

Full Length Research Paper

Assessment of teaching corporate entrepreneurship to master's level students

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Tertiary education in terms of entrepreneurship is not adequate to stimulate entrepreneurial activity in South Africa. By assessing the effect and successfulness of tertiary modules offered in entrepreneurship (and in this case specifically corporate entrepreneurship) an improvement can be made to these courses which would lead to increased entrepreneurial activity. The purpose of this paper is to determine the effect of a corporate entrepreneurship module that has been offered to master's level students. The research is designed as a formal study where stated hypotheses are tested to demonstrate if there is a statistical significant difference between the corporate entrepreneurial style and personality of students (over a period of three year) before and after they have completed a master's level module in CE. A pre- and post test were conducted over a period of three years (2007 – 2009). A self-administered questionnaire was used to obtain the data. A judgemental purposive sampling technique was used and the sample consisted of 101 students. The results indicated that there is a statistical significant difference between the corporate entrepreneurial styles and personalities of students that have completed the course as well as the Intrapreneurial Performance Index. It is recommended that tertiary institutions, specifically in South Africa, must adopt a corporate entrepreneurship module in their post-graduate programmes which will assist to equip employees to become more entrepreneurial within existing businesses.

Key words: Corporate entrepreneurship; corporate entrepreneurship style; corporate entrepreneurial personality; education; Intrapreneurial Performance Quotient; teaching methods.

INTRODUCTION

South African business's, just like most business's across the world find that it is becoming more difficult to survive and be economically successful. Every country has its own restricting factors influencing economic growth and prosperity. South Africa specifically experiences low productivity, high unemployment, high labour costs, a serious lack of skills, high crime rates, high job insecurity and affirmative action. South African business's particularly are confronted with the challenge of competing from a third world economy on international markets with the products and services of first world countries. In response to rapid, discontinuous and significant changes in their internal and external environments, many established businesses have restructured their operations in fundamental and meaningful ways.

In the field of Corporate Entrepreneurship (CE) many researches have proved that economies as well as

businesses could be successful in spite of the above-mentioned constraints through the establishment of entrepreneurial organisations. Pinchot (1985) elaborates on this issue by stating that economies and organisations could be successful, in spite of the restricting factors, through the establishment of corporate entrepreneurs (intrapreneurs) within existing businesses.

This study focuses on one university-level course in Corporate Entrepreneurship for Master's-level students. The overall purpose of the course is focused on students that should develop intellectual competencies and practical skills in the acquisition, analysis, and application of entrepreneurial management thinking and doing in all sectors of the economy. In doing so the objective is that students will increase their understanding about CE and to promote entrepreneurial behaviour within the corporate setting. The aim of this article is to explore the student's

corporate entrepreneurial styles and personality's before and after being exposed to the Masters-level course in corporate entrepreneurship. Based on the findings of this particular course, this research attempts to contribute to the discussion around the complex and challenging issue of teaching corporate entrepreneurship at university level.

Problem statements

The Global Entrepreneurship Monitor (GEM) conducts an annual international survey amongst approximately 43 countries and provides useful data on the extent and nature of entrepreneurial activity in these countries. Herrington, Kew and Kew (2008:3) indicated in the 2008 Global Entrepreneurship Monitor report that South Africa identified that education and training was a major limiting factor in entrepreneurial development in South Africa. This was also the finding since 2001, when South Africa first participated in the Global Entrepreneurship Monitor project. There has been no improvement in the seven years since South Africa has participated in the Global Entrepreneurship Monitor.

In the Global Competitiveness Report (GCR), 2008 – 2009, South Africa's inadequately educated workforce is cited as the most problematic factor for doing business in the country (Herrington et al., 2008:31). South Africa is ranked 45th out of 134 countries overall by the Global Competitiveness Report; but this ranking drop to 104th in terms of quality of primary education, 110th for quality of higher education and training of secondary and tertiary education. The Global Competitiveness Report, 2008 – 2009, notes that South Africa's ranking for levels of higher education and training dropped to 57th place (from 47th the previous year). Global Entrepreneurship Monitor research has consistently shown an association between educational levels and success in entrepreneurial ventures and South Africa's poor levels is certainly an important contributing factor to the country's below-average entrepreneurial activity. Entrepreneurship education and training was the specific topic of 2008's Global Entrepreneurship Monitor research and experts were asked to rate the need for, availability of and quality of entrepreneurship education and training in their countries. Of particular concern is the rating for the quality of entrepreneurship education and training after school, where South Africa has the lowest rating of all the countries in that sample. With these realities of the South African situation there needs to be an improvement in the primary, secondary and tertiary education system. A starting point in this regard would be to assess the various offerings in entrepreneurship in order to determine what needs to be improved or changed.

The University of Johannesburg offers a Masters programme in Business Management which consists of 17 modules and a mini-dissertation. One of these modules focuses on Corporate Entrepreneurship. The problem statement is to determine the effect of the Corporate

Entrepreneurship module, offered in the MCom Business Management course, on the master students and to what extent this course contributed in equipping the students with the knowledge and skills to become more entrepreneurial in existing businesses.

Research objectives

The primary objective of this paper is to determine the effect of a corporate entrepreneurial module that has been offered to Master's level students. In order to achieve the primary objective, secondary objectives have been formulated. The secondary objectives of this paper are to determine:

- i. The role of the corporate entrepreneur;
- ii. The need for corporate entrepreneurship education and training; and
- iii. The teaching methods of a module in corporate entrepreneurship offered to Master's level students.

Hypotheses

The following hypotheses are formulated for this research:

- H₁: There is a significant difference between the corporate entrepreneurial style of students that have completed a Master's level module in corporate entrepreneurship before and after the module.
- H₂: There is a significant difference between the corporate entrepreneurial personality of students that have completed a Master's level module in corporate entrepreneurship before and after the module.
- H₃: There is a significant difference between the Intra-preneurial Performance Quotient-test done between the students that have completed a Master's level module in corporate entrepreneurship before and after the module.

Relevance of the paper

The tertiary education in terms of entrepreneurship is not adequate to stimulate entrepreneurial activity in South Africa. By assessing the effect and successfulness of tertiary modules offered in entrepreneurship (and in this case specifically corporate entrepreneurship) an improvement can be made to these courses which would lead to increased entrepreneurial activity. South African businesses are in desperate need of corporate entrepreneurs which could assist in continual innovation, growth and value creation that they once had.

LITERATURE REVIEW

Ramachandran, Devarajan and Ray (2006) state that

most businesses find that their ability to identify and innovatively exploit opportunities decreases as the businesses move from the entrepreneurial to the growth phase. The key to success in the highly competitive and dynamic environment in which most businesses presently operate is to retain this ability. Businesses need to adopt an entrepreneurial strategy – seeking competitive advantage through continuous innovation to exploit identified opportunities effectively – in order to sustain and grow under such circumstances. Johnson (2001) supports this viewpoint and adds that many people view innovation and corporate entrepreneurship as a vehicle to stimulate this growth and development. Corporate entrepreneurship (CE) is recognised as a potentially viable means of promoting and sustaining competitiveness, and transforming businesses and industries into opportunities for value-creating innovation (Aloulou and Fayolle, 2005; Antoncic and Zorn, 2004; Kuratko and Hodgetts, 2007; Kuratko, Ireland, Covin and Hornsby, 2005).

According to Ireland, Kuratko and Morris (2006), businesses increasingly rely on corporate entrepreneurship and innovation to develop and nurture simultaneously today's and tomorrow's competitive advantages. Leading edge businesses see the effective use of corporate entrepreneurship as a source of competitive advantage and as a path to higher levels of financial and non-financial performance. For purposes of this research corporate entrepreneurship are referred to "the process whereby an individual or a group of individuals, in association with an existing organisation, create a new organisation or instigate renewal or innovation within the organisation" (Sharma and Chrisman, 1999).

Antoncic and Hisrich (2001, 2003a, 2003b, 2004, 2007) add and also state that the outcome may not only be new businesses or ventures, but also other innovative activities such as products, services and process innovations, self-renewal, risk-taking, proactiveness and competitive aggressiveness. In this literature review the role of the corporate entrepreneur will be addressed followed by the need for CE education and training and lastly an overview will be given on the teaching methods of a module in CE offered to Master's level students at the University of Johannesburg.

The role of the corporate entrepreneur

Morris et al. (2008) states that the individual corporate entrepreneur is the most critical of all the elements necessary for successful entrepreneurship. Without the visionary leadership and persistence demonstrated by the individual, little would be accomplished. Someone in the business must come up with a concept, vision or dream. They must translate this dream into products and processes within some sort of organisational context. These individuals must champion the concept to a wide

range of publics and partners; adapt the concept to reflect the realities encountered within the environment; and preserver in overcoming the normal and the arbitrary obstacles that are thrown into their paths.

According to Morris et al. (2008) corporate entrepreneurs are not necessarily the inventors of new products, services or processes (although they often are), but they turn ideas or prototypes into profitable realities. They are the drivers behind the implementation of innovative concepts. They are team builders with the commitment and necessary drive to see ideas become realities. They are very ordinary people who tend to do extraordinary things. Based on intensive research La Grange (1994) summarises the characteristics of a corporate entrepreneur as indicated in Table 1.

The intention for listing these characteristics of a corporate entrepreneur is to indicate the attributes that need to be developed by employees to become more entrepreneurial.

Collins, Hannon and Smith (2004) and Galloway, Anderson, Brown and Wilson (2005) in Heinonen (2007) indicate that entrepreneurial skills, creativity and flexibility are needed by future employees in order to manage ambiguity and insecurity. Van der Colff (2004) argues that the future of the South African economy lies largely in the small business sector with an enormous need for skilled entrepreneurs. Large businesses also need entrepreneurs that are equipped to help the organisation deal with the fast-changing environment.

In South-Africa, the demand for quality corporate entrepreneurs at all levels of the business far outweighs the supply. Company investment in the future through business education should include a developmental focus on self-development of individuals. The focus is on acquiring individual skills for the business with the underlying rationale that a manager, who can manage him/herself, can manage a team (Van der Colff, 2004). By encouraging innovative thinking from all employees, they will be able to develop attitudes of challenging the status quo. In this way, people will be encouraged to see change as full of positive possibilities. This is the only way in which the business will be able to deal with the fast pace of change.

The need for corporate entrepreneurship education and training

Henry, Hill and Leitch (2003) states that as the extent of entrepreneurship increases, the need for education has never been greater and the opportunities have never been so abundant. Heinonen (2007) asserts that an indication of the current interest is the growing number of courses and seminars offered by practitioners and universities, as well as the variety of academic literature and articles that have appeared (Vesper and Gartner, 1997; Klofsten, 2000; Solomon, Duffy and Tarrabishy,

Table 1. Characteristics of a corporate entrepreneur.

Characteristics of a corporate entrepreneur		
Persistence	Competitive	Strong transformational leader
Interpersonal skills	Creative and innovative	More task oriented than people oriented
Takes calculated risks	Has a vision	Analytical competencies
Goal directed	Internal locus of control	Do not except authority
Self motivated	Uses instinct and intuition	Average intelligence
Good self image	Committed	Not primarily motivated by cash bonuses, salary increases or promotion
Depends on feedback	Emotionally mature	Honest
Life long learner	Ambitious	Integrity
Optimistic		
Need for freedom		
Impatient		
Flexible and adaptable		
Competitive		

Source: La Grange (1994)

2002; Katz, 2003; Henry et al., 2003; Kuratko, 2005). Brinks, Starkey and Mahon(2006) in Heinonen (2007) emphasise that an increasing number of larger businesses in both private and public sectors are calling for alertness, opportunity recognition, creative problem solving, initiative-taking, handling uncertainty and many other related attributes This, according to Jack and Anderson (1999) offers a challenge to universities, course planners and teachers: to create practitioners who are capable not only of absorbing academic knowledge on entrepreneurship and management skills, but also of pursuing more of an entrepreneurial approach during their careers.

Heinonen (2007) states that most of the research on entrepreneurship education and training, that analysed the crucial issue of whether or not entrepreneurship can be successfully taught, focused on potential or existing entrepreneurs, and ignores corporate entrepreneurship. Research on teaching CE is almost non-existent. The challenge for teaching CE in the university setting, according to Heinonen (2007) is greater than teaching Entrepreneurship because CE is rooted in theories of entrepreneurship, while its implementation, according to Kuratko (2005) is usually considered more of a managerial issue.

Jack and Anderson (1999) assert that teaching entrepreneurship involves the arts (for example creative and innovative thinking) and the sciences (for example business and financial management competencies). The science is considered to be teachable, even via more conventional pedagogy, but the art, the matter of creation, and innovation, is not. It is a highly subjective skill and cannot be directly taught given its fundamentally experiential nature.

According to Heinonen (2007) universities have succeeded relatively well in teaching the "science" of entrepreneurship by providing a conceptual background

and stimulating the necessary analytical thought processes. Some of the crucial notions may have been ruined in the process as the analytical approach does not allow for student imagination to stimulate the "art", even though it may otherwise provide a sound platform of entrepreneurial endeavours.

Henry, Hill and Leitch (2005a) states that because of the changing environment and to keep up with the demands there will be a greater need for people to have entrepreneurial skills and abilities to enable them to deal with life's current challenges and an uncertain future. Apart from the individuals career choice or personal situation, individuals, will be able to benefit from learning an innovative approach to problem solving; adapting more readily to change; becoming more self-reliant and developing their creativity through the study of entrepreneurship. There is no doubt that in any economic climate such learning could have far reaching benefits for society. It could be argued, therefore that the need for entrepreneurship education and training has never been greater.

Drawing attention to the fact that the stage of development of an individual, or his/her business, can have an impact upon the nature of entrepreneurial education that might be received, provides an opportunity for educators and trainers to improve the entrepreneurial learning process as much as possible. Gorman, Hanlon and King (1997) in Henry et al. (2005a) states that a call for a more in-dept assessment of the matching process between what are perceived to be entrepreneurial characteristics and the attempt of educational institutions to enhance them.

Heinonen and Poikkijoki (2006) summarise that entrepreneurship education's objectives are identified as: learn to understand entrepreneurship; learn to become entrepreneurial; and learn to become an entrepreneur. The corporate entrepreneurship course under discussion

in this research attempts to infusing entrepreneurial skills and behaviours into students fall into the second category – learning to become entrepreneurial, but are also meant to increase their understanding of entrepreneurship (more specifically corporate entrepreneurship).

In examining the contribution that business schools add to the development of entrepreneurship, Shepherd and Douglas (1996) in Henry et al. (2005b) point out that many entrepreneurship educators are teaching logical thinking where they should, in fact, be teaching entrepreneurial thinking, and argue that logical thinking can lead to incorrect and unworkable answers. These researchers call for a shift in emphasis from teaching to learning, suggesting that an individual can really only learn when he or she performs the particular skill in an environment as close to real life as possible. The challenge for entrepreneurship teachers and trainers is to find innovative learning methods that coincide with the requirements of potential entrepreneurs.

Henry et al. (2005b) concluded from their research that one area in which relatively little research has been conducted is that of assessing the impact of educational and training initiatives. This is perhaps surprising, given the fact that the development and running of courses and programmes is potentially expensive in terms of time and money, both to participants and sponsors. Researchers, according to Henry et al. (2005b) have observed that one of the most efficient means by which to evaluate programmes is to assess the extent to which the programmes' objectives have been met. It is vital that entrepreneurship educators and trainers have a complete understanding of what they wish to achieve from a course or programme from the outset, as this will have ramifications for its accurate assessment.

Teaching CE as a module in a university masters programme

The master's programme offered at the University of Johannesburg is a two year part time course. The purpose of this qualification is to develop students intellectual competencies and practical skills in the mastering, analysis, interpretation and application of basic and advanced management principles in the different functional units of the business organisation, and be able to reflect on their managerial decisions and applications and to assess the effect thereof in the holistic context of management as a practice. The master's programme consists of 17 semester modules and a minor-dissertation.

Corporate Entrepreneurship is one of the modules and is offered over a 14 week period. The purpose of the module is for students to develop intellectual competencies and practical skills in the acquisition, analysis, and application of entrepreneurial management thinking and doing in all sectors of the economy. Students should

further be able to reflect on the degree of entrepreneurial culture in their relevant departments and/or businesses and be able to assess the effect of their own entrepreneurial inputs on the holistic outcomes of the business's entrepreneurial future. The advantages to students and the broader community are: establishing the mindset that entrepreneurial management thinking and doing is applicable and desired in each and every sphere of business and community management; mobilizing the creative and innovative talents of every staff member from all levels; and stimulating entrepreneurship throughout the society.

To be able to adhere to the purpose of the module in corporate entrepreneurship and the specific outcomes formulated an adopt-a-business approach has been adopted. This approach allows students the opportunity to acquire new knowledge in the field of management, innovation and corporate entrepreneurship, and they get the opportunity to acquire the skills to practically apply this newly acquired knowledge. The adopt-a-business approach requires that a student; (1) identifies an existing business, which has been in existence for at least five years or more with at least 50 employees, to use when applying theoretical concepts; (2) uses this business when doing practical assignments in group context; and (3) complete the portfolio of evidence for summative assessment purposes (examination). Most students are already employed and use their business as their adopt-a-business.

A typical class comprises of up to 40 students. These students are divided into six groups. Each group gets an opportunity to make two group presentations. The first group presentation is a practical illustration of the theoretical aspects dealt with in a specific lecture. All group members must contribute and take part in the presentation. Each of the other groups will evaluate the group that is presenting. The lecturer's evaluation will make up 50% of the final mark received for the group presentation.

For each class the students also need to prepare a given case study, relating to the specific topic of the class. A one page summary is submitted for assessment purposes. This case study is also discussed in class and recommendations are made. Students are also requested to compile a written assignment on any topic in the field of corporate entrepreneurship. Students must apply the assignment topic to their adopt-a-business, indicate how this business is applying the corporate entrepreneurship topic/aspect and very importantly recommendations need to be made.

For examination purposes the students do not write a formal traditional examination paper. Students need to compile a portfolio of evidence. Portfolio's can be described as collections of a students' work and their reflections on learning over time. It contains evidence of students' efforts and achievement, including major pieces of their work, feedback, comments of their learning facilitator and/or peers, and reflective analysis by the

Table 2. Cronbach Alpha values of corporate entrepreneurial style and personality tests and IPQ before and after the Corporate Entrepreneurship course.

	Mean	Variance	Std Dev	Number of items	Cronbach Alpha
CE style (before)	33.36	14.145	3.761	10	0.666
CE personality (before)	33.36	9.137	3.023	10	0.524
IPQ (before)	66.73	32.601	5.710	20	0.716
CE style (after)	34.36	15.316	3.914	10	0.742
CE personality (after)	34.32	10.558	3.249	10	0.621
IPQ (after)	68.66	38.031	6.167	20	0.782

students themselves. The portfolio consists of an entrepreneurial audit that students need to conduct in students themselves. The portfolio consists of an entrepreneurial audit that students need to conduct in their adopt-a-business. This audit takes the form of a written assessment of the business's current "entrepreneurial intensity", a critique of the organisational strategy and structure, an entrepreneurial assessment of the business' operating departments, an evaluation of the key senior managers in the business from an entrepreneurial perspective, and recommendations for ways to optimally grow the venture in the coming years. The portfolio of each student is assessed using specific criteria which are provided at the beginning of the course.

METHODOLOGY

The research is designed as a formal study where stated hypotheses are tested to demonstrate if there is a significant difference between the corporate entrepreneurial style and personality of students that have completed a master's level module in corporate entrepreneurship. A pre- and post test were conducted over a period of three years (2007 – 2009).

Population and sample

The target population consisted of 120 students from 2007 to 2009 that have completed a course in corporate entrepreneurship on the Master's level at the University of Johannesburg. A judgemental purposive sampling technique's was used. The sample consisted of 101 students. 95 questionnaires were returned and were usable. The response rate was 94%.

Data collection

A self-administered questionnaire was used to measure the differences of the student's perceptions before and after the module in corporate entrepreneurship was offered. This questionnaire was compiled by La Grange (1994) based on extensive research done on instruments to determine a corporate entrepreneurs characteristics and personal attributes. The measuring instrument (Intrapreneurial Performance Quotient - IPQ) consists of three sections. Section A consisted of 9 close-ended questions to gather biographical data of the students who completed the course in Corporate Entrepreneurship. Section B and C was in the format of a five-point Likert-type scale, comprising 10 questions on corporate

entrepreneurial style and 10 questions on corporate entrepreneurial personality. The response continuum of the statements ranged from 0 – 4, where 0 = strongly disagree; 1 = disagree; 2 = undecided; 3 = agree and 4 = strongly agree. The 10 questions on corporate entrepreneurial style described aspects of corporate entrepreneurial managerial behaviour on the job. The respondents had to respond according to the way in which they would have actually behaved on the job. The 10 questions on corporate entrepreneurial style described aspects of beliefs and/or behaviour on the job. Respondents also had to respond according to the way in which they would actually behave on the job. Together with the original questionnaire La Grange (1994) developed an interpretation scale which combines the scores of the corporate entrepreneurial style and corporate entrepreneurial personality.

The combination is referred to as the Intrapreneurial Performance Quotient (IPQ). The combined score categorises the respondent into one of three categories: (1) a score between 60 and 80 means that the respondent is definitely a corporate entrepreneur; (2) a score between 40 and 59 indicate that the respondent are well suited to be a corporate entrepreneur; and (3) a score below 40 indicate that the respondent are not quite there yet or does not have what it takes to be a corporate entrepreneur. The questionnaires were first distributed and collected on the first contact session at the beginning of the module and then again during the final assessment opportunity.

Data analysis

The quantitative data of the questionnaires was analysed with the Statistical Package for the Social Sciences (SPSS). Discriminant analysis was done on the biographical data of the respondents. The Intrapreneurial Performance Quotient was previously tested to be valid and reliable (La Grange, 1994). For purposes of this study a Cronbach Alpha test was also done. The reliability of the corporate entrepreneurial style and personality test before and after the course are presented in Table 2.

Nunnally (1978) recommended that 0.500 is an acceptable threshold for an acceptable alpha score. Based on this information it can be confirmed that the instrument is reliable as the Cronbach Alpha scores vary between 0.524 and 0.742. To test the hypotheses a Kolmogorov-Smirnov test and a t-test was conducted.

RESULTS

Firstly, the demographic profile of the respondents by means of descriptive statistics will be reported. Secondly the results of the frequency and means of the student's corporate entrepreneurial style and corporate entrepreneurial personality before and after the module will be

Table 3. Descriptive statistics on biographical data.

Variable	Category	Frequency (n)	Percentage
Gender	Male	68	67.3
	Female	33	32.7
Age	Total	101	100
	20 – 29 years	23	23
	30 – 39 years	60	59
	40 years and older	18	18
	Total	101	100
Highest educational qualification	Honours degree	66	65
	Masters degree	14	14
	Doctorate degree	1	1
	Other	20	20
	Total	101	100
Previous entrepreneurial training	Yes	18	18
	No	82	82
	Non-response	1	-
	Total	101	100
Respondents who have started their own business	Yes	33	33
	No	68	67
	Total	101	100
Respondents own business still in operation	Yes	26	79
	No	75	21
	Total	101	100
Respondents who are currently employed	Yes	87	87
	No	13	13
	Non-response	1	-
	Total	101	100
Respondents position held at current employer	Senior management	22	21.8
	Middle management	38	37.6
	Lower management	14	13.9
	Other	27	26.7
	Total	101	100

reported, as well as the frequency and means of the student's Intrapreneurial Performance Quotient (IPQ). Thirdly the normality of the test is reported and lastly the significant differences of the respondents are reported by means of a t-test.

Descriptive statistics

The descriptive statistics provided in Table 3 gives an overview of the respondents in terms of gender, age,

highest educational qualification, formal entrepreneurial training in entrepreneurship prior to this course, if the respondents have ever started a business before, if this business is still in operation, currently employed, and the position held at current employer.

The descriptive statistics revealed that the sample comprised predominantly of male students (67.3%). Most of the respondents in the sample are between the age of 30 – 39 years (59%). 65% of the respondents held an Honours degree prior to enrolling for the Masters programme. What is interesting in this regard is to note

Table 4. Corporate entrepreneurial style before the course.

In their behaviour on the job, supervisors and managers should:	Frequency		Mean	Median	Std. Dev	Min	Max
	Valid	Missing					
Try to avoid letting the system and procedure of the organization get in the way of innovation	95	6	2.95	3.00	1.035	0	4
Pursue innovation through administrative (managerial) as well as technical (scientific/mechanical) means	94	7	3.28	3.00	0.795	0	4
Improve productivity and encourage innovation by delegation	95	6	3.23	3.00	0.869	0	4
Encourage "idea champions" who are willing to take risk failure to bring their idea to fruition	95	6	3.40	4.00	0.706	2	4
Recognise that mistakes and false starts, kept within bounds, are the necessary by-products of risk taking	94	7	3.32	3.00	0.736	1	4
Orchestrate spirit and discipline within the organisation's structure and among organization members	94	7	3.07	3.00	0.765	1	4
Stay close to the customer, providing service and quality as the most important ingredients of company success	95	6	3.61	4.00	0.704	0	4
Encourage creativity (thinking up new ideas) and innovation (making things happen) as well as independent thinking, if necessary	95	6	3.63	4.00	0.506	2	4
Constantly seek new markets, new products and new uses for old products	95	6	3.47	4.00	0.712	1	4
Assist in institutionalising and articulating a strategy of Intrapreneurship, innovation and productivity	94	7	3.41	3.00	0.629	2	4

that 14% of the respondents already had a Master's degree and thus enrolled for a second Master's programme. It would have been interesting to know what the reason behind this was (but this does not form part of the scope of this study).

Only 18% of the respondents had previous entrepreneurial training. Therefore the module offered in Corporate Entrepreneurship could be beneficial to the majority of students (83%) who were not exposed to any previous entrepreneurial training. 33% of the respondents have started a business previously and 79% of these businesses are still in operation (in other words 26 businesses).

The majority (87%) of the students are working full-time and 13% are not employed. The respondents not employed are mostly full-time students. 37.6% of the

working students forms part of middle management and 21.8 % of top management. The working profile for the module in corporate entrepreneurship is perfect as this module is aimed at full-time employees that need to become more entrepreneurial in the businesses where they work.

Respondents' corporate entrepreneurial style before and after the course

Corporate entrepreneurial style refers to some aspects of corporate entrepreneurial behaviour on the job. The results before the course are presented in Table 4 and the results after the course in Table 5.

From Table 5, it can be seen that the average answer

Table 5. Corporate entrepreneurial style after the course.

In their behaviour on the job, supervisors and managers should:	Frequency		Mean	Median	Std. Dev	Min.	Max.
	Valid	Missing					
Try to avoid letting the system and procedure of the organization get in the way of innovation	88	13	3.02	3.00	1.039	0	4
Pursue innovation through administrative (managerial) as well as technical (scientific/mechanical) means	88	13	3.23	3.00	0.813	0	4
Improve productivity and encourage innovation by delegation	88	13	3.38	4.00	0.835	0	4
Encourage "idea champions" who are willing to take risk failure to bring their idea to fruition	88	13	3.52	4.00	0.711	1	4
Recognise that mistakes and false starts, kept within bounds, are the necessary by-products of risk taking	86	15	3.53	4.00	0.525	2	4
Orchestrate spirit and discipline within the organisation's structure and among organization members	88	13	3.26	3.00	0.652	1	4
Stay close to the customer, providing service and quality as the most important ingredients of company success	88	13	3.56	4.00	0.604	1	4
Encourage creativity (thinking up new ideas) and innovation (making things happen) as well as independent thinking, if necessary	88	13	3.72	4.00	0.478	2	4
Constantly seek new markets, new products and new uses for old products	88	13	3.57	4.00	0.640	1	4
Assist in institutionalising and articulating a strategy of Intrapreneurship, innovation and productivity	88	13	3.52	4.00	0.660	1	4

given by the respondents range between 3 and 4. Most respondents therefore agree with the statements being made. The more positive the answer the more positive is the results in terms of the corporate entrepreneurial style. The only item where the results are different is with item one ("try to avoid letting the system and procedure of the organisation get in the way of innovation").

Table 5 indicates that the average answer still lies in the "agree" range (between 3 and 4). Again the only item with a different result is with item one, except that with item one the mean increased from 2.95 to 3.02. This could be that after completion of the course students were made more aware of what could be considered as innovative actions of a business and therefore were able to answer the question more positive.

Respondents' corporate entrepreneurial personality before and after the course

Corporate entrepreneurial personality refers to some

aspect of beliefs and/or behaviour on the job. The results before and after the course are presented in Tables 6 and 7.

From Table 6 it can be seen that the average response is where the respondents agree with most of the statements (mean score of 3). In item 5 and 10 the respondents strongly agrees with the statements ("be ambitious and competitive" and "be motivated by effective change and innovation, not only for myself but for employees as well"). These two items specifically correlates with the corporate entrepreneurial characteristics identified in Table 1 (competitive, has a vision, ambitious, motivated through goal achievements and not primarily by cash bonuses, salary increases or promotion). The only item that has a lower mean score than 3 is item one ("focus on results effectiveness, not an activity").

Table 7 indicates that all the mean scores are between 3 and 4. This means that the respondents agree or strongly agree with the given statements.

When Table 6 and 7 are compared it can be noted that

Table 6. Corporate entrepreneurial personality before the course.

In my behaviour on the job, I should:	Frequency		Mean	Median	Std. Dev	Min	Max
	Valid	Missing					
Focus on results (effectiveness), not an activity	95	6	2.97	3.00	1.036	0	4
Question the status quo and have a desire to change things when the need is clear	95	6	3.51	4.00	0.523	2	4
Be a Pygmalion – perceive employees as responsible people who want to get results	95	6	3.06	3.00	0.681	1	4
Be motivated by problem-solving and rational decision making	95	6	3.00	3.00	0.558	2	4
Be ambitious and competitive	95	6	4.00	4.00	0.614	1	4
Believe that the reward is in the work as much as in the play	95	6	3.00	4.00	0.645	1	4
Be frustrated by restrictive bureaucratic systems and develop a knack for operating within these constraints	95	6	3.00	3.00	1.021	0	4
Develop an ability to resolve conflict and friction	94	7	3.00	3.00	0.558	2	4
Understand that the organisation is a system of interrelated technical subsystems and that my “niche” is a part of the whole	95	6	3.00	3.00	0.592	2	4
Be motivated by effective change and innovation, not only for myself but for employees as well	95	6	4.00	4.00	0.540	2	4

the average means in most of the items (except 5 and 10) have increased. The respondent's perceptions have thus increased positively after the course.

Intrapreneurial performance quotient before and after the course

The Intrapreneurial Performance Quotient scores before and after the course is presented in Table 8. Table 8 indicates that before the course 88 % of the students already had the corporate entrepreneurial style and personality to be a corporate entrepreneur.

After the course 89.2% of students had the corporate entrepreneurial style and personality to be a corporate entrepreneur. There is thus an increase of 1.2% of the students who could be considered to be a corporate entrepreneur. This already indicates that there is a change in the styles and personalities of the students before and after exposure to the module in Corporate Entrepreneurship.

Results related to the hypotheses

Table 9 indicates that there was a normal distribution for corporate entrepreneurship personality (before), Intrapreneurial Performance Quotient (before) and Intrapreneurial Performance Quotient (after) and a non-normal distribution for corporate entrepreneurship style (before), corporate entrepreneurship style (after) and corporate entrepreneurship personality (after). The non-normal distribution indicates that differences exist between the variables.

A compared sample t-test was done between the various combinations (corporate entrepreneurial style before and after the course; corporate entrepreneurial personality before and after the course and the Interpersonal Performance Quotient scores before and after the course).

Table 10 indicates that there are significant differences between the various compared factors (corporate entrepreneurial style before and after the course; corporate entrepreneurial personality before and after the course,

Table 7. Corporate entrepreneurial personality after the course.

In my behaviour on the job, I should:	Frequency		Mean	Median	Std. Dev	Min	Max
	Valid	Missing					
Focus on results (effectiveness), not an activity	87	15	3.09	3.00	0.948	1	4
Question the status quo and have a desire to change things when the need is clear	86	15	3.55	4.00	0.501	3	4
Be a Pygmalion – perceive employees as responsible people who want to get results	88	13	3.31	3.00	0.717	0	4
Be motivated by problem-solving and rational decision making	87	14	3.60	4.00	0.516	2	4
Be ambitious and competitive	88	13	3.59	4.00	0.618	1	4
Believe that the reward is in the work as much as in the play	88	13	3.49	4.00	0.643	1	4
Be frustrated by restrictive bureaucratic systems and develop a knack for operating within these constraints	87	14	3.15	3.00	0.947	0	4
Develop an ability to resolve conflict and friction	88	13	3.52	4.00	0.546	2	4
Understand that the organisation is a system of interrelated technical subsystems and that my “niche” is a part of the whole	88	13	3.42	3.00	0.620	1	4
Be motivated by effective change and innovation, not only for myself but for employees as well	88	13	3.65	4.00	0.526	2	4

Table 8. Intrapreneurial performance quotient scores before the course.

Interpretation of scores	Before the course		After the course	
	Frequency	Percentage	Frequency	Percentage
You are definitely a corporate entrepreneur	80	88	74	89.2
You are well suited to being a corporate entrepreneur, but not quite there yet	11	12	9	10.8
Not ready to be a corporate entrepreneur	0	0	0	0
Missing values	10	-	18	-
Total	101	100	101	100

and the Intrapreneurial Performance Quotient before and after the course.

From Table 10 it can thus be deduced that after the students have been exposed to the module in corporate entrepreneurship on the Masters level there was a signifi-

cant improvement in their corporate entrepreneurial style, corporate entrepreneurial personality and their inclination to be an entrepreneur.

In terms of the stated hypotheses it can be deduced that:

Table 9. Test for normality (Kolmogorov-Smirnov test).

	Statistic	df	P value
CE style (before)	0.117	91	0.004***
CE personality (before)	0.81	94	0.146
IPQ (before)	0.74	91	0.200
CE style (after)	0.123	86	0.003***
CE personality (after)	0.103	84	0.027***
IPQ (after)	0.084	83	0.200

p*** indicate a non-normal distribution.

Table 10. Results of the combined compared samples test on the CE style, CE personality and IPQ before and after the CE course.

	Mean	Std Dev	t	df	P value
CE style before and after	-1.308	4.596	-2.513	77	0.014***
CE personality before and after	-1.078	3.227	-2.931	76	0.004***
IPQ before and after	-2.480	6.589	-3.260	74	0.002***

p*** statistical significance at the 5% level.

H₁ is accepted: There is a significant difference between the corporate entrepreneurial style of students that have completed a Master's level module in corporate entrepreneurship before and after the module.

H₂ is accepted: There is a significant difference between the corporate entrepreneurial personality of students that have completed a Master's level module in corporate entrepreneurship before and after the module.

H₃ is accepted: There is a significant difference between the Intrapreneurial Performance Quotient-test done between the students that have completed a Master's level module in corporate entrepreneurship before and after the module.

DISCUSSION

The literature firstly pointed out that there is a definite need for corporate entrepreneurship education and training. Secondly it was found that research in the field of corporate entrepreneurship is almost non-existent. This is specifically the case in South Africa as well. The only research conducted in South Africa is in terms of corporate entrepreneurship training in existing organisations is for example Baawmeester (2005) and Gantsho (2006). There is clearly a lack of research in this field. Because corporate entrepreneurship is rooted in entrepreneurship, but is usually considered a managerial issue, it poses a challenge for educators in this field. Fourthly there need to be more in-dept assessment of the matching between what are perceived to be entrepreneurial characteristics and the attempt of educational institutions to enhance them. Fifthly entrepreneurial thinking as oppose to logical thinking needs to be

encouraged amongst entrepreneurial students. Lastly efficient assessment criteria and instruments needs to be developed to evaluate corporate entrepreneurial programmes.

Morris et al (2008) indicated that the individual corporate entrepreneur is the most critical element necessary for successful entrepreneurship in an existing business. Van der Colff (2004) stated that in South Africa the demand for quality corporate entrepreneurs at all levels of the business far outweighs the supply. There is thus a definite need for the development of corporate entrepreneurs in South Africa.

Together with these viewpoints the Global Entrepreneurship Monitor (GEM) has since 2001 indicated that the entrepreneurial capabilities of the South African population are very low, compared to other developing countries. The GEM report of 2008 specifically indicated that South Africa's education and training was a major limiting factor in entrepreneurial development in South Africa. Of particular concern is the rating for the quality of entrepreneurship education and training after school, where South Africa has the lowest rating of all the countries in that sample. The Global Competitiveness report of 2008 – 2009 stated that there was a specific concern for the quality of higher education and training of secondary and tertiary institutions. Furthermore the GEM research has consistently shown an association between educational levels and success in entrepreneurial ventures and South Africa's poor levels is certainly an important contributing factor to the countries below average entrepreneurial activity. Given the above stated facts it is thus crucial that corporate entrepreneurs need to be developed in South Africa. Entrepreneurship forms part of all major primary and secondary school

curriculums and various courses on entrepreneurship are offered at tertiary level. Only a few tertiary institutions in the country are offering courses in corporate entrepreneurship.

Heinonen (2007) pointed out that teaching corporate entrepreneurship in the university setting is greater than teaching entrepreneurship because corporate entrepreneurship is rooted in theories of entrepreneurship, while its implementation according to Kuratko (2005) is usually considered more of a managerial issue. The purpose of this research was thus focused on assessing if there was any improvement in students corporate entrepreneurial ability (style and personality) - that is much needed for South African businesses to succeed – after completion of a course on corporate entrepreneurship on Master's level.

The results indicated that there was a definite improvement in student's corporate entrepreneurial styles and personalities after being exposed to the corporate entrepreneurship course. The content of the corporate entrepreneurship course was structured in such a way that the students had sufficient theoretical and practical exposure to improve their corporate entrepreneurial skills.

RECOMMENDATION

Tertiary institutions, specifically in South Africa, can adopt the corporate entrepreneurship module in their post-graduate programmes which will assist to equip employees to become more entrepreneurial within existing businesses. Future research can include a study amongst South African tertiary institutions to determine the extent of corporate entrepreneurship education in their qualifications. Recommendations on how to improve this education can be done. Other institutions can also be encouraged to offer corporate entrepreneurship education.

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