# ASSESSING THE ENTREPRENEURIAL ATTRIBUTES OF UNDERGRADUATE BUSINESS STUDENTS AT NELSON MANDELA METROPOLITAN UNIVERSITY

S.B.SAUNDERS

# ASSESSING THE ENTREPRENEURIAL ATTRIBUTES OF UNDERGRADUATE BUSINESS STUDENTS AT NELSON MANDELA METROPOLITAN UNIVERSITY

By

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# MASTER OF COMMERCE

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Promoter/Supervisor: Dr SM Farrington

#### DECLARATION

I, Shelley Saunders (207011567), hereby certify that the thesis, Assessing the entrepreneurial attributes of undergraduate business students at Nelson Mandela Metropolitan University for the degree of Master of Commerce, is my own work, and that it is has not previously been submitted for assessment or completion of any postgraduate qualification to another university or for another qualification.

SHELLEY SAUNDERS

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Shelley Saunders PORT ELIZABETH January 2013

#### ABSTRACT

To improve and develop South Africa's entrepreneurial activity, it is vital that the population acquires certain attributes which are common among individuals who exhibit entrepreneurial behaviour. As the occurrence of entrepreneurial attributes increases in the population, so too will the probability of entrepreneurial behaviour and entrepreneurial activity. A possible first step in ensuring that a population possesses the necessary attributes is to assess the current levels of development of these entrepreneurial attributes among students of business. Underdeveloped attributes can then be identified, and steps taken to bring about improvements. The primary objective of this study was to assess the entrepreneurial attributes of undergraduate business students at the Nelson Mandela Metropolitan University.

In order to achieve this objective an in-depth analysis of secondary sources was conducted. The nature of entrepreneurship was defined and its importance highlighted. Furthermore, the status of entrepreneurship both globally and nationally was elaborated on. Entrepreneurship education was also addressed, and its role in developing entrepreneurial attributes was discussed. The 16 entrepreneurial attributes associated with successful entrepreneurs were described. The most commonly used intentions-based models were also discussed. In line with the intentions-based theories, the greater the perception of possessing the attributes associated with a successful entrepreneur by an individual, the greater the belief by that individual that he or she has the capacity and competence to become an entrepreneur, which in turn will influence their entrepreneurial intentions. Against the background of the literature overview, several hypotheses were formulated and subjected to empirical testing.

A quantitative research approach was selected, the sample consisting of all undergraduate business students studying at three South African universities as well as two international universities. Convenience sampling was implemented in this study. The validity of the measuring instrument was determined by means of a factor analysis, and the reliability by means of calculating Cronbach alpha coefficients. The statistical techniques used to analyse the data included calculating descriptive statistics (the mean, standard deviation and frequency distributions), t-tests and

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Cohen's d, a multivariate analysis of variance (MANOVA), an analysis of variance (ANOVA), Chi-squared statistic, and Cramer's V.

The results of the study show that NMMU students regarded the attributes Commitment, High energy level, Planning and perseverance and Overcoming failure as the four most-developed attributes, while they regarded Continuous learning, Knowledge-seeking, Initiative and responsibility and Communication ability as the least-developed. With the exception of the attributes Commitment and Overcoming failure, the level of development of the entrepreneurial attributes of NMMU students showed significant improvement between the 2001 and the 2010 studies. With the exception of Continuous learning, no significant differences were reported in the levels of development of the various entrepreneurial attributes between students at NMMU and students at the other South African universities participating in the study. When comparing the significant differences in the level of development of the 16 entrepreneurial attributes between NMMU and the international universities, a large practical significance was found for the attributes High energy level, Continuous learning and Knowledge seeking. For the attributes Planning and perseverance, Communication ability, Overcoming failure, Initiative and responsibility, High energy level, Creativity and flexibility, Knowledge seeking, Continuous learning, Financial proficiency and Business knowledge, students with entrepreneurial intentions reported significantly higher mean scores than students without entrepreneurial intentions. In other words, students with higher levels of development of these attributes are more likely to have entrepreneurial intentions. It was also found that significant differences in the levels of development of entrepreneurial attributes were reported for the demographic variables Levels of study, Gender and Age. No significant differences were found to exist between the demographic variables Level of study, Gender and Self-employment status of parents and the Entrepreneurial intention of NMMU students.

This study has contributed to the field of entrepreneurship research by identifying several entrepreneurial attributes that are more likely to be found in students with entrepreneurial intentions than those without them. This study has also shown that certain demographic factors are related to the levels of development of certain entrepreneurial attributes, as well as to entrepreneurial intentions. Furthermore,

through the assessment of entrepreneurial attributes of NMMU students and by making comparisons with other universities, this study has contributed to entrepreneurship education at NMMU as well as to entrepreneurship education in South Africa and abroad. Educators of entrepreneurship have been given insights into the levels of development of several entrepreneurial attributes among their students. In addition, recommendations have been made on how to improve the levels of development of the attributes investigated in this study.

#### **KEYWORDS**:

Entrepreneurship, Entrepreneur, Entrepreneurial attributes, Entrepreneurial intention

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## **CHAPTER 1**

#### INTRODUCTION, PROBLEM STATEMENT AND DEMARCATION OF STUDY

#### 1.1 INTRODUCTION

Scholars, educators and practitioners agree that entrepreneurial activity is fundamental to reducing unemployment, providing social stability, bringing about poverty alleviation and encouraging sustainable economic growth in South Africa (Nasurdin, Ahmad & Lin 2009:366; Ladzani & Van Vuuren 2002:151). Furthermore, entrepreneurs are important to the country as they are able to produce solutions that lead to knowledge development (The importance of entrepreneurship for South Africa's economic development 2008).

In recent years retrenchments and unemployment have increased in South Africa (Ladzani & Van Vuuren 2002:151). This has led to many unemployed people establishing their own business as a means of using their skills to generate income (Ladzani & Van Vuuren 2002:151). Despite an increase in the number of individuals undertaking entrepreneurial activity, as well as the increased support given to entrepreneurs by the South African government, entrepreneurial activity in the country remains low (Kelley, Bosma & Amoros 2010:19). According to Kelley *et al.* (2010:19) only 16.7% of South Africans show an intention to start their own business.

An indicator used by the Global Entrepreneurial Monitor (GEM) survey, a survey done in more than 40 countries to measure entrepreneurial activity, is the total early stage entrepreneurial activity (TEA) rate (Kelley *et al.* 2010:25). The TEA rate is defined as the rate at which individuals in a country, who are of working age, are actively involved in business start-ups (Kelley *et al.* 2010:25). According to Herrington, Kew and Kew (2010:59), South Africa reported a TEA rate of 5.9% in 2009, which was considerably lower than the average of all other efficiency-driven economies (11.2%) in that year. Over the past ten years (since 2001), South Africa's performance in terms of its TEA rates has been consistently below the average.

South Africa (TEA rate of 5.9%) was ranked 35<sup>th</sup> out of 54 countries in 2009 (Herrington *et al.* 2010:59).

In 2012 South Africa was ranked 35<sup>th</sup> out of 183 countries in a survey which ranked countries in terms of the ease of doing business in a country (Simrie, Herrington, Kew & Turton 2012:14). In 2011 South Africa (TEA rate of 9.1%) was ranked 29<sup>th</sup> out of 54 countries (Simrie *et al.* 2012:18). This was not a significant increase from the previous year, 2010, when South Africa had a TEA rate of 8.9% (Simrie *et al.* 2012:17). When comparing South Africa's TEA rate (9.1%) to that of other efficiency-driven countries, South Africa is below the average of 14.1% of other countries with the same economy (Simrie *et al.* 2012:19).

The GEM studies undertaken over the last 10 years confirm that South Africa has a lower than expected entrepreneurial activity rate. A country such as South Africa, that finds itself at a certain stage of economic development, is expected to have a TEA rate of around 13%, which is higher than what South Africa has reported (Herrington *et al.* 2010:59).

Despite several studies attempting to explain the low levels of entrepreneurial activity in South Africa (Herrington *et al.* 2010:59; Kelley *et al.* 2010:25), understanding what drives entrepreneurship remains one of the most important questions being asked in management research (Drost 2010:28). 'Intentions models', as a means of explaining why some people embark on entrepreneurial activity and others do not, are increasingly being turned to by several researchers (Ariff, Bidin, Sharif & Ahmad 2010; Degeorge & Fayolle 2008; Gird & Bagraim 2008; Autio, Keeley, Klofsten, Parker & Hay 2001; Ljunggren & Kolvereid 1996; Krueger & Carsrud 1993). In the entrepreneurship-intentions literature, two models have received the most research attention (Haase & Lautenschläger 2011:2; Leffel & Darling 2009; Kuehn 2008:88), namely Ajzen's (1991) Theory of Planned Behaviour and Shapero and Sokol's (1982) Entrepreneurial Events model.

The idea that a person's actions are preceded by conscious decisions to act in a certain way is the basis of Ajzen's (1991:182) Theory of Planned Behaviour. Ajzen (1991:182) identified three factors influencing a person's intention to act, namely

attitude towards the behaviour, subjective (social) norm and perceived behavioural control. Attitude towards the behaviour refers to the degree to which a person has a favourable or unfavourable assessment of the behaviour in question, while the *subjective or social norm* refers to a person's perceived pressure received from society to perform or not to perform certain behaviour. *Perceived behavioural control* refers to the perceived ease or difficulty a person has performing certain behaviours (Ajzen 1991:182). According to Shapero and Sokol's (1982) Entrepreneurial Events model, three factors influence a person's entrepreneurial intention, namely *perceived desirability*, *perceived feasibility* and *propensity to act*. A person's *perceived desirability* reflects the attractiveness of starting a business and becoming an entrepreneur (Kuehn 2008:90; Linan & Santos 2007), whereas a person's *perceived feasibility* indicates the level or degree to which a person believes that they have the capacity and the necessary competencies to start a business (Kuehn 2008:91; Linan & Santos 2007). The *propensity to act* reflects a person's inclination to act on a decision or choice that they have made (Kuehn 2008:91).

Both Ajzen's (1991:182) Theory of Planned Behaviour and Shapero and Sokol's (1982:72-90) Entrepreneurial Events model suggest that the intentions of an individual to embark on entrepreneurial activity would be higher if they had the competencies to undertake such activities. Similarly, their perception of how easy it would be to undertake entrepreneurial activity would be enhanced if they felt that they had the necessary attributes and skills to undertake such an activity. Numerous obstacles are faced when starting an own business, these include a lack of finance, crime, a lack of creativity, too great a risk in starting a business, psychological factors, unavailability of information, high taxes and inflation, lack of government support, and high administration costs (Fatoki 2010:92; Ngunjiri 2010:95-96; Dimovski, Znidarsic & Penger 2006:16). Specifically a lack of competence and knowledge are often cited as reasons for the low level of entrepreneurial activity and entrepreneurial failure in South Africa (Ngunjiri 2010:95-96).

This study will focus on investigating whether having certain attributes (competencies, skills and traits) influences an individual's entrepreneurial intentions. As such an attempt will be made to understand and identify the various factors that have contributed to South Africa's low levels of entrepreneurial activity over the past

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years. Through identifying the attributes associated with entrepreneurial intentions, efforts can be made by several role players (government and educational institutions) to bring about and enhance the development of these critical entrepreneurial attributes.

Education plays an important role in raising the levels of interest in entrepreneurship among people as well as their entrepreneurial attributes and entrepreneurial intentions (Wilson, Kickul & Marlino 2007:388). Through entrepreneurial education students may be equipped with fundamental business and entrepreneurial skills (Fatoki 2010:87; Wilson *et al.* 2007:388). It is through educational institutions that measures can be implemented to enhance and develop the entrepreneurial attributes associated with entrepreneurial intentions.

## 1.2 PROBLEM STATEMENT

Entrepreneurial activity ranks low in South Africa when compared to other countries (Herrington *et al.* 2010:59). A possible explanation for these low levels of entrepreneurial activity is that South Africans do not possess the attributes that would give them the confidence to undertake entrepreneurial activity. Successful entrepreneurs are said to possess specific attributes (skills, traits and competencies (Van Eeden, Louw & Venter 2005:27). In light of the Theory of Planned Behaviour (Ajzen 1991:182) and Shapero and Sokol's (1982:72-90) Entrepreneurial Events model, possessing these attributes gives an individual a perception of control over or confidence in his or her ability to undertake entrepreneurial activity. Having confidence in one's ability to perform a specific behaviour is likely to increase the chance of actually undertaking that behaviour.

To improve and develop South Africa's entrepreneurial activity it is vital that the population acquires certain attributes (personality traits, characteristics and skills) which are common among individuals who exhibit entrepreneurial behaviour (Thomas & Meuller 2001:290; Krueger & Brazeal 1994:98). As the occurrence of entrepreneurial attributes increases in the population, so too will the probability of entrepreneurial behaviour and entrepreneurial activity (Mueller 2004:201). A possible first step in ensuring that a population possesses the necessary attributes is to

assess the current levels of development of these entrepreneurial attributes among students of business. Underdeveloped attributes can then be identified, and steps undertaken to bring about improvements.

## 1.3 RESEARCH OBJECTIVES

## 1.3.1 PRIMARY RESEARCH OBJECTIVES

The primary objective of this study is to assess the entrepreneurial attributes of undergraduate business students at the Nelson Mandela Metropolitan University (NMMU). For the purpose of this study "entrepreneurial attributes" refer to personality traits, characteristics and skills commonly associated with entrepreneurs, while "undergraduate business students" refer to students completing business-related modules at undergraduate levels. The focus of this study is specifically on undergraduate business students at NMMU.

## 1.3.2 SECONDARY RESEARCH OBJECTIVES

In order to achieve the primary objective, the following secondary objectives have been formulated:

- To determine the level of development of entrepreneurial attributes among students at NMMU;
- To compare the level of development of entrepreneurial attributes among NMMU students in the present study (2010) with those levels of development among NMMU students reported in a previous study (2001);
- To compare the level of development of entrepreneurial attributes among NMMU students (2010) with the level of development among students at other South Africa Universities;
- To compare the level of development of entrepreneurial attributes among NMMU students (2010) with the level of development among students abroad;

- To establish whether a relationship exists between possessing the entrepreneurial attributes under investigation and the entrepreneurial intentions of NMMU students;
- To establish whether the level of development of entrepreneurial attributes among NMMU students is related to selected demographic factors;
- To establish whether the entrepreneurial intentions among NMMU students are related to selected demographic factors.

Through investigating the entrepreneurial attributes of undergraduate business students at NMMU, attributes that are underdeveloped can be identified, and measures for the development and improvement of these attributes can be provided. In general this research hopes to contribute to the field of entrepreneurial education as a whole, and it particularly hopes to contribute to entrepreneurial education at NMMU and ultimately increase the likelihood that NMMU students will develop entrepreneurial intentions and act on those intentions in the future.

#### 1.4 RESEARCH DESIGN AND METHODOLOGY

The primary objective of this study is to assess the entrepreneurial attributes of undergraduate business students at the NMMU. In order to achieve this objective a literature and empirical investigation will be undertaken.

## 1.4.1 SECONDARY RESEARCH

An in-depth literature study will be conducted in order to describe the various entrepreneurial attributes under investigation, and to establish whether a relationship exists between possessing these attributes and entrepreneurial intentions. Both international and local South African databases, available through the Library of the Nelson Mandela Metropolitan University, will be used to undertake the literature study. Databases include Google scholar, EBSCO host, Emerald and Sabinet. Books, journal articles and conference papers will be identified via these databases and consulted to gain insight into the entrepreneurial attributes under investigation as well as their influence on entrepreneurial intentions.

#### 1.4.2 PRIMARY RESEARCH

In order to assess the entrepreneurial attributes of undergraduate business students at NMMU, a positivistic research paradigm will be adopted. A positivistic approach was chosen so as to allow the researcher to conduct conclusive research involving large representative samples and structured data collection procedures (Zikmund 2003:111).

The email addresses of students registered for business modules will be obtained from the student records at NMMU. These student records will form the sampling frame for this study. All undergraduate students studying business modules at NMMU will be given the opportunity to participate in the study on a voluntary basis. The sample obtained can thus be described as a "convenience sample". In order to assess the entrepreneurial attributes of NMMU students, a comparative study will also be undertaken. The national comparison will involve gathering data from Rhodes University and the University of Stellenbosch, while the international comparison will involve gathering data from the University of Utrecht in the Netherlands and the University of Northern Iowa in the United States. A convenience sampling procedure will also be adopted for the national and international data collection

A measuring instrument used in previous studies (Van Eeden *et al.* 2005:26-40; Louw, Van Eeden, Bosch & Venter 2003:5-26; Louw, Du Plessis, Bosch & Venter 1997:73-90) will be used to assess the levels of entrepreneurial attributes in the present study. Several additions will, however, be made. The measuring instrument will consist of three sections. In Section A, there will be 104 items relating to the entrepreneurial attributes under investigation. The items will be phrased as statements with the possible response continuum linked to a Likert-style five-point scale (1 = strongly disagree to 5 = strongly agree).

Section B will request demographic information from the respondents. Demographic information will include aspects such as the university and level at which respondents are currently studying, as well as the name of the commerce/business module being studied. In addition, demographic information on their gender, age,

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population group and which of their parents/guardians are self-employed will also be requested. For the international students, Section B will only requests information relating to gender and age. Section C will request information relating to the planned entrepreneurial behaviour of respondents. Section C is not included in the measuring instrument administered to the international students.

The data collection process will be initiated by means of e-mail. An e-mail will be sent to all students who are currently enrolled for a business module at the NMMU, Rhodes and Stellenbosch Universities. The email will contain a web link that will enable the students to complete the questionnaire online. This will provide a convenient way of gathering information from the target population. At the University of Northern Iowa and Utrecht University the measuring instrument will be distributed among students during a business class.

The data collected will be subject to various statistical analyses using the software programme STATISTICA. All the items in the measuring instrument will be subjected to an item analysis consisting of two parts. Cronbach alpha coefficients will be calculated for each scale to determine whether the observed scale scores are reliable (internal consistency). Cronbach alpha coefficients of less than 0.50 will indicate unacceptable reliability, coefficients between 0.50 and 0.70 will indicate sufficient reliability, and coefficients above 0.70 will indicate acceptable reliability (Nunnally 1978). A confirmatory factor analysis will be conducted for each scale to determine whether all the relevant items load on the applicable scale. Principal component analysis will be specified as the method of initial factor extraction. With only one factor per scale, factor rotation will not be applicable. It should be noted that the concept of discriminant validity is not applicable in this study, as the 16 categories are not postulated as mutually exclusive dimensions. Factor loadings of greater than 0.30 will be considered statistically significant (Hair, Black, Babin, Anderson & Tatham 2006:128).

In determining the levels of entrepreneurial attributes of students at NMMU and the other universities participating in the study, descriptive statistics relating to these attributes, such as the mean, standard deviation and frequency distributions, will be calculated to summarise the sample data. To establish whether changes in the levels

of development of entrepreneurial attributes of students in this study versus those participating in the 2001 study are statistically significant, t-tests will be conducted and Cohen's d statistics will be calculated to establish practical significance. T-tests and Cohen's d will also be calculated to assess whether significant relationships exist between respondents intending to start their own business and those who are not, with regard to the levels of development of the various entrepreneurial attributes.

The extent to which the entrepreneurial attributes investigated in this study are more or less developed among NMMU respondents in comparison to other South African and international students, will be established by means of an analysis of variance (ANOVA). In addition, practical significance will be established by means of Cohen's d. To establish whether the level of development of entrepreneurial attributes among NMMU students is related to select demographic factors, a multivariate analysis of variance (MANOVA) and a univariate analysis of variance (ANOVA) will be conducted. To establish practical significance, Cohen's d will be calculated. The demographics that are under investigation in this study are the *Level of study, Gender, Age, Ethnicity* and *Self-employment status of parents.* 

To establish whether relationships exist between the entrepreneurial intentions of NMMU students and selected demographic factors (*Level of study, Gender, Ethnicity* and *Self-employment status of parents*), Chi-square statistics and Cramer's V will be calculated.

#### 1.5 RESEARCH HYPOTHESES

In order to achieve the objectives of this study, several hypotheses have been formulated and are presented below.

Concerning the empirical investigation, the second secondary objective involves comparing the levels of development of entrepreneurial attributes among NMMU students in the present study (2010) with the levels of development among NMMU students reported in a previous study (2001). The following hypotheses address this objective:

- H<sup>01</sup>: There is no difference between the levels of development of entrepreneurial attributes among NMMU students in the present study (2010) and the levels of development among NMMU students in a previous study (2001).
- H<sup>a1</sup>: Significant differences exist between the levels of development of entrepreneurial attributes among NMMU students in the present study (2010) and the levels of development among NMMU students in a previous study (2001).

To compare the levels of development of entrepreneurial attributes among NMMU students with the levels of development of students at other South Africa Universities (third secondary objective), the following null-hypotheses are proposed:

- H<sup>02</sup>: There is no difference between the levels of development of entrepreneurial attributes among NMMU students and the levels of development among students at other South African Universities.
- H<sup>a2</sup>: Significant differences exist between the levels of development of entrepreneurial attributes among NMMU students and the levels of development among students at other South African Universities.

In order to test the fourth secondary objective, namely to compare the levels of development of entrepreneurial attributes among NMMU students with the levels of development among students abroad, the following hypotheses will be subjected to empirical testing:

- H<sup>03</sup>: There is no difference between the levels of development of entrepreneurial attributes among NMMU students and the levels of development among students abroad.
- H<sup>a3</sup>: Significant differences exist between the levels of development of entrepreneurial attributes among NMMU students and the levels of development among students abroad.

With regard to the fifth secondary objective, namely to establish whether relationships exist between possessing the entrepreneurial attributes under investigation and entrepreneurial intentions, several hypotheses are proposed, namely:

- H<sup>1</sup>: There is a positive relationship between possessing the attribute *Planning and perseverance* and *Entrepreneurial intention*.
- H<sup>2</sup>: There is a positive relationship between possessing the attribute *Persuasion and networking* and *Entrepreneurial intention.*
- H<sup>3</sup>: There is a positive relationship between possessing the attribute *Communication ability* and *Entrepreneurial intention*.
- H<sup>4</sup>: There is a positive relationship between possessing the attribute *Commitment* and *Entrepreneurial intention*.
- H<sup>5</sup>: There is a positive relationship between possessing the attribute *Overcoming failure* and *Entrepreneurial intention*.
- H<sup>6</sup>: There is a positive relationship between possessing the attribute S*elf*confidence and locus of control and Entrepreneurial intention.
- H<sup>7</sup>: There is a positive relationship between possessing the attribute *Risk-taking* and *Entrepreneurial intention*.
- H<sup>8</sup>: There is a positive relationship between possessing the attribute *Initiative and Responsibility* and *Entrepreneurial intention*.
- H<sup>9</sup>: There is a positive relationship between possessing the attribute *High energy level* and *Entrepreneurial intention*.
- H<sup>10</sup>: There is a positive relationship between possessing the attribute *Tolerance for ambiguity and uncertainty* and *Entrepreneurial intention*.
- H<sup>11</sup>: There is a positive relationship between possessing the attribute *Creativity and flexibility* and *Entrepreneurial intention*.
- H<sup>12</sup>: There is a positive relationship between possessing the attribute *Knowledge seeking* and *Entrepreneurial intention*.
- H<sup>13</sup>: There is a positive relationship between possessing the attribute *Continuous learning* and *Entrepreneurial intention*.
- H<sup>14</sup>: There is a positive relationship between possessing the attribute *Financial proficiency* and *Entrepreneurial intention*.

- H<sup>15</sup>: There is a positive relationship between possessing the attribute *Money sense* and *Entrepreneurial intention*.
- H<sup>16</sup>: There is a positive relationship between possessing the attribute *Business knowledge* and *Entrepreneurial intention*.

With regard to the sixth secondary objective, namely to establish whether the levels of development of entrepreneurial attributes among NMMU students are related to selected demographic factors, the following hypotheses are put forward:

- H<sup>04</sup>: No relationships exist between the levels of development of entrepreneurial attributes among NMMU students and selected demographic factors.
- H<sup>a4</sup>: Relationships exist between the levels of development of entrepreneurial attributes among NMMU students and selected demographic factors.

With regard to final the secondary objective, namely to establish whether the entrepreneurial intentions among NMMU students are related to selected demographic factors, the following hypotheses are put forward:

- H<sup>05</sup>: No relationships exist between the entrepreneurial intentions of NMMU students and selected demographic factors.
- H<sup>a5</sup>: Relationships exist between the entrepreneurial intentions of NMMU students and selected demographic factors.

#### 1.6 SCOPE OF THE STUDY

This study will focus on the levels of development of entrepreneurial attributes among NMMU students and the degree to which possessing these attributes influences their entrepreneurial intention.

The empirical research that will be conducted in this study will focus on undergraduate business students at the NMMU. However, in order to undertake the

comparative analysis, students from Rhodes University and Stellenbosch University, as well as students from the University of Northern Iowa (USA) and the University of Utrecht (Netherlands) will also participate in this study.

Although there are numerous attributes, traits, characteristics and skills reported in the literature as being associated with entrepreneurial personalities, the focus of this study is specifically on the attributes previously investigated by Van Eeden *et al.* (2005:26-39).

#### 1.7 CONTRIBUTION OF THE STUDY

The majority of research that has been conduct on entrepreneurial attributes and entrepreneurial intentions of students has been conducted in developed countries (Ismail, Khalid, Othman, Jusoff, Rahman, Kassim & Zain 2009:54-60; Turker & Selcuk 2009:142-159; Frank, Korunka, Leuger & Mugler 2005:259-273). The importance of promoting entrepreneurship and developing attributes which increase the probability that students will start their own business are vital to South Africa. The ability of entrepreneurs to create up to 700 000 jobs in South Africa in 2010 highlights their ability to improve the economy as well as to improve the overall general standard of living and income of many people (The lost legacy 2010: 19-20).

This study aims to add to the entrepreneurship and entrepreneurship education body of knowledge by investigating whether relationships exist between possessing certain attributes and intentions to start an own business. By comparing the levels of development of entrepreneurial attributes among NMMU students to students at other South African Universities and abroad, attributes that are underdeveloped can be identified, and efforts can be made to improve those that are underdeveloped. Entrepreneurship syllabuses between the different institutions can also be compared to establish whether this can account for differences in levels of development.

This research presents an opportunity to implement strategies to develop the entrepreneurial attributes that have been identified as influencing entrepreneurial intentions. Through developing these attributes among students, educational institutions will play a more significant role in promoting entrepreneurship in South Africa. According to Ryan (1970:60), intentions and fundamental attitudes are perception-based; this indicates that they are learned behaviours and can be continuously influenced. By establishing what the perceptions are that students have of their own abilities, this study takes a step towards understanding the factors influencing those entrepreneurial intentions.

#### 1.8 DEFINITION OF CONCEPTS

#### 1.8.1 ENTREPRENEURSHIP

Entrepreneurship is the capacity and willingness to undertake conception, organisation and management of a productive venture with all risks, while seeking to make a profit (Hanley 2007: 253-280). According to Hisrich, Peters and Shephard (2010:6), entrepreneurship is the process of creating something new of value by devoting the necessary time and effort, as well as assuming the accompanying financial, physical, psychic and social risks and uncertainties, and receiving the resulting rewards of monetary and personal satisfaction.

#### 1.8.2 ENTREPRENEUR

An entrepreneur is a catalyst which brings together the capital, natural resources and human resources associated with the provision of products and services (Bosch, Tait & Venter 2011:713). An entrepreneur, according to Bosch *et al.* (2011:713), is essentially a person who is a risk-taker in the private enterprise system, someone who seeks a profitable opportunity, and then devises a plan and establishes and manages a business to earn profits. An entrepreneur is a person who takes initiative to bundle resources in innovative ways, and is willing to bear the risk and the uncertainty of taking action (Hisrich *et al.* 2010:6).

#### 1.8.3 ENTREPRENEURIAL ATTRIBUTES

An attribute refers to the skills, traits, competencies and/or characteristics possessed by an individual (Kotelnikov 2001). For the purpose of this study "entrepreneurial attributes" refer to personality traits, characteristics and skills commonly associated with entrepreneurs.

## 1.8.4 ENTREPRENEURIAL INTENTION

According to Ajzen (1991:3), an intention is assumed to capture the motivational factors that influence behaviour. An individual's intentions will indicate a person's willingness to try, and how much effort they are prepared to exert in order to perform certain behaviour (Ajzen 1991:3). Entrepreneurial intention precedes entrepreneurial behaviour, and therefore in this study entrepreneurial intention refers to the intention to start and manage an own business (Kuehn 2008:88).

## 1.8.5 UNDERGRADUATE BUSINESS STUDENT

For the purpose of this study, an "undergraduate business student" will refer to a student currently completing business-related modules at university at undergraduate level.

## 1.9 STRUCTURE OF THE RESEARCH

The structure of the research will be as follows:

**Chapter 1** will introduce the research to be conducted. The introduction and problem statement will first be elaborated on. The primary and secondary research objectives will then be outlined. A brief overview of the research methodology will be given, and several hypotheses put forward. The scope of the study will be detailed, and the contribution of the study will be highlighted. At the conclusion of Chapter 1, important concepts will be defined and the structure of chapters to follow will be outlined.

**In Chapter 2** the nature and importance of entrepreneurship will be explained, together with the various obstacles entrepreneurs face. The current status of entrepreneurship in South Africa will be discussed, and comparisons with other countries made. The status of entrepreneurship education in South Africa will also

be outlined. The role of education in developing entrepreneurial attributes will be explored.

**Chapter 3** will focus on the trait or attribute approach to explaining entrepreneurial behaviour. The 16 entrepreneurial attributes investigated in this study will be described in detail. Lastly, the relationship between entrepreneurial attributes and entrepreneurial intention will be discussed

In **Chapter 4** the various intention models will be discussed as well as the relationship between perceived behaviour control, perceived feasibility and self-efficacy. The link between the attributes possessed by students and their entrepreneurial intentions, as well as the link between student's demographics and their intentions will also be discussed.

**Chapter 5** will provide a detailed explanation and motivation for the research methodology to be implemented in this study. In addition, the sample frame, measuring instrument, method of primary data collection and the strategies used to administer the measuring instrument will be elaborated on. The data analyses and statistical techniques used will also be detailed

The empirical results will be presented and discussed in Chapter 6.

**Chapter 7** will be the final chapter of the study and will present the summary, conclusions and recommendations of the research. The contributions and limitations of the study will be highlighted and recommendations for future research put forward.

#### **CHAPTER 2**

# THE NATURE AND IMPORTANCE OF ENTREPRENEURSHIP AND ENTREPRENEURSHIP EDUCATION IN SOUTH AFRICA

#### 2.1 INTRODUCTION

In the previous chapter an introduction to the study was given and the problem statement put forward. In addition, the primary and secondary research objectives were formulated, and the contributions of the study highlighted. Against this background, Chapter 2 will provide an overview of the nature and importance of entrepreneurship.

According to Allen and Economy (2008:32), entrepreneurship plays a vital role in the establishment of new businesses through which economic development can be improved. Similarly, Kelley *et al.* (2010:8), as well as Lundstrom and Stevenson (2005:6) contend that a country can improve and develop its economy through the promotion of entrepreneurial initiatives, which can lead to both technological innovation and job creation.

In Chapter 2, the nature of and importance of entrepreneurship is firstly discussed. Thereafter, the status of entrepreneurship both globally and locally is described, and the obstacles facing South African entrepreneurs are highlighted. Lastly, the status of entrepreneurial education in South Africa is discussed in terms of its nature, the role it plays, and the current level of entrepreneurship education in South Africa.

#### 2.2 THE NATURE OF ENTREPRENEURSHIP

According to Timmons and Spinelli (2009:14), entrepreneurship involves new venture creation and is a powerful force in creating economic and social mobility. In support, Fayolle (2007:14) suggests that entrepreneurship represents the engine of economic development. Kuratko and Hodgetts (2007:5) are of the opinion that entrepreneurship involves creating businesses as well as seeking opportunities, taking risks and turning ideas into reality. Entrepreneurship is a dynamic and

essentially creative process involving the discovery and exploitation of value-creating opportunities without regard for resources (Spence 2010:128). Board (2003:6) defines entrepreneurship as consisting of doing things that are not generally done in the course of ordinary business routine. Griffin (2011:124) points out that entrepreneurship is the process of planning, organising, operating and assuming the risk of the business venture. Entrepreneurship is more than simply creating a business, it is a way of thinking, reasoning and acting that is opportunity-obsessed, holistic in approach, driven by strong and visionary leadership, and will eventually lead to new business creation (Bosch *et al.* 2011:90; Timmons & Spinneli 2009:101).

According to Allen (2003:27), entrepreneurs represent a diverse group of people with different traits and behaviours. People who possess certain psychological traits or characteristics have a greater tendency to start their own business than those without those characteristics (Dehkordi, Sasani, Fathi & Khanmohammadi 2012:289; Timmons & Spinelli 2009; Okhomina 2009:3). Entrepreneurs possess distinct qualities such as need for achievement, risk-taking, internal locus of control, selftolerance for ambiguity, innovativeness, confidence, need for affiliation, perseverance and persistence, motivation, decision-making, information-seeking, problem-solving, leadership, opportunity obsession, time-planning and maintaining good interpersonal skills that make them different from other people (Dehkordi et al. 2012:289; Hisrich et al. 2010:6; Kumara & Sahasranam 2009:9; Timmons & Spinelli 2009; Ndubisi 2008:109; Saayman, Douglas & De klerk 2008:13; Dimovski et al. 2006:23).

It is important to make a clear distinction between entrepreneurial ventures and small business ventures because their visions and goals differ. This difference means that decisions, resources and strategies made in these two ventures also differ (Allen 2003:21). Entrepreneurial ventures focus on three primary characteristics, namely to be innovative, value-creating and growth-orientated (Allen 2003:21). As such the principle objectives of an entrepreneurial venture are innovation, profitability and growth (Kuratko & Hodgetts 2007:4; Megginson, Byrd & Megginson 2006:9). The entrepreneurial business is categorised by innovative strategic practices and products, with the entrepreneur usually seeking rapid, immediate high profits (Megginson *et al.* 2006:9). In contrast, the primary objectives of small business

ventures are to generate an income and a lifestyle for the owner and his/her family. Their objective is not growth, and they tend to remain geographically bound (Allen 2003:21). According to Kuratko and Hodgetts (2007:4) and Megginson *et al.* (2006:9), small business ventures are independently owned and operated, they are not dominant in their fields, and they usually do not engage in new and innovative practices. Small business ventures have the potential to become entrepreneurial ventures; however, they generally remain small because of the preference of the owner (Allen 2003:22).

Allen (2003:27) emphasises that entrepreneurs do not require the creation of a new venture or organisation; entrepreneurs can exist within organisations. Intrapreneurs are employees in organisations that undertake initiatives to create new business activities (Bosma, Stam & Wennekers 2010:8). According to Griffin (2011:124), business owners who hire managers to run their businesses and then turn their attention to other interests are not true entrepreneurs. Even though they are the owner and are assuming the risk of the venture, they are not actively involved in organising or operating the business (Griffin 2011:124).

#### 2.3 THE IMPORTANCE OF ENTREPRENEURSHIP

The role that entrepreneurship and an entrepreneurial culture have on economic and social development is often underestimated (Griffin 2011:125). However, in recent times it has become increasingly apparent that entrepreneurship does indeed make a contribution to economic growth, job creation and innovation (Griffin 2011:125).

#### 2.3.1 ECONOMIC GROWTH

High levels of formal-sector entrepreneurship are at the economic heart of any country (Van Aardt, Van Aardt, Bezuidenhout & Mumba 2008:3). Entrepreneurial activity is considered by economists, national leaders and successful business people to be an important mechanism for economic growth and economic development (Kelley *et al.* 2010:8; Allen & Economy 2008:32-33). The definition of entrepreneurship holds the promise of growth, expansion and long-term financial gain (Van Aardt *et al.* 2008:5). Entrepreneurial activities are viewed as having the
potential to positively affect the economy of a country by building a strong economic base, which leads to job creation (Henry, Hill & Leitch 2003:3).

According to Allen and Economy (2008:32-33), through taking hold of opportunities and pushing the current boundaries in various markets, entrepreneurship leads to new industries. Through the creation of these new industries entrepreneurs are provided with a fresh landscape for opportunities, and in so doing economic growth is stimulated (Allen & Economy 2008:32-33). Kaplan (2003:15) states that entrepreneurship is strongly associated with economic growth among nations with similar economic structures and that the correlation between entrepreneurship and economic growth is highly statistically significant. Countries with high levels of entrepreneurship and its importance in sustaining a growing and thriving economy is unquestionable. Entrepreneurship is an engine driving the economy of nations, through creating new industries, employment and wealth (Henry *et al.* 2003:3). As a result, countries around the world are showing an increased interest in developing and changing their policies to promote entrepreneurship at a national level (Kelley *et al.* 2010:8).

In South Africa entrepreneurship is also seen as a source of economic growth (Jonker, Saayman & De Klerk 2009:382). Allen and Economy (2008:32-33) assert that economic growth can be attained by entrepreneurs through the identification of new market segments and the identification of new customer needs in existing or new markets. The ability of entrepreneurs to see opportunities and to see order inside chaos, where others in society only see issues, problems and disorganisation, has helped transform both communities and economies (Kelley *et al.* 2010:13). This very optimistic outlook has seen entrepreneurs become the driving force in countries around the world (Kelley *et al.* 2010:13).

### 2.3.2 JOB CREATION

Entrepreneurship and new venture creation has been identified by several stakeholders as being of extreme importance in the creation of jobs and employment (Kumara & Sahasranam 2009:8; Dimovski *et al.* 2006:16; Co & Mitchell 2004; Kroon,

De Klerk & Dippenaar 2003; Ladzani & Van Vuuren 2002:154). The ability of entrepreneurs to be innovative and creative in their thinking has resulted in new products and services and ultimately the creating of new jobs (Ladzani & Van Vuuren 2002:154). According to Shinnar, Pruett & Toney (2009:151), entrepreneurs in America generate between 60%-80% of new jobs. In South Africa the role of entrepreneurs in creating new businesses is job creation (Venter, Urban & Rwigema 2010: 21).

According to Farrell (2008:64) and Holcombe (2007:4-7), entrepreneurship provides an opportunity for individuals to create jobs not only for those who want to take control of their own destinies through self-employment, but also for others who may have lost their jobs. This is because starting and owning one's own business allows income to be generated in order to live, as well as re-instilling an unemployed person's self-worth (Farrell 2008:64). The growth of entrepreneurial ventures forms the heart of a changing economic system, as more employees work for these businesses than any other sector of the economy (Kaplan 2003:4). Kaplan (2003:4) asserts that the number of employees in small and entrepreneurial ventures is growing faster than any other sector of the labour force and shows no sign of reversing this trend.

# 2.3.3 INNOVATION

The skill to spot opportunities and create new ways to exploit them is at the heart of the innovation process (Bessant & Tidd 2011:6). According to Van Aardt *et al.* (2008:18), innovation may be described as finding new and better ways of doing things, while Bhargava (2007:48) describes innovation as a technical solution to a particular problem.

An entrepreneur is an innovator who creates or causes a dynamic disequilibrium in the economy (Bhargava 2007:47). This disturbance arises from innovation through which there is a creation of something new in the market place which alters the supply-demand equation (Chell 2001:232). These innovations may include improvements in both technology and methodology, which may be evident in product changes, process changes and new approaches to marketing as well as new forms

of distribution (Van Aardt *et al.* 2008:18). Entrepreneurs are skilled at identifying new products, new methods of production or new ways of marketing existing products (Nieuwenhuizen & Machado 2004:33).

According to Bridge, O'Neil and Martin (2009:11), entrepreneurial ventures are able to provide an increase in the rate of innovation. Nieuwenhuizen and Machado (2004:56) contend that successful entrepreneurs have the ability to combine creative thinking with innovative action, which allows them to consistently be on the lookout for unique opportunities, and to identify potential businesses by asking questions and looking for answers. The entrepreneur is the person who conceives and organises change, who tries out new combinations and who possesses the creative spark (Bhargava 2007:48).

# 2.4 THE STATUS OF ENTREPRENEURSHIP

The most widely used measure of entrepreneurship is the Total Entrepreneurial Activity (TEA) rate (Kelley *et al.* 2010:9). The TEA rate is used to measure the percentage of the active population between the ages of 25 and 64 who are entrepreneurs in any given country. The TEA rate is also comparable across nations and has the ability to measure the propensity of a country to be entrepreneurial. (Kelley *et al.* 2010:9). In terms of TEA rates, the Global Entrepreneurship Monitor (GEM) report identifies three types of economies namely, factor-driven economies, efficiency-driven economies and innovation-driven economies. In the paragraphs below, the global and national status of entrepreneurial activity will be described in terms of these types of economies.

# 2.4.1 GLOBAL STATUS OF ENTREPRENEURIAL ACTIVITY

Factor-driven economies are dominated by countries focused on subsistence agriculture and extraction businesses, with a substantial reliance placed on the countries' labour and raw materials (Kelley *et al.* 2010:8). Countries classified as being factor–driven economies include Algeria, Bangladesh, Guatemala, Iran, Jamaica, Pakistan and Venezuela (Simrie *et al.* 2012:19). In a factor-driven economy the lowest levels and ratios of women participation can be found in the Middle-East

and North-African countries, where for every woman entrepreneur there are two to four men (Kelley *et al.* 2010:35).

In efficiency-driven economies, further development in the economy is accompanied by industrialisation and an increase in the reliance on economies of scale. Capital intensive organisations are more dominant in such an economy (Kelley *et al.* 2010:8). Efficiency-driven countries are: Argentina, Barbados, Bosnia and Herzegovina, Brazil, Chile, China, Colombia, Croatia, Ecuador, Hungary, Latvia, Lithuania, Malaysia, Mexico, Panama, Peru, Poland, Romania, Russia, South Africa, Thailand, Turkey, Trinidad and Tobago, Turkey and Uruguay (Simrie *et al.* 2012:19). In the efficiency-driven economies, Eastern European countries occupy the lowest levels and ratios for women participation, with the lowest ratio being Turkey with a ratio of 28 women for every 100 men. An exception can be found in Russia which has an 80:100 (women : men) ratio. (Kelley *et al.* 2010:32). According to Kelley *et al.* (2010:16), Latin American countries tend towards higher levels of participation of women with Costa Rica and Mexico reporting almost equal participation by women and men.

Innovation-driven economies exist when development advances and allows businesses to be more knowledge-intensive, and the service sector of that economy expands (Kelley et al. 2010:8). Innovation-driven economies are found in countries such as Italy, Japan, Belgium, Denmark, Germany, Spain, Portugal, Slovenia, Sweden, Switzerland, Greece, Israel, Finland, France, United Kingdom, Korea, Ireland, Netherlands, United States of America (USA), Norway, Australia and Iceland (Kelley et al. 2010:24). Innovation-driven economies have the greatest concentration of entrepreneurs in the middle age groups (25-54 years of age), this is most likely due to a higher proportion of people in tertiary education in the younger age groups and better retirement provisions for the older people (Kelley et al. 2010:33). Looking at the Asia Pacific region, Australia shows the greatest number of women entrepreneurs among the innovation-driven economies, with men and women participating equally (Kelley et al. 2010:35). Malaysia has a low TEA rate but a very high entrepreneurship level relative to other countries in this category, with an almost equal numbers of men and women entrepreneurs. Taiwan on the other hand is below average with a ratio of 60 to 100. Two other Asian countries, the Republic of Korea and Japan are among the lowest ranked for females in the innovation-driven category. (Kelley *et al.* 2010:35).

The factor-driven economies reported the highest TEA rates in 2010, followed by the efficiency-driven economy, with the lowest average TEA rates found in the innovative-driven group (Kelley *et al.* 2010:24). The age distribution of early-stage entrepreneurs in each of the three categories of economies indicates that the group that contains the highest percentage of early-stage entrepreneurs is the 25-34 age group followed by the 35-44 age group and then the 45-54 age group (Kelley *et al.* 2010:32). According to Kelley *et al.* (2010:32), the youngest age group, 18-24 and the oldest age group, 55-64 are the least prevalent age groups with regard to early-stage entrepreneurs.

The level of female and male participation in early-stage entrepreneurship in the three economic groups indicated that the level of women participation is similar to the TEA levels (Kelley *et al.* 2010:34). This means that if the TEA rate is very low in an economy there are also fewer women entrepreneurs (Kelley *et al.* 2010:34). Across the three development levels, factor-driven and efficiency-driven groups show similar percentages of men and women, but the innovation-driven group has a lower than average population of women entrepreneurs (Kelley *et al.* 2010:34).

# 2.4.2 NATIONAL STATUS OF ENTREPRENEURIAL ACTIVITY

South Africa ranked 29<sup>th</sup> out of 54 countries participating in the 2011 GEM survey (Simrie *et al.* 2012:18). In terms of its TEA rate, South Africa scored 9.1%, which is below the average of 11.1% of all the efficiency-driven economies (Simrie *et al.* 2012:18). Among the efficiency-driven countries South Africa ranked 6<sup>th</sup> out of 24 participating countries (Simrie *et al.* 2012:19). Despite South Africa's low position during the period 2010 to 2011, an increase of 0.2% in Early-Stage Entrepreneurial Activity was reported in South Africa between 2010 and 2011 (Simrie *et al.* 2012:18).

According to Steenekamp (2009:3), and the GEM survey, South Africa ranks low on the global competitiveness scale, which may have a negative impact on entrepreneurial development. Fatoki (2010:87) and Simrie *et al.* (2012:45) claim that

South Africa's low TEA rate is due to the high unemployment rate, which was estimated in 2011 to be more than 25% of the economically active population.

In 2011, South African men were reported to be more entrepreneurial than women with a TEA rate of 11%, while women only recorded a TEA rate of 7% (Simrie *et al.* 2012:22). In 2010 these figures showed that men had a TEA rating of 9.5% and women 8% (Kelley *et al.* 2010:36). This increase between 2010 and 2011 can be as a result of the numerous initiatives undertaken by the South African government to improve the level of entrepreneurship in the country, especially in the case of aspiring women entrepreneurs (Simrie *et al.* 2012:22; Herrington, Kew & Kew 2009:42).

The 2008 GEM report indicated that race-based differences in entrepreneurial activity were substantial, with more than double the rate of entrepreneurial activity among whites (10.1%) and Indians (10.3%) than that among black Africans (4.6%) (Herrington *et al.* 2009:42). The exception to this was in Gauteng where black Africans had a much higher entrepreneurial activity rate than black Africans in the rest of South Africa (Herrington *et al.* 2009:42). The 2009:42). The 2008 GEM indicated that businesses that were started by Whites and Indians were more likely to mature into new firms than those started by black Africans or Coloureds (Herrington *et al.* 2009:42).

Despite South Africa's increased TEA rate, in recent times the country has faced numerous economic, political and social challenges which continue to place pressure on the ability of entrepreneurs to provide jobs and income for the growing unemployed population (Simrie *et al.* 2012:19). This pressure will inhibit South Africa's ability to improve its TEA rate to the same levels of the best performing markets such as China (24.0%) in future years (Simrie *et al.* 2012:19; Kelley *et al.* 2010:24-27).

Various initiatives have been implemented by the South African government to stimulate entrepreneurial activity in South Africa, including education programmes, promoting entrepreneurship and encouraging entrepreneurship at school level (Herrington *et al.* 2009). South Africa's policy makers, through initiatives such as the

South African Women Entrepreneurs Network (SAWEN) and Technology for women in business (TWIB) (Herrington *et al.* 2009:42), are also playing a role in encouraging entrepreneurship among women. The purpose of creating such initiatives is to provide aspiring women entrepreneurs with a forum in which to learn through the promotion of skill development in South Africa (Herrington *et al.* 2009:42). Attempts are also being made by the South African government, through various educational programmes, to improve the entrepreneurial levels of young people at both school and at university through implementing business modules into the syllabuses (Herrington *et al.* 2009:16).

Despite these initiatives to stimulate entrepreneurial activity, South African entrepreneurs face numerous obstacles when actually starting an own business, with several obstacles experienced as insurmountable by many aspiring entrepreneurs (Fatoki 2010:92). Several of these obstacles will be described in the paragraphs below.

# 2.5 OBSTACLES FACING ENTREPRENEURS

The 54 countries participating in the 2011 GEM survey reported nine major obstacles negatively influencing entrepreneurial activity (Simrie *et al.* 2012: 41). These nine obstacles are supported by several sources (Simrie *et al.* 2012; 41; Fatoki 2010:92; Ngunjiri 2010:95-96; Shinnar *et al.* 2009:154; Dimovski *et al.* 2006:16) and include lack of entrepreneurial finance, inadequate government policies, lack of government entrepreneurship programmes, lack of entrepreneurship education at school level, lack of research and development, inadequate transfer, commercial and legal infrastructure, high entry regulations, poor physical infrastructure, and restrictive cultural and social norms.

South African entrepreneurs face very similar obstacles when starting an own business. The 2011 GEM survey identified three specific obstacles facing South African entrepreneurs, namely government policies (70.3%), financial support (59.5%) and education and training (35.1%). The number of entrepreneurs citing these obstacles was greater in South Africa than any other country participating in the study (Simrie *et al.* 2012:43).

Government policies are a key problem for entrepreneurship in South Africa (Simrie *et al.* 2012:43). More specifically bureaucracy, legislative compliances, restrictive labour legislation, time-consuming administration and legal requirements hamper the process of staring an own business in South Africa (Simrie *et al.* 2012:44). The second most commonly cited obstacle facing entrepreneurs in South Africa is the lack of financial support for new businesses (Simrie *et al.* 2012:44; Fatoki 2010:89). One of the major problems is associated with accessing government funding through government agencies such as the Small Enterprise Development Agency (SEDA), the Industrial Development Corporation (IDC) and the National Empowerment Fund (NEF) (Simrie *et al.* 2012:44). Maas and Herrington (2006) and Bosch *et al.* (2011:112) indicate that the lack of financial support provided to South African entrepreneurs is a major contributor to the low TEA rate in the country.

The third most often encountered obstacle facing South African entrepreneurs relates to entrepreneurship education and training (Simrie *et al.* 2012:440). According to the 2011 GEM a relationship exists between the level of entrepreneurship education and the level of entrepreneurship activity in South Africa (Herrington *et al.* 2010). Fatoki (2011:162) agrees that the lack of education and training is one of the major obstacles faced by entrepreneurs in South Africa. The quality of and content of the education system does not promote the development of entrepreneurial competencies (Fatoki 2011:162). Similarly, Herrington *et al.* (2010) and Wilson *et al.* (2007:398) contend that the most crucial and important element inhibiting entrepreneurship is the lack of education and training in this field.

# 2.6 THE STATUS OF ENTREPRENEURSHIP EDUCATION IN SOUTH AFRICA

## 2.6.1 THE NATURE OF ENTREPRENEURSHIP EDUCATION

Entrepreneurship education has been defined as "the building of knowledge and skills for the purpose of entrepreneurship" and is generally part of a recognised education programme at primary, secondary or tertiary-level education institutions (Martinez, Levie, Kelley Saemundsson & Schott 2008:12). According to North (2002:24), entrepreneurial mechanisms whereby individuals can become actively

involved in entrepreneurial activities, which can nurture their entrepreneurial spirit, have been defined as "entrepreneurial education". North (2002:24) indicates that the main aim of the various formal and informal programmes in entrepreneurship education is to teach individuals to become creative and constructive members of their communities, as well as develop their entrepreneurial skills.

Laukkanen (2000) distinguishes between two areas of entrepreneurship education, namely education about entrepreneurship and education for entrepreneurship. Education about entrepreneurship involves developing, constructing and studying the theories relating to entrepreneurs, firm creation, the contribution to economic development, the entrepreneurial process and small and medium-sized firms (Laukkanen 2000). This type of education occurs at undergraduate, masters and PhD levels, and is important to both policy makers and researchers. Education for entrepreneurship, on the other hand, addresses present and potential entrepreneurs with the objective of developing and stimulating the entrepreneural process and providing the tools necessary for the start-up of new ventures both within and outside existing organisations (Laukkanen 2000). Similarly, entrepreneurship training involves the building of knowledge and skills in preparation for starting a business venture (Martinez *et al.* 2008:9). According to Henry *et al.* (2003:93), participants of entrepreneurship training are taught the practical skills that are required for small business start-ups and management.

### 2.6.2 THE ROLE OF ENTREPRENEURIAL EDUCATION

According to Hollenbeck and Hall (2004), as well as Wilson *et al.* (2007), entrepreneurial education plays a positive role in improving an individual's entrepreneurial skills and also promotes entrepreneurial intentions. Entrepreneurship experience through education, whether successful or not, provides individuals with an opportunity to master skills and to make contact with positive role models in other entrepreneurs and business owners (Drost 2010:290). Basu and Virick (2008:81) assert that entrepreneurship education has a positive influence on the attitudes and perceptions that students have towards entrepreneurship and self-worth. According to Wilson *et al.* (2007:398), entrepreneurship education is vital as it fuels the pipeline of aspiring young entrepreneurs in South Africa. Entrepreneurship education has the

ability to raise the level of self-efficacy and interest of young people in starting their own business (Wilson *et al.* 2007:398).

Ladzani and Van Vuuren (2002:159) contend that education programmes are necessary to develop and strengthen entrepreneurial skills and characteristics. According to Waluyo (2009), entrepreneurship education programmes have existed for more than 35 years and that the number of entrepreneurship related programmes in the USA have risen from a hand-full in 1995 to more than 1 500 in 2005. Waluyo (2009) further states that during this same period new venture growth in the USA saw an average of 600 000 business start-ups, expansions or new developments. Dimovski *et al.* (2006:24) state that the influence of educational institutions on fostering entrepreneurial activity has been proven to show a positive relationship. According to Aslam, Awan and Khan (2012:119), the rapid growth of entrepreneurial education is evidence that students participating in entrepreneurial courses have more entrepreneurial intentions towards new venture creation than those students who are not exposed to entrepreneurial education.

Franke and Luthje (2004) assert that the government and private sectors' inability to provide entrepreneurial education has resulted in the low levels of entrepreneurial intentions among students. Studies in the USA show that a dramatic growth in entrepreneurial education in recent years has resulted in improved levels of new business start-ups (Drost 2010:28; Solomon, Duffy & Tarabishy 2002:1-24). Furthermore, Drost (2010:28) supports the notion that a positive relationship exists between entrepreneurial education and venture creation.

In order to develop entrepreneurial skills and attributes, and for training programmes to be effective, programmes that are put in place must relate to the specific needs of a country and be relevant to that country's environment (Dana 2001:405). Dana (2001:405) warns that it would be misleading to believe that programmes that have a positive effect in one environment will reap the same results in another. Therefore countries need to learn from each other but need to adapt the various entrepreneurial policies, programmes and education styles to meet the specific demands in their own countries.

Several authors (Drost 2010:29; Kumara & Sahasranam 2009:24; Fatoki 2010:92-93) suggest that through the use of continuous learning and research, as well as effectively planned training programmes, entrepreneurial skill can be developed and an entrepreneurial culture among students can be established. However, according to Kakkonen (2010), business students in Finland were able to develop and increase their entrepreneurial skills through learning, but their entrepreneurial intentions remained unchanged.

According to Fayolle (2007:55), benefits of entrepreneurship education are linked to the fulfilment of individuals, the improvement of entrepreneurial culture and increasing the success rate of entrepreneurial actions and initiatives. The first benefit of entrepreneurial education is the contribution to an individual's personal development (Fayolle 2007:56). Entrepreneurship enables individuals to develop their talents and creativity, to realise their dreams, to acquire more independence and attain a certain amount of freedom (Fayolle 2007:56). Furthermore, one way of reducing unemployment among university graduates is through a systematic entrepreneurship education programme for students (Waluyo 2009). A second benefit that entrepreneurial education provides is the development of a country's entrepreneurial culture. A third benefit of entrepreneurial education is that of increasing the chances of new venture survival and success (Fayolle 2007:56).

### 2.6.3 ENTREPRENEURSHIP EDUCATION IN SOUTH AFRICA

According to Co and Mitchell (2005:2), an increase in the demand for entrepreneurship education in South Africa has occurred. Despite this, entrepreneurship education in South Africa is in its developmental stage (Co & Mitchell 2005:2). In South Africa entrepreneurial education is partially institutionalised as part of the new outcomes-based education (OBE) school curriculum, and entrepreneurial education forms part of the academic offering at higher educational institutions including the Nelson Mandela Metropolitan University (Venter *et al.* 2010:22). In an effort to increase the awareness and elevate the profile of entrepreneurship education, South African academic tertiary institutions are increasing their commitment to research and offerings in entrepreneurship (Co & Mitchell 2005:2). In the recent years entrepreneurship has been increasingly taught

as a stand-alone module at universities or as a major subject at schools (Venter *et al.* 2010:22).

Several of South Africa's tertiary academic institutions offer entrepreneurship modules not only in business-related disciplines but also in non-business disciplines, such as engineering, geography, science and nursing (Shinnar *et al.* 2009:151). This has been done in an effort by educators to better prepare their students for the ever changing labour market (Shinnar *et al.* 2009:151). This shift to empower all students with basic entrepreneurship skills has become increasingly important because researchers anticipate a future business landscape in South Africa that is dominated by small business and self-employment (Smith 2003:23-25).

According to Martinez *et al.* (2008:22), 14% of South Africa's working age population (18-64 years) have received training in starting an own business. Of this 14%, 6% received training at school, 3% received training both in and out of school, and 5% received entrepreneurship training out of school (Martinez *et al.* 2008:25). Martinez *et al.* (2008:28) states that 69% of South African entrepreneurs have received training on starting an own business from some form of public agency.

# 2.7 SUMMARY

In Chapter 2 the nature and importance of entrepreneurship were discussed. Entrepreneurship was described as more than just creating a business; it was described as a way of thinking, reasoning, and acting that is opportunity-obsessed, holistic in approach, driven by strong and visionary leadership, and will eventually lead to new business creation. The importance of entrepreneurship to economic growth, job creation and fostering innovation was highlighted. The status of entrepreneurship in South Africa and abroad was described, and the various obstacles which are faced, identified. Lastly, the nature and role of entrepreneurship education was elaborated on, and entrepreneurship education in South Africa briefly described.

Entrepreneurs are individuals who possess certain attributes (skills, traits and characteristics). Chapter 3 will focus on describing these attributes Specific attention will be given to the 16 entrepreneurial traits that will be examined in this study.

### **CHAPTER 3**

### ENTREPRENEURIAL ATTRIBUTES

#### 3.1 INTRODUCTION

In Chapter 2 the nature and importance of entrepreneurship were discussed. The status of entrepreneurship, both globally and nationally was described, and the obstacles facing entrepreneurs were identified. Furthermore, the status of entrepreneurship education was discussed and its role played promoting entrepreneurship is highlighted.

In this chapter the entrepreneur will be described and the various attributes associated with successful entrepreneurs will be elaborated on. Specific attention is given to the 16 entrepreneurial attributes under investigation in this study, namely *Planning and perseverance, Persuasion and networking, Communication ability, Commitment, Overcoming failure, Self-confidence and locus of control, Risk-taking, Initiative and responsibility, High energy level, Tolerance for ambiguity and uncertainty, Creativity and flexibility, Knowledge-seeking, Continuous learning, Financial proficiency, Money sense and Business knowledge. The relationship between selected demographic variables and the possession of these entrepreneurial attributes will also be discussed.* 

## 3.2 THE ENTREPRENEUR

According to Awe (2006:1) and Pinderhughes (2004:1), an entrepreneur is a person who organises and assumes the risk of a business or enterprise. An entrepreneur visualises an idea and has a burning desire to turn that idea into reality. Entrepreneurs are doers, and they strive for economic development. Their function is to innovate and create new businesses (Zaharuddin 2008:2). Entrepreneurs create and innovate to build something of recognised value around perceived opportunities (Bolton & Thompson 2006:49). In addition to starting up new businesses, entrepreneurs are people who show certain behaviours or characteristics (attributes) including initiative taking, opportunity recognition, organising resources in innovative

ways and the acceptance of risk, uncertainty and the potential for failure (Hisrich *et al.* 2010:6; Venter *et al.* 2010:6). The trait approach to entrepreneurship and the various attributes associated with successful entrepreneurs are discussed in the paragraphs below.

# 3.3 TRAIT (ATTRIBUTES) APPROACH TO ENTREPRENEURSHIP

According to the trait approach as proposed by Gartner (1988:47), an entrepreneur is defined by a set of personality traits or characteristics that set him or her apart from others. The trait approach assumes that an entrepreneur has a particular personality type, has a fixed state of existence, and belongs to a describable group. The trait approach therefore tries to highlight a set of characteristics describing an entrepreneur (Gartner 1988:48).

According to Krueger (2002:154), the trait approach identifies the entrepreneur as the basic unit of analysis, and sees the entrepreneur's specific traits and characteristics as key to explaining why some individuals become entrepreneurs and others do not. The trait approach emphasises identifying the personality of the entrepreneur, and compares it to that of the non-entrepreneur (Burggraaf, Floren & Kunst 2008:14). In the trait approach the entrepreneur is assumed to have a particular personality type, and the focus of much entrepreneurship research has been dedicated to identifying a set of characteristics that describe the entrepreneur (Krueger 2002:154). Although "attitude towards entrepreneurship" has emerged as the most important antecedent of entrepreneurial intentions, personality traits have been identified as having an indirect influence on a person's readiness to become self-employed (Lüthje & Franke 2003)

According to Frese, Chell and Klandt (2000:46), a shortcoming of the trait approach is that the traits of the entrepreneur are not linked to the entrepreneurial situation or task. As a result Frese *et al.* (2000:46) assert that the wrong personality characteristics have been studied in entrepreneurship research. According to Gurusamy (2009:27), the trait approach lacks specificity, and it is not applicable in all cultures. Henry *et al.* (2003:58) concur with Gurusamy (2009:27) and explain that a major concern with trait theory is that many personal characterises appear to have

significance. Despite the shortcomings of the trait approach to entrepreneurship, in recent times an interest in personal traits and whether these traits affect the intention to engage in entrepreneurial activity has resurfaced (Mueller 2004).

Several studies show that entrepreneurs possess various attributes or traits that distinguish them from others (Kakkonen 2010; Okhomina 2009; Ndubisi 2008; Van Auken, Fry & Stephens 2006; Kristiansen & Indarti 2004). As a result the trait approach (referred to as attributes) is adopted to achieve the objectives of this study.

Commonly cited attributes possessed by entrepreneurs include the need for achievement, internal locus of control, tolerance for ambiguity, self-efficacy, innovativeness, analytical ability, good communication skills and leadership (Kakkonen 2010; Okhomina 2009:27; Ndubisi 2008:107-115; Van Auken *et al.* 2006:157-159; Kristiansen & Indarti 2004:55-63). Other attributes include the ability to identify opportunities, take risks, be creative and be resourceful in order to meet their consumer's needs, take initiative, be a leader and achiever, and be hardworking (Kent 1990:162-164; Herriot & Zijlstra 2000:12-20). Bhide (2000:92) asserts that it is these attributes that contribute to entrepreneurs being successful and that set them apart from others.

However, the ability of these attributes to predict entrepreneurial intentions is questionable (Kristiansen & Indarti 2004). Despite conflicting views on whether possessing certain attributes predicts entrepreneurial intentions, focusing on attributes still forms the foundation of global initiatives to improve entrepreneurship (Allen & Economy 2008:32-33). According to Tajeddini and Mueller (2009), as well as Raab, Stedham and Neuner (2005: 75-78), possessing certain attributes increases the probability that one will engage in entrepreneurial activities. Although there are numerous attributes, traits, characteristics and skills reported in the literature as being associated with entrepreneurial personalities, the focus of the present study is specifically on the attributes investigated by Van Eeden *et al.* (2005:8). Each of the entrepreneurial attributes investigated in this study will be elaborated on in the paragraphs that follow.

#### 3.3.1 PLANNING AND PERSEVERANCE

Several authors (Allen 2011:35; Dana 2011:160; Scarborough 2011; Barringer & Ireland 2010; Nieman & Niewenhuizen 2009; Scarborough, Wilson & Zimmerer 2009; Bridge *et al.* 2009:82 Timmons & Spinelli 2009) assert that *Planning and perseverance* are attributes associated with an entrepreneurial personality. Entrepreneurs have the ability to stick to their goals and are determined to succeed; they refuse to give up, and persist even when they have no money and are working long hours with no help (Doke, Hatton & Smorfitt 2007:11).

Planning involves the process of deciding what to do and how to do it (Litman 2011:3). Planning is an integral part of entrepreneurial success because it allows a person to manage uncertainty (Light 2008:200). Goal-setting is also an integral part of planning (Hellriegel & Slocum 2007:152; Fayolle & Klandt 2006:46). According to Daft (2008: 211), without goals, entrepreneurs would focus on short-term plans at the expense of long-term priorities. The ability of entrepreneurs to plan and to apply their planning skills allows for the formulation of long-term plans (Kuratko & Hodgetts 2007:582). In creating and developing long-term plans, effective management of environmental opportunities or threats can occur (Kuratko & Hodgetts 2007:582). According to Kuratko and Hodgetts (2007:582), effective planning enables a business to take the necessary actions to maximise or minimise exposure to specific opportunities or threats.

Lawler and Joseph (2010:1), as well as Light (2008:200) contend that the ability of an entrepreneur to plan, especially financial planning, plays an integral part in business success. To compete for customers on a global scale, in-depth planning, creativity and innovation are demanded. This keeps a business on the cutting edge of ideas and innovations (Lawler & Joseph 2010:1). The ability of an entrepreneur to envision and plan when, where and how his or her business makes use of its resources will determine whether the business will be able to successfully meet the needs and wants of consumers (Sarasvathy & Dew 2007:5). Entrepreneurs plan and organise their lives, and are concerned about using their time to maximise the likelihood of achieving success (Nieuwenhuizen & Machado 2004:51). According to Baron and Shane (2007:24), perseverance is an important characteristic for becoming a successful entrepreneur. A person demonstrates perseverance when he or she continuously attempts to produce something of value (Hicks 2009:51). Lee (2010:26) explains that perseverance is the ability to stick with a task for as long as it takes for the task to be completed. Lee (2010) adds that perseverance is one of the most important attributes for entrepreneurs to possess because it enables them to overcome the obstacles that they may face in business (Kuratko & Hodgetts 2007:32), and increases their chances of success (Light 2008:102; Good 2003:32).

For the purpose of this study *Planning and perseverance* refers to having goals, plans and the determination to follow through.

# 3.3.2 PERSUASION AND NETWORKING

It is well supported in the literature (Timmons & Spinelli 2009; Fayolle & Klandt 2006:43; Nieuwenhuizen & Machado 2004:50; Bridge, O'Neil & Cromie 2003:37) that *Persuasion and networking* are attributes associated with successful entrepreneurs. According to Sharma (2010:5), the ability to persuade is essential for the growth of entrepreneurial businesses.

Lambek (2010:341) suggests that a person who has the ability to persuade others to believe in something or directs them towards using a specific product or service, has an entrepreneurial advantage. According to Fayolle (2007:24), persuasion plays an important part in any entrepreneur's communications skills. In their study Aaltio-Marjosola, Kyro and Sundin (2008:238) found that women entrepreneurs rated networking and persuasion as the third and fifth most needed entrepreneurial traits.

Fonacier and Mueller (2006:14) found that networking was the only entrepreneurial ability to positively influence employee turnover significantly. The ability of an entrepreneur to have a positive impact on his or her employees was found to be directly related to the entrepreneur's ability to develop and maintain business contacts (Fonacier & Mueller 2006:14).

Successful entrepreneurs realise that they cannot operate in isolation and need to be closely involved with others (Niewenhuizen & Machado 2004:53). They know how to motivate their employees and build contacts to benefit their enterprise (Niewenhuizen & Machado 2004:53). According to Niewenhuizen and Machado (2004:53), entrepreneurs find it important to ensure long-term relationships and to stay on good terms with suppliers, clients, and others involved in the enterprise. Networking skills are the ability of a person to hold a conversation where specific questions are asked in order to acquire specific information (Kenig 1999:27). At the heart of networking lies the ability of a person to be a leader and work in a team environment, attributes that are vital to business success (Lee 2010:27-28; Kent 1990:156). Social networking skills enable an entrepreneur to create favour and interest in his or her products (Cuervo, Ribeiro & Roig 2006:46). For the purpose of this study *Persuasion and networking* is regarded as a single attribute, and refers to having the ability to convince others and build relationships.

#### 3.3.3 COMMUNICATION ABILITY

Several authors (Dana: 2011:160; Fayolle 2010:196; Baron & Shane 2007:24; Nieuwenhuizen & Machado 2004:50; Shane 2003:69) are of the opinion that the ability to communicate with others is an important entrepreneurial attribute.

Communication is the means through which individuals convey opinions, needs, feelings, ideas and messages to others (Kumar 2008:129). Communication is the process through which individuals make their opinions known, identify their needs and feelings, make others aware of viable ideas, and convey messages and instructions to employees in a business (Kumar 2008:129). In business, communication is the bond that connects the various elements and activities in a business. This bond enables people to work together in a harmonious environment and produce better results (Grobler & Warnich 2006). The ability to communicate enables one to communicate in ways that other people understand, and enables one to seek and use feedback from others to ensure that one is understood (Duening, Hisrich & Lechter 2010:431). According to Sharma (2010:4-5), communication is effective when the sender and the receiver of the message understand each other.

An entrepreneur's communication ability refers to his or her ability to communicate effectively (Sharma 2010:4). Entrepreneurs who can communicate effectively with their customers, employees, suppliers and creditors, will be more likely to succeed in their business ventures (Sharma 2010:5). According to Grobler and Warnich (2006), entrepreneurs place a high value on the ability to communicate because communication connects all the elements in a business enterprise, and allows people in the business to work together productively.

According to Stokes and Wilson (2006:371), the most important role of the entrepreneur is to be the business communicator, both inside and outside the business. Entrepreneurs handle all communications with key stakeholders, investors and suppliers, and need to ensure that everyone inside the business can play their part (Stokes & Wilson 2006:371). An entrepreneur's communication ability is tested among investors, shareholders and stakeholders (Duening *et al.* 2010:431). In their model of the entrepreneurial process, Timmons and Spinelli (2009:48) highlight the importance of communication to an entrepreneur. Through communication the necessary resources can be accessed to ensure that business opportunities are taken advantage of.

Possessing good communication skills is essential for entrepreneurial success (Kenig 2003:106). For the purpose of this study, the ability to communicate (*Communication ability*) refers to the ability to communicate specific ideas to others.

### 3.3.4 COMMITMENT

Commitment has been identified by several authors (Andersson, Curley & Formica 2010:132; Timmons & Spinelli 2009; Baron & Shane 2007:24; Fayolle 2007:183; Matthews 2007:12; Harper 2005:26; Nieuwenhuizen & Machado 2004:50) as an attribute possessed by successful entrepreneurs. For the purpose of this study, *Commitment* refers to the ability to meet commitments in a timely manner.

According to Chell, Haworth and Brearley (1991:45), commitment involves two aspects, the commitment to others in the organisation and the commitment to building relationships. The commitment to others in the organisation focuses on the

ability to reach the organisation's objectives with a single focus, while the commitment to building relationships allows for the most effective team to be built and for the business to be profitable (Chell *et al.* 1991:45).

According to Andersson *et al.* (2010:132-135), commitment is the spirit and drive that an entrepreneur possesses to reach his or her objectives. Andersson *et al.* (2010:132), as well as Okhomina (2009:3) contend that commitment requires motivation to take advantage of opportunities that present themselves. According to Nieuwenhuizen and Machado (2004:50), the commitment needed by entrepreneurs manifests itself by making personal sacrifices, expending extraordinary effort to complete a job, or pitching in to help or work in the place of someone to get the job done. Commitment to the entrepreneurial endeavour can be described as the passion required for firm gestation and is characterised by a single-minded focus to achieve the goals of the business (Gartner, Shaver, Carter & Reynolds 2004:188).

Stiles and Galbraith (2004) identify commitment as the most important entrepreneurial characteristic, especially commitment to the success of the business. This is because commitment forms the foundation on which everything else hinges. Without commitment, perseverance through difficult times will not exist, and business failure is probable (Stiles & Galbraith 2004). To take advantage of the opportunities that arise, an entrepreneur needs to be committed and to possess the necessary capabilities (Andersson *et al.* 2010:132). An entrepreneur needs to be totally committed and have faith that the business idea will succeed (Matthews 2007:12). However, Matthews (2007:12) explains that the commitment shown by the entrepreneur needs to be backed up by a sound business strategy. For entrepreneurs to be truly successful, their focus has to be almost totally on what they are trying to accomplish, which means sacrificing personal time and lifestyle (Dees, Emerson & Economy 2002:301). According to Baron and Shane (2007:416), entrepreneurs often have deep feelings of commitment to their companies.

#### 3.3.5 OVERCOMING FAILURE

According to Reece, Brandt and Howie (2008:370), as well as Good (2003:15), the ability to overcome failure is an important entrepreneurial attribute. Overcoming

failure is the ability to learn from one's experiences and make positive adjustments to the way in which a given situation is handled (Bosch, Tait & Venter 2006:109). For the purpose of this study, the attribute *Overcoming failure* refers to the ability of an individual to overcome failure and regard it as a learning experience.

According to Good (2003:15), entrepreneurs regard mistakes and failures as temporary setbacks in the accomplishment of their goals. All successful entrepreneurs have had at least one business failure, but the majority have taken what they have learnt through that failure to ensure that the same mistakes are not made in their future endeavours (Jennings, Cox & Cooper 1994). McDaniel (2002:71) suggests that entrepreneurs should seek to develop and improve their ability to overcome failure because a strong personality is needed when dealing with the emotional aspects of business.

# 3.3.6 SELF-CONFIDENCE AND LOCUS OF CONTROL

Several authors (Dana 2011:160; Malach-Pines & Ozbilgin 2010:235; Bridge *et al.* 2009:82; Timmons & Spinelli 2009; Baron & Shane 2007:24; Fayolle & Klandt 2006:38; Niewenhuizen & Machado 2004:54; Rasheed & Rasheed 2004:268; Bridge *et al.* 2003:37) have identified both self-confidence and locus of control as attributes associated with successful entrepreneurs.

A person's self-confidence refers to his or her belief in themselves in terms of having the capabilities to perform any task that is put before them (Kristiansen & Indarti 2004:60). According to Timmons and Spinelli (2009) and Kuratko (2009), selfconfidence is an attribute common to successful entrepreneurs. Entrepreneurs need to believe in themselves and feel that they will be able to accomplish whatever they set out to do (Baron & Shane 2007:24).

Locus of control is the extent to which a person perceives him or herself as being within or beyond personal control and understanding (Nieuwenhuizen & Machado 2004:54). According to Malach-Pines and Ozbilgin (2010:235), locus of control can be viewed as either internal or external. An internal locus of control reflects the extent to which individuals feel in control of their own life in the sense that the results

of their actions have consequences which are dependent on their behaviour and personality (Malach-Pines & Ozbilgin 2010:235). Internal locus of control refers to the belief that one has control over one's immediate surroundings and that one's accomplishments and failures are in one's own control (Bosch *et al.* 2006:109). According to Nieuwenhuizen and Machado (2004:54), people with an internal locus of control generally believe that their own efforts affect the outcome of events; they have good control over their own behaviour and are not easily persuaded. An external locus of control reflects the extent to which individuals feel out of control, in the sense that the results of their actions are dependent upon external forces such as chance or other people's actions (Malach-Pines & Ozbilgin 2010:235). People who have an external locus of control are rather anxious and emotional, and would prefer more structure and a direct style of leadership (Nieuwenhuizen & Machado 2004:54).

Individuals who desire to have control over their surroundings are more likely to have a clear vision of the future, and they focus on the long term (Ndubisi 2008:109; Entrialgo, Fernandez & Vazquez 2004:60; Kristiansen & Indarti 2004:60). According Kristiansen and Indarti (2004:60), the stronger the internal locus of control of an individual, the greater their entrepreneurial intention. Frese *et al.* (2000:18) assert that entrepreneurs take control of their environment by the actions they take.

For the purpose of this study *Self-confidence and locus of control* refers to a belief in self and belief that personal actions determine success.

### 3.3.7 RISK-TAKING

It is commonly cited in the literature (Dana 2011:160; Kakkonen 2010; Andersson *et al.* 2010:132; Timmons & Spinelli 2009; Bridge *et al.* 2009:82; Venter *et al.* 2008:51; Bhargava 2007:27; Fayolle & Klandt 2006:37; Baron & Shane 2007:24; Bridge *et al.* 2003:37; Entrialgo *et al.* 2004) that risk-taking is an attribute possessed by entrepreneurs. Kristiansen and Indarti (2004:59) state that for entrepreneurs to be successful and to achieve their full potential, they need to be willing to take calculated risks. Proactive entrepreneurs break new ground, but there are considerable risks in such behaviour (Bridge *et al.* 2009:71). According to Bridge *et al.* 

*al.* (2009:71), effective entrepreneurs are moderate risk-takers, while enterprising people take calculated risks.

Entrepreneurs have a mind-set where they are constantly assessing the risk of a situation and determining which opportunities to pursue (Bygrave & Zacharakis 2010: 34; Dib, Rocha & Da Silva 2010; Goossen 2007:328). They are not gamblers, but are prepared to take calculated risks which have been carefully thought through and considered (Fayolle 2010:196). Effective entrepreneurs have been found to prefer to take moderate risk where the chances of losing are small, in this way ensuring that they do not gamble their entire future on one event (Good 2003:15).

Taking a calculated risk in a fast-paced business environment can make the difference between staying in the crowd or bringing one's business to the forefront (McDaniel 2002). Daft (2008:273) highlights that the taking of risks can set one's products apart from others. For the present study, *Risk-taking* refers to having a predisposition for taking moderate, calculated risks, providing a reasonable chance for success.

# 3.3.8 INITIATIVE AND RESPONSIBILITY

Several authors (Dana 2011:152; Bridge *et al.* 2009:82; Nieuwenhuizen & Machado 2004:49; Bridge *et al.* 2003:37; Good 2003:15; Bjerke & Hultman 2002: 62; Chell 2001:86) contend that taking the initiative and being willing to take on responsibility are attributes associated with successful entrepreneurs.

Taking the initiative refers to the ability of a person to do things before being asked or forced to by events or other people (Nieuwenhuizen & Machado 2004:49). According to Kuratko (2009:32), effective entrepreneurs actively seek to take the initiative. Nagendra and Manjunath (2009:153) explain that aspiring entrepreneurs need to take the initiative in situations and not wait for a situation or an event to occur. An entrepreneur's initiative is about being proactive and not waiting to react to a problem. During the last decade a growing entrepreneurial spirit has emerged in the United States, Stafford, Allen and Clow (2004:7) argue that this is a direct result of Americans' entrepreneurial initiative to take the lead and rely on themselves to make a success of their business ventures. Entrepreneurial people have the ability to take bold steps and have the propensity to seek new opportunities in every situation (Bridge *et al.* 2009:73).

Entrepreneurial responsibility is defined as taking personal accountability for the outcome of a venture (Bosch *et al.* 2006:109). Entrepreneurs will accept both internal and external responsibility (Volkmann, Tokarski & Grunhagen 2010:54). According to Volkmann *et al.* (2010:54), the internal responsibility of an entrepreneur is to create moral norms within his or her business. These moral norms can be expressed practically, for example by the way the entrepreneur treats him or herself and others. External responsibility refers to the social responsibility that entrepreneurs display by embracing current agreements and legal requirements (Volkmann *et al.* 2010:54).

The key to acting responsibly is the ability of a person to build long-term personal and business relationships based on honesty and integrity (Good 2003:15). For the purpose of this study *Initiative and responsibility* will refer to the willingness to take the initiative and be responsible.

# 3.3.9 HIGH ENERGY LEVEL

Various authors (Stokes & Wilson 2010:52; Baron & Shane 2007:24; Henry *et al.* 2003:91) have identified a high energy level as an essential attribute for entrepreneurial success. Dingee, Haslett and Smollen (1997) describe a person with drive and energy as having the ability to work for long periods with little or no sleep. According to Schermerhorn (2010:137), high energy levels are needed by entrepreneurs to enable them to be persistent and hardworking, and to exert the extraordinary efforts necessary for success. Similarly, Baron and Shane (2007:24) assert that to be a successful entrepreneur, vigour and good health are vital; good health will enable the entrepreneur to work the long hours necessary to achieve businesses goals.

The ability of successful entrepreneurs to cope with the extraordinary workloads placed on them and at the same time deal with the stress associated with owning an own business, demonstrates the importance of an entrepreneur's energy levels (Bosch *et al.* 2006:109). Many entrepreneurs fine-tune their energy levels by carefully monitoring what they eat and drink, establishing exercise routines, and knowing when to get away for periods of relaxation (Kuratko 2009:34).

Successful entrepreneurs not only have the drive to work long hours, but also have the energy levels to do so (Kuratko 2009:34). According to Duening and Sherrill (2005:24), entrepreneurs believe that hard work and strong capability will lead to success, regardless of task difficulty. Similarly, Campbell (2004: 225) emphasises that entrepreneurs will be required to work hard for as long as it takes to get their business off the ground and profitable. According to Schermerhorn (2010:137), an entrepreneur's business will only begin to prosper after the owner has put many years of hard, unpaid work into it. For the purpose of this study *High energy level* refers to a person having the ability to work long hours and staying focused.

# 3.3.10 TOLERANCE FOR AMBIGUITY AND UNCERTAINTY

Several authors (Phillips & Gully 2011:80; Mattheou 2010:248; Ramana, Aryasri & Nagayya 2008:34; Baron & Shane 2007:24; Marx, Van Rooyen, Bosch & Reynders 2004:703) agree that tolerance for ambiguity is an attribute commonly associated with successful entrepreneurs, People with high levels of tolerance for ambiguity and uncertainty are more likely to exploit entrepreneurial opportunities (Acs & Audretsch 2010:66). Tolerance for ambiguity and uncertainty refers to the ability of individuals to handle the stress and concerns relating to the success of their business ventures (Marx *et al.* 2004:704).

According to Raab *et al.* (2005:76), tolerance for ambiguity and uncertainty is the ability to exist in complex situations, to endure contradiction, and to diligently work at surmounting problems. Tajeddini and Mueller (2008:9) explain that ambiguity involves dealing with new or complex situations and the uncertainty about an outcome or result caused by insufficient data, information or knowledge. Tolerance for ambiguity reflects the tendency of an entrepreneur to view ambiguous situations as desirable (Phillips & Gully 2011:80). Because ambiguity exists and human beings must cope with it, people display varying levels of tolerance or intolerance for ambiguity or ambiguous situations (Tajeddini & Mueller 2008:9). Intolerance for

ambiguity reflects a tendency to understand information which is vague, incomplete, fragmented, multiple, inconsistent or contradictory, as a threat or to make the person feel uncomfortable (Phillips & Gully 2011:80). If intolerant people are confronted by such a situation, they react defensively and in a confused manner (Raab *et al.* 2005:76). According to Raab *et al.* (2005:76), an intolerant person might respond to a situation before adequate information is available for the most appropriate response. Under conditions of uncertainty, the decision-maker who finds ambiguity undesirable, approaches problem-solving with inadequate information.

As the process of entrepreneurship is uncertain, filled with alternatives and without clear direction, people with higher tolerance for ambiguity and uncertainty are more likely to become entrepreneurs (Acs & Audretsch 2010:66). Okhomina (2009:4) concludes that it is the ability of entrepreneurs to handle information that is complex, inadequate or contradictory, that makes them unique. The ability of an entrepreneur to handle the lack of security of income is at the heart of a person becoming an entrepreneur (Baron & Shane 2007:24).

Entrepreneurship is accompanied by many uncertainties. In order for entrepreneurs to be successful they need to be able to cope with these uncertainties (Marx *et al.* 2004:703). According to Kuratko (2004:225), entrepreneurs constantly face uncertainty from a constantly changing market environment. This uncertainty introduces ambiguity and stress into every aspect of their business. Entrepreneurs tolerate ambiguous situations well, and make effective decisions under conditions of uncertainty (Good 2003:14). Entrepreneurs are able to work well even with constant changes in their business environment that produce considerable ambiguity (Good 2003:14). For the purpose of this study *Tolerance for ambiguity and uncertainty* refers to having the ability to live with modest-to-high levels of uncertainty concerning job and career security, and being able to perform tasks simultaneously.

### 3.3.11 CREATIVITY AND FLEXIBILITY

Creativity and flexibility are attributes commonly found to exist in people who are entrepreneurial (Dana 2011:160; Kao 2010:296; Bridge *et al.* 2009:82; Baron & Shane 2007:24; Bhargava 2007:27; Henry 2007:77; Nieuwenhuizen & Machado 2004:58; Bridge *et al.* 2003:37; Chell 2001:86). Creativity is the spark that drives certain individuals to develop new and innovative products and services, or the way in which they conduct business (Holden 2009). Creativity is the ability of a person to use their imagination to think of something original (Nieuwenhuizen & Machado 2004:58). According to Goossen (2007:329), creativity is a distinguishable entrepreneurial attribute which refers to continuous efforts by an entrepreneur to seek out new ways of doing things and new ways to find solutions to problems. Successful entrepreneurs combine their creative thinking, their business knowledge and their management skills to create successful businesses (Nieuwenhuizen & Machado 2004:58).

Entrepreneurial creativity is expressed by considering new ideas, seeking to find unique solutions to problems, seeking ways to do things differently, exploring opportunities, and creating and building a business plan (Nieuwenhuizen & Machado 2004:58). Originality is critical for an entrepreneur to survive in a competitive business environment, therefore creativity is essential for becoming a successful entrepreneur (Kerr 2009:329).

Flexibility is the ability of a person to move quickly in response to a changing market and to the changing needs in that market (Nabi *et al.* 2009). Nabi *et al.* (2009) identify flexibility as the ability of an individual to be true to a dream while being mindful of what the market wants in reality. Baron and Shane (2007:24) state that flexibility involves being able make corrections during a business event or during the development of a product. According to Bahrani and Evans (2000:14), flexibility encompasses various skills such as agility, adaptability, versatility, resilience and being robust.

For the purpose of this study *Creativity and flexibility* refers to being able to think originally and creatively, while having enough flexibility to handle changing or multiple circumstances.

#### 3.3.12 KNOWLEDGE-SEEKING

Various authors (Awe 2012:3; Baum, Frese & Baron 2007; Katz & Sheperd 2003) identify knowledge-seeking as important for a person to be a successful entrepreneur. A successful entrepreneur can seek knowledge by making use of experts or by finding the right person and asking them the right questions. Using experts is an effective way to find valuable knowledge. An expert is more likely to have current and up-to-date information on trends than a database which often has delayed availability (Katz & Sheperd 2003:292-294). According to Katz and Sheperd (2003:292-294), by interviewing an expert, an entrepreneur is also using a more efficient information retrieval tool. Furthermore, by learning through conversation, the entrepreneur is more likely to access tacit knowledge as well as explicit information. According to Awe (2012:3), it is vitally important to have a person, a successful entrepreneur, to bounce ideas off and learn from, so to gain understanding and knowledge from them.

Knowledge-seeking involves a targeted approach in which the entrepreneur has specific questions that need to be answered or problems that need to be solved. According to Baum *et al.* (2007:70), relationships and networks allow for the transfer of knowledge among individuals, providing opportunities for discovery and learning, while at the same time enabling the creation of new knowledge. Discoveries occur because problem-solving involves entrepreneurs seeking and relying on their own experiences as well as expertise located outside their emerging organisation, such as suppliers, distributors, customers or investors.

For the purpose of this study *Knowledge-seeking* refers to the willingness to seek information, ideas, expertise and the assistance of others.

#### 3.3.13 CONTINUOUS LEARNING

It is well supported in the literature (Goossen 2007:329; Dennis 2006:43; Fayolle & Klandt 2006:28; Dana 2004:197; Knapper & Cropley 2000:14) that successful entrepreneurs continuously seek out new knowledge and continuously strive to learn new things. According to Goossen (2007:329), it is important for entrepreneurs to

engage in continuous learning so as to allow their understanding to be enhanced and to make them more capable of adapting to given situations. Successful entrepreneurs focus on continual learning and do not hesitate to admit that they do not know everything there is to know. Entrepreneurs are willing to take time to find out and learn (Isami n.d). Kuratko (2009:34) stresses that endeavouring to increase knowledge of their business environment is at the heart of the entrepreneurial vision.

According to Kingma (2011:131), entrepreneurs continuously seek knowledge and understanding in order to provide support for making decisions. Marx *et al.* (2004:716) comments that entrepreneurs must continually seek to improve their management, technical, product and market knowledge (Marx *et al.* 2004:716). Through constantly improving their knowledge, new methods that enable entrepreneurs to differentiate their products and stay ahead of their competitors, can be identified. Management knowledge enables an entrepreneur to make better business decisions under various circumstances (Marx *et al.* 2004:716).

Knowledge is a valuable tool that empowers and develops entrepreneurs. Knowledge allows for faster decision-making (Capelleras & Greene 2008:321), and successful entrepreneurs make use of all the knowledge that is available to them (Isami n.d). However, according to Mutula (2010:244), entrepreneurs face different challenges when seeking knowledge. One of the greatest obstacles faced is the availability and access to timely, current, relevant and adequate information which can be used in the current business situation. The knowledge-seeking entrepreneurial attribute is essential because if an individual does not know which information or ideas are relevant to their business, the likelihood of the entrepreneur being successful is very low (Mutula 2010:244). For the purpose of this study *Continuous learning* refers to the desire to expand personal knowledge and enhance one's level of expertise.

### 3.3.14 FINANCIAL PROFICIENCY

For the purpose of this study *Financial proficiency* refers to the ability to understand and interpret financial transactions and results. According to Gartner *et al.* (2004:372), an entrepreneur is financially proficient when he or she has an understanding of the fundamentals of assets and liabilities, and is able to interact with financial institutions and agencies. Furthermore, financial knowledge enables an entrepreneur to develop a budget and have the know-how to interpret that budget correctly. This understanding allows for their business to grow and be profitable (Norman 2004:58). The financial responsibilities and duties of an entrepreneur can be outsourced to a financial services provider, but the entrepreneur still needs to possess the financial knowledge and understanding to be able to give the financial services provider the necessary information (Brinckmann 2007:52).

Understanding the workings of financial statements and institutions is critical to entrepreneurial success. Any start-up business requires financial backing, and needs to prepare financial statements (Lee-Ross & Lashley 2009:126; Campbell 2004:105-108). According to Timmons, Spinelli and Zacharakis (2005:78), having financial understanding and an ability to adapt to any given situation, allows an entrepreneur to secure the best financial deals and transform an average business into a great business. Similarly, Fried, Shapiro and DeSchriver (2008:6) maintain that entrepreneurs need to ensure that they have the necessary training and skills to develop, analyse, project and interpret financial information.

#### 3.3.15 MONEY SENSE

For the purpose of this study *Money sense* refers to the ability to recognise that money is an important factor in business, and having the ability to correctly use this resource. According to Campbell (2004:105-107), it is vitally important for an entrepreneur to realise that money is an integral part of what makes his or her business a success. Money sense and dealing with business finances are integral in determining whether a business will succeed or not (Fried *et al.* 2008:6).

Starting an entrepreneurial venture requires financing. For small businesses this is usually obtained in the form of a loan. Debt can be a burden if it is obtained for the incorrect reasons and without making adequate provision for the repayments that need to be settled against the principal value (Campbell 2004:106). It is important that an entrepreneur should understand and know about the different sources of finance so that the best decisions can be made with the business's money (Banerjee

2005:47). Financially fluent and adept entrepreneurs have the ability to take an average business and transform it into a great one (Timmons *et al.* 2005:78).

### 3.3.16 BUSINESS KNOWLEDGE

According to Modell (2007), having business knowledge refers to an entrepreneur having knowledge and an understanding of the general functions of the business, as well as its specific functions in a market. Similarly, Marx *et al.* (2004:714-715) describe a person's business knowledge as his or her knowledge relating to marketing, financing, operations and legal aspects of a business. Having the necessary business knowledge allows for the effective running of businesses and aids in the prevention of costly errors (Krueger 2002:326-327).

The accuracy and completeness of the business knowledge possessed by an entrepreneur is crucial in identifying and understanding the problems or requirements of a business (Modell 2007). According to Kristiansen and Indarti (2004:62), people seeking to start their own business need access to information, specifically information relating to their particular business and market. Education plays an important role in facilitating the growth of an individual's business knowledge (Shane 2003:77-79). Future entrepreneurs can now participate in formal schooling in the field of entrepreneurship at academic institutions instead of having to depend on learning through experience. This may enable the prospective entrepreneur to avoid costly mistakes on the job (Rogers 2003:28).

For the purpose of this study *Business knowledge* refers to possessing a basic understanding of business operations and terminology.

### 3.4 DEMOGRAPHICS AND ATTRIBUTES

Aslam *et al.* (2012:120) are of the opinion that certain demographic variables have an effect on the entrepreneurial inclination of people. The demographic variables under investigation in this study are *Gender*, *Ethnicity, Age* and *Self-employment status of parents.*  Men and women differ in terms of the qualities and type of characteristics they possess. Women are linked to qualities such as expressiveness, connectedness, being driven, kindness, being supportive and being timid, whereas their male counterparts possess qualities such as independence, aggressiveness, autonomy, confidence and courage (Gupta, Turban, Wasti & Sikdar 2009:399). Ndubisi (2008:113) found that male entrepreneurs indicated significantly higher levels of perseverance and flexibility than female entrepreneurs, but no significant difference was found with regard to the entrepreneurial attributes innovativeness and risktaking. Women have common reasons for starting up a business which include gaining independence, self-fulfilment and the possibility of making a profit (Carrier, Julien & Menvielle 2008). Aslam et al. (2012:117) report that females with similar backgrounds to their male counterparts are less entrepreneurially orientated because women have to face social barriers that men do not. According to Louw et al. (2003) significant differences were found between male and female students in terms of possessing the entrepreneurial traits continuous learning and business knowledge. They reported these attributes as being more developed among males than females. In their study Kristiansen and Indarti (2004:67) found that the level of need for achievement and locus of control for female and male students was no different.

Several studies (Aslam *et al.* 2012; Othman, Ghazali & Cheng 2005; Louw *et al.* 2003) have reported significant differences in the level of development of entrepreneurial attitudes among different ethnic groups. Aslam *et al.* (2012) and Othman *et al.* (2005) have identified ethnicity as one of the crucial factors in determining a university student's inclination towards entrepreneurship. Louw *et al.* (2003:20), went into further detail and reported that white students scored higher on number sense than Black students, While Black students reported higher mean scores for risk-taking, initiative and responsibility and self-confidence. When a higher score was indicated for an attribute, it was interpreted as being perceived to be more developed among the participants in their study.

According to Simrie *et al.* (2012:28), the prevalence of early-stage entrepreneurial activity tends to be low between 18-24 years, peaks among the 25-34 year-olds, and then declines as the person's age increases, with the greatest drop in

entrepreneurial activity after the age of 54. Bönte, Falck and Heblich (2007) report that traits such as risk-taking and time management change in relation to the age of the person as they get older. Louw *et al.* (2003) also reported that specific entrepreneurial attributes such as risk- taking, initiative and responsibility were more developed the older the student was.

A person's family has been identified by several authors (Aslam *et al.* 2012:120; Kirkwood 2007; Dunn 2004; Smith 2003) as the breeding ground for fostering the entrepreneurial intentions of a person. Having parents who are entrepreneurs provides an environment that is conducive to passing down knowledge about business and the necessary resources for starting a business (Bagheri & Pihie 2010: 434).

Against the foregoing background, the following hypotheses are subjected to empirical testing in this study:

H<sup>04</sup>: No relationships exist between the levels of development of entrepreneurial attributes among NMMU students and selected demographic factors.

H<sup>a4</sup>: Relationships exist between the levels of development of entrepreneurial attributes among NMMU students and selected demographic factors.

In addition to the demographic variables mentioned above, the *location* where a person lives has an influence on the levels of development of their entrepreneurial attributes. Mueller (2004) and Shane (2003) conclude that the occurrence of entrepreneurial attributes varies across countries and cultures. According to Mueller, Thomas and Jaeger (2002), factors contributing to these differences are culture, level of economic development of the country, and political-economic traditions .Van Auken *et al.* (2006: 40) have found that students from some countries are more likely to possess entrepreneurial attributes than students from others. They conclude that students living in areas or countries where entrepreneurial activity is common are likely to possess more entrepreneurial knowledge than students from an area with little entrepreneurial activity. Similarly, Pushkarskaya (2008:2) has found that

students who study in urban areas have more knowledge about entrepreneurship than their rural counterparts because of support for entrepreneurs being more readily available to urban than rural students. Furthermore, Aslam *et al.* (2012:122) report that students in Turkey were more entrepreneurial than those in Pakistan; this is as a result of Turkish students being exposed to entrepreneurial modules at their universities.

The following hypotheses are proposed and will be subjected to empirical testing:

- H<sup>02</sup>: There is no difference between the levels of development of entrepreneurial attributes among NMMU students and the levels of development among students at other South African universities.
- H<sup>a2</sup>: Significant differences exist between the levels of development of entrepreneurial attributes among NMMU students and the levels of development among students at other South African universities.
- H<sup>03</sup>: There is no difference between the levels of development of entrepreneurial attributes among NMMU students and the levels of development among students abroad.
- H<sup>a3</sup>: Significant differences exist between the levels of development of entrepreneurial attributes among NMMU students and the levels of development among students abroad.

Gurol and Atsan (2006) assert that entrepreneurial attributes can be developed through education. Several authors (Fatoki 2010: 92; Urban, Botha & Urban, 2010:135) argue that through entrepreneurial education the necessary skills and confidence to undertake entrepreneurial activity can be developed. Drost (2010:28) supports the notion that a positive relationship exists between entrepreneurial education and venture creation, while, Ladzani and Van Vuuren (2002:159) suggest that educational programmes are necessary to develop and strengthen entrepreneurial skills and characteristics. Mahadea (2001: 193) suggests that an individual's capacity to take risks can be nurtured and developed through the appropriate training.

Given the increased attention over the last decade to the development of entrepreneurship, entrepreneurship education and Entrepreneurship as an academic discipline, (Nishimura & Tristán 2011; Haase & Lautenschläger 2011; Soetanto, Pribadi & Widyadana 2010; Herrington *et al.* 2009), the assumption can be made that the levels of development of entrepreneurial attributes possessed by students would be greater today than in times gone by. To test this assumption the following hypotheses are proposed:

- H<sup>01</sup>: There is no difference between the levels of development of entrepreneurial attributes among NMMU students in the present study (2010) and the levels of development among NMMU students in a previous study (2001).
- H<sup>a1</sup>: Significant differences exist between the levels of development of entrepreneurial attributes among NMMU students in the present study (2010) and the levels of development among NMMU students in a previous study (2001).

#### 3.5 SUMMARY

In this chapter a definition of the concept "entrepreneur" was provided. In addition 16 entrepreneurial attributes, identified as being important for entrepreneurial success, were described in detail. A discussion on the possession of entrepreneurial attributes among individuals with specific demographic profiles was also presented. The demographic variables under discussion were *Gender, Ethnicity, Level of study* (age) and *Self-employment status of parents* (role models).

In the chapter to follow, various intention models will be described, and the relationship between possessing entrepreneurial attributes and entrepreneurial intentions will be elaborated on. Finally, the relationship between selected demographic variables and entrepreneurial intentions will be discussed.
# **CHAPTER 4**

#### ENTREPRENEURIAL INTENTIONS

#### 4.1 INTRODUCTION

In Chapter 3 the various entrepreneurial attributes under investigation were described. In addition, whether individuals with specific demographic characteristics were more or less likely to possess these entrepreneurial attributes, was also discussed.

In this chapter the various intentions-based models will be identified and described. The various factors influencing entrepreneurial intentions will be highlighted, and the relationship between perceived behaviour control, perceived feasibility and selfefficacy will be summarised. Furthermore, the relationship between possessing entrepreneurial attributes and showing entrepreneurial intentions, as well as between possessing certain demographic characteristics and entrepreneurial intentions, will be elaborated on.

#### 4.2 INTENTIONS-BASED MODELS

According to Kuehn (2008:87), intentions-based models are particularly suited to entrepreneurship because the entrepreneurial process is a planned one. If actions are the result of intentions to act, then a better understanding of the factors that influence the development of intentions becomes important for educational approaches. Two of the most recognised intentions-based models in entrepreneurial intentions literature are Ajzen's (1991:182) Theory of Planned Behaviour and Shapero and Sokol's (1982:72-90) Entrepreneurial Event Model. A brief overview of these two models will be given, together with the related concept, self-efficacy (Bandura 1986:617).

#### 4.2.1 THEORY OF PLANNED BEHAVIOUR

Ajzen (1991:182) states that the actions of an individual are preceded by a conscious decision to act in a certain way. This proposition is the basis of Ajzen's planned behaviour model, which identifies three factors as influencing a person's intention to act (Ajzen 1991:182). These three factors are *attitude towards the behaviour, subjective (social) norm* and *perceived behavioural control*. The more favourable the attitude and the subjective norms are regarding an individual's particular behaviour and the greater the perceived behavioural control, the more likely the individual's intention will be to perform the behaviour under consideration (Ajzen 1991:188).





<sup>(</sup>Source: Ajzen 1991:182)

The *attitude towards the behaviour* is the degree to which a person has a favourable or unfavourable assessment of the behaviour in question (Ajzen 1991:182). According to Tamken, Wanberg and Milkman (2010:9), beliefs about the expected or likely outcome of the behaviour, which produce a favourable or unfavourable outcome, are the attitude towards the behaviour of an individual. When new issues arise, requiring an evaluative response, people can draw on relevant information or beliefs stored in their memory (Fayolle 2007:171). Because of each of these beliefs evaluative implication and attitudes are automatically formed (Fayolle 2007:171; Trachev & Kolvereid 1999:272).

The *subjective* or *social norm* refers to the perceived pressure received from society by a person to perform or not to perform certain behaviours (Ajzen 1991:182). The subjective norm is the individual's perception of whether others think the behaviour which he or she is going to perform should be acted upon (Tamken *et al.* 2010:9). Similalry, Dwivedi, Wade and Schneberger (2011:221) assert that subjective norms are perceived as the social pressure of whether to undertake a behaviour. A person's perception about a particular behaviour is mostly influenced by the judgements and beliefs of that person's family members and friends (Dwivedi *et al.* 2011:224). An individual's subjective perception of another person's opinion of their perceived behaviour is influenced by normative beliefs and is less relevant to individuals with a strong internal locus of control (Fayolle 2007:171). According to Dwivedi, Williams, Schneberger and Wade (2009:284), the perceived pressure experienced by a person to perform a specific behaviour or not comes from influences of both peers and superiors (Dwivedi *et al.* 2009:284).

The third factor that influences intentions is *perceived behavioural control*, which refers to the perceived ease or difficulty a person has about performing certain behaviour (Urban 2010; Ajzen 1991:182). This factor relates to the perceptions of feasibility of the behaviour, perceptions that are essential in predicting the behaviour (Fayolle 2007:172). Individuals usually adopt behaviours that they believe they will be able to control and master (Fayolle 2007:172). A person's behavioural control is said to reflect a person's past experiences as well as the obstacles that are anticipated along the way (Ajzen 1991:182). Actual and perceived personal short-falls and external obstacles can interfere with the ability of the individual to perform a given behaviour, and consequently the perception they have of their ability to control the action and the outcome (Gird & Bagraim 2008:712). Perceived behavioural control has been identified as having the strongest influence on the entrepreneurial intentions of an individual in several studies (Krueger, Reilly & Carsrud 2000).

According to Kuehn (2008:89), perceived behavioural control is closely related to Bandura's (1986) concept of perceived self-efficacy. Perceived behavioural control affects a person's perceived self-efficacy, which is that person's belief that they can execute a particular action (Kuehn 2008:89).

# 4.2.2 ENTREPRENEURIAL EVENT MODEL

The entrepreneurial event model (EEM), developed by Shapero and Sokol (1982:72-90), states that displacement opens a person up to consider choosing different paths. According to the EEM (Shapero and Sokol 1982:72-90), three factors influence a person's entrepreneurial intentions, namely, *perceived desirability*, *perceived feasibility* and *propensity to act*.





<sup>(</sup>Source: Krueger et al. 2000)

A person's *perceived desirability* reflects the attractiveness of starting a business and becoming an entrepreneur (Kuehn 2008:90; Linan & Santos 2007). Shapero and Sokol (1982) defined perceived desirability as the extent to which one finds the prospect of starting a business to be attractive. Variables that affect the perceptions of desirability of an entrepreneurial event include a person's culture, family, peers, colleagues and mentors (Shapero and Sokol 1982:83).

*Perceived feasibility* reflects the level or degree to which a person believes that they have the capacity and the necessary competencies to start a business (Kuehn 2008:91; Linan & Santos 2007). Variables that that affect perception of feasibility include financial support, other support, demonstration effect, models, mentors and partners. Shapero and Sokol (1982:83) and Fayolle (2007:166) contend that the perception of feasibility may influence the notion of what is desirable.

The *propensity to act* reflects a person's inclination to act on a decision or choices that they have made (Kuehn 2008:91; Shapero & Sokol 1982:83). Individuals who decide to act on their entrepreneurial intentions and become entrepreneurs do so because they perceive entrepreneurship to be more desirable and more feasible than other options (Linan & Santos 2007).

#### 4.2.3 SELF-EFFICACY

Self-efficacy is at the centre of Bandura's social cognitive theory. The main focus of this theory is that people do not only learn from direct experiences that involve them, but also from watching others experiencing actions (Kuehn 2008:94). According to Bandura (1986:2), *self-efficacy* is a person's belief in his or her ability to succeed in a particular situation. Individuals are motivated throughout their lives by perceived self-efficacy rather than by objective ability, and therefore perceptions deeply affect a person's behaviour (Markham, Balkin & Baron 2002). Self-efficacy is a construct that measures both a person's belief in their ability to successfully launch an entrepreneurial venture, and the environmental factors that affect the person (McGee, Peterson, Mueller & Sequeira 2009:965). Self-efficacy is crucial in determining whether a person will pursue a goal, and it is equally important to maintaining motivation once action is taken (Bridge *et al.* 2003:77). Self-efficacy reflects an individual's past experience and attainment of knowledge, and entrepreneurs are able to improve their self-efficacy by gaining the relevant experience (Locke 2009).

According to Bridge *et al.* (2003:77), if a person firmly believes that they have what it takes to set up and complete enterprising projects, this will strongly influence their intention to attain that outcome. People with strong self-efficacy beliefs exert greater efforts to master a challenge (Alvarez, DeNoble & Jung 2006:385). However, if an aspiring entrepreneur has low self-efficacy, he or she is unlikely to pursue a given goal even if it is regarded as important by themselves or others (Bridge *et al.* 2003:77). People who have weak self-efficacy beliefs are likely to reduce their efforts or even to quit (Alvarez *et al.* 2006:385).

Self-efficacy is a motivational construct that has been shown to influence an individual's choice of activities, goal levels, persistence and performance in a range of contexts (Zhao, Seibert & Hills 2005:1266). Without a strong sense of self-efficacy a person has little incentive to act or persevere in the face of difficulties (Bandura 1986). Self-efficacy is closely related to career intentions in that the confidence an individual has that he or she will succeed in a specific career will influence his or her selection of particular career path (Urban 2010:118). Zhao *et al.* (2005:1265) define self-efficacy as an individual's confidence in their ability to be successful when performing entrepreneurial roles and tasks. Self-efficacy has also been found to be positively related to students' intentions to start their own business (Zhao *et al.* 2005:1265). Self-efficacy is a factor that enhances experimentation and speed because both behaviours will only occur when entrepreneurs are sufficiently confident that they can move quickly and be successful (Locke 2009).

# 4.2.4 RELATIONSHIP BETWEEN PERCEIVED BEHAVIOURAL CONTROL, PERCEIVED FEASIBILITY AND SELF-EFFICACY

According to Urban (2010:116), the Theory of Planned Behaviour (Ajzen 1991) and the Entrepreneurial Events Model (Shapero & Sokol 1982) overlap noticeably. Appolloni and Gaddam (2009:70-71) contend that the *attitude toward the behaviour* is equivalent to *perceived desirability* and *perceived behavioural control* is equivalent to *perceived feasibility*. Similarly, Fayolle (2007:66) maintains that there are strong similarities between Ajzen's *perceived behavioural control* and Bandura's *self-efficacy* concepts The similarity between *perceived behavioural control, perceived feasibility* and *self-efficacy* is well supported in the literature (Urban *et al.* 2010:118; Kuehn 2008:91; Krueger *et al.* 2000).

Self-efficacy plays a pivotal role in promoting an entrepreneur's perceived feasibility of a business venture. The raising of entrepreneurial self-efficacies has the ability to raise perceptions of a venture's feasibility, and in so doing, increases the entrepreneur's perception of an opportunity (Urban 2010). Perceived behavioural control has been identified as reflecting the perceived feasibility of performing the behaviour, and is therefore related to perceptions of competence and self-efficacy (Urban 2010). Given the interrelatedness and important role that *perceived feasibility, perceived behavioural control* and *self-efficacy* have on the entrepreneurial intentions of individuals, this study will focus on the perceived entrepreneurial abilities as reflected by the entrepreneurial attributes possessed by students, and the influence that possessing these attributes has on their entrepreneurial intentions. In line with the intentions-based theories, the greater the perception of possessing the attributes associated with a successful entrepreneur by an individual, the greater the belief by that individual that he or she has the capacity and competency to become an entrepreneur, which in turn will influence their entrepreneurial intentions.

This line of thinking is supported by Ryan (1970:60) who points out that a person's self-perception plays a vital role in the development of entrepreneurial intention. The Entrepreneurial Expectancy Model proposes that the intentions of an individual to tolerate entrepreneurial activity would be higher if he or she were to have the competencies to perform such activities (Ryan 1970:60).

In summary, *perceived behavioural control, perceived feasibility* and *self-efficacy* are closely related concepts and influence entrepreneurial intentions. This implies that entrepreneurial intentions are influenced by the perceptions that an individual has of his or her own capabilities. Kristiansen and Indarti (2004:61) suggest that people behave according to their beliefs or perceptions of their own capabilities, rather than according to their actual capabilities. The higher the perception that they have the necessary ability; the more likely they are to have entrepreneurial intentions (Drost, 2010: 29).

#### 4.3 ATTRIBUTES AND ENTREPRENEURIAL INTENTIONS

Many researchers and authors have been interested in identifying traits common to successful entrepreneurs (Kuratko 2009:10-11; Nagendra & Manjunath 2009:106). The trait approach had its roots in a study which suggested that successful entrepreneurs have similar characteristics, and if they were copied, they would increase opportunities for other aspiring entrepreneurs to be successful (Kuratko 2009:10-11). In recent years a considerable debate has taken place over entrepreneurial character as a predictor of entrepreneurial activity (Tajeddini and

Mueller 2009; Mueller 2004; Bridge *et al.* 2003:69). Kristiansen and Indarti (2004) explain that although an individual's attitude is likely to have a greater influence on entrepreneurial behaviour; personality traits do have an influence. Furthermore, Bhargava (2007:27) reports that content studies of entrepreneurship, focusing on behaviour, have revealed a set of common identifiable characteristics.

Several authors (Mueller 2004; Cromie 2000) contend that entrepreneurial attributes are useful in explaining entrepreneurial behaviour. However, the trait (attribute) theory has been criticised because of its inability to distinguish between entrepreneurs and small business managers. Cromie (2000) asserts that personal attributes are important but are not the only determinants of behaviour. Although the trait theory attempts to identify attributes/traits of successful entrepreneurs, several limitations of this theory have been brought forward (Nagendra & Manjunath 2009:107).

These limitations include the abundance of personality traits of entrepreneurs that have been identified, certain traits not being identifiable in all successful entrepreneurs, the lack of a set of universal traits ensuring success in all situations, and difficulty in measuring the various traits (Nagendra & Manjunath 2009:108). Similarly, Ghuman and Aswathappa (2010:387) add that the trait theory fails to clearly outline the specific traits that make a person an entrepreneur. According to Ghuman and Aswathappa (2010:387), all entrepreneurs do not possess the identical entrepreneurial traits, and the trait approach fails to establish the relative importance of some traits over others. Trait theory is not clear on whether certain traits are a cause of entrepreneurial behaviour or the effect of it (Ghuman & Aswathappa 2010:387). Nor does it specify the level to which each trait needs to be developed for a person to be described as an entrepreneur (Ghuman & Aswathappa 2010:387). Because of these limitations, Gartner (1988), questioned the trait approach and suggested the use of the behavioural approach instead.

Despite criticism of the trait (attribute) approach, trait theory still dominates explanations of why some individuals embark on entrepreneurial careers and others do not, and whether the strengths of an individual's characteristics can predict entrepreneurial behaviour (Tajeddini & Mueller 2009). According to Mueller (2004), in

recent times an interest in personal attributes and whether these attributes affect the intention to engage in entrepreneurial activity, has resurfaced.

Some researchers consider the identification and investigation of entrepreneurial attributes a worthless exercise, while others disagree (Cromie 2000). The former view is adopted in this study. Against this background and the literature overview above, the following hypotheses have been formulated to assess the relationship between possessing the attributes under investigation and entrepreneurial intentions. Each relationship will be subjected to empirical testing.

- H<sup>1</sup>: There is a positive relationship between possessing the attribute *Planning and perseverance* and *Entrepreneurial intention*.
- H<sup>2</sup>: There is a positive relationship between possessing the attribute *Persuasion and networking* and *Entrepreneurial intention.*
- H<sup>3</sup>: There is a positive relationship between possessing the attribute *Communication ability* and *Entrepreneurial intention*.
- H<sup>4</sup>: There is a positive relationship between possessing the attribute *Commitment* and *Entrepreneurial intention*.
- H<sup>5</sup>: There is a positive relationship between possessing the attribute *Overcoming failure* and *Entrepreneurial intention*.
- H<sup>6</sup>: There is a positive relationship between possessing the attribute S*elf*confidence and locus of control and Entrepreneurial intention.
- H<sup>7</sup>: There is a positive relationship between possessing the attribute *Risk-taking* and *Entrepreneurial intention*.
- H<sup>8</sup>: There is a positive relationship between possessing the attribute *Initiative and responsibility* and *Entrepreneurial intention*.
- H<sup>9</sup>: There is a positive relationship between possessing the attribute *High energy level* and *Entrepreneurial intention*.
- H<sup>10</sup>: There is a positive relationship between possessing the attribute *Tolerance for ambiguity and uncertainty* and *Entrepreneurial intention*.
- H<sup>11</sup>: There is a positive relationship between possessing the attribute *Creativity and flexibility* and *Entrepreneurial intention*.
- H<sup>12</sup>: There is a positive relationship between possessing the attribute *Knowledge seeking* and *Entrepreneurial intention*.

- H<sup>13</sup>: There is a positive relationship between possessing the attribute *Continuous learning* and *Entrepreneurial intention*.
- H<sup>14</sup>: There is a positive relationship between possessing the attribute *Financial proficiency* and *Entrepreneurial intention*.
- H<sup>15</sup>: There is a positive relationship between possessing the attribute *Money sense* and *Entrepreneurial intention*.
- H<sup>16</sup>: There is a positive relationship between possessing the attribute *Business knowledge* and *Entrepreneurial intention*.

# 4.4 DEMOGRAPHICS AND ENTREPRENEURIAL INTENTIONS

According to Aslam *et al.* (2012:122), a person's demographic factors, such as their family background, ethnicity or if their parents owned a business, have a significant effect on their entrepreneurial mindset and attitude.

Demographic variables investigated in this study are *Gender, Ethnicity, Level of study* (age), *University attended* (geographic location) and *Self-employment status of parents* (role models). Literature supporting a relationship between these demographic variables and entrepreneurial intentions will be presented in the paragraphs below.

It is well supported in the literature that men are more likely to undertake entrepreneurial activity than women (Wilson *et al.* 2007; Zhao *et al.* 2005; Kristiansen & Indarti 2004:58; Bridge *et al.* 2003:86-87). Olufunso (2010:89), for example, found that men are more likely than women to express their entrepreneurial intention and start their own business. According to Wilson *et al.* (2007), the largest gap between gender entrepreneurial rates occurs in middle-income nations, where men are 75% more likely than women to be active entrepreneurs.

According to Bridge *et al.* (2003:87), most entrepreneurs have been men, and the businesses which have been created by women have generally been in a limited range in the business sector. The reasons for this difference between male and female entrepreneurial activity are that patriarchal attitudes still exist, that women are

unable to acquire business knowledge and skills needed for a successful business, and that more opportunities are available for men (Bridge *et al.* 2003:87). Entrepreneurship among men has been found to be more prevalent than in women across cultures and countries (Zhang, Zyphur, Narayanan, Arvey, Chaturvedi, Avolio, Lichtenstein & Larsson 2009:94). According to Herrington *et al.* (2010) and Urban (2010), South African women show lower entrepreneurial aspirations than men.

However, the entrepreneurial activity rate among male and female graduates has been found to be similar in Europe (Jones & Dimitratos 2004:346). Some studies (Ahmed, Nawaz, Ahmad, Sajukat, Usman, Rehman, & Ahmed 2010; Drost, 2010; Kakkonen 2010) also show that gender has no significant influence on entrepreneurial intentions. This is supported by Mueller (2004), who contends that only a few differences exist between male and female entrepreneurs.

Studies (Basu & Virick 2008:81) show that different ethnic groups have different levels of entrepreneurial intentions. For example, Fairlie (2004) reported significant differences in self-employment rates among different ethnic and racial groups in the USA. He reported an increasing number of black Americans becoming self-employed, and attributed this increase to the improved levels of education being provided. Hispanics, on the other hand, showed a decrease in self-employment rates in comparison to white Americans. According to Herrington *et al.* (2010:71), White and Indian South Africans are more likely to start their own business than are Coloureds or Black South Africans.

The year of study is an important predictor of entrepreneurial intention among students, as it has been found that students in more senior classes are more likely to have entrepreneurial intentions than first-year students (Ahmed *et al.* 2010:18). The reason for this increase in entrepreneurial intention of senior students is their increased knowledge of and exposure to, the entrepreneurial field (Ahmed *et al.* 2010:19). According to Giuseppe (2012:29), age has a negative relationship with entrepreneurial intention, with younger people indicating higher entrepreneurial intentions than their older counterparts.

According to Olufunso (2010:89), a person's family background has a significant impact on their intention to start their own business. Similarly, Bagheri and Pihie (2010) contend that a person's family is the first place that an individual will have interaction with entrepreneurial attitudes, and this can enhance the person's entrepreneurial capabilities if exposed. When an individual grows up in an environment where one or both parents own their own business, this allows the individual to experience it first-hand and gain knowledge of the business world from a very young age (Bagheri & Pihie 2010).

- H<sup>05</sup>: No relationships exist between the entrepreneurial intentions of NMMU students and selected demographic factors.
- H<sup>a5</sup>: Relationships exist between the entrepreneurial intentions of NMMU students and selected demographic factors.

#### 4.5 SUMMARY

In this chapter the most commonly mentioned intentions-based models, the Theory of Planned Behaviour and the Entrepreneurial Event Model, were discussed. In addition, the concept of self-efficacy was described. Based on this, the relationship between perceived behavioural control, perceived feasibility and self-efficacy was summarised. Literature supporting relationships between possessing the entrepreneurial attributes described in Chapter 3 and entrepreneurial intentions was presented, and several hypotheses in this regard formulated. Furthermore, the relationship between demographic variables and entrepreneurial intentions was investigated, and hypotheses relating to these relationships proposed.

In Chapter 5 the research methodology adopted to test the various hypotheses proposed in this study will be described.

#### **CHAPTER 5**

#### **RESEARCH METHODOLOGY**

#### 5.1 INTRODUCTION

In Chapter 3 several attributes associated with successful entrepreneurs were described. In Chapter 4 the Theory of Planned Behaviour and the Entrepreneurial Events model were discussed, and several factors were identified as influencing intentions. The factors *perceived behavioural control* and *perceived feasibility* were specifically identified and their relationship with self-efficacy was examined. "Self-efficacy" is a person's belief in his or her ability to succeed in a particular situation. Possessing entrepreneurial abilities can be related to having self-efficacy in terms of entrepreneurial behaviour. In theory, the more a person believes he or she has the attributes associated with successful entrepreneurial activities. A person's perception of their entrepreneurial abilities and this confidence in their ability to start a business venture form the theoretical foundation of this study. Against the theoretical background of Chapter 3 and 4, several hypotheses were formulated for empirical testing.

The primary objective of this study was set out in Chapter 1, namely to assess the entrepreneurial attributes of undergraduate business students at the NMMU. Several secondary objectives were also formulated to assist in achieving the primary objective. The purpose of Chapter 5 is to describe and motivate the research methodology adopted to achieve these objectives.

According to Carmichael (2000) it is of crucial importance to determine the methodology of any science. "Methodology" is the approach to a problem which has been recognised, to acquire a broader understanding of a specific behaviour. Research is concerned with the development, verification and refinement of research methods, procedures, techniques and tools, and this is the basis of a research methodology.

Chapter 5 provides an overview of the various research paradigms, and elaborates on the paradigm adopted for this study. The population studied is defined, and the sample unit as well as the sampling method is described. The chapter describes the method of data collection, focusing on aspects such as the measuring instrument, qualifying questions, and scale development. The dependent and independent variables are operationalised to establish a common interpretation in the context of this study. The administration associated with collecting the data is elaborated on, and the statistical techniques used to analyse the data are explained.

#### 5.2 RESEARCH PARADIGM

Paradigms are sets of basic beliefs which deal with ultimate or first principles. A paradigm is seen to be a world view that defines the nature of the world, a person's place in it, and the range of possible relationships to the world and its parts (Neville 2005:2,7). Two research paradigms exist, namely the qualitative and the quantitative research paradigms.

Qualitative research is also referred to as "phenomenological research". Qualitative research involves gathering information that is not in a numeric form, and is mainly expressed as the respondent's perspective (Zikmund 2003:111). Qualitative research is more subjective in nature, and involves examining and reflecting on less tangible aspects of research subjects such as values, attitudes and perceptions. Although qualitative research can be easier to start, it can be difficult to interpret and present findings (Neville 2005:2).

Quantitative research is a form of positivistic, conclusive research involving large representative samples and fairly structured data collection procedures (Zikmund 2003:111). Quantitative research also includes the collection and analysis of numerical data, as well as focusing on measuring the scale, range and frequency of the specified variable. This type of research, although harder to design initially, provides greater detail and structure to the research results, and can be presented in a statistical manner (Neville 2005:2).

In this study a quantitative research approach has been adopted. This approach has been adopted in order to obtain a large amount of numerical data which will be used to measure the frequency of variables and verify the relationships hypothesised.

# 5.3 **POPULATION STUDIED**

A "population" is a group of people with at least one common feature, such as a common geographic location, risk factor or national identity (Lang & Secic 2006:161). The population studied is the target population, and refers to the complete group of a specific population with elements relevant to the research project. It is critically important to define the target population so that the source from which the data is collected can be recognised. Answering questions about the distinctiveness of the population is the standard technique for defining the target population (Zikmund 2003:373).

The population in this study includes all undergraduate students of business at the NMMU. In order to achieve the secondary objectives of this study, undergraduate students of business at other universities in South Africa and abroad were also included in the population.

# 5.4 SAMPLE UNIT AND SAMPLING METHOD

A "sample unit" is one of the units into which an aggregate is divided for the purpose of sampling, each unit being regarded as individual and indivisible when the selection is made (Dodge 2003). According to Zikmund (2003:375), a sampling unit is a single element or group of elements subject to selection from the sample. For the purpose of this study, a sample unit is an individual undergraduate business student.

The major sampling techniques can be grouped into probability and non-probability techniques. "Probability sampling" can be defined as any method of sampling that uses some form of random selection. In order to have a random selection method, a process or procedure must be set up in order to assure that the different units in a population have equal probabilities of being chosen (Trochim 2006). Non-probability

sampling, on the other hand, does not involve random selection, but is a sampling technique in which units are selected on the basis of personal judgement or convenience (Trochim 2006).

There are several probability sampling methods that can be used, namely simple random sampling, systematic sampling, stratified sampling and cluster sampling. "Simple random sampling" occurs when a subset of individuals has been chosen from a larger set of a population. Each individual is chosen randomly and by chance in order for each individual to have the probability of being chosen at any stage during the sampling process. Each subset of individuals has the same probability of being chosen for the sample as any other subset of individuals, and is free of sampling bias (Connaway & Powell 2010: 117-120; Dattalo 2010:22; Struwig & Stead 2007:110-114).

"Systematic" sampling involves a procedure by which an initial point is selected by a random process and then every *n*<sup>th</sup> number on the list is selected (Connaway & Powell 2010:123; Struwig & Stead 2007:114). "Stratified" sampling is a method where a population is divided into subpopulations (strata) and random samples are taken from each of the stratum (Connaway & Powell 2010:123; Struwig & Stead 2007:113). According to Zikmund (2003:386), stratified sampling is a probability sampling procedure in which simple random subsamples are drawn from within different strata that are more or less equal on some or other characteristic. Finally, "cluster" sampling is defined as a random sampling plan in which the population is subdivided into groups called clusters, so that there is a small variability within clusters and large variability between clusters (Connaway & Powell 2010:125; Struwig & Stead 2007:114).

Several types of non-probability sampling techniques exist, namely convenience sampling, judgmental or purposive sampling, expert sampling, quota sampling and snowball sampling. "Convenience" sampling, which is also known as haphazard or accidental sampling, is a method of obtaining units or people who are most easily available and have a willingness to respond (Gravetter & Forzano 2009:141; Trochim 2006). "Judgemental" or purposive sampling is a method of sampling with a purpose in mind. Usually one or more specific predefined characteristics required of the

sample group are specified. In determining the required characteristics of the chosen sample group, the researchers rely on the judgement and opinion of the researcher (Bless, Higson-Smith & Kagee 2006:106; Trochim 2006).

"Expert" sampling involves the assembling of a sample of persons with known or certain experience, or expertise in some area (Trochim 2006). "Quota" sampling is the non-random selection of people according to a fixed quota. The process of quota sampling ensures that certain characteristics of a population sample will be represented to the exact extent that the researcher requests (Zikmund 2003:383). The final non-probability sampling technique is "snowball" sampling. Snowball sampling is a method whereby an individual is identified who meets the criteria specified for the study, and additional respondents are obtained from information provided by the initial individual who was identified (Bless *et al.* 2006:106; Trochim 2006).

In the present study the researcher made use of the email addresses of undergraduate students registered for business modules at the selected South African universities. The email addresses were obtained from the student records at NMMU, Stellenbosch University and Rhodes University. These student records formed the sampling frame for this study. All undergraduate students studying business modules at the participating universities were given the opportunity to participate in the study on a voluntary basis. The sample obtained in this study can thus be described as a convenience sample. The international sample was also selected based on convenience, and consisted of students of business at the University of Northern Iowa and the University of Utrecht. Questionnaires were handed out in the classes of the contact persons at these universities.

#### 5.5 METHOD OF DATA COLLECTION

A questionnaire is the most common method used by researchers to obtain information from a selected target market (Jones n.d.). According to Walonick (1993), questionnaires are one of the most preferred methods used by students to conduct scholarly research. In order to gather data from the South African sample, an online questionnaire was used, while a hard copy of the questionnaire was distributed to the international students participating in the study. The use of a questionnaire was a convenient way of gathering information from the target population.

#### 5.5.1 INSTRUMENT DEVELOPMENT

The measuring instrument that was used for this study was adapted from an existing instrument used in previous studies (Van Eeden *et al.* 2005; Louw *et al.* 1997). The operational definitions of the original measuring instrument were, however, adapted by Farrington, Venter, Neethling and Louw (2010) and these adapted definitions are adopted in this study. The measuring instrument comprised a cover letter which provided the potential respondent with all the necessary information about the study. This information included an invitation to participate in the study, as well as the name of the primary investigator. In addition to this, the criteria that would enable a student to participate in the study were highlighted. The purpose of conducting the study and the procedure by which the respondent could participate were also explained. In addition, confidentiality was promised to all respondents. In the cover letter the benefits and risks that participants would face were also identified to ensure that the respondent understood exactly what he or she was going to be involved in. Included in the email letter was an automatic web link to direct the respondent to the electronic questionnaire.

Section A of the questionnaire contained 104 statements that would provide insights into the entrepreneurial attributes of respondents. By making use of a 5-point Likert scale, respondents could indicate the extent to which they agreed or disagreed with each of the statements. Each statement was designed to assess the degree to which the respondents possessed a specific entrepreneurial attribute.

Section B requested demographic information from the respondent. Demographic information included aspects such as the university and level at which the respondent was currently studying, as well as the name of the commerce/business module being studied. In addition, demographic information on their gender, age, population group and which of their parents/guardians were self-employed, was requested. For the international students, Section B only requested information

relating to gender and age. Section C requested information relating to the planned entrepreneurial behaviour of respondents. Section C was not included in the measuring instrument administered to the international students.

# 5.5.2 QUALIFYING QUESTIONS

All undergraduate business students at the participating South African universities were invited to participate in the study. For the international universities, students in the business class of the contact researcher were identified and requested to participate. For the purpose of this study, "undergraduate" refers to a student in their first, second or third year level of study, while a "business student" was one who was currently undertaking modules related to the following subjects: Business Management, Marketing, Marketing Communications, Purchasing and Logistics, Finance, Investments, General and Strategic Management, and Entrepreneurship.

For this study, a person was eligible to participate if they had fulfilled certain criteria. Firstly, potential respondents had to be at the correct level of study. This meant that they would have to be in either first, second or third year of study. Secondly, the respondents had to be currently enrolled in a business module offered at their respective universities.

# 5.5.3 SCALE DEVELOPMENT AND OPERATIONALISATION OF INDEPENDENT AND DEPENDENT VARIABLES

For the purpose of this study, the existing scales of Van Eeden *et al.* (2005:29) were used to measure the independent variables. The 16 entrepreneurial attributes formed the independent variables in this study and were: *Planning and perseverance, Persuasion and networking, Communication ability, Self-confidence and locus of control, Risk-taking ability, Initiative and responsibility, High energy level, Tolerance for ambiguity and uncertainty, Creativity and flexibility, Knowledge-seeking, Continuous learning, Financial proficiency, Money sense, and Business knowledge. In their study, Farrington <i>et al.* (2010) also used the scales of Van Eeden *et al.* (2005:29), but revised the operational definitions of the various entrepreneurial

attributes. The various operational definitions as proposed by Farrington *et al.* (2010) were adopted for this study and are summarised in Table 5.1.

Entrepreneurial Attribute	Operational Definition
Planning and perseverance	Having goals, plans and the determination to follow through.
Persuasion and networking	Having the ability to convince others and build relationships.
Communication ability	Having the ability to communicate ideas to others.
Commitment	Having the ability to meet commitments in a timely manner.
Overcoming failure	Having the ability to overcome failure and regard it as a learning experience.
Self-confidence and locus of control	Having belief in oneself and believing that personal actions determine success.
Risk-taking ability	Having a predisposition for taking moderate, calculated risks providing a reasonable chance for success.
Initiative and responsibility	The willingness to take initiative and be responsible.
High energy level	Having the ability to work long hours and stay focused.
Tolerance for ambiguity and uncertainty	Having the ability to live with modest to high levels of uncertainty concerning job and career security, being able to perform different tasks simultaneously.
Creativity and flexibility	Being able to think originally and creatively while flexible enough to handle changing or multiple circumstances.
Knowledge-seeking	Being willing to seek information, ideas, expertise and the assistance of others.
Continuous learning	The desire to expand personal knowledge and enhance level of expertise.
Financial proficiency	Having the ability to understand and/or interpret financial transactions and results.
Money Sense	Recognising that money is an important factor, and having the ability to correctly use this resource.
Business knowledge	Having a basic understanding of business operations and terminology.

 Table 5.1:
 Operational definitions of the entrepreneurial attributes

(Source: Farrington et al. 2010)

*Entrepreneurial intention* is the dependent variable in this study and is measured using a single question, namely "Do you intend to start and manage your own business in the future?" Students could reply with either a "Yes" or a "No". For the purpose of this study, "entrepreneurial intention" was operationalised as the intention of students to start and manage their own business in the future. Drost (2010) and Kakkonen (2010) adopted similar definitions in their studies.

#### 5.6 ADMINISTRATION OF QUESTIONNAIRES

During the month of March 2010, undergraduate business students at NMMU, Rhodes University and Stellenbosch University were informed of the research by means of an email. The email included an invitation to participate in the project aimed at measuring the entrepreneurial attributes of undergraduate business students.

The email letter was sent to all undergraduate business students, inviting them to participate in the study on a voluntary basis. Information needed to undertake the research was obtained by means of an online questionnaire, which could be accessed via an automatic link in the email. In the email respondents were requested to click on the link that opened the questionnaire in web format, so that the required fields could be completed online. Upon submission, the data from the completed questionnaires was imported directly into an Excel spreadsheet. The online survey tool of NMMU was used for this purpose.

In total, 449 satisfactorily completed questionnaires were received from NMMU (200), Rhodes (130) and Stellenbosch (119) University students. In total, 20 incomplete questionnaires, where data was not captured correctly or accurately, were received. These questionnaires were disregarded and removed from the study. At the University of Northern Iowa and Utrecht University, the measuring instrument was distributed among students during a business class. The business students who were willing to complete the questionnaire could do so during class time, or they could return it at a later date. This approach resulted in 425 usable questionnaires, 224 from Utrecht University and 201 from the University of Northern Iowa. The measuring instrument for the international students and the South African students

was exactly the same. Additional demographic information was, however, solicited from the South African students.

#### 5.7 METHOD OF DATA ANALYSIS

The data was analysed firstly by establishing the validity and reliability of the measuring instrument. Secondly, descriptive statistics such as mean, standard deviation and frequency distribution, were established to describe the sample and summarise the data. Lastly, inferential statistics were conducted to analyse the data.

#### 5.7.1 VALIDITY AND RELIABILITY OF MEASURING INSTRUMENT

In order for the data analyses to be successful, the measuring instrument had to be valid and reliable. Without a valid and reliable measuring instrument, generalisation beyond the immediate sample is difficult or misleading (Sakakibara, Flynn & Schroeder 1993).

"Validity" is the extent to which the instrument measures what it is designed to measure (Punch 2005:97; Zikmund 2003:302). In the present study, factor analyses were used to assess the validity of the measuring instrument. A factor analysis is a statistical method used to find a small set of observable variables or factors which account for the differences among a larger set of observed variables or factors (Albright & Park 2009:2). There are two approaches to a factor analysis that can be used in a study, namely an exploratory factor analysis and a confirmatory factor analysis.

An exploratory factor analysis explores the patterns in the data to test the stated hypotheses without imposing any substantive constraints on the data. There are therefore no restrictions on the pattern of the relationships between the observed or latent variables (Brown 2006:14). A confirmatory factor analysis is theory and hypothesis-driven (Suhr 2003). The researcher uses knowledge of the theory, empirical research or both, from previous research, to examine the relationship pattern, and then tests the hypothesis statistically (Suhr 2003). According to Suhr (2003), a confirmatory factor analysis allows the researcher to test the hypothesis

that a relationship between the observed variable and their underlying latent construct exists.

In the present study, confirmatory factor analyses were undertaken to assess the reliability of the measuring scales. Confirmatory factor analyses were adopted because an existing measuring instrument was used. According to Hair *et al.* (2006:128), factor loadings of greater than 0.30 are considered statistically significant for sample sizes of 350 and greater. With only one factor per scale, rotation is not applicable. It should be noted that the concept of discriminant validity was not applicable to this study, as the 16 attributes were not suggested as being mutually exclusive dimensions.

"Reliability" in a measuring instrument means that the data output is consistent (Salkind 2010:142; Punch 2005:95). In this study, Cronbach alpha coefficients were calculated to evaluate the reliability of the measuring instrument. The Cronbach alpha coefficient is a function of the average inter-correlations of items and the number of items in a scale (Kimberlin & Winterstein 2008:2276). According to Kimberlin and Winterstein (2008:2276), the greater the number of items in a summated scale, the higher the Cronbach alpha coefficient tends to be. Cronbach alpha coefficients were calculated for each of the scales to determine whether the observed scale scores were reliable. Cronbach alpha coefficients of less than 0.50 were deemed to be unacceptable; those between 0.50 and 0.60 as sufficient, and values above 0.70 as acceptable (Nunnally, 1978). According to Sekaran (1992), Cronbach alpha values which are greater than 0.80 can be regarded as good.

# 5.7.2 STATISTICAL TECHNIQUES

The main purpose of this study was to assess the entrepreneurial attributes of undergraduate business students. In order to undertake this assessment, several statistical technique analyses were undertaken. The software programme STATISTICA was used for this purpose. Analyses included calculating descriptive statistics, t-tests, a multivariate analysis of variance (MANOVA), an analysis of variance (ANOVA) and Cohen's d, as well as Chi-square statistic and Cramer's V.

In order to determine the level of development of entrepreneurial attributes among students at NMMU, respondents were requested to assess themselves in terms of the 16 entrepreneurial attributes investigated in this study. Descriptive statistics relating to these attributes, such as the mean, standard deviation and frequency distributions, were calculated to summarise the sample data distribution. This was done for the individual items and the summated category scores. Attribute scores were categorised as *Low* (less than 2.6), *Average* (between 2.6 and 3.4 inclusive) and *High* (above 3.4). These categories were established to facilitate discussion, and based on dividing the scale scores so that the *Low* category corresponds with the 1 and 2 options of the five-point Likert scale, the *Average* category with the 3 option and the *High* category with the 4 and 5 options of the said response scale. Attribute categories that scored *Low* were considered as underdeveloped, those that scored *Average* as developed, and those that scored *High* as well-developed.

In order to compare the level of development of entrepreneurial attributes among NMMU students in the present study (2010) with those levels among NMMU students reported in a previous study (2001), t-tests were undertaken and Cohen's d statistics calculated to establish practical significance. A t-test is a univariate hypothesis test that makes use of t-distribution when the population's standard deviation is unknown and the sample size is small (Zikmund 2003:509). Cohen's d makes use of a statistical test to identify whether there is an observed difference/relationship between the attributes being compared, or whether there is a statistical significance (Kirk 1996:748). T-tests and Cohen's d were also calculated to assess whether significant differences existed between respondents intending to start their own business and those that were not, with regard to the levels of development of the various entrepreneurial attributes.

To compare the level of development of entrepreneurial attributes among NMMU students with the level of development among students at other South African universities as well as the development of students abroad, an ANOVA was undertaken. According to Howell (2004:356), an analysis of variance is a statistical technique that is used for testing the differences in the means of several different groups. When making use of the ANOVA statistic, two assumptions are made, namely that the populations from which the samples are drawn are normally

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distributed, and that the populations from which the sample is drawn have equal variance (Steinberg 2008:268). The practical significance was also established by means of Cohen's d. According to Steinberg (2008:364), Cohen's d converts the difference of means scores into standard deviation units, and is thus able to show the observed difference between the means of the variables under investigation. For Cohen's d indices where  $0.20 > |d| \le 0.50$ , the difference is of small practical importance; for indices where  $0.50 > |d| \le 0.80$ , the difference is of medium practical importance, and where  $|d| \ge 0.80$  the difference is of large practical importance (Becker 2000).

To establish whether the level of development of entrepreneurial attributes among NMMU students was related to select demographic factors, a multivariate analysis of variance (MANOVA) and a univariate analysis of variance (ANOVA) were conducted. To establish practical significance, Cohen's d was calculated. The demographics that were under investigation in this study included: *Level of study, Gender, Age, Ethnicity* and *Self-employment status of parents.* 

To establish whether relationships existed between the entrepreneurial intentions of NMMU students and selected demographic factors (*Level of study, Gender, Ethnicity* and *Self-employment status of parents*), Chi-square statistics and Cramer's V were calculated. A Chi-square (X<sup>2</sup>) statistic is used by researchers to investigate whether distributions of categorical variables differ from one another. A categorical variable generates data into various categories, while numerical variables yield data in numerical form (Eck n.d.). Cramer's V is the most popular of the Chi-square-based measures as it gives the best norming from '0' to '1'. Cramer's V gives the researcher the association between two variables as a percentage of their maximum possible variation (Phi and Cramer's V 2007). In terms of Cramer's V, values between -1 to +1 indicate a perfect relationship, while 0 indicates no relationship (Seaman 2001). For Cramer's V indices where  $\phi \le 0.30$  the difference is of small practical significance, for indices where  $0.30 > o \le 0.50$  is of medium practical significance and where  $\phi \ge 0.50$  there is a large practical significance (Steinberg 2008:370).

#### 5.8 SUMMARY

Chapter 5 provided an outline of the methodology adopted to achieve the objectives of this study. The research paradigm, population, sample and sampling technique used in this study were identified and described. The measuring instrument used was described and the independent and dependent variables were operationalised. The administration and collection of the questionnaires were also described. Lastly, the method of establishing the reliability and validity of the measuring instrument, as well as the statistical techniques used in this study, were explained.

In the chapter to follow, the empirical results of this study will be presented.

# **CHAPTER 6**

#### **EMPIRICAL RESULTS**

#### 6.1 INTRODUCTION

Chapters 2, 3 and 4 provided a theoretical framework for achieving the objectives of this study. In Chapter 5 the research paradigm, population studied, sample unit and sampling method were identified and discussed. The method of data collection as well as the administration of questionnaires was explained, and the data analysis techniques were described.

In this chapter the demographic data collected from the respondents will be presented. Demographic profiles of both the South African and the international respondents who participated in the study will be provided. Thereafter the results of the validity and reliability assessments will be presented for each of the 16 entrepreneurial attributes under investigation. Finally, the results of the various statistical analyses will be reported.

# 6.2 DEMOGRAPHIC DATA

As mentioned in Chapter 5, the sample consisted of students from NMMU, students from two other South African Universities (Rhodes University and Stellenbosch University), and students from two international universities (The University of Northern Iowa and Utrecht University). The demographic profiles of these students are reported in Tables 6.1 and 6.2 and are described in the paragraphs that follow.

#### 6.2.1 DEMOGRAPHIC PROFILES OF SOUTH AFRICAN STUDENTS

The demographic profiles of the students from the South African Universities are described in terms of their year of study, gender, age and ethnic group.

From Table 6.1 it can be seen that the majority of students participating in this study were in their first year of study. At NMMU, 41% of respondents were in their first

year of study, whereas 37% were in their second and 22% in their third year. The majority of participants (76%) from Stellenbosch University were also in their first year of study, with 12% in their second and 16% in their third year. Rhodes University had a more or less even distribution of first-year (42%) and second-year (40%) respondents, with 18% of respondents being in their third year.

NMMU and Stellenbosch University had the same number of males (48%) and females (52%) participating in the study and the spread between the two genders was more or less even. At Rhodes University the majority (63%) of respondents were female.

Most NMMU respondents (60%) were between the ages of 20 and 44 years, with 40% being between the ages of 17 and 19 years. In contrast, at Stellenbosch University the majority (73%) of respondents were between the ages of 17 and 19 years, while only 27% were between 20 and 44 years of age. On the other hand the ages of respondents from Rhodes University were evenly spread between the two age categories, with 52% between the ages of 17 and 19 years and 48% between the ages of 20 and 44 years.

The majority of respondents from NMMU were African (67%), followed by White (22%) and other ethnic groups (11%). In contrast the great majority of respondents from Stellenbosch University were White (91%), with African and other ethnic groups making up only 3% and 6% of respondents respectively. The ethnic make-up of students from Rhodes University was similar to that of NMMU, with 69% of respondents being African and 26% being White.

	NM	IMU	STELLENBOSCH		RHODES	
Year of study	N=200	%	N=115	%	N=130	%
1st year	82	41.0	87	75.7	55	42.3
2nd year	74	37.0	12	10.4	52	40.0
3rd year	44	22.0	16	13.9	23	17.7

 Table 6.1:
 Demographic data: South African students

	NMI	MU	STELLENBOSCH		RHODES	
Gender	N=197	%	N=113	%	N=129	%
Male	95	48.2	54	47.8	48	37.2
Female	102	51.8	59	52.2	81	62.8
	NMI	NU	STELLER	NBOSCH	RHODES	
Age categories	N=196	%	N=114	%	N=127	%
17-19 years	78	40.0	83	72.8	66	52.0
20-44 years	118	60.0	31	27.2	61	48.0
	NMI	MU	STELLENBOSCH		RHODES	
Ethnicity	N=188	%	N=112	%	N=129	%
White	41	21.8	102	91.1	34	26.4
African	126	67.0	3	2.7	89	69.0
Other	21	11.2	7	6.3	6	5.6
	NMI	MU	STELLENBOSCH		RHODES	
Self-employment status of parents	N=197	%	N=130	% N=115		%
Neither	100	50.8	32	27.8	52	40.0
Either/or both	97	49.2	83	72.2	78	60.0
	NMMU		J STELLENBOSCH		I RHODES	
Entrepreneurial intentions	N=195	%	N=116	%	N=128	%
Yes	144	73.8	62	53.4	91	71.1
No	51	26.2	54	46.6	37	28.9

# Table 6.1: Demographic data: South African students (continued)

In addition to demographic data, respondents were requested to indicate their entrepreneurial inclinations as well as that of their parents (Table 6.1). Respondents

were requested to indicate whether their mother or father, or both parents, were engaged in entrepreneurial activities. Furthermore, they were requested to indicate whether they themselves had entrepreneurial intentions or not.

At NMMU 51% of respondents indicated that neither of their parents was engaged in entrepreneurial ventures, whereas 49% indicated that either one or both of their parents were involved in entrepreneurial ventures. In contrast, at both Stellenbosch and Rhodes University more respondents indicated their parents being involved in entrepreneurial ventures than not being involved. The sample showed that 72% of respondents from Stellenbosch and 60% from Rhodes University indicated that at least one of their parents was involved in entrepreneurial activities.

The majority of respondents from NMMU (74%) and Rhodes (71%) University indicated having entrepreneurial intentions, whereas only 53% of respondents from Stellenbosch University indicated having entrepreneurial intentions.

# 6.2.2 DEMOGRAPHIC PROFILE OF INTERNATIONAL STUDENTS

Two international universities took part in this study, the University of Northern Iowa and the University of Utrecht. There were a total of 424 international students who participated in this study. A relatively even number of respondents from these overseas universities participated. Limited demographic data was collected from the two international universities, and data relating to the entrepreneurial nature of the respondents and their parents, as well as data relating to ethnicity, was not collected. The demographic data collected for the international sample varied from that of the national sample because of the changes made to the questionnaire by the researchers in those countries.

	USA	USA	NED	NED
Gender	N=200	%	N=224	%
Male	119	60.1	114	52.3
Female	79	39.9	104	47.7
	USA	USA	NED	NED
Age categories	N=200	%	N=224	%
< 20 years	7	3.6	36	16.7
20-25 years	179	90.9	167	77.3
> 25 years	11	5.6	13	6.0

 Table 6.2:
 Demographic data: International students

From Table 6.2 it can bee seen that respondents from the University of Northern lowa were predominantly male (60%), with 40% of respondents being female. A more or less even number of male (52%) and female (48%) respondents from the University of Utrecht participated in the study. In the Northern Iowa sample, the vast majority (91%) of respondents were in the 20 to 25-year age category, with 6% being older than 25 and 4%, younger than 20. The Utrecht sample reported similar results with 77% of respondents being between the ages of 20 and 25, 17% being younger than 20, and 6% being older than 25 years of age.

# 6.3 RELIABILITY OF THE MEASURING INSTRUMENT

Each scale in the measuring instrument was subjected to an item analysis which consisted of two parts. Firstly, a confirmatory factor analysis was conducted on each scale to determine whether all the relevant items loaded onto the applicable scale. Secondly, the internal consistency of the measuring scales was established through calculating Cronbach alpha coefficients. This was done to determine whether the observed scale scores were reliable. Principal component analysis was specified as the method of initial factor attraction. With only one factor per scale, factor rotation was not applicable. As the 16 attributes were not considered mutually exclusive

dimensions, it should be noted that the concept of discriminant validity is not applicable in this study.

The results of the confirmatory factor analyses revealed that the majority of items loaded significantly onto the 16 entrepreneurial attribute categories as expected. According to Hair *et al.* (2006:128), factor loadings of greater than 0.30 are considered to be statistically significant for sample sizes of 350 and greater. As such, items displaying factor loading of greater than 0.30 were considered significant in this study. To avoid unnecessarily jeopardising content validity, the few items with loadings of less than 0.30 were retained for further analyses, so that comparisons with a previous study could be undertaken.

In this study, Cronbach alpha coefficients of less than 0.50 were deemed to be unacceptable, those between 0.50 and 0.70 regarded as sufficient, and those above 0.70 as acceptable (Nunnally 1978). According to Sekaran (1992), Cronbach alpha values greater than 0.80 can be regarded as good. The results of the factor analysis as well as the Cronbach alpha coefficients for the various entrepreneurial attributes are summarised in Tables 6.3 to 6.18 below.

#### 6.3.1 PLANNING AND PERSEVERANCE

Nine items were used to measure the entrepreneurial attribute *Planning and perseverance* (Table 6.3). *Planning and perseverance* explained 39.3% of the variance in the data, and factor loadings of between 0.723 and 0.508 were reported for this factor. Sufficient evidence of validity for this measuring scale was thus provided. The Cronbach alpha coefficient of 0.80 for *Planning and perseverance* suggested that the scale used to measure this factor was reliable. For the purpose of this study *Planning and perseverance* refers to having goals, plans and the determination to follow through.

% of Variance: 39.3% Cronbach alpha		a : 0.80
ltem	Statements	Loading
ITEM8	l have a long-range financial goal.	.629
ITEM16	In my studies/career so far I have had counsel from someone who has experience.	.664
ITEM19	I revise my goals periodically in view of "progress to date".	.686
ITEM20	When I start a task I normally see it through to the end.	.595
ITEM54	Before falling asleep at night, I often think of new ideas concerning my future plans.	.508
ITEM75	When I set a goal, I generally see it through to the end.	.723
ITEM81	When I make up my mind to do something, I generally do it.	.596
ITEM94	I have been successful in attaining most of my long-range goals.	.617
ITEM95	Before falling asleep at night, I normally plan what I am going to do for the next day.	.601

 Table 6.3:
 Factor A – Planning and perseverance

# 6.3.2 PERSUASION AND NETWORKING

Seven items were used to measure the attribute *Persuasion and networking* which explained 31.5% of the variance in the data. Factor loadings of between 0.811 and 0.258 were reported for this factor. Although ITEM21 reported a very low factor loading, it was retained to ensure content validity and for comparative purposes. A Cronbach alpha coefficient of 0.56 for *Persuasion and networking* was reported, suggesting that that the scale used to measure this factor showed sufficient (Nunnally 1978) evidence of reliability. In this study *Persuasion and networking* refers to having the ability to convince others and build relationships.

% of Variance: 31.5 Cronbach alph		ia : 0.56
Item	Statements	Loading
ITEM12	l enjoy telling a joke.	.355
ITEM21	When I am the only person in a group with a specific opinion, I try to convince others to do it my way.	.258
ITEM33	People come to me for personal advice.	.595
ITEM34	I make friends easily.	.675
ITEM41	I laugh easily.	.667
ITEM63	I find that most of the people I come into contact with are pleasant and friendly.	.378
ITEM64	I consider myself a person that can carry on a decent conversation.	.811

 Table 6.4:
 Factor B – Persuasion and networking

# 6.3.3 COMMUNICATION ABILITY

From Table 6.5 it can be seen that nine items were used to measure the entrepreneurial attribute *Communication ability*.

Table 6.5: Factor C -	Communication	ability
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% of Variance: 29.1 Cronbach alph		ha : 0.68	
ltem	Statements	Loading	
ITEM1	I enjoy speaking in front of audiences.	.671	
ITEM2	At meetings, I find myself as the person clarifying what others have said.		
ITEM3	I did well in my written work at school.	.469	
ITEM4	I can maintain a conversation even when my speaking partner is not talking much.		
ITEM11	When I speak to people I make it a point to maintain good eye contact.		
ITEM13	I know how to end conversations tactfully.	.521	
ITEM35	When speaking to people I generally try to match their vocabulary.		
ITEM82	I often write memos or letters about business matters.	.436	
ITEM88	I find it easy to express new ideas quickly and understandably.	.721	

*Communication ability* explained 29.1% of the variance in the data, and factor loadings of between 0.721 and 0.353 were reported. These loadings exceeded the minimum cut-off of 0.3 (Hair *et al.* 2006) and were thus regarded as statistically significant. Sufficient evidence of validity was thus provided. The Cronbach alpha coefficient (0.68) reported for *Communication ability* suggested that the scale used to measure this factor had sufficient levels of reliability. In this study *Communication ability* was operationalised as having the ability to communicate ideas to others.

# 6.3.4 COMMITMENT

*Commitment* explained 61.5% of the variance in the data. Three items were used to measure this entrepreneurial attribute (Table 6.6). Factor loadings of between 0.871 and 0.580 were reported for this factor. Sufficient evidence of validity was thus provided. A Cronbach alpha coefficient of 0.66 was reported for *Commitment*, which suggested that the scale used to measure *Commitment* showed sufficient evidence of reliability. *Commitment* refers to the ability to meet commitments in a timely manner.

% of Variance: 61.5 Cronb		ch alpha : 0.66	
ltem	Statements	Loading	
ITEM29	I generally get things done on time.	.871	
ITEM30	I am on time for appointments.	.865	
ITEM43	I usually arrive at airports, train stations or bus stations early, rather than" just in time".	.580	

Table 6.6: Factor D – Commitment

# 6.3.5 OVERCOMING FAILURE

Six items were used to measure the entrepreneurial attribute *Overcoming failure*. *Overcoming failure* explained 36.4% of the variance in the data. Factor loadings of between 0.740 and 0.303 were reported for this factor (Table 6.7). Sufficient evidence of validity was thus provided. The Cronbach alpha coefficient of 0.59 reported for *Overcoming failure* suggested that the scale used to measure this factor

had sufficient evidence of reliability. For the purpose of this study the attribute *Overcoming failure* referred to overcoming failure and regarding it as a learning experience.

% of Variance: 36.4 Cronbach alph		ha : 0.59
Item	Statements	Loading
ITEM22	I am able to make jokes about some of my own failings.	.465
ITEM24	I am able to discuss wrong decisions I have made, in an analytical and rational manner.	.694
ITEM32	I have attempted a major project which failed at first, for the second time, and then succeeded.	.303
ITEM39	I am able to pick up the pieces and start again after a severe setback on a project.	.740
ITEM53	I believe that "if at first you don't succeed, try and try again".	.672
ITEM55	When in a state of depression, I know that I will soon overcome it.	.632

 Table 6.7:
 Factor E – Overcoming failure

# 6.3.6 SELF-CONFIDENCE AND LOCUS OF CONTROL

As reported in Table 6.8, six items were used to measure the entrepreneurial attribute *Self-confidence and locus of control*. This attribute explained 30.4% of the variance in the data, and factor loadings of between 0.716 and 0.294 were reported. Although ITEM72 reported a factor loading of 0.294, because of its close proximity to 0.30, and to avoid jeopardising content validity, it was decided to retain this item. A Cronbach alpha coefficient of 0.50 was reported for *Self-confidence and locus of control* suggesting that sufficient evidence (Nunnally 1978) of reliability for this scale was provided. For the purpose of this study *Self-confidence and locus of control* referred to a belief in self and belief that personal actions determine success.
% of Variance: 30.4 Cronbach alpha : 0.5		ha : 0.50
Item	Statements	Loading
ITEM57	I face the problems of life with a feeling of hope and good expectations.	.692
ITEM72	I put my family and/or children first.	.294
ITEM73	I am able to maintain my self-control when another person is chewing me out for something I did not do.	.716
ITEM74	I tend to support my own decisions and opinions vigorously.	.323
ITEM91	I feel that most events in my life are determined by me.	.510
ITEM96	When people criticise me, I take it kindly and try to change.	.620

 Table 6.8:
 Factor F - Self-confidence and locus of control

# 6.3.7 RISK-TAKING

Five items were used to measure the entrepreneurial attribute *Risk-taking*. These items are reported in Table 6.9 below. *Risk-taking* explained 36.9% of the variance in the data, and factor loadings of between 0.790 and 0.227 were reported. As in the case of ITEM21 and ITEM 72, ITEM58 also reported a very low factor loading but was retained for the same reasons as ITEM21 and ITEM 72. However, a Cronbach alpha coefficient of 0.16 for *Risk-taking* suggested that the scale used to measure this factor had insufficient evidence reliability. Consequently *Risk-taking* was eliminated from further statistical analysis.

Table 6.9:	Factor G -	Risk-taking
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% of Variance: 36.9 Cronbach alp		ha : 0.16
Item	Statements	Loading
ITEM9	When I have the opportunity I will borrow money from the petty cash box for my personal use.	.561
ITEM49	I make a practice of buying things on credit.	.790
ITEM58	At times I do things against the wishes of my parents	.227
ITEM92	I prefer to purchase things for cash.	.733
ITEM98	Given the opportunity I would gamble for money.	.576

#### 6.3.8 INITIATIVE AND RESPONSIBILITY

The eleven items used to measure the entrepreneurial attribute *Initiative and responsibility* are reported in Table 6.10. *Initiative and responsibility* explained 37.6% of the variance in the data, with factor loadings of between 0.716 and 0.454 being reported. Sufficient evidence of validity was thus provided for this measuring scale. A Cronbach alpha coefficient of 0.82 was reported for *Initiative and responsibility* suggesting that the scale used to measure this factor showed sufficient evidence of reliability. For the purpose of this study *Initiative and responsibility* refers to the willingness to take the initiative and be responsible.

% of Variance: 37.6 Cronbach alpha :		: 0.82
ltem	Statements	Loading
ITEM6	When I come up with a new idea, I generally try to 'sell' other people on it	.518
ITEM17	I enjoy facing new situations and working out solutions to problems	.640
ITEM26	I like to be asked for personal advice.	.531
ITEM27	I am active in outside organisations as a volunteer.	.649
ITEM38	Friends and relatives come to me for various types of business advice	.454
ITEM40	I like responsibility.	.709
ITEM51	I tend to dominate conversations.	.468
ITEM77	The proposals I make at meetings, discussions etc, are generally accepted.	.716
ITEM79	I seek out situations in which I will have extra responsibility.	.707
ITEM86	In volunteer organisations, I normally end up either being a chairperson or a committee member.	.710
ITEM87	I have done fundraising for a charity organisation or a church group (or other religious group)	.559

## 6.3.9 HIGH ENERGY LEVEL

*High energy level* explained 29.9% of the variance in the data. Seven items were used to measure this entrepreneurial attribute. Factor loadings of between 0.629 and 0.270 were reported. Although ITEM59 reported a factor loading of less than 0.3, to avoid jeopardising content validity and allowing comparisons to a previous study to be made, this item was retained for further analysis. The other factor loadings exceeded 0.5, providing sufficient evidence of validity for this scale.

% of Variance: 29.9 Cronbach alpha : 0.57		a : 0.57
ltem	Statements	Loading
ITEM10	I normally attempt to do a job better than is expected of me.	.585
ITEM42	I am in good health.	.480
ITEM59	When I start a task, I usually get so involved that I forget everything else.	.275
ITEM78	I am able to work long hours without getting tired.	.531
ITEM80	I act quickly in cases of emergency, such as accidents, fire, etc.	.616
ITEM83	I work well under pressure.	.629
ITEM84	I have missed lunch or dinner to complete a task.	.626

Table 6.11: Factor I – High energy level

The Cronbach alpha coefficient of 0.57 returned for *High energy level* suggested that the scale used to measure this factor had sufficient reliability (Nunnally 1978). For the purpose of this study *High energy level* refers to a person having the ability to work long hours and staying focused.

## 6.3.10 TOLERANCE FOR AMBIGUITY AND UNCERTAINTY

Four items were used to measure the entrepreneurial attribute *Tolerance for ambiguity and uncertainty*. *Tolerance for ambiguity and uncertainty* explained 41.2% of the variance in the data. Factor loadings of between 0.805 and 0.262 were

reported for this factor. Item18 showed insufficient evidence of validity, but was maintained because of it close proximity to 0.3, and to facilitate comparisons with previous studies. Satisfactory evidence of validity for the rest of the scale was, however, provided. The Cronbach alpha coefficient of 0.49 for *Tolerance for ambiguity and uncertainty*, however, suggested that the instrument used to measure this factor showed insufficient evidence of reliability. For the purpose of this study only Cronbach alpha coefficients of more than 0.50 were considered acceptable. As a result *Tolerance for ambiguity and uncertainty and uncertainty* was excluded from further statistical analysis.

% of Variance: 41.2 Cronbach alpha		a : 0.49
ltem	Statements	Loading
ITEM7	It is important for me to know where the next Rand is coming from.	.640
ITEM18	I need a clear explanation of a task before proceeding with it.	.262
ITEM66	I "get organised" quickly when placed in a new situation.	.805
ITEM97	I am able to handle many things at the same time.	.722

 Table 6.12:
 Factor J - Tolerance for ambiguity and uncertainty

## 6.3.11 CREATIVITY AND FLEXIBILITY

Eight items were used to measure the entrepreneurial attribute *Creativity and flexibility*, which explained 38.6% of the variance in the data. As seen in Table 6.13, factor loadings of between 0.796 and 0.315 were reported for this factor. Evidence of validity for this scale was thus provided. *Creativity and flexibility* reported a Cronbach alpha coefficient of 0.74 suggesting that the scale used to measure this factor was reliable. For the purpose of this study *Creativity and flexibility* refers to being able to think originally and creatively, while flexible enough to handle changing or multiple circumstances.

% of Variance: 38.6 Cronbach alpha : 0.74		: 0.74
Item	Statements	Loading
ITEM36	I keep a daily list of "things which must be done".	.503
ITEM44	When people present ideas to me I usually come up with a new gimmick or twist.	.315
ITEM45	When faced with a sudden change in plans I am able to rethink my situation and quickly move ahead on a specific course of action.	.746
ITEM46	I am usually able to come up with more than one way to solve a particular problem.	.796
ITEM47	I enjoy doing different things at work.	.674
ITEM48	I make suggestions about improving things on the job or studies.	.721
ITEM65	I find it easy to set priorities when I have a number of tasks to do in a short period of time.	.538
ITEM67	Before making a large purchase I usually research the field before going out to look at the item.	.534

Table 6.13: Factor K – Creativity and flexibility

# 6.3.12 KNOWLEDGE SEEKING

Seven items (see Table 6.14) were used to measure the entrepreneurial attribute *Knowledge seeking* which explains 39.9% of the variance in the data.

Table 6.14:	Factor	L –	Knowledge	seeking
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% of Variance: 39.9 Cronbach alpha : 0.74		na : 0.74
Item	Statements	Loading
ITEM5	When I meet a business person I ask many questions about his/her field of work.	.669
ITEM15	In my studies/career so far I have had counsel from someone who has experience.	.592
ITEM25	I seek contact with people who work independently.	.665
ITEM37	In the future I would have a personal lawyer.	.507
ITEM56	I have discussed the idea of going into business for myself with others.	.677
ITEM70	I have exposed myself to a specific sales situation just to see how the salesperson operates.	.673
ITEM71	When I am in a shop I ask the sales person "How's business?".	.620

Factor loadings of between 0.677 and 0.507 were reported for this attribute. Sufficient evidence of validity was thus provided for the scale measuring this factor. A Cronbach alpha coefficient of 0.74 suggested that the scale used to measure *Knowledge seeking* was reliable. For the purpose of this study *Knowledge seeking* refers to the willingness to seek information, ideas, expertise and the assistance of others

# 6.3.13 CONTINUOUS LEARNING

Six items (See Table 6.15) were used to measure the entrepreneurial attribute *Continuous learning. Continuous learning* explained 52.3% of the variance in the data. Factor loadings of between 0.823 and 0.441 were reported. Sufficient evidence of validity was thus provided. A Cronbach alpha coefficient of 0.81 was returned for the entrepreneurial attribute *Continuous learning* which suggested that the scale used to measure *Continuous learning* was reliable. In the present study *Continuous learning* refers to the desire to expand personal knowledge and enhance one's level of expertise.

% of Variance: 52.3 Cronbach alph		na : 0.81
ltem	Statements	Loading
ITEM14	I read technical magazine, which pertain to my primary field of work/interest.	.736
ITEM28	I read things outside my own field of work/ interest.	.441
ITEM52	I read technical magazines related to my primary field of interest.	.823
ITEM68	I regularly read business magazines either at the library, at work or at home.	.793
ITEM69	I regularly read the Financial mail, Finance week, Fortune, Economist, Wall Street Journal, Time, Newsweek or some other magazine that covers a broad perspective.	.802
ITEM93	When I come across a new idea I try to find out more about it by reading and asking people about it.	.675

1 a b e 0.15. $1 a c c 0 m = 0 0 m m u 0 0 5 e a m m g$	Table 6.15:	Factor M – Continuous	learning
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## 6.3.14 FINANCIAL PROFICIENCY

Four items were used to measure the entrepreneurial attribute Financial proficiency.

*Financial proficiency* explained 44.5% of the variance in the data. Factor loadings of between 0.814 and 0.504 were reported for this factor (See Table 6.16), providing sufficient evidence of validity for this scale. *Financial proficiency* returned a Cronbach alpha coefficient of 0.54, suggesting that the scale used to measure this factor was sufficiently reliable. *Financial proficiency* refers to the ability to understand and interpret financial transactions and results.

% of Var	iance: 44.5 Cronbach alp	ha : 0.54
ltem	Statements	Loading
ITEM60	I believe in the free enterprise system.	.504
ITEM61	I understand basic bookkeeping principles.	.814
ITEM62	I know what the term" aged accounts receivable" means.	.570
ITEM76	I know how to read financial statements.	.736

# Table 6.16: Factor N – Financial proficiency

### 6.3.15 MONEY SENSE

Five items (see Table 6.17) were used to measure the entrepreneurial attribute *Money sense. Money sense* explained 32.7% of the variance in the data.

Table 6.17: Factor O – Money sense

% of Vari	ance: 33.7 Cronbach alpl	Cronbach alpha : 0.44					
ltem	Statements						
ITEM23	I believe that time is money.	.529					
ITEM31	I have been in debt "over my head".	.495					
ITEM50	I plan to have a will written.	.723					
ITEM101	I plan to have life insurance.	.773					
ITEM104	I have a way of life in which I consider money "easy come, easy go".	.204					

Factor loadings of between 0.773 and 0.204 were reported for this factor. Apart from ITEM104 all loadings exceeded 0.4 providing sufficient evidence of validity for this scale. A Cronbach alpha coefficient of 0.44 for *Money sense*, however, suggested that the scale measuring this factor was not reliable. *Money sense* was thus excluded from further statistical analysis.

## 6.3.16 BUSINESS KNOWLEDGE

From Table 6.18 it can be seen that six items were used to measure the entrepreneurial attribute *Business knowledge*, which explained 39.7% of the variance in the data.

% of Vari	iance: 39.7 Cronbach alph	Cronbach alpha : 0.68		
ltem	Statements	Loading		
ITEM85	I know a lot about the business I am thinking of starting.	.648		
ITEM89	I have supervised people.	.573		
ITEM99	I understand (comprehend) the workings of the Free Enterprise System.	.565		
ITEM100	I know how to start a business.	.727		
ITEM102	I know what a sole proprietorship is.	.627		
ITEM103	I know how a bank operates.	.628		

Table 6.18: Factor P – Business knowledge

Factor loadings of between 0.727 and 0.565 were reported, and this scale was thus regarded as valid. The Cronbach alpha coefficient of 0.68 for *Business knowledge* suggested that the scale used to measure this factor showed sufficient evidence of reliability. In the present study *Business knowledge* refers to possessing a basic understanding of business operations and terminology.

#### 6.4 EMPIRICAL RESULTS

In order to achieve the objectives of this study and to test the hypotheses proposed in Chapter 1, several statistical analyses were undertaken. These analyses included descriptive and inferential statistics; the results of these analyses are presented below. Based on the validity and reliability tests undertaken, three attributes were eliminated from further statistical analysis, namely *Risk-taking*, *Tolerance for ambiguity and uncertainty*, and *Money sense*. The hypotheses associated with these attributes were thus no longer subjected to empirical testing.

# 6.4.1 THE LEVEL OF DEVELOPMENT OF ENTREPRENEURIAL ATTRIBUTE OF NMMU STUDENTS

In order to report the level of development of the entrepreneurial attributes investigated in this study among students at NMMU, descriptive statistics were calculated. Descriptive statistics such as the mean, standard deviation and frequency distributions, were calculated, to summarise the sample data. A summary of these descriptive statistics is tabled below (Table 6.19).

The respondents were required to evaluate themselves in terms of possessing the various entrepreneurial attributes investigated in this study. Their attribute ratings were categorised as *Low* (0.0-2.6), *Average* (2.6-3.4) and *High* scores (3.4-5.0). Attribute ratings that were in the *Low* category (options 1 and 2 on the five-point Likert scale) were considered as underdeveloped, those that scored in the *Average* (Option 3 on the five-point Likert scale) and *High* (option 4 and 5 on the five-point Likert scale) category were considered as developed and well-developed, respectively.

From Table 6.19 it can be seen that students from NMMU reported the attribute *Commitment* as being most developed. A mean score of 4.17 was reported for *Commitment* with the great majority (87.9%) agreeing that they possessed this attribute. *High energy level* and *Planning and perseverance* reported mean scores of 4.07 and 4.05 respectively. The majority of NMMU respondents also perceived *High energy level* (92.5%) and *Planning and perseverance* (88.4%) as well developed.

*Overcoming failure* was the fourth most developed attribute with a mean score of 3.97. The majority of respondents (88.9%) also regarded this attribute as being well developed.

	Frequency Distribution				
Attribute	Mean	SD	Low	Average	High
D: Commitment	4.17	0.83	5.0%	7.0%	87.9%
I: High energy level	4.07	0.55	2.5%	5.0%	92.5%
A: Planning and perseverance	4.05	0.65	3.5%	8.0%	88.4%
E: Overcoming failure	3.97	0.61	2.5%	8.5%	88.9%
B: Persuasion and networking	3.96	0.55	2.0%	12.1%	85.9%
F: Self-confidence and locus of control	3.91	0.58	3.0%	8.5%	88.4%
P: Business knowledge	3.90	0.69	2.5%	14.6%	82.9%
K: Creativity and flexibility	3.89	0.62	2.5%	16.6%	80.9%
N: Financial proficiency	3.82	0.74	5.5%	19.6%	74.9%
C: Communication ability	3.60	0.57	6.0%	21.1%	72.9%
H: Initiative and responsibility	3.57	0.69	7.0%	30.7%	62.3%
L: Knowledge seeking	3.47	0.78	14.6%	23.6%	61.8%
M: Continuous learning	3.45	0.86	17.1%	21.6%	61.3%

 Table 6.19:
 Descriptive results NMMU students (n=199)

NMMU students regarded the attribute *Continuous learning* as being the least developed attribute. A mean score off 3.45 was returned for this factor. For *Continuous learning* only 61.3% of respondents reported this attribute to be developed. *Knowledge seeking* returned a mean score of 3.47 whereas *Initiative and responsibility* returned a mean score of 3.57. For *Knowledge seeking* 61.8% of respondents reported this attribute and *responsibility* 62.3% of respondents indicated this attribute as developed.

*Communication ability* was the fourth least developed attribute among NMMU students, returning a mean score of 3.60. Most (72.9%) respondents regarded this attribute as being developed. Taking cognisance of the mean scores reported for the various attributes in Table 6.19, it can be seen that on average NMMU students considered all the attributes investigated in this study to be well developed. Mean scores of greater than 3.4 were reported for all attributes.

# 6.4.2 CHANGES IN THE LEVEL OF DEVELOPMENT OF ENTREPRENEURIAL ATTRIBUTES AMONG NMMU STUDENTS

Assessing the levels of development of entrepreneurial attributes has limited value unless comparisons can be made. To this end, the levels of development of entrepreneurial attributes among NMMU students in the present study were compared with the levels among NMMU students reported in a previous study undertaken in 2001. During 2001, Van Eeden *et al.* (2005) undertook a study with the main objectives being to report on the levels of development of undergraduate business students' entrepreneurial attributes. In order to establish whether any changes in levels of development had occurred, the results pertaining to NMMU students from this 2001 study were compared with the results obtained in this study. It should be noted that in 2001 respondents were sourced from the previous University of Port Elizabeth, PE Technikon and Vista University, all of which amalgamated in 2004 to form NMMU. The students participating in the 2001 study were thus comparable with the current NMMU students.

The extent of differences in levels of development of entrepreneurial attributes as perceived by students from the 2001 study and those of the current study was established by means of calculating t-tests. In addition, Cohen's d statistics were calculated to establish practical significance.

With the exception of the attributes *Commitment* and *Overcoming failure*, the level of development of all the other entrepreneurial attributes subjected to the statistical analysis showed significant (although of small practical significance) improvement between the 2001 and the 2010 NMMU samples (Table 6.20).

This implies that NMMU undergraduate business students in the 2010 sample perceived themselves as possessing these attributes to a greater extent than those in the 2001 sample. With regard to the difference in mean scores reported, the attributes that showed the greatest levels of improvement between the 2001 and the 2012 study were *Business knowledge* (change in  $\bar{x} = 0.35$ ; Cohen's d = 0.47), *Financial proficiency* (change in  $\bar{x} = 0.33$ ; Cohen's d = 0.39) and *Continuous learning* (change in  $\bar{x} = 0.31$ ; Cohen's d = 0.40).

South Africa	2001	2010		t-test		Cohen's
Category	Mean	Mean	Change	Statistic	p-value	D
A: Planning and Perseverance	3.82	4.05	0.23	4.88	.000***	0.39#
B: Persuasion and networking	3.78	3.96	0.18	4.01	.000***	0.32#
C: Communication ability	3.42	3.60	0.18	4.02	.000***	0.32#
D: Commitment	4.05	4.17	0.12	1.80	.071	n.a.
E: Overcoming failure	3.93	3.97	0.04	0.84	.400	n.a.
F: Self-confidence/ locus control	3.76	3.91	0.15	3.50	.000***	0.28#
H: Initiative and responsibility	3.32	3.57	0.25	5.11	.000***	0.41#
I: High energy level	3.91	4.07	0.16	3.47	.001**	0.28#
K: Creativity and flexibility	3.61	3.89	0.28	6.07	.000***	0.48#
L: Knowledge seeking	3.18	3.47	0.29	5.52	.000***	0.44#
M: Continuous learning	3.14	3.45	0.31	5.06	.000***	0.40#
N: Financial proficiency	3.49	3.82	0.33	4.93	.000***	0.39#
P: Business knowledge	3.55	3.90	0.35	5.95	.000***	0.47#

Table 6.20: Significant differences between 2001 and 2010 South African study

**n.a**. = not applicable, not statistically significant; **Statistical significance**: \* p<0.05; \*\* p<0.01; \*\*\* p<0.001; **Practical significance**: <sup>#</sup> small 0.2<d<0.5; <sup>##</sup> moderate 0.5 <d< 0.8; <sup>###</sup> large d >0.8

Based on the findings reported in Table 6.20, the null hypothesis (H<sup>01</sup>) stating that there is no difference between the levels of development of entrepreneurial attributes among NMMU students in the present study (2010) and the levels of development among NMMU students in a previous study (2001) is accepted for the attributes *Commitment* and *Overcoming failure,* but not for the other entrepreneurial attributes investigated in this study.

Although the four most developed and the four least developed attributes for both the 2001 and the 2010 studies were exactly the same, the order or level of development of these attributes differed slightly between the two studies. The 2010 NMMU sample reported (Table 6.21) *Commitment* ( $\bar{x} = 4.17$ ), *High energy level* ( $\bar{x} = 4.07$ ), *Planning and perseverance* ( $\bar{x} = 4.05$ ) and *Overcoming failure* ( $\bar{x} = 3.97$ ) as the four most developed attributes, whereas the 2001 sample reported *Commitment* ( $\bar{x} = 4.05$ ), *Overcoming failure* ( $\bar{x} = 3.93$ ), *High energy* ( $\bar{x} = 3.91$ ) and *Planning and perseverance* ( $\bar{x} = 3.93$ ), *High energy* ( $\bar{x} = 3.91$ ) and *Planning and perseverance* ( $\bar{x} = 3.82$ ) as the four most developed attributes. As can be seen, although the same attributes were reported as most developed by both the 2010 and the 2001 sample, the order differed slightly.

South Africa sample 2001	Mean	South Africa sample 2010	Mean
D: Commitment	4.05	D: Commitment	4.17
E: Overcoming failure	3.93	I: High energy level	4.07
I: High energy level	3.94	A: Planning and perseverance	4.05
A: Planning and perseverance	3.82	E: Overcoming failure	3.97

 Table 6.21:
 Summary of the four most developed attributes 2001 vs 2010

The four least developed attributes reported by the 2010 sample were *Continuous learning* ( $\bar{x} = 3.45$ ), *Knowledge seeking* ( $\bar{x} = 3.47$ ) *Initiative and responsibility* ( $\bar{x} = 3.57$ ) and *Communication ability* ( $\bar{x} = 3.60$ ). These same four attributes were also reported as least developed by the 2001 sample, namely *Continuous learning* ( $\bar{x} = 3.14$ ), *Knowledge seeking* ( $\bar{x} = 3.18$ ), *Initiative and responsibility* ( $\bar{x} = 3.32$ ) and then *Communication ability* ( $\bar{x} = 3.42$ )

From Table 6.22 it can be seen that the four entrepreneurial attributes that were reported as least developed by the 2010 sample are exactly the same and in the same order as the 2001 sample. For both the 2010 and the 2001 sample, none of these attributes were reported as being underdeveloped, meaning less than the threshold value of 3.4.

South Africa sample 2001	Mean	South Africa sample 2010	Mean
M: Continuous learning	3.14	M: Continuous learning	3.45
L: Knowledge Seeking	3.18	L: Knowledge Seeking	3.47
H: Initiative and responsibility	3.32	H: Initiative and responsibility	3.57
C: Communication ability	3.42	C: Communication ability	3.60

 Table 6.22:
 Summary of the four least developed attributes 2001 vs 2010

# 6.4.3 ENTREPRENEURIAL ATTRIBUTES AMONG NMMU STUDENTS VERSUS STUDENTS AT OTHER SOUTH AFRICAN AND INTERNATIONAL UNIVERSITIES

In order to assess the level of development of entrepreneurial attributes among NMMU students, the levels reported by them were compared with the levels reported by undergraduate business students at three other South African universities as well as two universities abroad. The extent to which the entrepreneurial attributes investigated in this study were seen as more or less developed among NMMU respondents in comparison to other South African and international students was established by means of an analysis of variance (ANOVA). In addition, practical significance was established by means of Cohen's d, the results of which will be elaborated on in the paragraphs that follow.

#### 6.4.3.1 NMMU versus other South African universities

With the exception of *Continuous learning* (M), no significant differences were reported in the levels of development of the various entrepreneurial attributes between students at NMMU and students at the other South African universities participating in the study (Table 6.23).

			Universi	ty							
		NMMU	Rhodes	Stellenbosch		ANOVA					
Category	n	197	129	112	F- statistic	p-va	alue	Comparison	Difference	Cohen'	's d
A	Mean	4.04	3.97	3.90	1.22	.295	n.a.	NMMU- Rhodes	0.07	0.06	
	S.D.	0.99	1.29	1.77				NMMU- Stellenb	0.14	0.11	
								Rhodes- Stellenb.	0.07	0.05	
В	Mean	3.96	3.93	3.81	1.47	.231	n.a.	NMMU- Rhodes	0.03	0.03	
	S.D.	0.87	1.14	1.56				NMMU- Stellenb	0.15	0.13	
								Rhodes- Stellenb.	0.11	0.08	
С	Mean	3.60	3.66	3.55	0.77	.464	n.a.	NMMU- Rhodes	-0.07	0.06	
	S.D.	0.93	1.21	1.67				NMMU- Stellenb	0.05	0.04	
								Rhodes- Stellenb.	0.11	0.08	
D	Mean	4.15	4.07	4.29	1.26	.285	n.a.	NMMU- Rhodes	0.08	0.05	
	S.D.	1.27	1.65	2.27				NMMU- Stellenb	-0.14	0.08	
								Rhodes- Stellenb.	-0.21	0.11	

 Table 6.23:
 Significant differences in attributes: NMMU vs other South African Universities

								NMMU-			
E	Mean	3.97	3.95	3.95	0.03	.973	n.a.	Rhodes	0.01	0.01	
								NMMU-			
	S.D.	0.96	1.25	1.72				Stellenb	0.02	0.02	
								Rhodes-			
								Stellenb.	0.01	0.01	
								NMMU-			
F	Mean	3.91	3.95	3.86	0.47	.626	n.a.	Rhodes	-0.04	0.04	
								NMMU-			
	S.D.	0.92	1.19	1.64				Stellenb	0.05	0.04	
								Rhodes-			
								Stellenb.	0.09	0.06	
								NMMU-			
H	Mean	3.58	3.60	3.50	0.43	.654	n.a.	Rhodes	-0.02	0.02	
								NMMU-			
	S.D.	1.02	1.33	1.82				Stellenb	0.08	0.06	
								Rhodes-			
								Stellenb.	0.10	0.06	
_								NMMU-			
I	Mean	4.06	3.98	4.06	0.70	.497	n.a.	Rhodes	0.08	0.08	
								NMMU-			
	S.D.	0.89	1.16	1.60				Stellenb	-0.01	0.01	
								Rhodes-			
								Stellenb.	-0.08	0.06	
		0.00	0.04	0.00	0.04	500		NMMU-	0.00	0.00	
ĸ	Mean	3.90	3.81	3.88	0.64	.530	n.a.	Rhodes	80.0	0.08	
	0.0	0.04	4.00	1.00				NMMU-	0.00	0.00	
	5.D.	0.94	1.22	1.68				Stellend	0.02	0.02	
								Rhodes-	0.00	0.04	
								Stellend.	-0.06	0.04	

 Table 6.23:
 Significant differences in attributes: NMMU vs other South African Universities (continued)

								NMMU-			
L	Mean	3.50	3.52	3.47	0.10	.904	n.a.	Rhodes	-0.02	0.02	
								NMMU-			
	S.D.	1.15	1.50	2.07				Stellenb	0.03	0.02	
								Rhodes-			
								Stellenb.	0.05	0.03	
								NMMU-			
М	Mean	3.48	3.44	2.98	8.26	.000	**	Rhodes	0.04	0.03	
								NMMU-			
	S.D.	1.28	1.67	2.29				Stellenb	0.50	0.29	#
								Rhodes-			
								Stellenb.	0.46	0.23	#
								NMMU-			
Ν	Mean	3.80	3.83	3.98	1.20	.303	n.a.	Rhodes	-0.03	0.02	
								NMMU-			
	S.D.	1.18	1.54	2.12				Stellenb	-0.18	0.11	
								Rhodes-			
								Stellenb.	-0.15	0.08	
								NMMU-			
Р	Mean	3.93	3.89	3.90	0.12	.888	n.a.	Rhodes	0.04	0.03	
								NMMU-			
	S.D.	1.06	1.38	1.89				Stellenb	0.03	0.02	
								Rhodes-			
								Stellenb.	-0.01	0.00	

Table 6.23: Significant differences in attributes: NMMU vs other South African Universities (continued)

**n.a.** = not applicable, not statistically significant; **Statistical significance**: \* p<0.05; \*\* p<0.01; \*\*\* p<0.001; **Practical significance**: <sup>#</sup> small 0.2<d<0.5; <sup>##</sup> moderate 0.5 <d< 0.8; <sup>###</sup> large d >0.8; **Key**: **A**=Planning and perseverance; **B**=Persuasion and networking; **C**=Communication ability; **D**=Commitment; **E**=Overcoming failure; **F**=Self-confidence and locus of control; **H**=Initiative and responsibility; **I**=High energy level; **K**=Creativity and flexibility; **L**=Knowledge seeking; **M**=Continuous learning; **N**=Financial proficiency; **P**=The Business knowledge.

As can be seen in Tables 6.23 and 6.24, a significant difference (p<0.01) was reported in the level of development of *Continuous learning* by the students from the three South African universities. NMMU respondents reported the highest mean score ( $\bar{x} = 3.48$ ), followed by Rhodes University ( $\bar{x} = 3.44$ ). Students from Stellenbosch University reported the lowest mean score ( $\bar{x} = 2.98$ ) for *Continuous learning*. However, the difference in mean scores reported by students from NMMU and Rhodes University was not significant. The mean score reported by NMMU students was significantly (Cohen's d = 0.29) higher that that reported by Stellenbosch University students. Similarly, the means scored by Rhodes University students were significantly (Cohen's d = 0.27) higher than the mean scores reported by Stellenbosch University students. This finding implies that NMMU and Rhodes University students perceived this attribute to be more developed than students from Stellenbosch University did.

Continuous Learning									
University	N	Mean	S.D.	Comparison	Diff	Cohen's d			
NMMU	197	3.48	1.28	NMMU & Rhodes	0.04	0.03			
Rhodes	129	3.44	1.67	NMMU & Stellenbosch	0.50	0.29#			
Stellenbosch	112	2.98	2.29	Rhodes & Stellenbosch	0.46	0.27#			

Table 6.24: Continuous learning and university attended

**Practical significance**: <sup>#</sup> small 0.2<d<0.5; <sup>##</sup> moderate 0.5 <d< 0.8; <sup>###</sup> large d >0.8;

Based on the findings reported in Tables 6.23 and 6.24, the null hypothesis (H<sup>02</sup>) stating that there is no difference between the levels of development of entrepreneurial attributes among NMMU students and the levels of development among students at other South African universities is accepted for all entrepreneurial attributes investigated in this study except for *Continuous learning*.

The four most developed entrepreneurial attributes of the students from the three South African universities (NMMU, Rhodes and Stellenbosch) are reported in Table 6.25. NMMU reported *Commitment* ( $\bar{x} = 4.17$ ) *High energy level* ( $\bar{x} = 4.07$ ), *Goal setting and perseverance* ( $\bar{x} = 4.05$ ) and *Overcoming failure* ( $\bar{x} = 3.97$ ) as the four most developed attributes. The four most developed attributes that were reported by Rhodes University were *Commitment* ( $\bar{x} = 4.07$ ), *High energy level* ( $\bar{x} = 3.98$ ), *Planning and perseverance* ( $\bar{x} = 3.97$ ) and *Overcoming failure* ( $\bar{x} = 3.95$ ), while Stellenbosch University students reported *Commitment* ( $\bar{x} = 4.29$ ), *High energy level* ( $\bar{x} = 4.06$ ), *Financial proficiency* ( $\bar{x} = 3.98$ ) and *Overcoming failure* ( $\bar{x} = 3.95$ ) as the four most developed attributes.

NMMU and Rhodes students reported the same top four attributes as being the most developed, and these attributes were reported in the same order of development. Stellenbosch University students also reported *Commitment*, *High energy level* and *Overcoming failure* as most developed and also in the same order of development as the other two universities. However, *Planning and perseverance* was not reported as one of their four most developed attributes. In the case of Stellenbosch University, *Financial proficiency* was reported as the third most developed attribute

MMU		Rhodes		Stellenbosch	
Commitment	4.17	D: Commitment	4.07	D: Commitment	4.29
High energy level	4.07	I: High energy level	3.98	I: High energy level	4.06
Planning and perseverance	4.05	A: Planning and perseverance	3.97	N: Financial proficiency	3.98
Overcoming failure	3.97	E: Overcoming failure	3.95	E: Overcoming failure	3.95
	MMU Commitment High energy level Planning and perseverance Overcoming failure	MMU Commitment 4.17 High energy level 4.07 Planning and perseverance 4.05 Overcoming 3.97	MMURhodesCommitment4.17D: CommitmentHigh energy level4.07I: High energy levelPlanning and perseverance4.05A: Planning and perseveranceOvercoming failure3.97E: Overcoming failure	MMURhodesCommitment4.17D: Commitment4.07High energy level4.07I: High energy level3.98Planning and perseverance4.05A: Planning and perseverance3.97Overcoming failure3.97E: Overcoming failure3.95	MMURhodesStellenboschCommitment4.17D: Commitment4.07D: CommitmentHigh energy level4.07I: High energy level3.98I: High energy level1: High energy levelPlanning and perseverance4.05A: Planning and perseverance3.97N: Financial proficiency0vercoming failure3.97E: Overcoming failure3.95E: Overcoming failure

Table 6.25: Sum	nmary of the	four most	developed	l attributes
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The four least developed attributes as reported in Table 6.26 for NMMU were Continuous learning ( $\bar{x} = 3.45$ ), Knowledge seeking ( $\bar{x} = 3.47$ ) Initiative and responsibility ( $\bar{x} = 3.57$ ) and Communication ability ( $\bar{x} = 3.60$ ). Rhodes University students reported that the four least developed attributes were Continuous learning ( $\bar{x} = 3.44$ ), Knowledge seeking ( $\bar{x} = 3.52$ ), Initiative and responsibility ( $\bar{x} = 3.60$ ) and Communication ability ( $\bar{x} = 3.66$ ). Stellenbosch University students reported Continuous learning ( $\bar{x} = 2.98$ ), Knowledge seeking ( $\bar{x} = 3.47$ ) Initiative and responsibility ( $\bar{x} = 3.50$ ) and Communication ability ( $\bar{x} = 3.55$ ) as the four least developed attributes.

As can be seen from Table 6.26, the four least developed attributes reported by students from all three universities were exactly the same and in the same order of development.

NMMU		Rhodes		Stellenbosch	
M: Continuous learning	3.45	M: Continuous learning	3.44	M: Continuous learning	2.98
L: Knowledge Seeking	3.47	L: Knowledge Seeking	3.52	L: Knowledge Seeking	3.47
H: Initiative and responsibility	3.57	H: Initiative and responsibility	3.60	H: Initiative and responsibility	3.50
C: Communication ability	3.60	C: Communication ability	3.66	C:Communication ability	3.55

Table 6.26:	Summary	y of the four	least develo	ped attributes
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## 6.4.3.2 NMMU versus other international universities

Significant differences in the levels of development, that were of large practical significance, were reported between students from NMMU, students from the University of Northern Iowa (USA) and students from the University of Utrecht (Table 6.27) for the entrepreneurial attributes *High energy level* (F), *Continuous learning* (M) and *Knowledge seeking* (L).

From Table 6.27 it can be seen that for the entrepreneurial attribute *Planning and perseverance* (A), significant differences (p<0.01) in mean scores were reported between students from all three countries. The difference in mean scores reported by NMMU students ( $\bar{x} = 4.05$ ) and Dutch ( $\bar{x} = 3.88$ ) students was of small practical significance (Cohen's d = 0.29), whereas this difference between NMMU ( $\bar{x} = 4.05$ ) and American ( $\bar{x} = 3.67$ ) students was of medium practical significance (Cohen's d = 0.29).

			Country	/							
		NMMU	NED	USA	ANOVA						
	n	199	216	199	F- statistic	p-value		Comparison	Diff	Cohe d	n's
А	Mean	4.05	3.88	3.67	25.63	.000 **	ł	NMMU-NED	0.17	0.29	#
	S.D.	0.65	0.50	0.50				NMMU-USA	0.39	0.67	##
В	Mean	3.96	3.94	3.64	23.04	.000 **	ł	NMMU-NED	0.02	0.04	
	S.D.	0.55	0.54	0.54				NMMU-USA	0.32	0.59	##
С	Mean	3.60	3.49	3.48	3.74	.024 *		NMMU-NED	0.11	0.22	#
	S.D.	0.57	0.47	0.45				NMMU-USA	0.12	0.24	#
D	Mean	4.17	4.34	3.91	16.01	.000 **	ł	NMMU-NED	0.18	0.24	#
	S.D.	0.83	0.63	0.87				NMMU-USA	0.26	0.30	#
Е	Mean	3.97	3.80	3.63	19.91	.000 **	ł	NMMU-NED	0.17	0.31	#
	S.D.	0.61	0.48	0.56				NMMU-USA	0.34	0.59	##
F	Mean	3.91	3.84	3.77	4.04	.018 *		NMMU-NED	0.08	0.15	
	S.D.	0.58	0.46	0.52				NMMU-USA	0.15	0.26	#
н	Mean	3.57	3.42	3.37	6.65	.001 *'	ł	NMMU-NED	0.16	0.25	#
	S.D.	0.69	0.54	0.52				NMMU-USA	0.20	0.33	#
T	Mean	4.07	3.96	3.62	44.65	.000 **	ł	NMMU-NED	0.11	0.22	#
	S.D.	0.55	0.43	0.51				NMMU-USA	0.44	0.84	###
Κ	Mean	3.89	3.85	3.67	10.59	.000 **	ł	NMMU-NED	0.04	0.08	
	S.D.	0.62	0.40	0.53				NMMU-USA	0.22	0.38	#
L	Mean	3.47	3.13	2.89	38.29	.000 **	۲	NMMU-NED	0.34	0.50	##
	S.D.	0.78	0.59	0.66				NMMU-USA	0.58	0.81	###
М	Mean	3.45	2.81	3.15	34.68	.000 **	ł	NMMU-NED	0.64	0.80	###
	S.D.	0.86	0.75	0.70				NMMU-USA	0.30	0.39	#
Ν	Mean	3.82	4.12	3.63	24.49	.000 **	ł	NMMU-NED	0.30	0.43	#
	S.D.	0.74	0.66	0.72				NMMU-USA	0.18	0.25	#
Ρ	Mean	3.90	3.73	3.58	12.45	.000 **	۲	NMMU-NED	0.17	0.27	#
	S.D.	0.69	0.60	0.67				NMMU-USA	0.32	0.47	#

 Table 6.27:
 Significant differences in attributes: NMMU vs international universities

Statistical significance: \*\* p < 0.01; \* p < 0.05; Practical significance: Large ### d > 0.80; Moderate ## 0.50 < d < 0.80; Small # 0.20 < d < 0.50; Key: A=Planning and perseverance; B=Persuasion and networking; C=Communication ability; D=Commitment; E=Overcoming failure; F=Self-confidence and locus of control; H=Initiative and responsibility; I=High energy level; k=Creativity and flexibility; L=Knowledge seeking; M=Continuous learning; N=Financial proficiency; P=Business knowledge.

For *Persuasion and networking (B)* a significant difference (p<0.01) in means scores is reported. The difference in mean scores between NMMU students ( $\bar{x} = 3.96$ ) and

Dutch students ( $\bar{x} = 3.94$ ) showed no practical significance (Cohen's d = 0.04), whereas the difference between the mean scores of NMMU students ( $\bar{x} = 3.96$ ) and American students ( $\bar{x} = 3.64$ ) was of medium practical significance (Cohen's d = 0.59).

A significant (p<0.05) difference in mean scores was reported for the entrepreneurial attribute *Communication ability* (C). The difference between the mean scores returned by NMMU students ( $\bar{x} = 3.60$ ) and Dutch students ( $\bar{x} = 3.49$ ) was of small practical significance (Cohen's d = 0.22). Similarly, the difference between mean scores reported by NMMU students ( $\bar{x} = 3.60$ ) and American students ( $\bar{x} = 3.48$ ) was of small practical significance (Cohen's d = 0.22).

For the attribute *Commitment* (D), a statistically significant (p<0.01) difference in mean scores was reported. NMMU students ( $\bar{x} = 4.17$ ) reported significantly lower mean scores than the Dutch students ( $\bar{x} = 4.34$ ), but significantly higher than the American students ( $\bar{x} = 3.91$ ). These differences were, however, found to be of small practical significance in the case of the comparison between NMMU and both the Dutch (Cohen's d = 0.24) and the American sample (Cohen's d = 0.30).

The results of the ANOVA show a significant relationship (p<0.01) between the country in which the student studied and the attribute *Overcoming failure* (E). NMMU students ( $\bar{x} = 3.97$ ) reported significantly higher mean scores for the attribute *Overcoming failure* than both the Dutch ( $\bar{x} = 3.80$ ) and the American students ( $\bar{x} = 3.63$ ). These differences were found to be of small (Cohen's d = 0.31) and medium practical significance (Cohen's d = 0.59) respectively.

For the entrepreneurial attribute *Self-confidence and locus of control* (F) a statistically significant (p<0.05) difference was reported in the mean scores returned by students from all three universities. NMMU students ( $\bar{x} = 3.91$ ) reported a significantly higher mean score than both the Dutch ( $\bar{x} = 3.84$ ) and the American students ( $\bar{x} = 3.77$ ). The difference in mean scores reported by NMMU and American students was found to be of small practical significance (Cohen's d = 0.26). The

difference between the NMMU and Dutch sample was found to have no practical significance (Cohen's d = 0.15).

For *Initiative and responsibility* (H), a statistically significant (p<0.01) difference in mean scores was reported between NMMU, University of Northern Iowa and Utrecht University students. NMMU students reported a significantly higher mean score ( $\bar{x} = 3.57$ ) than those reported by both the Dutch students ( $\bar{x} = 3.42$ ) and the American students ( $\bar{x} = 3.37$ ). The differences in both cases were found to be of small practical significance, with the difference between NMMU and Dutch students returning a Cohen's d value of 0.33.

From Table 6.27 it can be seen that the entrepreneurial attribute *High energy level* (I) returned a significant difference (p<0.01) in mean scores between students from the three universities. The difference between the mean scores of NMMU students ( $\bar{x} = 4.07$ ) and Dutch students ( $\bar{x} = 3.96$ ) was of small practical significance (Cohen's d = 0.22), whereas the difference between NMMU students ( $\bar{x} = 4.07$ ) and American students ( $\bar{x} = 3.62$ ) was of large practical significance (Cohen's d= 0.84).

For *Creativity and flexibility* (K) a statistically significant (p<0.01) difference was reported between the means scores reported by the three sample groups. NMMU students ( $\bar{x} = 3.89$ ) reported higher mean scores than those reported by students from Utrecht University ( $\bar{x} = 3.85$ ). This difference was, however, of no practical significance (Cohen's d = 0.08). The difference in mean scores between NMMU students ( $\bar{x} = 3.89$ ) and students from the University of Northern Iowa ( $\bar{x} = 3.67$ ) was reported to be of small practical significance (Cohen's d = 0.38).

A significant relationship (p<0.01) was reported between the attribute *Knowledge seeking* (L) and university attended. NMMU students ( $\bar{x} = 3.47$ ) reported significantly higher mean scores for *Knowledge seeking* than either the Dutch ( $\bar{x} = 3.13$ ) or the American ( $\bar{x} = 2.89$ ) students. These differences were found to be of moderate (Cohen's d = 0.50) and large practical significance (Cohen's d = 0.81), respectively.

For the entrepreneurial attribute *Continuous learning* (M) a statistically significant (p<0.01) difference was reported in mean scores reported by the students from the three Universities. NMMU students ( $\bar{x} = 3.45$ ) reported higher mean scores than did both the Dutch ( $\bar{x} = 2.81$ ) and the American students ( $\bar{x} = 3.15$ ). The difference in mean scores between NMMU and USA students was found to be of small practical significance (Cohen's d = 0.39), whereas the difference between NMMU and Dutch students was found to be of large practical significance (Cohen's d = 0.80).

For the attribute *Financial proficiency* (N) a statistically significant (p<0.01) difference was reported between the mean scores reported by the students from the three universities. NMMU students ( $\bar{x} = 3.82$ ) reported lower mean scores than Dutch students ( $\bar{x} = 4.12$ ; Cohen's d = 0.43), whereas NMMU students reported higher mean scores than American students ( $\bar{x} = 3.63$ ; Cohen's d = 0.25). These differences were both found to be of small practical significance.

A statistically significant (p<0.01) relationship was found to exist between *Business knowledge* (P) and university attended. NMMU students ( $\bar{x} = 3.90$ ) reported higher mean scores for *Business knowledge* than both the Dutch students ( $\bar{x} = 3.73$ ) and the American students ( $\bar{x} = 3.58$ ). These differences between NMMU and Dutch students (Cohen's d = 0.27) and between NMMU and American students (Cohen's d = 0.47) were both found to be of small practical significance.

Based on the results reported in Table 6.27, support is not found for the null hypothesis (H<sup>03</sup>) stating that there is no difference between the levels of development of entrepreneurial attributes among NMMU students and the levels of development among students abroad for all the entrepreneurial attributes investigated in this study.

In addition to establishing whether the levels of development of each attribute was significantly different between NMMU and the two international universities, whether the order in which the attributes were listed differed (most to least developed) was also considered.

The NMMU sample reported *Commitment* ( $\bar{x} = 4.17$ ) as the most developed attribute followed by *High energy level* ( $\bar{x} = 4.07$ ), *Planning and perseverance* ( $\bar{x} = 4.05$ ) and *Overcoming failure* ( $\bar{x} = 3.97$ ) as their four most developed attributes. The four most developed attributes reported by the USA sample were *Commitment* ( $\bar{x} = 4.35$ ), *Financial proficiency* ( $\bar{x} = 4.12$ ), *High energy level* ( $\bar{x} = 3.96$ ) and *Persuasion and networking* ( $\bar{x} = 3.94$ ). For the Dutch sample the four most developed attributes reported were *Commitment* ( $\bar{x} = 3.92$ ), *Self-confidence and locus of control* ( $\bar{x} = 3.77$ ), *Creativity and flexibility* ( $\bar{x} = 3.66$ ) and *Planning and perseverance* ( $\bar{x} = 3.66$ ).

NMMU		USA		NED	
D: Commitment	4.17	D: Commitment	4.35	D: Commitment	3.92
I: High energy level	4.07	N: Financial proficiency	4.12	F: Self-confidence and locus of control	3.77
A: Planning and perseverance	4.05	I: High energy level	3.96	K: Creativity and Flexibility	3.66
E: Overcoming failure	3.97	B: Persuasion and networking	3.94	A: Planning and perseverance	3.66

 Table 6.28:
 Summary of the four most developed attributes

All three Universities reported *Commitment* as their most developed attribute. *High energy level* was reported as the second most developed attribute for NMMU and the third most developed attribute for students from the University of Northern Iowa University. *Goal setting and perseverance* was reported by NMMU (third position) and Utrecht University (fourth position) as being one of their four most developed entrepreneurial attributes. Overcoming failure was reported as the fourth most developed attribute by NMMU students. The American students reported *Financial proficiency* and *Persuasion and networking* as the second and fourth most developed attributes. The Dutch students reported *Self-confidence and locus of control* and *Creativity and flexibility* as the second as third most developed attributes.

The four least developed attributes for both NMMU and American students were the same, namely *Continuous learning* (NMMU  $\bar{x} = 3.45$ ; USA  $\bar{x} = 2.81$ , *Knowledge seeking* (NMMU  $\bar{x} = 3.47$ ; USA  $\bar{x} = 3.13$ ), *Initiative and responsibility* (NMMU  $\bar{x} = 3.57$ ; USA  $\bar{x} = 3.41$ ) and *Communication ability* (NMMU  $\bar{x} = 3.60$ ; USA  $\bar{x} = 3.49$ ),

while the four least developed attributes for the Dutch sample were *Knowledge* seeking ( $\bar{x} = 2.90$ ), *Continuous learning* ( $\bar{x} = 3.16$ ), *Initiative and responsibility* ( $\bar{x} = 3.37$ ) and *Communication ability* ( $\bar{x} = 3.48$ ).

	NMMU		USA		NED	
M:	Continuous learning	3.45	M: Continuous learning	2.81	L: Knowledge Seeking	2.90
L:	Knowledge Seeking	3.47	L: Knowledge Seeking	3.13	M: Continuous learning	3.16
H:	Initiative and responsibility	3.57	H: Initiative and responsibility	3.41	H: Initiative and responsibility	3.37
C:	Communication ability	3.60	C: Communication ability	3.49	C: Communication ability	3.48

 Table 6.29:
 Summary of the four least developed attributes

From Table 6.29 it can be seen that the four attributes that were least developed in all three sample groups were exactly the same, with the order of the Dutch sample being only slightly different. None of the attributes in the NMMU sample were reported as being underdeveloped as they were all above the threshold value of 3.4. In the case of the American sample, the mean scores of two attributes were reported as being below the threshold value and thus considered as underdeveloped, namely *Knowledge seeking* ( $\bar{x} = 3.13$ ) and *Continuous learning* ( $\bar{x} = 2.81$ ), In the case of the Dutch sample, three entrepreneurial attributes were reported as being below the threshold value of 3.4, namely *Initiative and responsibility* ( $\bar{x} = 3.37$ ), *Continuous learning* ( $\bar{x} = 3.16$ ) and *Knowledge seeking* ( $\bar{x} = 2.90$ ), all of which were therefore considered to be underdeveloped.

# 6.5.4 RELATIONSHIPS BETWEEN POSSESSING ENTREPRENEURIAL ATTRIBUTES AND ENTREPRENEURIAL INTENTIONS

In order to establish whether a relationship exists between possessing the entrepreneurial attributes under investigation and the entrepreneurial intentions of NMMU students, significant differences in the levels of development of each attributes between students with and those without entrepreneurial intentions were established by conducting t-tests. Cohen's d was calculated to establish the practical significance of these differences (Table 6.30).

Students with entrepreneurial intentions were those that responded "Yes" to intending to start and manage their own businesses in the future, whereas those without entrepreneurial intentions responded "No".

	Yes				No $(n = 51)$	١		Differen	ce	t-Test		
Category	Rank	$\overline{x}$	SD	Rank	$\overline{x}$	SD	Rank	$\overline{x}$	Statistic	n-value	Cohe	n's d
outogory			02			05			otatiotio	p raido		n o u
L	14	3.66	0.68	15	2.91	0.78	1	0.75	10.38	.000	1.06	###
М	15	3.60	0.85	14	3.00	0.72	-1	0.61	7.23	.000	0.74	##
Р	6	4.02	0.69	11	3.56	0.59	5	0.45	6.71	.000	0.68	##
Н	13	3.67	0.67	13	3.25	0.67	0	0.42	6.22	.000	0.63	##
С	12	3.69	0.54	12	3.35	0.60	0	0.34	5.92	.000	0.60	##
А	2	4.14	0.63	8	3.78	0.65	6	0.36	5.56	.000	0.57	##
K	8	3.97	0.59	9	3.63	0.63	1	0.34	5.46	.000	0.56	##
I	3	4.13	0.53	4	3.86	0.57	1	0.28	4.98	.000	0.51	##
Ν	11	3.87	0.78	10	3.58	0.69	-1	0.29	3.71	.000	0.38	#
E	7	4.01	0.59	5	3.83	0.68	-2	0.18	2.86	.004	0.29	#
F	10	3.94	0.57	6	3.83	0.62	-4	0.11	1.90	.058	n.a.	
D	1	4.20	0.85	1	4.10	0.80	0	0.10	1.16	.245	n.a.	
В	9	3.97	0.54	3	3.93	0.58	-6	0.04	0.70	.482	n.a.	

Table 6.30:	Significant	differences	between	NMMU	students	with
	entrepreneur	ial intentions a	and those w	ithout		

Statistical significance: \*\* p < 0.01; \* p < 0.05; Practical significance: Large ### d > 0.80; moderate ## 0.50 < d < 0.80; Small # 0.20 < d < 0.50; Key: A=Planning and perseverance; B=Persuasion and networking; C=Communication ability; D=Commitment; E=Overcoming failure; F=Self-confidence and locus of control; H=Initiative and responsibility; I=High energy level; K=Creativity and flexibility; L=Knowledge seeking; M=Continuous learning; N=Financial proficiency; P=Business knowledge.

For the levels of development of the attributes *Persuasion and networking* (B), *Commitment* (D) and *Self-confidence and locus of control* (F), no significant differences were reported between the mean scores of students with and without entrepreneurial intentions. Consequently, the hypotheses ( $H^2$ ,  $H^4$  and  $H^6$ ) stating that

positive relationships exist between the aforementioned attributes and *Entrepreneurial intention* are rejected.

Significant differences (p<0.01), with small practical significance (0.20<d<0.50) were reported for the entrepreneurial attributes *Overcoming failure* (E) (with entrepreneurial intentions  $\bar{x} = 4.01$ ; without entrepreneurial intentions  $\bar{x} = 3.83$ ; Cohen's d = 0.29) and *Financial proficiency* (with entrepreneurial intentions  $\bar{x} =$ 3.87; without entrepreneurial intentions  $\bar{x} = 3.83$ ; Cohen's d = 0.38). As such, differences of small practical significance in the level of development of these attributes were reported between students with entrepreneurial intentions and those without.

Significant differences (p<0.001) in the levels of development of several attributes were reported between students with and without entrepreneurial intentions. These differences were of moderate practical significance (0.50<d<0.80). Students with entrepreneurial intentions reported higher mean scores for the attributes Continuous *learning* (M) (with entrepreneurial intentions  $\bar{x} = 3.60$ ; without entrepreneurial intentions  $\bar{x}$  = 3.00; Cohen's d = 0.74); Business knowledge (P) (with entrepreneurial intentions  $\bar{x} = 4.02$ ; without entrepreneurial intentions  $\bar{x} = 3.56$ ; Cohen's d = 0.68); Initiative and responsibility (H) (with entrepreneurial intentions  $\bar{x}$ = 3.67; without entrepreneurial intentions  $\overline{x}$  = 3.35; Cohen's d = 0.63); Communication ability (C) (with entrepreneurial intentions  $\bar{x} = 3.69$ ; without entrepreneurial intentions  $\bar{x}$  = 3.35 Cohen's d = 0.60); *Planning and perseverance* (A) (with entrepreneurial intentions  $\bar{x} = 4.14$ ; without entrepreneurial intentions  $\bar{x} =$ 3.78 Cohen's d = 0.57); Creativity and flexibility (K) (with entrepreneurial intentions  $\overline{x}$  = 3.97; without entrepreneurial intentions  $\overline{x}$  = 3.63; Cohen's d = 0.56), High energy level (I) (with entrepreneurial intentions  $\bar{x} = 4.13$ ; without entrepreneurial intentions  $\overline{x}$  = 3.86; Cohen's d = 0.51).

A significant differences (p<0.01), with large practical significance (d>0.80), was reported for the entrepreneurial attribute *Knowledge seeking* (L) (with entrepreneurial intentions  $\bar{x}$  = 3.66; without entrepreneurial intentions  $\bar{x}$  = 2.91; Cohen's d = 1.06).

For attributes *Planning and perseverance, Communication ability, Overcoming failure, Initiative and responsibility, High energy level, Creativity and flexibility, Knowledge seeking, Continuous learning, Financial proficiency and Business knowledge, students with entrepreneurial intentions reported significantly higher mean scores than students without entrepreneurial intentions. This finding implies that students possessing these attributes are more likely to have entrepreneurial intentions. Positive relationships between the aforementioned attributes and entrepreneurial intentions are thus supported. Against this background, sufficient evidence is found to support hypotheses H<sup>1</sup>, H<sup>3</sup>, H<sup>5</sup>, H<sup>8</sup>, H<sup>9</sup>, H<sup>11</sup>, H<sup>12</sup>, H<sup>13</sup>, H<sup>14</sup> and H<sup>16</sup>. H<sup>7</sup>, H<sup>10</sup> and H<sup>15</sup> were not subjected to empirical testing.* 

### 6.5.5 DEMOGRAPHIC FACTORS AND ENTREPRENEURIAL ATTRIBUTES

In establishing whether significant differences exist in terms of the level of development of the 16 entrepreneurial attributes of NMMU students and selected demographic variables, a multivariate analysis of variance (MANOVA) and a univariate analysis of variance (ANOVA) were conducted (see Tables 6.31 - 6.34). To establish practical significance, Cohen's d was calculated. The demographics that were investigated included the *Level of study, Gender, Age, Ethnicity* and *Self-employment status of parents.* 

From the results of the MONOVA analysis presented in Table 6.31, it can be seen that significant differences in levels of development of entrepreneurial attributes were reported for the demographic variables *Levels of study* (p=0.05), *Gender* (p<0.5) and *Age* (p<0.01). With regard to the variables *Ethnicity* and *Self-employment status of parents,* no significant differences were found in the level of development of the entrepreneurial attributes under investigation.

Support for the null hypothesis (H<sup>04</sup>) stating that there is no relationship between the levels of development of entrepreneurial attributes among NMMU students and selected demographic factors, is found for *Ethnicity* and *Self-employment status of parents* but not for the *Level of study*, *Gender* and *Age*.

	d.f	F	р
Level of study	28; 334	1.51	.050
Gender	14; 167	2.03	.018*
Age	28; 334	2.52	.000**
Ethnicity	14; 167	0.88	.584
Self-employment status of parents	14;167	0.42	.966

 Table 6.31:
 MONOVA results-factors and biographical variables

**Statistical significance**: \*\*p < 0.01; \* p < .05

With regard to the demographic variable *Level of study*, significant differences were reported for the attributes *Financial proficiency* (p<0.05) and *Business knowledge* (p<0.05). Students in their first year of study reported significantly higher mean scores ( $\bar{x} = 3.92$ ) than students in their second year ( $\bar{x} = 3.60$ ) with regard to possessing the attribute *Financial proficiency*. A Cohen's d value of 0.44 indicated this difference to be of small practical significance. No difference in possessing this attribute was, however, reported between first and third year students or between second and third year students.

Students in their first year ( $\bar{x} = 3.76$ ) of study reported significantly lower mean scores than students in their second year ( $\bar{x} = 4.16$ ) with regard to the attribute *Business knowledge*. A Cohen's d value of 0.59 showed this difference to be of moderate practical significance. No difference in possessing this attribute was, however, reported between first and third year students or between second and third year students.

Financial proficiency									
Level	n	Mean	S.D	Difference	Cohen's d				
1st year	81	3.92	0.78	0.22	0.44//				
2nd year	66	3.60	0.65	0.32	0.44#				
		Bus	siness knowledg	je					
Level	n	Mean	S.D	Difference	Cohen's d				
1st year	81	3.76	0.76	0.40	0.50##				
2nd year	66	4.16	0.59	-0.40	-0.59##				

Table 6.32: Significant differences: Level of study

**Practical significance**: Large ### d > 0.80; Moderate ## 0.50 < d < 0.80; Small # 0.20 < d < 0.50

A significant relationship was reported (Table 6.31) between the demographic variable *Gender* and the attribute *Continuous learning* (p<0.01). Male students ( $\bar{x}$  = 3.63) reported higher mean scores than female students ( $\bar{x}$  =3.29) for this attribute. The Cohen's d value (0.41) however, indicated this difference to be of small practical significance.

Table 6.33:	Significant	differences:	Gender
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Continuous learning								
Gender	n	Mean	S.D	Difference	Cohen's d			
Male	91	3.63	0.83	0.20	0.41#			
Female	97	3.29	0.85	0.29	0.41#			

**Practical significance**: Large ### d > 0.80; Moderate ## 0.50 < d < 0.80; Small # 0.20 < d < 0.50

Significant differences were reported (Table 6.34) with regard to the *Age* of the student and the level of development of the attributes *Communication ability* (p<0.05), *Overcoming failure* (p<0.05), *Initiative and responsibility* (p<0.01) and *Continuous learning* (p<0.01). These differences were, however, of no or small practical significance (see Cohen's d values in Table 6.34).

Communication ability											
Age	n	Mean	S.D	Difference	Cohen's d						
17-20	75	3.54	0.52	0.10	0.17						
21-44	113	3.64	0.62	-0.10	-0.17						
	Overcoming failure										
Age	n	Mean	S.D	Difference	Cohen's d						
17-20	75	3.90	0.57	0.10	0.17						
21-44	113	4.01	0.66	-0.10	-0.17						
		Initiativ	ve and respons	ibility							
Age	n	Mean	S.D	Difference	Cohen's d						
17-20	75	3.54	0.62	0.02	0.04						
21-44	113	3.57	0.74	-0.03	-0.04						
		Cor	ntinuous learnii	ng							
Age	n	Mean	S.D	Difference	Cohen's d						
17-20	75	3.29	0.83	0.29	0.00//						
21-44	113	3.57	0.85	-0.20	-0.33#						

Table 6.34:	Significant	differences: Age
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**Practical significance**: Large ### d > 0.80; Moderate ## 0.50 < d < 0.80; Small # 0.20 < d < 0.50

From Table 6.32 it can be seen that students under the ages of 20 years ( $\bar{x} = 3.54$ ) reported significantly lower mean scores than students over the age of 20 ( $\bar{x} = 3.64$ ) for *Communication ability*. This difference was, however, of no practical significance (Cohen's d = -0.17). For the entrepreneurial attribute *Overcoming failure*, students under the age of 20 years ( $\bar{x} = 3.90$ ) reported significantly lower mean scores than students over the age of 20 years ( $\bar{x} = 4.01$ ). This difference was also of no practical significance (Cohen's d = -0.17). For the attribute *Initiative and responsibility* students under the age of 20 years ( $\bar{x} = 3.54$ ) reported a lower mean score than those over the age of 20 years ( $\bar{x} = 3.57$ ). Once again this difference was also of no practical significance (Cohen's d = -0.04). Lastly, students under the age of 20 years ( $\bar{x} = 3.29$ ) reported significantly lower mean scores than those over the age of 20 years ( $\bar{x} = -0.04$ ). Lastly, students under the age of 20 years ( $\bar{x} = 3.29$ ) reported significantly lower mean scores than students over the age of 20 years ( $\bar{x} = 3.29$ ) reported significantly lower mean scores than students over the age of 20 years ( $\bar{x} = 3.29$ ) reported significantly lower mean scores than students over the age of 20 years ( $\bar{x} = 3.29$ ) reported significantly lower mean scores than students over the age of 20 years ( $\bar{x} = 3.29$ ) reported significantly lower mean scores than students over the age of 20 years ( $\bar{x} = 3.29$ ) reported significantly lower mean scores than students over the age of 20

( $\bar{x}$  = 3.57) for the attribute *Continuous learning*. The difference was of small practical significance (Cohen's d = -0.33).

## 6.5.6 DEMOGRAPHIC FACTORS AND ENTREPRENEURIAL INTENTIONS

In order to establish whether significant relationships exist between the demographic variables investigated in this study and the entrepreneurial intentions of NMMU students, Chi-square statistic and Cramer's V were calculated. In terms of Cramer's V, values between -1 to +1 indicate a perfect relationship whereas 0 indicates no relationship (Seaman 2001). The demographic variables investigated in this study were *Level of study, Gender, Ethnicity* and *Self-employment status of parents*.

From Table 6.35 it can be seen that no significant difference exists between the demographic variable *Level of study* and *Entrepreneurial intention* (Chi<sup>2</sup> = 1.63; p = .442). As such, no difference in entrepreneurial intentions exists between NMMU students in their first year, second year or third year of study.

	Er	trepreneu				
	Yes No		Total			
1st year	59	72%	23	28%	82	100%
2nd year	50	71%	20	29%	70	100%
3rd year	35	81%	8	19%	43	100%
Total	144	74%	51	26%	195	100%

 Table 6.35:
 Level of study and entrepreneurial intention

(Chi<sup>2</sup> = 1.63; p = .442)

With regard to the *Entrepreneurial intention* of NMMU students participating in this study, no significant difference ( $Chi^2 = 3.02$ ; p = .082) was reported between male and female students

As can be seen in Table 6.37, the results of this study show a significant relationship (p=0.001) to exist between *Ethnicity* and *Entrepreneurial intention* (Chi<sup>2</sup> = 13.21; V = 0.27 Small). African students are more likely (81.6%) to start their own business than their White (65.0%) and Coloured (43.8%) counterparts.

	Er	trepreneu				
	Yes		No		Total	
Male	74	80%	19	20%	93	100%
Female	70	69%	32	31%	102	100%
Total	144	74%	51	26%	195	100%

 Table 6.36:
 Gender and entrepreneurial intention

(Chi<sup>2</sup> = 3.02; p = .082)

	Er	ntrepreneu				
	Y	es	No		Total	
White	26	65.0%	14	35.0%	40	100.0%
African	102	81.6%	23	18.4%	125	100.0%
Coloured	7	43.8%	9	56.3%	16	100.0%
Total	135	74.6%	46	25.4%	181	100.0%

# Table 6.37: Ethnicity and entrepreneurial intention

(Chi<sup>2</sup> = 13.21; p = .001; V = 0.27 Small).

The results of this study show that the *Self-employment status of parents* (whether they own their own business or not) had no influence on the *Entrepreneurial intention* of their children. With regard to the entrepreneurial intentions of students participating in this study, no significant difference (Chi<sup>2</sup> = 0.00; p = .992) was reported between those with entrepreneurial parents and those without.

Table 6.38:	Self-employ	vment status	of	parents and	entre	preneurial	intention
		yment Status		parents and	GIRC	preneuriur	micinion

	En	trepreneu				
	Y	es	1	No	Tot	al
Neither	72	72.7%	27	27.3%	99	100.0%
Either/both	53	73.6%	19	26.4%	72	100.0%
Total	125	73.1%	46	26.9%	171	100.0%

(Chi<sup>2</sup> = 0.00; p = .992).

Support for the null hypothesis (H<sup>05</sup>) stating that there is no relationship between the entrepreneurial intentions of NMMU students and selected demographic factors is

supported for Level of study, Gender and Self-employment status of parents but not for Ethnicity.

# 6.8 SUMMARY

This chapter described the demographic profile of the respondents participating in this study. In addition, the reliability and validity of the measuring instrument were described. The results of the various statistical analyses done to assess the entrepreneurial attributes of NMMU students and test the proposed hypotheses were then presented.

In Chapter 7 a summary of the study as a whole will be presented. The empirical findings presented in Chapter 6 will be interpreted, and based on these interpretations, recommendation will be made and implications highlighted.

# **CHAPTER 7**

## SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

## 7.1 INTRODUCTION

In Chapter 6 the empirical results of this study were presented. In this chapter an overview of the study will be given, significant findings will be summarised, and recommendations will be proposed to develop the entrepreneurial attributes among students. In addition, the contribution and limitations of the study will be addressed and recommendations for future research will be put forward.

## 7.2 OVERVIEW OF THE STUDY

In addition to providing a background for the topic under investigation, Chapter 1 presented the problem statement, the purpose of the study, and the research objectives. The primary objective of this study was to assess the entrepreneurial attributes of undergraduate business students at the Nelson Mandela Metropolitan University (NMMU). By investigating students' perceptions of the level of development of their entrepreneurial attributes, explanations were sought regarding what determines the level of development of entrepreneurial attributes, as well as the students' ability to possess entrepreneurial attributes. To address the primary objective of this study, the following secondary objectives were identified:

- To determine the level of development of entrepreneurial attributes among students at NMMU;
- To compare the level of development of entrepreneurial attributes among NMMU students in the present study (2010) with those levels of development among NMMU students reported in a previous study (2001);
- iii) To compare the level of development of entrepreneurial attributes among NMMU students (2010) with the level of development among students at other South Africa Universities;
- iv) To compare the level of development of entrepreneurial attributes among NMMU students (2010) with the level of development among students
abroad;

- v) To establish whether a relationship exists between possessing the entrepreneurial attributes under investigation and the entrepreneurial intentions of NMMU students;
- vi) To establish whether the level of development of entrepreneurial attributes among NMMU students is related to selected demographic factors;
- vii) To establish whether the entrepreneurial intentions among NMMU students are related to selected demographic factors.

An in-depth analysis of secondary sources was conducted and presented in Chapters 2, 3 and 4. In Chapter 2, the nature of entrepreneurship was defined and the importance thereof highlighted. Entrepreneurship was defined by several authors as being a dynamic and essentially creative process involving the discovery and exploitation of value-creating opportunities. Entrepreneurship was found to be important because of its contribution to economic growth, job creation and innovation.

Chapter 2 elaborated on the status of entrepreneurship both globally and nationally. The status of entrepreneurship in South Africa was specifically highlighted. South Africa's TEA rate increased from 2011 (8.9%) to 2012 (9.1%), but this rate was still below the average of other efficiency-driven countries, which averaged 11.1%. To stimulate entrepreneurial activity in the country, the South African government has implemented several policies. These policies include education programmes, promoting entrepreneurship, and encouraging entrepreneurship at school level. Despite these policies, entrepreneurs still face numerous obstacles when attempting to start businesses in the country. Ineffective government policies, lack of financial support, and poor education and training are identified as the top three obstacles.

Entrepreneurship education was also addressed in Chapter 2. Entrepreneurship education was described as the building of knowledge and skills for the purpose of starting one's own business. Entrepreneurship education was described in terms of education about entrepreneurship, and education for entrepreneurship. Education about entrepreneurship is more theoretically based, whereas education for entrepreneurship is more practically based. The role of education in developing

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entrepreneurial skills and characteristics, as well as raising the level of self-efficacy in young people starting their own businesses, was elaborated on. Furthermore, the status of entrepreneurship education in South Africa was discussed. In recent years there has been an increase in the number of entrepreneurship subjects offered at school and university levels.

Chapter 3 focused on the various entrepreneurial attributes associated with successful entrepreneurs. An entrepreneur was defined as a person who organises and assumes the risk of a business (Awe 2006:1; Pinderhughes 2004:1). Gartner (1988:47) proposed a theory, the trait theory, which defines an entrepreneur in terms of a set of personality traits or characteristics, and it is these traits or characteristics that set entrepreneurs apart from others. This theory has been elaborated on and expanded by various authors in trying to identify the exact attributes that make up a successful entrepreneur. Despite numerous attributes being identified, the present study focused on 16 attributes. The 16 entrepreneurial attributes investigated in this studv were: Planning and perseverance, Persuasion and networkina. Communications ability, Commitment, Overcoming failure, Self-confidence and locus of control, Risk-taking, Initiative and responsibility, High energy level, Tolerance for ambiguity and uncertainty, Creativity and flexibility, Knowledge-seeking, Continuous learning, Financial proficiency, Money sense and Business knowledge.

It has been suggested that certain demographic variables have an influence on the entrepreneurial attributes possessed by people. The entrepreneurial attributes of individuals have been found to differ depending on the location where they live, as well as their gender, ethnicity, age, and whether their parents are or were self-employed or not. Hypotheses were formulated to test the influence of the aforementioned demographics on the possessing of entrepreneurial attributes.

In Chapter 4, the most commonly used intentions-based models were discussed, namely: the Theory of Planned Behaviour, the Entrepreneurial Event Model, and the concept of self-efficacy. The Theory of Planned Behaviour identifies three factors as influencing a person's intention to act, namely *attitude towards the behaviour, subjective (social) norm,* and *perceived behavioural control.* The Entrepreneurial Event Model identifies three factors that influence a person's entrepreneurial

intention, namely, *perceived desirability, perceived feasibility,* and *propensity to act*. Self-efficacy on the other hand is a person's belief in his or her ability to succeed in a particular situation. The overlap between these two theories and self-efficacy was then described.

Given the interrelatedness and important role that *perceived feasibility, perceived behavioural control* and *self-efficacy* have on the entrepreneurial intentions of individuals, this study focused on the perceived entrepreneurial abilities as reflected by the entrepreneurial attributes possessed by students, and the influence that possessing these attributes had on their entrepreneurial intentions. In line with the intentions-based theories, the greater the perception of possessing the attributes associated with a successful entrepreneur by an individual, the greater the belief by that individual that he or she has the capacity and competency to become an entrepreneur, which in turn will influence their entrepreneurial intentions. Against the background of the literature overview, several hypotheses were formulated to assess the relationship between possessing the 16 attributes under investigation and entrepreneurial intentions.

A person's demographic factors have also been found to have a significant influence on their entrepreneurial intentions. Demographic variables investigated in this study were *Gender, Ethnicity, Level of study* (age), *University attended* (geographic location) and *Self-employment status of parents* (role models). Literature supporting a relationship between the aforementioned demographic variables and entrepreneurial intentions was provided, and several hypotheses were formulated to test these relationships.

In Chapter 5, the research methodology adopted for this study was identified and described. Firstly, the research paradigm adopted for this study was described. A quantitative research approach was selected. The population to be studied was identified, and the sampling unit and method were described. The sample consisted of all undergraduate business students studying at three South African universities as well as two international universities. Convenience sampling was implemented in this study.

In Chapter 5 the method of data collection as well as the development of the measuring instrument were described. More specifically, the development of the various scales as well as the operationalisation of independent and dependent variables was explained. Lastly, the data analyses techniques used to assess the validity and reliability of the measuring instrument were described, and the statistical techniques adopted to analyse the data were elaborated on.

In order to assess the validity of the measuring instrument a factor analysis of a confirmatory nature was undertaken. This was done because an existing measure was utilised, and to facilitative comparisons. Factor loadings of greater than 0.30 were considered statistically significant (Hair *et al.* 2006:128). The reliability of the measuring instrument was established by calculating Cronbach alpha coefficients. Cronbach alpha coefficients of less than 0.50 were deemed to be unacceptable, those between 0.50 and 0.70 regarded as sufficient, and those above 0.70 as acceptable (Nunnally1978). The statistical techniques used to analyse the data included calculating descriptive statistics (the mean, standard deviation and frequency distributions), t-tests and Cohen's d, a multivariate analysis of variance (MANOVA), an analysis of variance (ANOVA), Chi-squared statistic and Cramer's V. The results of these analyses were presented in Chapter 6.

In Chapter 6 the empirical results of this study were presented. Firstly, the demographic information collected from respondents participating in the study was outlined. The majority of South African (NMMU, Rhodes University and Stellenbosch University) students participating in the study were in their first year of study. NMMU and Stellenbosch University had the same number of males and females participating in this study, while the majority of Rhodes University respondents were female (63%). NMMU reported that 60% of the respondents involved in this study were between the ages of 20 and 44, while the opposite was reported at Stellenbosch University, where the majority of respondents (73%) were between the ages of 17 and 19. Rhodes University reported an equal number of respondents between the ages of 17 and 19, and between the ages of 20 and 44. Most of the respondents from NMMU and Rhodes were African, followed by White and then other ethnic groups. On the other hand Stellenbosch University indicated that the majority of their respondents were White. Students from the South African

universities were requested to indicate their entrepreneurial intentions as well as the entrepreneurial status of their parents. It was found that 51% of respondents at NMMU indicated that neither of their parents had embarked on entrepreneurial ventures. However, at Stellenbosch and Rhodes University it was found that more than 60% of the students indicated that at least one of their parents was involved in an entrepreneurial venture. When considering the students' own entrepreneurial intentions, the majority of respondents from NMMU (73.8%) and Rhodes University (71.1%) indicated having entrepreneurial intentions, whereas only 53.4% of respondents from Stellenbosch University indicated having entrepreneurial intentions.

The demographic information describing the students from the international universities (University of Northern Iowa and the University of Utrecht) was also outlined in Chapter 6. Limited demographic data was collected from these universities. Data relating to the entrepreneurial intentions of students, the entrepreneurial nature of the parents and their ethnicity, was not collected. An approximately equal number of students from the University of Northern Iowa and the University of Utrecht participated in this study. The University of Northern Iowa reported that the majority of its respondents were male (60.1%), while the University of Utrecht had a more-or-less equal number of male and female respondents. The great majority of respondents from both these universities reported being between the ages of 20 and 35.

Each scale in the measuring instrument was subjected to an item analysis which consisted of two parts. Firstly, a factor analysis of a confirmatory nature was conducted on each scale to determine whether all the relevant items loaded onto the applicable scale. To avoid unnecessarily jeopardising content validity, the few items with loadings of less than 0.30 were retained for further analyses. Secondly, the internal consistency of the measuring scales was established through calculating Cronbach alpha coefficients. This was done to determine whether the observed scale scores were reliable. The results of the factor analyses revealed that the majority of items loaded significantly onto the 16 entrepreneurial attribute categories as expected. Items displaying factor loading of greater than 0.30 were considered significant in this study. *Risk-taking, Tolerance for ambiguity and uncertainty* and

*Money sense* reported Cronbach alpha coefficients of less than 0.5 and were thus eliminated from further statistical analysis.

Descriptive statistics, such as the mean, standard deviation and frequency distributions, were calculated to summarise the sample data. Students from NMMU reported the attribute *Commitment* as being most developed. The majority (>60%) agreed that they possessed all the attributes investigated in this study. NMMU students regarded the attributes *Commitment, High energy level, Planning and perseverance* and *Overcoming failure* as the four most developed attributes, while they regarded *Continuous learning, Knowledge-seeking, Initiative and responsibility* and *Communication ability* as the four least developed attributes. The descriptive statistics described the level of development of the entrepreneurial attributes among students at NMMU, and in so doing, the first secondary objective was achieved.

The changes in the level of development of entrepreneurial attributes among NMMU students between the 2001 and the 2010 studies were also investigated. It was found that between 2001 and 2010 the same four attributes, namely: *Commitment, High energy level, Planning and perseverance* and *Overcoming failure* were reported as the most developed attributes. The order of these attributes was just slightly different. In both the 2001 and the 2010 studies *Continuous learning, Knowledge seeking, Initiative and responsibility* and *Communications ability* were reported as the least developed attributes. With the exception of the attributes *Commitment* and *Overcoming failure*, the level of development of all the other entrepreneurial attributes subjected to the statistical analysis showed significant improvement between the 2001 and the 2010 NMMU samples. These improvements were, however, of small practical significance. This comparison led to the second secondary objective being achieved.

With the exception of *Continuous learning*, no significant differences were reported in the levels of development of the various entrepreneurial attributes between students at NMMU and students at the other South African universities participating in the study. NMMU and Rhodes University students reported the same top four attributes as being the most developed, and these attributes were reported in the same order of development. Stellenbosch University students also reported *Commitment*, *High*  *energy level* and *Overcoming failure* as the most developed, and also in the same order of development as the other two universities. However, *Planning and perseverance* was not reported as one of their four most developed attributes. Instead *Financial proficiency* was reported as the third most developed attribute for Stellenbosch University. The four least developed attributes reported by students from all three South African universities were exactly the same and in the same order of development, namely *Continuous learning, Knowledge seeking, Initiative and responsibility* and *Communication ability*. The comparison drawn between the South African universities (NMMU, Rhodes and Stellenbosch University) led to the third secondary objective being achieved.

When comparing the significant differences in the level of development of the 16 entrepreneurial attributes between NMMU and the international universities, a large practical significance was found for the attributes *High energy level, Continuous learning* and *Knowledge seeking*. All three universities reported *Commitment* as their most developed attribute. *High energy level* was the second most developed attribute for NMMU, and the third most developed attribute for students from the University of Northern Iowa. *Planning and perseverance* was reported by NMMU (third position) and Utrecht University (fourth position) as being one of their four most developed attribute by NMMU students. The American students reported *Financial proficiency* and *Persuasion and networking* as the second and fourth most developed attributes. The Dutch students reported *Self-confidence and locus of control* and *Creativity and flexibility* as the second as third most developed attributes.

The four least developed attributes for both NMMU and American students were the same, namely *Continuous learning*, *Knowledge seeking*, *Initiative and responsibility* and *Communication ability*, while the four least developed attributes for the Dutch sample were *Knowledge seeking*, *Continuous learning*, *Initiative and responsibility* and *Communication ability*. The comparison in this study between the University of Northern Iowa, University of Utrecht and NMMU saw the fourth secondary objective being achieved.

To establish whether relationships exist between possessing the entrepreneurial

attributes under investigation and the entrepreneurial intentions of NMMU students, t-tests were conducted. Cohen's d was calculated to establish the practical significance of these differences. For the attributes *Planning and perseverance, Communication ability, Overcoming failure, Initiative and responsibility, High energy level, Creativity and flexibility, Knowledge seeking, Continuous learning, Financial proficiency and Business knowledge, students with entrepreneurial intentions reported significantly higher mean scores than students without entrepreneurial intentions. In other words, students with higher levels of development of these attributes are more likely to have entrepreneurial intentions. Through identifying which entrepreneurial attributes are related to the entrepreneurial intentions of NMMU students, the fifth secondary objective of this study was achieved.* 

In establishing whether significant differences exist in terms of the level of development of the 16 entrepreneurial attributes of NMMU students and selected demographic variables, a multivariate analysis of variance (MANOVA) and a univariate analysis of variance (ANOVA) were conducted. To establish practical significance, Cohen's d was calculated. Significant differences in the levels of development of entrepreneurial attributes were reported for the demographic variables Levels of study, Gender and Age. In comparison with second years, students in their first year of study reported significantly higher mean scores for Financial proficiency, but lower mean scores for Business knowledge. Male students reported higher mean scores than female students for Continuous learning. Younger students (under the age of 20) reported significantly lower mean scores than older students (over the age of 20) for the attributes Communication ability, Overcoming failure, Initiative and responsibility and Continuous learning. With regard to the variables Ethnicity and Self-employment status of parents, no significant differences were found in the level of development of the entrepreneurial attributes under investigation. The aforementioned results led to the achievement of the sixth secondary objective, as the relationship between entrepreneurial attributes of NMMU students and selected demographic factors was identified.

In order to establish whether significant relationships exist between the demographic variables investigated in this study and the entrepreneurial intention of NMMU students, Chi-square statistic and Cramer's V were calculated. No significant

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differences were found to exist between the demographic variables *Level of study, Gender* and *Self-employment status of parents* and the *Entrepreneurial intention* of NMMU students. However, the results of this study show a significant relationship to exist between *Ethnicity* and *Entrepreneurial intention*. The findings show that African students are more likely to start their own business than their White and Coloured counterparts. These findings saw the attainment of the final secondary objective.

All secondary objectives that were set out in this study were achieved, and thus the primary objective of this study, to assess the entrepreneurial attributes of undergraduate business students at the NMMU, was also achieved.

### 7.3 INTERPRETATIONS AND RECOMMENDATIONS

As mentioned above, in Chapter 6 the empirical results were reported and significant findings were identified. The testing of several hypotheses allowed for the primary and secondary objectives of this study to be achieved. The findings of the study are discussed in the sections below, and several recommendations are put forward.

# 7.3.1 LEVEL OF DEVELOPMENT OF ENTREPRENEURIAL ATTRIBUTES OF NMMU STUDENTS

The results of this study show that students from NMMU reported the attribute *Commitment* as being most developed. The great majority agreed that they possessed this attribute. The majority of NMMU respondents also perceived *High energy level, Planning and perseverance* and *Overcoming failure* as being well developed. NMMU students regarded the attribute *Continuous learning* as being the least developed attribute. Lower mean scores were also reported for *Communication ability, Knowledge-seeking* and *Initiative and responsibility*. According to Gerry, Marques and Nogueira (2008) students can become successful entrepreneurs if they are identified and cultivated in their university careers, specifically if underdeveloped attributes investigated in this study to be well developed, several recommendations are put forward to improve the levels of development of the aforementioned four least developed attributes.

- In this study, *Communication ability* refers to having the ability to communicate ideas to others. The ability to communicate ideas to others involves not only being able to get the message across, but also to get the correct message across. To improve the communication ability of students, students should be given more opportunities to do oral presentations, have debates, and have discussions in the classroom setting. In addition, students should be encouraged to complete communication modules on a voluntary basis, or this could be made part of the curriculum. Students also need to be encouraged to take on part-time jobs so that they are able to interact with different people. Interacting with different people will give them the opportunity to improve their communication ability with a variety of different people. In addition to this, business organisations and the private sector also offer workshops to help students develop their communication skills, and students should be encouraged to participate and attend.
- Continuous learning refers to the desire to expand personal knowledge and enhance one's level of expertise. To increase this desire, students should be given the opportunity to follow their given passion. Becoming involved with mentorship programmes during the summer or winter holidays could promote their technical knowledge of business ownership, and would allow them to gain vital expertise. Students should also be given the opportunity to expand their knowledge in all business-related areas, by lecturers organising tours to businesses, encouraging participation is business-related competitions, and setting research assignments on business-related matters. Krueger *et al.* (2000) suggest that training initiatives and programmes should be utilised to introduce a business simulation approach where the situation can be modified and controlled to challenge the student in the learning process.
- Knowledge-seeking refers to being willing to seek information, ideas, expertise and the assistance of others. Students should be given assignments which challenge their way of thinking, and require them to gather information not only from prescribed books and journals, but also from experts in the field. Students should also be exposed to the problems that society faces, and be given a platform where they are able to put forward possible solutions to these

problems. In so doing they will be required to seek knowledge and thus be given the opportunity to develop this attribute.

- Initiative and responsibility refers to an individual's willingness to take the initiative and be responsible. In order for a student to improve this attribute, students need to be encouraged and given the opportunity to be leaders in group assignments. Students who are willing to take the leadership should be rewarded appropriately (possibly with additional marks). Students should also be encouraged to join societies or sports teams, where they can be given responsibility for both tasks and people. In this way their ability to deal with responsibility can be developed.
- To develop their entrepreneurial attributes in general, students should be given the opportunity to work for local businesses during their recess periods. Local businesses play an important part in this regard, and should be encouraged to come forward and make this opportunity available to students. Such work experiences will give students the opportunity to experience entrepreneurship and be exposed to entrepreneurial role models from which they can learn and to which they can aspire. This experience and exposure will also provide the opportunity for students to develop their own entrepreneurial attributes. Universities face a difficult task in developing business modules that will develop and cultivate students' entrepreneurial attributes and talents, and to encourage them to take the initiative. An environment in a university needs to be developed that promotes an entrepreneurial mindset. This can be done by making use of a variety of different teaching methods such as case studies, business simulation games, the preparing of business plans for people in the community, identifying business role models, and having group discussions. Through these methods students can learn by experience and observation, and gain valuable practical exposure.

#### 7.3.2 LEVEL OF DEVELOPMENT BETWEEN 2001 AND 2010 STUDY

The level of development of all the entrepreneurial attributes investigated in this study, with the exception of the *Commitment* and *Overcoming failure*, showed significant improvement between the 2001 and 2010 NMMU samples. This finding

implies that NMMU undergraduate business students in the 2010 study perceived themselves as possessing these entrepreneurial attributes to a greater extent than those in the 2001 sample. It should, however, be noted that these improvements were all of small practical significance. A possible reason for this improved development in entrepreneurial attributes is that the sample of students completing the survey in 2010 was different to the sample of 2001. For example, students from the 2010 sample could have been confident and more positive about themselves in general than those in the 2001 study, thus perceiving themselves as possessing the attributes more than the 2001 students. Furthermore, curriculum improvements or changes, with more emphasis on entrepreneurship and developing entrepreneurship abilities, could have taken place during the ten years that had passed between the 2010 and 2001 studies. In order to clarify this finding the following recommendations are put forward:

- Future studies attempting to assess changes in levels of development of entrepreneurial attributes should adopt a longitudinal approach. Such an approach should assess the levels of attributes of the same individuals at different points in time, prior to being exposed to some form of entrepreneurial education and then again after such exposure. As such, insights can be provided into what received education could have contributed to the improved levels of development.
- The module content of the various business modules being undertaken by the NMMU students participating in this study, over the period 2001 to 2010, should be carefully scrutinised so that areas where changes and additions have been made can be identified. These changes should be further investigated to establish whether they are related to the improved levels of the entrepreneurial attributes among students. If the changes can be identified and related to the improved levels of development of the entrepreneurial attitudes, the findings could be of value to other universities both in South Africa and abroad.

## 7.3.3 LEVEL OF ATTRIBUTE DEVELOPMENT NMMU VERSUS OTHER SOUTH AFRICAN UNIVERSITIES

Except for Continuous learning, no significant differences were reported in the levels of development of the various entrepreneurial attributes between students at NMMU and students at Rhodes and Stellenbosch Universities. For most of the attributes under investigation the findings of this study are in contrast to those of Mueller (2004) and Shane (2003) who contended that the occurrence of entrepreneurial attributes varies between different cultures. The significant difference that was reported between NMMU and Rhodes University when compared to Stellenbosch University for Continuous learning implies that NMMU and Rhodes University students perceived Continuous learning to be more developed than did students from Stellenbosch University. As suggested by Mueller (2004) and Shane (2003), the difference in Continuous learning could be attributed to culture. The majority of students at Stellenbosch University were White and Afrikaans whereas the majority at NMMU and Rhodes University were Black. This explanation was, however, not statistically confirmed in this study. Continuous learning refers to the desire to expand personal knowledge and enhance one's level of expertise. It is possible that students from Stellenbosch University do not consider this attribute as being so well developed because at present their focus is on their current studies. As such all efforts to expand knowledge and gain expertise are focused on their chosen degrees and not on developing their personal knowledge or expertise.

Given that *Continuous learning* is an attribute that is related to the intentions of students to start their own business, it is important to establish what the reason could be why students from the Eastern Cape universities reported higher levels of development for this attribute than those in the Western Cape. In addition to the above, a possible explanation could be found by comparing and analysing the content of the various modules studied by these students. If differences are found, these can be further investigated to establish whether they are related to promoting *Continuous learning* or not. In order to clarify this finding the following recommendations are put forward:

- A platform of exchange between NMMU and Stellenbosch University should be encouraged. This platform should allow module coordinators and lecturers of entrepreneurship and business modules to work together to identify where differences in module content exist. Best practices can then be identified and shared among all. A platform for exchange should also be created where lecturers from all South African universities can interact, and discussions can be held as to how the content of entrepreneurial modules at all universities can be improved and focused on developing entrepreneurial attributes. Such an opportunity could be created at a conference such as the South African Institute of Management Scientists Conference which is held annually.
- Stellenbosch University needs to find ways by which they can improve the levels of *Continuous learning* among their students. Ways need to be sought which increase the desire among students to expand their personal knowledge and enhance their level of expertise. Students need to be made aware of the value of enhancing their personal knowledge and expertise; this could be done by inviting successful entrepreneurs and business people to address students. These successful individuals can describe their own paths to success and the value that personal knowledge and expertise played in that success.

# 7.3.4 LEVEL OF ATTRIBUTE DEVELOPMENT NMMU VERSUS INTERNATIONAL UNIVERSITIES

The findings of this study show that significant differences, with large practical significance, exist in the levels of development between students from NMMU, the University of Northern Iowa (USA) and students from the University of Utrecht, for the entrepreneurial attributes *High energy level, Continuous learning* and *Knowledge seeking.* The findings relating to these attributes are supported by Mueller (2004) and Shane (2003) who contend that the occurrence of entrepreneurial attributes varies across countries, as well as those of Van Auken *et al.* (2006: 40), who have found that students from some countries are more than likely to possess entrepreneurial attributes than students from others. The findings concerning the

other entrepreneurial attributes, however, are not supported by Mueller (2004), Shane (2003) and Van Auken *et al.* (2006: 40).

NMMU students reported higher mean scores than students from the other universities for all three of these entrepreneurial attributes (High energy level, Continuous learning and Knowledge seeking). Possible explanations for the finding relating to *High energy level* are that students from NMMU have positive perceptions of their levels of energy that are not necessarily realistic. Secondly it could be that students from the USA and the Netherlands live in a more frantic study and business environment than do NMMU students, thereby sapping some of their energy levels. The previously disadvantaged backgrounds of most NMMU students could provide a possible explanation for the higher mean scores reported by them for the entrepreneurial attributes Knowledge seeking and Continuous learning. NMMU students may feel that they want to be exposed to more information and expertise so that they can gain the necessary expertise that will allow them to have a successful business or to find future employment. Further investigation should be undertaken to clarify the reasons for these findings. In addition, as is the case of the local universities, curricula should be compared, so that differences can be identified and investigated. The following recommendations are put forward:

- Lecturer exchanges should take place, whereby international lecturers of business modules should be invited to give guest lectures at NMMU, and lecturers from NMMU should be given the opportunity to lecture at universities abroad. This will allow for different teaching methods to be incorporated into the business modules at NMMU, and in so doing give students exposure to different teaching styles and points of view. These exchanges will also give lecturers from NMMU exposure to different methods and approaches, as well as different students.
- The international universities who reported higher levels of attribute development than those in South Africa should specifically be encouraged to visit NMMU and share their knowledge on how they have developed their entrepreneurship modules, and also to share the contents thereof.

#### 7.3.5 ENTREPRENEURIAL ATTRIBUTES AND INTENTIONS

The findings of this study show that for the attributes *Planning and perseverance, Communication ability, Overcoming failure, Initiative and responsibility, High energy level, Creativity and flexibility, Knowledge seeking, Continuous learning, Financial proficiency and Business knowledge*, students with entrepreneurial intentions reported significantly higher mean scores than students without entrepreneurial intentions. This finding implies that students possessing these attributes are more likely to have entrepreneurial intentions than those who do not. If the number of future entrepreneurs in the country is to be increased, it is these attributes the educators of entrepreneurship should focus on developing.

The entrepreneurial attributes *Communications ability, Continuous learning, Knowledge-seeking* and *Initiative and responsibility* have been identified as the four least-developed attributes among NMMU students (Section 7.3.1), and several recommendations have already been put forward on how to improve these attributes among students. Given the influence that possessing these attributes has on the entrepreneurial intentions of students, the importance of developing these attributes cannot be overemphasised. Educators of future entrepreneurs should incorporate as many techniques as possible in their modules in an attempt to stimulate the development of these attributes.

Although the attributes *Planning and perseverance, Overcoming failure, High energy level, Creativity and flexibility, Financial proficiency* and *Business knowledge* were reported by NMMU students as being well-developed, it should be considered that the level of development reported by these students was based on the perceptions of their own ability, and possibly not on their actual ability. Once again, given the influence that possessing these attributes has on the entrepreneurial intentions of students, the importance of developing these attributes cannot be overemphasised. Consequently, several recommendations are suggested to develop these attributes.

 Planning and perseverance refers to having goals, plans and the determination to follow through. To improve and develop a student's ability to plan and persevere, students need to be exposed to challenging situations and assignments which require them to plan and set goals, as well as achieve these goals within specific deadlines. Many students do not know how to set goals and plans, and providing them with practical sessions on how to do this could lead to improving this ability. The ability to plan and persevere will only improve once students see the benefits of doing so; therefore assignments that require this should be given to them regularly throughout their university careers.

- In this study, Overcoming failure refers to having the ability to overcome failure and regard it as a learning experience. At the centre of developing this attribute is the ability of the individual student to have an optimistic outlook on life experiences. It is recommended that past business students who have successfully started their own business be given opportunities to address current business students, and tell them how they have overcome challenges and are prospering today. Another way to develop this attribute is to promote a classroom culture of pushing through when faced with difficulties and failure. For example, if a student fails a test or assignment, that student should be encouraged to attend additional tutorial classes so that he or she can overcome the failure and learn how to study for the next test. Motivation plays an important role in overcoming failure, and students should be encouraged to read motivational books and attend lectures given by motivational speakers.
- High energy level refers to having the ability to work long hours and stay focused. To ensure high energy levels, it is recommended that students be encouraged to join wellness programmes, where their diet and way of life are monitored. Through wellness programmes students can be educated on healthy eating and sleeping habits, which will contribute to higher levels of energy. Higher energy levels should enable them to work longer hours and be more focused.
- Creativity and flexibility refers to being able to think originally and creatively, while remaining flexible enough to handle changing or multiple circumstances. For students to be creative, they need to learn to think outside of the box. It is recommended that universities provide students with opportunities for international exchanges which will expose them to different cultures, ways of thinking and solving problems. This type of exposure could stimulate creativity and flexibility, as it will provide students with a broader frame of reference and

the chance to see the world through different eyes. Within the academic context students could also be rewarded for creativity in the completion of their tasks and assignments, for example by being given additional marks. The ability to be creative is something that can be learnt, and students should be encouraged to attend workshops offered by organisations outside the university on developing their creative abilities

In this study, Financial proficiency refers to having the ability to understand and/or interpret financial transactions and results, and Business knowledge refers to having a basic understanding of the business operations and terminology. Business modules should include study units where the interpretation of financial statements receives special attention. During the presentation of these units, students should be given the opportunity to analyse the actual financial statements of an existing business, or could be given an assignment to go out to an existing small business and assist the owner in analysing his or her statements. Business terminology is learnt as part of academic studies, and students should be made aware of the value of knowing this terminology. By appreciating its value, they may be more willing to put in effort to learn and remember the terms that are taught to them on a daily basis. Although a theoretical overview is given to students during their studies on what basic business operations involve, it is only through experience and exposure that a real understanding is created. Universities should endeavour to promote working-holiday programmes and internships where students are able to apply their theoretical knowledge and gain practical exposure to real-life businesses operations. In this manner they will be able to see how the terminology they learn in the classroom is applied in the real world.

### 7.3.6 ENTREPRENEURIAL ATTRIBUTES AND DEMOGRAPHIC FACTORS

In this study, significant differences in the levels of development of certain entrepreneurial attributes were reported for the demographic variables *Levels of study*, *Gender* and *Age*.

It was found that for the demographic variable *Level of study*, significant differences were reported for the attributes *Financial proficiency* and *Business knowledge*.

NMMU students in their first year of study reported significantly higher mean scores for *Financial proficiency* than NMMU students in their second year of study. A large number of NMMU students participating in the study were undertaking the module "Introduction to Business Management", a first-year module. This module contains more than one study unit focusing on the understanding and interpreting of financial statements. Many first-year students would also be undertaking an Accounting module. At second year level, most of the NMMU students participating in the study would have been focusing on modules relating to Marketing and Purchasing. For this reason the level of *Financial proficiency* or ability to understand and interpret financial transactions and results, could possibly have been perceived as more developed among first-year than second-year NMMU students.

It was found that students in their second year of study reported significantly higher mean scores than students in their first year for the attribute *Business knowledge*. Given that students in their second year would have completed two years of studying business-related modules, it comes as no surprise that they perceive themselves as possessing a basic understanding of business operations and terminology, more so than first-year students would.

A significant relationship was also reported for the demographic variable *Gender* and the attribute *Continuous learning*. Male students reported higher mean scores than female students for this attribute. This difference was, however, found to be of small practical significance. The findings of this study could be attributed to cultural difference in the South African society, a society where many women still embark on traditional female careers and where women are still predominately responsible for the home. Given that men are still perceived as the primary breadwinners in South African society, it is possible that they desire to expand their personal knowledge and enhance their level of expertise to a greater extent than women do, so that they concur with those of Louw *et al.* (2003) who also report significant differences existing between male and female students with regard to the development of certain entrepreneurial traits. With the exception of *Continuous learning* the findings of this study concur with those of Kakkonen (2010), Indarti (2004) and Mueller (2004) who

have found few differences in the entrepreneurial attributes of male and female entrepreneurs.

Significant differences were found with regard to the *Age* of the student and the level of development of the attributes *Communication ability*, *Overcoming failure, Initiative and responsibility* and *Continuous learning*. Only *Continuous learning* was, however, found to be of practical significance. Students over the age of 21 reported higher means scores for *Continuous learning* than those under 21. Older students are more likely to realise the value of expanding their personal knowledge and enhancing their level of expertise than younger students, because as they get older they realise the importance of knowledge and expertise for the success of their future careers. As they realise its importance, their desire for it increases. The findings of this study regarding *Age* are supported by those of Bönte *et al.* (2007) and Louw *et al.* (2003), who also reported differences in levels of certain entrepreneurial attributes between people of different ages.

### 7.3.7 ENTREPRENEURIAL INTENTION AND DEMOGRAPHIC FACTORS

No significant differences were found to exist between the demographic variables *Level of study, Gender* and *Self-employment status of parents* and the *Entrepreneurial intention* of NMMU students. These findings are in contrast to several studies that have reported significant relations between demographic variables and entrepreneurial intentions (Aslam *et al.* 2012:122; Zhang *et al.* 2009:94; Wilson *et al.* 2007; Zhao *et al.* 2005; Wang & Wong 2004; Bridge *et al.* 2003; Shane 2003).

However, the results of this study show a significant relationship to exist between *Ethnicity* and *Entrepreneurial intention*. The findings show that African students are more likely to start their own business than their White and Coloured counterparts. This finding concurs with existing research which also reports that black African individuals are more likely than White individuals to start their own business (Farrington *et al.* 2011; Olufunso; 2010: 89; Orford, Herrington & Wood 2004: 3). A possible explanation for this is that black African students aspire to the wealth that they perceive business ownership will bring them.

### 7.4 CONTRIBUTIONS OF THE STUDY

Promoting entrepreneurship is vital for the success of today's societies, which face enormous economic and social challenges (Audretsch 2007). Krueger et al. (2000) and Ajzen (1991) analysed various theories and factors that influenced entrepreneurial intentions, and found that planned behaviour was a critical factor in identifying entrepreneurial behaviour. Perceived feasibility, perceived behavioural control and self-efficacy are instrumental in influencing someone's intentions to do something. Given the interrelatedness and important role that *perceived feasibility*, perceived behavioural control and self-efficacy have on the entrepreneurial intentions of individuals, this study focused on the perceived entrepreneurial abilities as reflected by the entrepreneurial attributes possessed by students and the influence that possessing these attributes had on their entrepreneurial intentions. In line with the intentions-based theories, the greater the perception of possessing the attributes associated with a successful entrepreneur by an individual, the greater the belief by that individual that he or she has the capacity and competency to become an entrepreneur, which in turn will influence their entrepreneurial intentions. By applying intentions-based models to the entrepreneurial context, this study has contributed to a greater understanding of the applicability of these models in different contexts.

This study has identified several entrepreneurial attributes that are more likely to be found in students with entrepreneurial intentions that those without them. It is these attributes that educators of entrepreneurship should focus on developing when teaching their students. The attributes identified also differ in terms of labelling and definition from those commonly referred to in the literature. As such, the study adds to the body of knowledge relating to entrepreneurial attributes (traits) and provides entrepreneurship researchers with opportunities for future research.

This study has highlighted that certain demographic factors are related to the levels of development of certain entrepreneurial attributes, as well as to entrepreneurial intentions. As such, the results highlight the fact that that people are different, and some are more suited than others to entrepreneurship, based on their demographic profile. Educators of entrepreneurship and career guidance counsellors should take note of this finding when encouraging future entrepreneurs.

Through assessing the entrepreneurial attributes of NMMU students and making comparisons with other universities, this study has contributed to entrepreneurship education at NMMU as well as to entrepreneurship education in South Africa and abroad. Educators of entrepreneurship have been given insights into the levels of development of several entrepreneurial attributes among their students. These insights can be used to reassess the content of current entrepreneurship modules, so that future efforts are more aligned with student's needs and the demands of practice. In addition, recommendations have been made on how to improve the levels of development of the attributes investigated in this study.

# 7.5 LIMITATIONS OF THE STUDY AND RECOMMENDATIONS FOR FUTURE RESEARCH

Despite the contributions of this study, several limitations have been identified, and should be explained in more detail. These limitations should be taken into account when interpreting the results of this study and when conducting future research.

For the survey, only students from two provinces (Western and Eastern Cape) in South Africa participated. Furthermore, the sampling technique used was that of convenience sampling. Convenience sampling can be highly unrepresentative, and does not allow for the views of the whole populations to be reported. As such, the findings of this study cannot be generalised to the whole South African student population. Future research should focus on increasing the number of universities involved in the study, and include students from all provinces in South Africa to make the sample more representative.

The measuring instrument adopted in this study made use of an existing measuring instrument to assess the entrepreneurial attributes under investigation. Although the measuring instrument has been proved valid and reliable in previous studies, the instrument itself has several shortcomings. Several authors (Scarborough 2011:22; Tajeddini & Mueller 2009; Raab *et al.* 2005) have documented other entrepreneurial

attributes that were not measured in this study, such as internal locus of control, need for achievement, problem-solving ability, emotional stability, team ability, innovativeness and the need for feedback. There is therefore a need in future research to add attributes not accounted for in the existing measuring instrument. These additions will allow for variety in measuring attributes, and also give greater accuracy in determining exactly which entrepreneurial attributes need development.

Future studies could also make use of more up-to-date and relevant scales to measure the levels of development of entrepreneurial attributes. An additional limitation was that the measuring instrument was made available in only one language, namely English. The majority of students from Stellenbosch University were Afrikaans-speaking, and students from the University of Utrecht were Dutch-speaking. This limitation could possibly have resulted in a poorer response from Afrikaans and Dutch-speaking students, as well as a misinterpretation of questions by these students. In future studies the questionnaire could be made available to students in their own languages, although the translation thereof would create a whole new set of problems.

In determining the level of development of entrepreneurial attributes in this study, it is important to realise that responses to the questions were based on the students' perceptions of themselves. It is therefore a limitation of this study that the measuring of the students' entrepreneurial attributes relied on a one-time individual self-report. Based on the validity and reliability tests undertaken, three attributes were eliminated from further statistical analysis, namely *Risk-taking*, *Tolerance for ambiguity and uncertainty* and *Money sense*. Future studies should attempt to improve the measuring instrument in terms of measuring these attributes. According to Tajeddini and Mueller (2009), social context must be considered when explaining differences between entrepreneurs. Therefore differences in the content of the business modules studied and the environment at the universities participating in this study should be specifically considered as they may be relevant to the interpretation of the findings.

When comparing the levels of development of the entrepreneurial attributes between the 2001 and 2010 NMMU samples, several differences were highlighted. The results imply that students in 2010 were more entrepreneurial than students in 2001. These results should, however, be interpreted with caution as the samples were completely different. The sample of NMMU students in 2001 could have been vastly different to that of the 2010 sample, and these differences that could have accounted for the findings of this study. It is therefore recommended that for future research, longitudinal studies with the same sample of respondents at different points in time during their university careers studies be studied.

In this study the focus was placed on assessing the entrepreneurial attributes of current undergraduate business students only. Whether the level of development of these attributes investigated or the suggested improvements in the level of development reported are a result of the exposure to entrepreneurship studies or not, is unknown. In future studies a comparison should be made between business and non-business students to identify whether the levels of development of the entrepreneurial attributes under investigation are associated with business module studies or not.

#### 7.6 CONCLUDING REMARKS

Investigating students' entrepreneurial intentions is of growing importance in the field of entrepreneurship. Encouraging entrepreneurship among students has become a crucial topic among universities, governments and researchers (Venesaar *et al.* 2006). The quality of entrepreneurship training in South Arica is inadequate, and has resulted in existing and graduate entrepreneurs having poor business and managerial skills (Herrington and Wood 2007). Through entrepreneurial education the necessary skills and confidence to undertake entrepreneurial activity can be developed (Fatoki 2010: 92; Urban *et al.* 2010: 135). However, it is important that educational institutions such as NMMU know which skills and competencies (attributes) should be developed in educating future entrepreneurs (Venesaar *et al.*, 2006). The primary objective of this study was to assess the entrepreneurial attributes of undergraduate business students at the NMMU. The findings show that in comparison with other students, both in South Africa and abroad, NMMU students fare well in terms of their perceived level of development of their entrepreneurial attributes.

This study has provided insights into the levels of development of entrepreneurial attributes of students, as well as several suggestions on how to educate future entrepreneurs, not only at NMMU but also in South Africa and abroad.

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#### ANNEXURE A – QUESTIONNAIRE (SOUTH AFRICAN VERSION)

# ENTREPRENEURIAL TRAITS OF UNDERGRADUATE COMMERCE STUDENTS: AN INTERNATIONAL COMPARISON

#### **Dear student**

**Invitation to participate:** You are hereby invited to participate in a research project conducted among undergraduate commerce/business students. The following information is provided to help you make an informed decision on whether or not to participate.

**Investigator:** The primary investigator is Ms S Saunders, a Masters student in the Department of Business Management at the Nelson Mandela Metropolitan University.

**Respondents:** Any undergraduate commerce/business student qualifies to participate in this study. For this purpose undergraduate refers to a student in their 1<sup>st</sup>, 2<sup>nd</sup> or 3<sup>rd</sup> year level of study, whereas a commerce/business student refers to students who are currently undertaking modules relating to subjects such as Business Management, Marketing, Marketing Communications, Purchasing and Logistics, Finance, Investments, General and Strategic Management as well as Entrepreneurship.

**Purpose of the project:** The purpose of this study is to investigate the entrepreneurial traits of undergraduate students, particularly in the field of business studies, in 8 different countries.

**Procedure:** The success of this project greatly depends on your co-operation. The questionnaire consists of three sections. Section A contains 104 statements intended to provide insights into entrepreneurial traits. Section B requests demographic information of respondents and Section C relates to planned entrepreneurial behaviour. There are no right or wrong answers for the purpose of this exercise. It is important for this study that you give an honest assessment of how you stand on each of these statements. Please indicate the extent to which you agree or disagree with each of the following statements using the five-point scale provided. It will take approximately 20 minutes to complete the questionnaire and the entire questionnaire should be completed at one time.

**Confidentiality:** Your participation is entirely voluntary and details of your participation will be kept strictly confidential. Names of individuals will however not appear in the research outputs. Only aggregate data and summary statistics will be reported. Summarised information emanating from the results may be published in an academic journal or presented at a scholarly conference.

**Benefits:** This information will help the researchers determine strengths and weaknesses of the cultural and educational systems preparing students to be entrepreneurs and business leaders in various countries.

Discomfort and Risks: There are no foreseeable risks to your participation.

Should you require further information, please contact Ms S Saunders, Tel: 504 2203.

**Completing the questionnaire:** If you agree to participate in this research you will be required to complete the questionnaire online (via the internet) at one time. It will be returned automatically the moment you press submit.

The following website will automatically link you to the electronic questionnaire:

http://www.nmmu.ac.za/websurvey/q.asp?sid=228&k=jmobacuhls

# Thank you very much for your willingness to contribute to the success of this research project.

### SELF-ASSESSMENT QUESTIONNAIRE

### SECTION A

This section contains some statements intended to provide an insight into your entrepreneurial characteristics and inclinations. IT IS NOT A TEST. There are no right or wrong answers for the purpose of this exercise. It is important for this study that you give an honest assessment of how you stand on each of these statements. Please indicate the extent to which you agree or disagree with each of the following statements using the five point scale below. It will take approximately 20 minutes to complete the questionnaire and the entire questionnaire should be completed at one time.

Stror	Strongly disagree Disagree Neutral Agree			Strongly agree				ree	
	1	2	3	4	Ę				
1	l enjoy spea	king in front of audie	ences.		1	2	3	4	5
2	At meetings have said.	, I find myself as th	e person clarifying	what others	1	2	3	4	5
3	I did well in I	my written work at so	chool.		1	2	3	4	5
4	I can mainta	ain a conversation e g much.	ven when my speak	king partner	1	2	3	4	5
5	When I mee his/her field	et a business perso of work.	n I ask many ques	tions about	1	2	3	4	5
6	When I com people on it.	e up with a new ide	ea, I generally try to	"sell" other	1	2	3	4	5
7	It is importa from."	nt for me to know "v	where the next Dolla	ir is coming	1	2	3	4	5
8	I have a long	g-range financial goa	al.		1	2	3	4	5
9	When I have cash box for	e the opportunity I wi my personal use.	ll borrow money fror	n the petty	1	2	3	4	5
10	I normally at	tempt to do a job be	tter than is expected	d of me.	1	2	3	4	5
11	When I spea contact.	ak to people I make	it a point to maintai	n good eye	1	2	3	4	5
12	l enjoy tellin	g a joke.			1	2	3	4	5
13	I know how	to end conversations	s tactfully.		1	2	3	4	5
14	I read techn work/interes	ical magazines, whic t.	ch pertain to my prin	nary field of	1	2	3	4	5
15	In my studie who has exp	es/career so far I ha perience.	ve had counsel fror	n someone	1	2	3	4	5
16	I generally plan a course of action before getting involved in a new venture.			1	2	3	4	5	
17	I enjoy facing new situations and working out solutions to problems.				1	2	3	4	5
18	I need a clea	ar explanation of a ta	ask before proceedir	ng with it.	1	2	3	4	5
19	I revise my	goals periodically in y	view of "progress to	date".	1	2	3	4	5

Strongly disagree		Disagree	Disagree Neutral Agree			S	Strongly agree			
	1	2	3	4				5		
20	When I start	t a task I normally se	e it through to the e	nd.	1	2	3	4	5	
21	When I am trv to convin	the only person in a	group with a specifit my way.	fic opinion I	1	2	3	4	5	
22	I am able to	make jokes about s	ome of my own failir	as.	1	2	3	4	5	
23	I believe that	it time is money.		5-	1	2	3	4	5	
24	I am able analytical ar	to discuss wrong ond rational manner.	decisions I have m	nade in an	1	2	3	4	5	
25	I seek conta	ct with people who w	vork independently.		1	2	3	4	5	
26	I like to be a	sked for personal ac	lvice.		1	2	3	4	5	
27	I am active i	in outside organisatio	ons as a volunteer.		1	2	3	4	5	
28	I read things	s outside my own fiel	d of work/ interest.		1	2	3	4	5	
29	I generally g	et things done on tir	ne.		1	2	3	4	5	
30	I am on time	e for appointments.			1	2	3	4	5	
31	I have been	in debt "over my hea	ad."		1	2	3	4	5	
32	I have atten second time	mpted a major proj	ect which failed at d.	first, for a	1	2	3	4	5	
33	People com	e to me for personal	advice.		1	2	3	4	5	
34	I make frien	ds easily.			1	2	3	4	5	
35	When spea vocabulary.	aking to people I	generally try to r	natch their	1	2	3	4	5	
36	I keep a dai	ly list of "things whicl	h must be done".		1	2	3	4	5	
37	In the future	I would have a pers	onal lawyer.		1	2	3	4	5	
38	Friends and advice.	relatives come to m	ne for various types	of business	1	2	3	4	5	
39	I am able to setback on a	o pick up the pieces a project.	and start again after	er a severe	1	2	3	4	5	
40	I like respon	sibility.			1	2	3	4	5	
41	I laugh easil	y.			1	2	3	4	5	
42	I am in good	d health.			1	2	3	4	5	
43	I usually an rather than '	rive at airports, trair "just in time".	n stations or bus sta	ations early	1	2	3	4	5	
44	When peopl "gimmick" o	le present ideas to m r twist.	ne I usually come up	with a new	1	2	3	4	5	
45	When faced my situatior action.	l with a sudden chan n and quickly move	ge in plans I am ab ahead on a specifi	le to rethink c course of	1	2	3	4	5	
46	l am usually particular pr	able to come up wit oblem.	h more than one wa	y to solve a	1	2	3	4	5	
47	I enjoy doin	g different things at v	vork.		1	2	3	4	5	
48	I make sug studies.	gestions about imp	proving things on th	ne job / or	1	2	3	4	5	
49	I make a pra	actice of buving thing	is on credit.		1	2	3	4	5	
50	I plan to hav	e a will written.			1	2	3	4	5	
51	I tend to dominate conversations.				1	2	3	4	5	

Please respond to the following statements by making a cross (X) in the appropriate block. The interpretation of the scale is as follows: Strongly disagree Neutral Strongly agree Disagree Agree • I read technical magazines related to my primary field of interest. I believe that "if at first you don't succeed, try and try again". Before falling asleep at night, I often think of new ideas concerning my future plans. When in a state of depression, I know that I will soon overcome it. I have discussed the idea of going into business for myself with others. I face the problems of life with a feeling of hope and good expectations. At times I do things against the wishes of my parents. When I start a task, I usually get so involved that I forget everything else. I believe in the free enterprise system. I understand basic bookkeeping principles. I know what the term "aged accounts receivable" means. I find that most of the people I come into contact with are pleasant and friendly. I consider myself a person that can carry on a decent conversation. I find it easy to set priorities when I have a number of tasks to do in a short period of time. I "get organized" quickly when placed in a new situation. Before making a large purchase I usually research the field before going out to look at the item. I regularly read business magazines either at the library, at work or at home. I regularly read the Financial mail, Finance week, Fortune, Economist, Wall Street Journal, Time, Newsweek or some other magazine that covers a broad perspective. I have exposed myself to a specific sales situation just to see how the salesperson operates. When I am in a shop I ask the sales person "How's business?". I put my family and/or children first. I am able to maintain my self-control when another person is chewing me out for something I did not do. I tend to support my own decisions and opinions vigorously. When I set a goal, I generally see it through to the end. I know how to read financial statements. The proposals I make at meetings, discussions etc, are generally accepted. I am able to work long hours without getting tired. I seek out situations in which I will have extra responsibility. I act quickly in cases of emergency, such as accidents, fire, etc.

Stron	Strongly disagree Disagree Neutral Agree		Strongly agre				ree		
	1	2	3	4				5	
81	When I mak	e up my mind to do	something, I genera	lly do it.	1	2	3	4	5
82	I often write	memos or letters ab	out business matter	s.	1	2	3	4	5
83	l work well u	inder pressure.			1	2	3	4	5
84	I have misse	ed lunch or dinner to	complete a task.		1	2	3	4	5
85	l know a lot	about the business I	am thinking of start	ing.	1	2	3	4	5
86	In volunteer chairperson	r organisations, I no or a committee men	ormally end up eith nber.	ner being a	1	2	3	4	5
87	I have done group (or ot	e fundraising for a c her religious group).	harity organisation	or a church	1	2	3	4	5
88	I find it easy	to express new idea	as quickly and under	standably.	1	2	3	4	5
89	I have supe	rvised people.			1	2	3	4	5
90	I am good w	/ith numbers.			1	2	3	4	5
91	I feel that m	ost events in my life	are determined by r	ne.	1	2	3	4	5
92	I prefer to p	urchase things for ca	ash.		1	2	3	4	5
93	When I come across a new idea I try to find out more about it				1	2	3	4	5
94	I have bee goals.	n successful in atta	aining most of my	long-range	1	2	3	4	5
95	Before fallin do for the ne	g asleep at night, I n ext day.	ormally plan what I	am going to	1	2	3	4	5
96	When peopl	le criticise me, I take	it kindly and try to c	hange.	1	2	3	4	5
97	I am able to	handle many things	at the same time.		1	2	3	4	5
98	Given the o	pportunity I would ga	amble for money.		1	2	3	4	5
99	I understand System.	d (comprehend) the	workings of the Free	e Enterprise	1	2	3	4	5
100	I know how	to start a business.			1	2	3	4	5
101	I plan to hav	ve life insurance.			1	2	3	4	5
102	I know what	a sole proprietorshi	p is.		1	2	3	4	5
103	I know how	a bank operates.			1	2	3	4	5
104	I have a w easy go."	ay of life in which	I consider money "	easy come,	1	2	3	4	5

#### SECTION B: GENERAL DEMOGRAPHIC INFORMATION

Please mark your selection to the following questions with an (X).

1 Please indicate the name of the university where you are currently a student studying a business (management/commerce) module

NMMU	1
Rhodes University	2
Stellenbosch University	3
Other (Please indicate the name of the university)	4

2 Please indicate the level at which you are currently studying

1 <sup>st</sup> year	1
2 <sup>nd</sup> year	2
3 <sup>rd</sup> year	3
4 <sup>th</sup> year	4

#### 3 Please indicate your gender

Male	1
Female	2

4 My current age in years is (e.g. 20 years old)

years old.

#### 5 Please indicate to which population group you belong

White	1
African	2
Coloured	3
Indian	4
Chinese	5
Not willing to say	6

#### 6 Which of your parents/guardians are or were self-employed?

None	1
Father / Male guardian	2
Mother / Female guardian	3
Both parents / Guardians	4

#### SECTION C: PLANNED ENTREPRNEURIAL BEHAVIOUR

Please indicate your answers to the following questions by clicking in the circle alongside your choice or filling in the number as requested.

1 I am currently the owner of my own business?

Yes	1
No	2

#### 2 Do you intend to own and manage your own business in the future?

Yes	1
No	2

#### ANNEXURE A – QUESTIONNAIRE (INTERNATIONAL VERSION)

# ENTREPRENEURIAL TRAITS OF UNDERGRADUATE COMMERCE STUDENTS: AN INTERNATIONAL COMPARISON

#### **Dear student**

**Invitation to participate:** You are hereby invited to participate in a research project conducted among undergraduate commerce/business students. The following information is provided to help you make an informed decision on whether or not to participate.

**Investigator:** The primary investigator is Ms S Saunders, a Masters student in the Department of Business Management at the Nelson Mandela Metropolitan University.

**Respondents:** Any undergraduate commerce/business student qualifies to participate in this study. For this purpose undergraduate refers to a student in their 1<sup>st</sup>, 2<sup>nd</sup> or 3<sup>rd</sup> year level of study, whereas a commerce/business student refers to students who are currently undertaking modules relating to subjects such as Business Management, Marketing, Marketing Communications, Purchasing and Logistics, Finance, Investments, General and Strategic Management as well as Entrepreneurship.

**Purpose of the project:** The purpose of this study is to investigate the entrepreneurial traits of undergraduate students, particularly in the field of business studies, in 8 different countries.

**Procedure:** The success of this project greatly depends on your co-operation. The questionnaire consists of three sections. Section A contains 104 statements intended to provide insights into entrepreneurial traits. Section B requests demographic information of respondents and Section C relates to planned entrepreneurial behaviour. There are no right or wrong answers for the purpose of this exercise. It is important for this study that you give an honest assessment of how you stand on each of these statements. Please indicate the extent to which you agree or disagree with each of the following statements using the five-point scale provided. It will take approximately 20 minutes to complete the questionnaire and the entire questionnaire should be completed at one time.

**Confidentiality:** Your participation is entirely voluntary and details of your participation will be kept strictly confidential. Names of individuals will however not appear in the research outputs. Only aggregate data and summary statistics will be reported. Summarised information emanating from the results may be published in an academic journal or presented at a scholarly conference.

**Benefits:** This information will help the researchers determine strengths and weaknesses of the cultural and educational systems preparing students to be entrepreneurs and business leaders in various countries.

**Discomfort and Risks:** There are no foreseeable risks to your participation. Should you require further information, please contact Ms S Saunders, Tel: 504 2203.

**Completing the questionnaire:** If you agree to participate in this research you will be required to complete the questionnaire online (via the internet) at one time. It will be returned automatically the moment you press submit.

The following website will automatically link you to the electronic questionnaire:

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## Thank you very much for your willingness to contribute to the success of this research project.

### ENTREPRENEURIAL TRAITS SURVEY

#### SELF-ASSESSMENT QUESTIONNAIRE

#### SECTION A

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	1 2 3 4							5	
1	l enjoy spea	king in front of audie	ences.		1	2	3	4	5
2	At meetings have said.	, I find myself as th	e person clarifying	what others	1	2	3	4	5
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4	I can mainta	ain a conversation e g much.	ven when my speak	king partner	1	2	3	4	5
5	When I mee his/her field	et a business perso of work.	n I ask many ques	tions about	1	2	3	4	5
6	When I com people on it.	ne up with a new ide	ea, I generally try to	"sell" other	1	2	3	4	5
7	7 It is important for me to know "where the next Dollar is coming from."					2	3	4	5
8	I have a long	g-range financial goa	al.		1	2	3	4	5
9	When I have the opportunity I will borrow money from the petty cash box for my personal use.					2	3	4	5
10	I normally at	ttempt to do a job be	tter than is expected	d of me.	1	2	3	4	5
11	When I spea contact.	ak to people I make	it a point to maintai	n good eye	1	2	3	4	5
12	I enjoy tellin	g a joke.			1	2	3	4	5
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14	I read techn work/interes	ical magazines, whic t.	ch pertain to my prin	nary field of	1	2	3	4	5
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16	6 I generally plan a course of action before getting involved in a new venture.			1	2	3	4	5	
17	17 I enjoy facing new situations and working out solutions to problems.				1	2	3	4	5
18	I need a clea	ar explanation of a ta	ask before proceedir	ng with it.	1	2	3	4	5
19	l revise my	goals periodically in v	view of "progress to	date".	1	2	3	4	5

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	1	2	3	4				5	
20	When I star	t a task I normally se	e it through to the e	nd.	1	2	3	4	5
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22	I am able to	make jokes about s	ome of my own failir	igs.	1	2	3	4	5
23	I believe that	at time is money.	<b>y</b>	0	1	2	3	4	5
24	I am able analytical ar	to discuss wrong ond rational manner.	decisions I have m	nade in an	1	2	3	4	5
25	I seek conta	act with people who w	work independently.		1	2	3	4	5
26	I like to be a	sked for personal ac	dvice.		1	2	3	4	5
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31	I have been	in debt "over my hea	ad."		1	2	3	4	5
32	I have atten second time	mpted a major proj	ect which failed at d.	first, for a	1	2	3	4	5
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36	l keep a dai	ly list of "things whicl	h must be done".		1	2	3	4	5
37	In the future	I would have a pers	onal lawyer.		1	2	3	4	5
38	Friends and advice.	I relatives come to m	ne for various types	of business	1	2	3	4	5
39	I am able to setback on a	o pick up the pieces a project.	and start again after	er a severe	1	2	3	4	5
40	I like respor	nsibility.			1	2	3	4	5
41	I laugh easi	ly.			1	2	3	4	5
42	I am in good	d health.			1	2	3	4	5
43	I usually an rather than	rive at airports, trair "just in time".	n stations or bus sta	ations early	1	2	3	4	5
44	When peop "gimmick" o	le present ideas to m r twist.	ne I usually come up	with a new	1	2	3	4	5
45	When faced my situatior action.	l with a sudden chan n and quickly move	nge in plans I am ab ahead on a specifi	le to rethink c course of	1	2	3	4	5
46	l am usually particular pr	able to come up wit oblem.	h more than one wa	y to solve a	1	2	3	4	5
47	I enjoy doin	g different things at v	vork.		1	2	3	4	5
48	I make sug studies.	gestions about imp	proving things on th	ne job / or	1	2	3	4	5
49	I make a pra	actice of buying thing	s on credit.		1	2	3	4	5
50	I plan to hav	/e a will written.			1	2	3	4	5
51	I tend to dor	minate conversations	6.		1	2	3	4	5

Please respond to the following statements by making a cross (X) in the appropriate block. The interpretation of the scale is as follows: Strongly disagree Neutral Strongly agree Disagree Agree • I read technical magazines related to my primary field of interest. I believe that "if at first you don't succeed, try and try again". Before falling asleep at night, I often think of new ideas concerning my future plans. When in a state of depression, I know that I will soon overcome it. I have discussed the idea of going into business for myself with others. I face the problems of life with a feeling of hope and good expectations. At times I do things against the wishes of my parents. When I start a task, I usually get so involved that I forget everything else. I believe in the free enterprise system. I understand basic bookkeeping principles. I know what the term "aged accounts receivable" means. I find that most of the people I come into contact with are pleasant and friendly. I consider myself a person that can carry on a decent conversation. I find it easy to set priorities when I have a number of tasks to do in a short period of time. I "get organized" quickly when placed in a new situation. Before making a large purchase I usually research the field before going out to look at the item. I regularly read business magazines either at the library, at work or at home. I regularly read the Financial mail, Finance week, Fortune, Economist, Wall Street Journal, Time, Newsweek or some other magazine that covers a broad perspective. I have exposed myself to a specific sales situation just to see how the salesperson operates. When I am in a shop I ask the sales person "How's business?". I put my family and/or children first. I am able to maintain my self-control when another person is chewing me out for something I did not do. I tend to support my own decisions and opinions vigorously. When I set a goal, I generally see it through to the end. I know how to read financial statements. The proposals I make at meetings, discussions etc, are generally accepted. I am able to work long hours without getting tired. I seek out situations in which I will have extra responsibility. I act quickly in cases of emergency, such as accidents, fire, etc.

Strongly disagree		Disagree	Neutral	Agree			Strongly agree			
	1	2	2 3 4			5				
81	When I mak	e up my mind to do	something, I genera	lly do it.	1	2	3	4	5	
82	I often write memos or letters about business matters.					2	3	4	5	
83	I work well under pressure.					2	3	4	5	
84	I have missed lunch or dinner to complete a task.					2	3	4	5	
85	I know a lot about the business I am thinking of starting.					2	3	4	5	
86	In volunteer organisations, I normally end up either being a chairperson or a committee member.					2	3	4	5	
87	I have done fundraising for a charity organisation or a church group (or other religious group).					2	3	4	5	
88	I find it easy to express new ideas quickly and understandably.					2	3	4	5	
89	I have supervised people.					2	3	4	5	
90	I am good with numbers.					2	3	4	5	
91	I feel that most events in my life are determined by me.					2	3	4	5	
92	I prefer to purchase things for cash.					2	3	4	5	
93	When I come across a new idea I try to find out more about it					2	3	4	5	
94	I have been successful in attaining most of my long-range goals.					2	3	4	5	
95	Before falling asleep at night, I normally plan what I am going to do for the next day.					2	3	4	5	
96	When people criticise me, I take it kindly and try to change.					2	3	4	5	
97	I am able to handle many things at the same time.					2	3	4	5	
98	Given the o	Given the opportunity I would gamble for money.				2	3	4	5	
99	I understand (comprehend) the workings of the Free Enterprise System.				1	2	3	4	5	
100	I know how	to start a business.			1	2	3	4	5	
101	I plan to have life insurance.				1	2	3	4	5	
102	I know what a sole proprietorship is.				1	2	3	4	5	
103	I know how a bank operates.			1	2	3	4	5		
104	I have a way of life in which I consider money "easy come, easy go."					2	3	4	5	

### SECTION B: GENERAL DEMOGRAPHIC INFORMATION

Please mark your selection to the following questions with an (X).

1 Please indicate your gender

Male	1
Female	2

2 My current age in years is (e.g. 20 years old)

\_\_\_\_\_ years old.