusion of a credit-bearing module in the curriculum is a problem, then the HEI's primary purpose should be to develop entrepreneurial capacities and mindsets of students through short entrepreneurship education programmes which should aim to develop entrepreneurial drive among students (raising awareness and motivation), train students in what is needed to set up a business and manage its growth and develop the entrepreneurial abilities needed to identify and exploit business opportunities.
4. Students embarking on an entrepreneurial career path should have greater access to government financial support throughout their study. Private-sector investment initiatives in entrepreneurial education should also be supported and national and local government should provide incentives to private-sector enterprises that support high-quality entrepreneurial programmes (Nicolaidis, 2011).

### **Limitations and future research**

This was a regional study and therefore the findings might not relate in general to all dentistry students in South Africa. Knowledge of entrepreneurship was assessed using only eight basic questions and closed questions only were used, both of which factors might have

had the effect of hindering full disclosure by students of their full knowledge of entrepreneurship.

Future research should consider analysis on a national basis because the outcome could then have a greater influence on business policy making. Research should also track dentistry graduates after internship in order to determine the start-up rate and the reasons for starting up a business. In addition, those graduates who choose not start a business practice should be questioned about the reasons for this decision.

### **Notes**

<sup>1</sup>[IBM] SPSS Statistics is, according to IBM, a ‘. . .comprehensive, easy-to-use set of data and predictive analytics tools for business users, analysts and statistical programmers’, see also <http://www-01.ibm.com/software/uk/analytics/spss/products/statistics/>.

## References

- Basu, A., and Virick, M. (2008), 'Assessing entrepreneurial intentions amongst students: a comparative study', *NCIIA 12th Annual Meeting*, National Collegiate Inventors and Innovators Alliance, see [www.nciia.org](http://www.nciia.org).
- Beck, T., Kunt, A.D., Laeven, L., and Maksimovic, V. (2006), 'The determinants of financing obstacles', *Journal of International Money and Finance*, Vol 25, pp 932–952.
- Bertelsmann, S. (2012), *South Africa Country Report*, available at: <http://www.bti-project.org/countryreports/esa/zaf/>, last accessed 28 August 2012.
- Birdthistle, N. (2008), 'An examination of tertiary students' desire to found an enterprise', *Education and Training*, Vol 50, No 7, pp 552–567.
- Bond, P. (2004), 'South Africa's frustrating decade of freedom: from racial to class apartheid', *Monthly Review*, Vol 55, No 10, available from: <http://monthlyreview.org/2004/03/01/south-africas-frustrating-decade-of-freedom-from-racial-to-class-apartheid>, last accessed 25 February 2012.
- Bosma, N., Hessels, N., Schutjens, V., Van Praag, and Verheul, I. (2012), 'Entrepreneurship and role models', *Journal of Economic Psychology*, Vol 33, No 2, pp 410–424.
- Brijlal, P. (2008), 'The state of entrepreneurship education at tertiary institutions in the Western Cape', *Journal of College Teaching and Learning*, Vol 5, No 2, pp 25–36.
- Brijlal, P. (2011), 'Entrepreneurial perceptions and knowledge: a survey of final year university students', *African Journal of Business Management*, Vol 5, No 3, pp 818–825.
- Bygrave, W.D., and Hofer, C.W. (1991), 'Theorising about entrepreneurship', *Entrepreneurship Theory and Practice*, Vol 16, No 2, pp 3–22.
- Census South Africa (2011), available at: <http://www.southafrica.info/about/people/population.htm#>. URN09PI-JvI, last accessed 12 January 2012.
- de Bruin, A., Brush, C.G., and Welter, F. (2007), 'Advancing a framework for coherent research on women's entrepreneurship', *Entrepreneurship Theory and Practice*, Vol 31, No 3, pp 323–339.
- Delmar, F., and Davidson, P. (2000), 'Where do they come from? – prevalence and characteristics of nascent entrepreneurs', *Entrepreneurship and Regional Development*, Vol 12, pp 1–23.
- Driver, A., Wood, E., Segal, N., and Herrington, M. (2001), *Global Entrepreneurship Monitor: South African Executive Report*, pp 1–60.
- Dyer, W.G. (1994), 'Toward a theory of entrepreneurial careers', *Entrepreneurship Theory and Practice*, Vol 19, No 2, pp 7–21.
- European Commission (2008), *Entrepreneurship in Education, Especially in Non-business Studies*, Final Report of Expert Group, European Commission, Brussels.
- Franco, M., Haase, H., and Lautenschlager, A. (2010), 'Students' entrepreneurial intentions: an inter-regional comparison', *Education and Training*, Vol 52, No 4, pp 260–275.
- Friedrich, C., and Visser, K. (2005), *South African Entrepreneurship Education and Training*, Leap Publishing, Cape Town.
- Galloway, L., and Brown, B. (2002), 'Entrepreneurship education at university: a driver in the creation of high growth firms?', *Education and Training*, Vol 44, No 8/9, pp 398–405.

- Green, S., and Pryde, P. (1990), *Black Entrepreneurship in America*, Transactions Publishers, New Brunswick, NJ.
- Gurol, Y., and Atsan, N. (2006), 'Entrepreneurial characteristics amongst university students: some insights for entrepreneurship education in Turkey', *Education and Training*, Vol 48, No 1, pp 25–38.
- Harris, M., and Gibson, S.G. (2008), 'Examining the entrepreneurial attitudes of US business students', *Education and Training*, Vol 50, pp 568–581.
- Herrington, M., Kew, J., and Kew, P. (2009), *Global Entrepreneurship Monitor, South African Report*, available at: <http://www.gbs.nct.ac.za/gbswebb/userfiles/gemsouthafrica2000pdf>, last accessed 15 October 2009.
- Hisrich, R.D., Peters, M.P., and Shepherd, D.A. (2005), *Entrepreneurship*, 6th edition, McGraw-Hill/Irwin, New York.
- Hussain, J.G., Scott, J.M., and Hannon, P.D. (2008), 'The new generation: characteristics and motivation of BME graduate entrepreneurs', *Education and Training*, Vol 50, No 7, pp 582–596.
- Jones, C. (2010), 'Entrepreneurship education: revisiting our role and its purpose', *Journal of Small Business and Enterprise Development*, Vol 17, No 4, pp 500–513.
- Kollinger, P., and Minniti, M. (2006), 'Not for lack of trying: American entrepreneurship in black and white', *Small Business Economics*, Vol 27, pp 59–79.
- Kourilsky, M.L., and Walstad, W.B. (1998), 'Entrepreneurship and female youth: knowledge, perceptions, gender differences, and educational practices', *Journal of Business Venturing*, Vol 13, pp 77–88.
- Krueger, N. F., and Brazeal, D.V. (1994), 'Entrepreneurial potential and potential entrepreneurs', *Entrepreneurship Theory and Practice*, Vol 18, No 3, pp 91–104
- Krueger, N., Reilly, M.D., and Carsud, A.L. (2000), 'Competing models for entrepreneurial intentions', *Journal of Business Venturing*, Vol 15, pp 411–432.
- Khwesa, T.L. (2009), 'The performance profile of children from a low socio-economic status on the Griffiths Mental Developmental Scales', available at : <http://www.nmmu.ac.za/documents/.../Thembi%20 Lucia%20 Kheswa.pdf>, last accessed 19 July 2012.
- Laloo, R., McMillan, W., Gugushe, T.S., Ligthelm, A.J., Evans, W.G. and Moola, M.H. (2005), 'Gender and race distribution of dental graduates (1985–2004) and first year dental students in South Africa', *South African Dental Journal*, Vol 60, No 5, pp 206–209.
- McKinney, C., and Soudien, C. (2010), 'Multicultural education in South Africa, 2010', *IALEI (International Alliance of Leading Education Institutes) Country Report*, available at: [http://www.intlalliance.org/fileadmin/user\\_upload/...2010/NP- SA.pdf](http://www.intlalliance.org/fileadmin/user_upload/...2010/NP- SA.pdf), last accessed 10 July 2012.
- Nicolaidis, A. (2011), 'Entrepreneurship: the role of higher education in South Africa', *Educational Research*, Vol 2, No 4, pp 1043–1050.
- Nieman, G.H. (2000), *Study Guide for MPhil in Entrepreneurship and Small Business Management*, Department of Business Management, University of Pretoria, Pretoria.
- Niyonkuru, R. (2005), 'Entrepreneurship education at tertiary institutions in Rwanda: a situational analysis', *unpublished Master's dissertation*, University of the Western Cape, Cape Town.

- Petersen, M.A., and Rajan, R.G. (1994), 'The benefits of lending relationships: evidence from small business data', *Journal of Finance*, Vol 1, pp 3–37.
- Scott, I. (2003), 'Balancing excellence, equity and enterprise in a less industrialised country: the case of South Africa', in Williams, G., ed, *The Enterprising University: Reform, Excellence and Equity*, Society for Research into Higher Education and Open University Press, Buckingham.
- Singh, A., and Purohit, B. (2011), 'Dental entrepreneurship – a transition phase to generation next', *Advances in Life Science and Technology*, Vol 2, pp 25–30.
- Souitaris, V., Zerbinati, S., and Al-Laham, A. (2007), 'Do entrepreneurship programmes raise entrepreneurial intentions of science and engineering students? – the effect of learning, inspiration and resources', *Journal of Business Venturing*, Vol 22, No 4, pp 566–591.
- Still, L.V., and Walker, E.A. (2006), 'The self-employed woman owner and her business', *Women in Management Review*, Vol 21, No 4, pp 294–310.
- Timmons, J.A., and Spinelli, S. (2004), *New Venture Creation: Entrepreneurship for the 21st century*, 6th edition, McGraw-Hill/Irwin, New York.
- Van Aardt, I., and Van Aardt, C. (1997), *Entrepreneurship and New Venture Management*, Thomson, Johannesburg.
- Van Aardt, I., Van Aardt, C., and Behuidenhout, S. (2000), *Entrepreneurship and New Venture Management*, Oxford Publishing Press Southern Africa, Cape Town.
- Walstad, W.B., and Kourilsky, M.L. (1998), 'Entrepreneurial perceptions and knowledge of Black youth', *Entrepreneurship Theory and Practice*, Vol 23, No 2, pp 5–18.
- Wilson, F., Marlino, D., and Kickul, J. (2004), 'Our entrepreneurial future: examining the diverse attitudes and motivations of teens across gender and ethnicity identity', *Journal of Developmental Entrepreneurship*, Vol 9, No 3, pp 177–197.
- Wilson, F., Kickul, J., and Marlino, D. (2007), 'Gender, entrepreneurial self-efficacy and entrepreneurial career intentions: implications of entrepreneurship education', *Entrepreneurship Theory and Practice*, Vol 31, No 3, pp 387–406.
- World Bank (2008), *South African Country Brief*, available at: <http://siteresource.worldbank.org/GILDSOUTHAFRICA/insolvency%20law>, last accessed 16 May 2010.
- World Bank (2012), *Economic Update South Africa: Focus on Inequality of Opportunity*, World Bank, Washington DC, see also: [http://advocacyaid.com/images/stories/rrdownloads/World\\_Bank\\_Report\\_Equality\\_Opportunity\\_July\\_2012.pdf](http://advocacyaid.com/images/stories/rrdownloads/World_Bank_Report_Equality_Opportunity_July_2012.pdf).
- Zuma. J. (2013), *State of the Nation Address: South Africa*, eTV, 15 March 2013.