Entrepreneurial traits among university students in South Africa

Sylvia Shingaidzo Mhlanga

15226634

A research article submitted to the Faculty of Commerce, Law and Management, University of the Witwatersrand, in partial fulfilment of the requirements for the degree of Master of Business Administration

Johannesburg, 2021

Protocol number: WBS/BA1526634/440

(Version November 2021)

DECLARATION

I, Sylvia Mhlanga, declare that this research report is my own work except as indicated in the references and acknowledgements. It is submitted in partial fulfilment of the requirements for the degree of Master of Business Administration in the Graduate School of Business, University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination in this or any other university.

SYLVIA SHINGAIDZO MHLANGA

Signed at **JOHANNESBURG**

On the **19th** day of **NOVEMBER 2021.**

DEDICATION

I affectionately dedicate this research report to Sikelela, my husband, as well as to my children, Manqoba, Unathi, Thando and Mehluli. My family has taught me love, tolerance and patience. They gave me the strength to keep pushing in the face of adversity.

ACKNOWLEDGEMENTS

I would like to express my sincere gratitude to my research supervisor, Mr. Azwifarwi L. Phuravhathu, for his advice, constructive criticism, encouragement, and patience throughout the research process. His candid feedback and support were greatly needed and appreciated.

ABSTRACT

At a time when South Africa critically needs businesses categorised as small and medium-scale enterprises (SMEs) to contribute meaningfully to the economy, there is a gap in research undertaken on the levels of personality trait among youths in South Africa, specifically focusing on their related impact on new venture formation and entrepreneurial success. Anchored on the Psychological Entrepreneurship Theory, the research was aimed at examining whether university students possess the personality traits that influence new venture formation, as well as one's success as an entrepreneur. Through examining their entrepreneurial traits, the study evaluated whether entrepreneurship is a viable career option for undergraduate university students and identified if existing policy interventions are adequate in addressing any entrepreneurial personality gaps among university students. The literature review section was targeted at highlighting some of the existing key research work on the interrelatedness of personality traits and entrepreneurship, as well as how each of the personality traits in the Big Five Model influence entrepreneurship. Utilising a questionnaire design consistent with the Big Five Approach, data was collected from 62 undergraduate students at the University of Witwatersrand, to assess the levels of their entrepreneurial personality traits. The data was statistically analysed, using mean scores and frequency distributions, to assess the levels entrepreneurial traits among undergraduate students and the results presented, including all policy recommendations and conclusions. Results of the internal factor validity tests conducted on each of the entrepreneurial traits using the Cronbach's alpha showed that although the factors used in the questionnaire were generally valid, the research instrument could be improved by replacing the factors that had lower scores. Results of the significance tests on the variables showed that there was strong evidence of relationships between the entrepreneurial traits and demographic variables among the undergraduate students. The results of the study also showed that although there is a high level of entrepreneurial traits among undergraduate university students, some personality traits were less developed and needed further strengthening.

LIST OF ACRONYMS

GEM	Global Entrepreneurship Monitor.
OCEAN	Openness, Conscientiousness, Extraversion; Agreeableness, Neuroticism.
SME	small and medium scale enterprises.
TEA	total early-stage entrepreneurial activity.

LIST OF ACRONYMS

GEM	Global Entrepreneurship Monitor.
OCEAN	Openness, Conscientiousness, Extraversion; Agreeableness, Neuroticism.
SME	small and medium scale enterprises.
TEA	total early-stage entrepreneurial activity

CONTENTS

CHAPTER 1: INTRODUCTION

1.1. Introduction

The aim of this chapter was to provide a concise background and overview of the study on entrepreneurial traits among undergraduate university students in South Africa. The chapter first highlights why the study was undertaken and the relevance of this topic to the South African context. It also details the specific research problem investigated, as well as how it is a valuable research topic for both the Master of Business Administration (MBA) course and entrepreneurship in South Africa. The chapter will conclude by looking at the delimitations and broad assumptions of the study, as well as providing a definition of some of the key terms used throughout this research study.

1.2. Purpose of the Study

The main thrust of this study was to investigate whether undergraduate university students possess the personality traits associated with business creation and success among entrepreneurs. The research critically assessed whether undergraduate university students possess the personality traits required for:

a. new venture creation (entrepreneurial intent); and
b. success as an entrepreneur (entrepreneurial success).

Insights from this research enable a more informed view on how entrepreneurship can be used as a potent vehicle to curb unemployment among the youth in South Africa.

1.3. Context of the Study

Like many other emerging markets, South Africa is currently facing the triple challenges of unsustainably high unemployment, poverty, and inequality levels among the rich and poor citizens (World Bank, 2018). Entrepreneurship has been identified as a vital cog in the country's efforts to arrest the afore-mentioned challenges (Dhaliwal, 2016). However, the socio-economic contribution of small enterprises in South Africa has been significantly constrained by the low level of new venture-formation (Herrington & Kew, 2018), coupled with high failure rates associated with new ventures (Fatoki, 2014).

In the South African environment, entrepreneurship has failed to achieve the intended potential socio-economic impact (Allan Gray Orbis Foundation, 2019), due to the limited contribution of small enterprises to the country's growth aspirations (Fatoki, 2014). This is mainly as a result of relatively low levels of new venture formation (Herrington & Kew, 2018) and the high failure rate among new business enterprises. Approximately 70-80 percent of all new enterprises fail within the first two years of establishment (Adeniran and Johnston, 2012). During the past five years, South Africa's economy has registered low economic growth figures, which in the recent past have turned into negative growth, resulting in the economy now being in a recession (Herrington & Kew, 2018). According to Asmal, Soni, & David (2016), the according of junk status to South Africa by all the major international credit ratings agencies has tightened the country's liquidity squeeze due to the combined effect of lower than expected foreign direct investment inflows as well as an increase in capital flight due to the country's higher perceived investment risk profile.

South Africa also holds the unenviable status of being the country with the highest levels of inequality between the rich and the poor in the world, a situation which has worsened in the recent past as the economy has underperformed (World Bank, 2018). Unemployment has reached unprecedented levels, with at least 41.7 percent of all persons aged between 24-30 years being unemployed (Statistics South Africa, 2020). Public sector mismanagement has resulted in poor performance, leading to further job losses in State-Owned Enterprises (SOEs) (Business Tech, 2020). Additional jobs have been lost in the private sector, as more companies have failed to navigate the tough economic and business environment (Statistics South Africa, 2020). It is against this background, that public policy has focused on entrepreneurship as a tool to solve the myriad of challenges that the country currently faces, in an effort to move the country towards achieving sustainable and inclusive economic growth.

According to Muhammad, Zainuddin, Hamid, & Khalid (2014), entrepreneurship is widely regarded as the panacea to some of the key challenges confronting the local, national, regional and global economies, through its potential positive impact on employment creation, income generation, poverty alleviation, output expansion and income distribution patterns. It is hardly surprising that entrepreneurship has achieved

global acceptance, as it is widely believed to be central to the attainment of some of the Sustainable Development Goals (SDGs) such as poverty eradication and reduced income inequalities as espoused by the United Nations (UN) (Filser, Kraus, Roig-Tierno, Kailer, & Fischer, 2019).

Moodley (2016), purports that the current educational system has largely produced graduates who are employment-ready, in an economy that requires innovative individuals who can identify economic opportunities and unlock them through creating high-growth enterprises. Studies have also highlighted severe deficiencies in the current entrepreneurial ecosystem in South Africa (Simodisa, 2015). The government, which has for many years emphasised on small enterprises being the focal point of employment creation, poverty alleviation and attaining an equitable income distribution, has scored poorly on many of the key metrics in this sector (Herrington & Kew, 2018).

It is against this background, that this research sought to explore if South African undergraduate university students possess the personality traits required for enterprise formation as well as for one to be successful as an entrepreneur, and to propose the necessary policy adjustments.

1.4. Problem Statement

Although entrepreneurship has been identified as a vital cog in South Africa's efforts to arrest the unsustainably high unemployment levels, poverty, and inequality among the rich and poor citizens (Dhaliwal, 2016), the socio-economic contribution of small enterprises in South Africa has been significantly constrained by the low level of new venture-formation (Herrington & Kew, 2018), coupled with high failure rates associated with new ventures (Fatoki, 2014). Evidence has also been presented to support the view that the current educational system has largely produced graduates who are employment-ready, in an economy that requires innovative individuals who can identify economic opportunities and unlock them through creating high-growth enterprises (Moodley, 2016). It is critical to investigate whether university graduates, who represent a significant pool of potential entrepreneurs, possess the relevant

entrepreneurial traits required to address some of South Africa's socio-economic, such as high youth unemployment.

1.4.1. Sub-Problem 1

Investigate whether undergraduate university students have personality traits that influence new enterprise formation (entrepreneurial intent).

1.4.2. Sub-Problem 2

Investigate whether undergraduate university students possess personality traits that are associated with success as an entrepreneur (entrepreneurial success).

1.5. Research Questions or Research Objectives

The study was aimed at answering the following research questions:

a. “What are the levels of personality traits required for new venture creation and success among undergraduate students in South Africa?”
b. “How do demographic variables (gender, age, ethnicity, work experience, academic status, faculty of study, level of income and marital status) of undergraduate students in South Africa influence new venture creation and success?”

The research also explored measures aimed at propagating entrepreneurial traits and promoting entrepreneurship, specifically among undergraduate university students and the youth in general.

1.6. Research Gap and Justification of the Study

Entrepreneur incapacity is one of the three main causes of small business failure in South Africa (Bushe, 2019). This highlights the need for further research on the entrepreneur to fill the knowledge gap in entrepreneurship education and training.

It is critical to assess if undergraduate university students in South Africa possess the personality traits required for new venture creation and sustain success. The South African economy requires a vibrant and growing SME sector to tackle the high levels of unemployment, poverty, and unequal income distribution. Vasiliadis & Poulios (2007), argue that due to their higher levels of education relative to the general population, university graduates represent a significant pool of potential entrepreneurs.

The study was also aimed at expanding the knowledge base of entrepreneurship in South Africa, specifically focussing on exploring if undergraduate university students possess the personality traits required for them to create and sustain successful enterprises in South Africa. This is supported by Onil & Mavuyangwa (2019), who posited that entrepreneurship is still a relatively new concept in South Africa, whose body of locally relevant knowledge is still being developed.

1.7. Significance of the Study

A key objective of the study was to explore if undergraduate university students possess the personality traits required for them to create and sustain successful enterprises in South Africa. The study was premised on the principle to create and sustain successful new businesses in South Africa, it is critical to monitor the personality traits of students so that proactive intervention, where necessary, can assist students in coping with the demands of entrepreneurship. Similarly, it was also aimed at increasing awareness among university students on the personality traits required for them to be more effective entrepreneurs and to identify gaps, if any. The study also sought to provide information to policy makers on the best ways of improving the entrepreneurial personality traits among undergraduate university students.

This research was also aimed at encouraging stakeholders to adopt a proactive approach towards entrepreneurship in South Africa. Kew (2016), argues that the high unemployment levels in the country, especially among new graduates, has forced more and more South African youths to consider entrepreneurship as the only viable alternative for their participation in the formal economy. Given this background, it is thus imperative to assess whether undergraduate university students have the personality traits required for them to pursue entrepreneurship as a career choice.

The current education system in South Africa is biased towards creating graduates that are employment candidates as opposed to employment creators (Moodley, 2016). Although some effort has been made to accommodate entrepreneurship into the formal education system, this is still a relatively new concept whose implementation is still at its infancy. According to Bawuah, Buame, & Hinson (2006), the proportion of students exposed to entrepreneurship at any point in their academic journey is negligible when compared to the student population in sub-Saharan Africa. Research conducted by Lingelbach, De La Vina, & Asel (2005), shows that in developing countries, there is limited access to relevant information pertaining to entrepreneurship, which has resulted in many ventures failing at an early stage.

This study also focused on equipping budding and would-be entrepreneurs on the personality traits required for one to be an entrepreneur. According to Roberts & Robert (2001), the business environment has realised the key role that personality traits play in the effective performance of a particular role within an organisation. This has resulted in recruitment processes incorporating elements aimed at measuring personality fit among candidates for job roles (Ellingson, Sackett, & Connelly, 2007). Similarly, entities have also made considerable investments in training programmes aimed at improving the personality traits of their employees, in line with their organisational requirements (Laguna & Purc, 2016). Within the entrepreneurship space however, there are insufficient tools for identifying the personality shortcomings of entrepreneurs as well as a wide knowledge gap on how they can improve their personality traits over time.

The study explored the availability and effectiveness of existing policies in improving the personality traits of entrepreneurs. The research proffers ways in which ideal personality traits can be propagated among entrepreneurs in South Africa.

1.8. Delimitations

In keeping with the research focus, this study focused on undergraduate students, as they bear the brunt of the challenges posed by unemployment in South Africa. Although the study utilised a questionnaire design consistent with the Big Five Approach to assess the levels of their entrepreneurial personality traits, the results of the study were based on data collected from only 62 undergraduate students at the University of Witwatersrand, which may not be accurately representative of all South African undergraduate university students. In addition, the study was anchored on the Psychological Entrepreneurship Theory which focuses on personality traits, although there are various other management theories that impact new venture creation and entrepreneurial success among undergraduate university students.

1.9. Broad Assumptions

To achieve the research objectives, the target population sample must be willing to willing to participate in the research and be honest and accurate in terms of their

responses to the questionnaire. The research further assumed that respondents had existing knowledge of what entrepreneurship entails.

1.10. Definition of Terms

1.10.1. Entrepreneur

"an innovator or developer who recognises and seizes opportunities, converts those opportunities into workable/marketable ideas; adds value through time, effort, money, or skills; and assumes the risks of the competitive marketplace to implement those ideas" (Kuratko, 2008, p. 22).

1.10.2. Entrepreneurial Intention

A personal and deliberate conviction by an individual that they need to start a new business enterprise, supported by actions in pursuance of that objective (Ridha, Burhanuddin, & Wahyu, 2016)

1.10.3. Entrepreneurial Success

A measure of how well an individual is able to lead the enterprise to attain its critical economic and non-economic objectives (Razmus & Laguna, 2018).

1.10.4. Personality Traits

The relatively stable characteristics of behaviours, feelings and thoughts among individuals (John, Robins, & Pervin, 2010).

1.11. Chapter Summary

This chapter provides a concise study background and overview on entrepreneurial traits among undergraduate university students in South Africa. The chapter highlights the key role that entrepreneurship plays in addressing the problem of youth unemployment in South Africa, and why an analysis of personality traits among undergraduate university students is critical for the advancement of the SME sector in South Africa. The research was underpinned by an objective survey of the study population, which only focused on undergraduate students at the University of Witwatersrand.

CHAPTER 2: LITERATURE REVIEW

2.1. Introduction

This research was aimed at identifying the existence and levels of personality traits required for entrepreneurship among undergraduate university students in South Africa. In this regard, this section detailed the topic's existing body of knowledge, highlighting the important role that entrepreneurship plays in an economy, particularly focusing on its positive impact on economic development. The research also looked at personality traits and how they impact entrepreneurship, through new enterprise formation and entrepreneurial success. The chapter also explored the relationship between personality traits and demographic factors such as age, gender, ethnicity, year of study, field of study as well as level of income. The chapter also presents the hypothesis on which this research was based.

2.2. Entrepreneurship

Entrepreneurship is a field that has attracted so much interest, with several definitions being attached to it (Ahmad & Seymour, 2008). In recent times however, (Diandra & Azmy, 2020) defined entrepreneurship as the process of recognising opportunity through applying knowledge and skill to in order to bring innovation to the market. At the end, management of entrepreneurship will creates sustainability in order to promote economic growth Reynolds, Hay, & Camp (1999, p. 3), defined entrepreneurship as "any attempt at new venture or new business creation, such as self-employment, a new business organisation or the expansion of an existing business, by an individual, a team of individuals, or an established business". Although there are varying views on the correct definition of entrepreneurship, there is widespread consensus on the critical role that a well-functioning entrepreneurship ecosystem must play in socio-economic development at a local, regional, and international scale (Dzansi, Rambe, & Coleman, 2015). The advent of globalisation has seen several start-ups that have rapidly grown and achieved global reach and dominance, thus acting as global catalysts for growth and development beyond their national borders.

According to Herrington & Kew (2018), total early-stage entrepreneurial activity (TEA), an indicator of new enterprise formation, is very low among the youth in South Africa. This is highlighted by statistics in this report showing that in 2017, there was only 8.8 percent and 14.5 percent penetration in the 18-24 and 25-34 age categories, respectively. These poor statistics highlight the low perception that youth, especially graduates, have towards entrepreneurship, which pales back in comparison to that of seeking formal employment opportunities. Herrington & Kew (2018), also support the view that there is a direct link between entrepreneurship and education, as more skilled individuals are more confident that they can run successful enterprises. According to Herrington & Kew (2018), more than 73 percent of all early-stage entrepreneurs in South Africa had attained at least a high school qualification. In South Africa, conclusions can thus be made on the direct link between the high failure rates of SMEs and the poor educational system whose curriculum largely alienates entrepreneurship.

2.3. Enterprise Formation and Economic Development

Using evidence from research conducted in Eastern Europe, the United Nations (1999), advanced the position that new enterprises significantly transform the structure of an economy and contribute immensely to a country's economic development. According to Ribeiro-Soriano (2017), new enterprise creation in the SME sector is a key determinant of a country's economic prosperity. Mahadea & Kaseeram (2018), posit that South Africa needs to aggressively grow its SME sector through the formation of new enterprises, to reduce the high levels of unemployment, poverty, and inequality.

2.4. Management Theories on Entrepreneurship

Several theories which have their roots in economics, psychology, sociology, anthropology, and management have been put forward by scholars to explain the field of entrepreneurship. Simpeh (2011), identified six entrepreneurship theories namely, (1) Economic entrepreneurship theory, (2) Psychological entrepreneurship theory (3) Sociological entrepreneurship theory, (4) Anthropological entrepreneurship theory (5) Opportunity-Based entrepreneurship theory, and (6) Resource-Based entrepreneurship theory.

Economic entrepreneurship theories explore the economic factors that promote entrepreneurial behaviour. Psychological theories focus on analysing the individual, emphasising personal characteristics that define entrepreneurship (Landström, 1999). The Sociological Entrepreneurship Theory focuses its analysis on the society (Landström, 1999). Reynolds (1991), identified four social contexts that relate to entrepreneurial opportunity, namely, social networks, life course stage context, ethnic identification, and population ecology. The Anthropology Entrepreneurship Theory is the study of the origin, development, customs, and beliefs of a community. The anthropological theory states that for someone to successful initiate a venture the social and cultural contexts should be examined or considered. Opportunity-Based Entrepreneurship Theory is anchored on the belief that entrepreneurs exploit the opportunities that change creates (Drucker, 1986). This theory posits that entrepreneurs have an eye more for opportunities created by change than the problems. Proponents of the Resource-based Entrepreneurship Theory such as Alvareza & Busenitz (2001), argue that access to financial, social and human resources by founders is an important predictor of opportunity based entrepreneurship and new venture growth Thus, access to resources enhances the individual's ability to detect and act upon discovered opportunities (Davidsson & Honig, 2003).

2.5. The Psychological Entrepreneurship Theory

The Psychological Entrepreneurship Theory is anchored on analysing the individual, emphasising personal characteristics that define entrepreneurship (Landström, 1999). Although the personality approach is probably the most classical approach to entrepreneurship, it is also one of the most controversial (Rauch & Frese, 2009). Various scholars have in the past advanced ideas that sought to delink the relationship between personality traits and entrepreneurship. One prominent school of thought was that there was no strong link between personality traits and entrepreneurship. Other scholars argued that personality traits were too heterogenous, hence it would be very difficult to attach specific personality traits to entrepreneurs. Others argued that environmental factors, as opposed to personality traits were more effective in predicting entrepreneurial success. However, the emergence of personality research as an arm of organisational psychology, as well as the proven impact personality traits

have on individual, group and individual performance, has shifted focus back on personality traits as a focal point in the entrepreneurship debate.

Gorgievski & Stephan (2016), asserted that psychology and psychologists have a critical role to play in the advancement of entrepreneurship. They proposed that further research focusing on the individual entrepreneur, be undertaken in order to gain a holistic understanding of entrepreneurship. They argued that only when society has an understanding of all the facets which underpin entrepreneurship, can it maximise the benefits from entrepreneurship, such as employment creation, poverty alleviation and equality in income distribution.

Parkes & Liu (2016), conducted a study to observe the entrepreneur's personality traits and innovativeness in an enterprise in the UK, focusing on the creative arts sector. Using a three-year longitudinal study, the researchers identified three categories of personality traits and ranked them according to their importance in determining enterprise innovation. The most important category had leadership, sociability, sensitivity and optimism traits. Industriousness, compassion and culture were classified under the second category (medium importance). The third category (least important) comprised of traits such as achievement, intellect and calmness. The researchers concluded that personality traits have a fairly consistent prediction power on entrepreneurial performance.

Results of a study conducted by Neneh (2012), which focused on examining the entrepreneurial mindset, support the view that personality traits are linked to entrepreneurship. The study was based on a survey of 86 entrepreneurs conducted in Bloemfontein, South Africa, with the results indicating a low entrepreneurial mindset among small business owners, specifically low levels of the growth mindset and low levels of entrepreneurial education. The author recommended that policy makers need to craft ways to enhance these factors in order to foster the creation of more high growth enterprises that can make a meaningful impact to South Africa's economy.

The personality trait approach is also supported by Zelekha, Yaakobi, & Avnimelech, (2018), who empirically examined the relationship between attachment orientations and types of entrepreneurs. The authors concluded that entrepreneurs tend to be less

anxious compared to the rest of the population. They also found evidence to support the position that less anxious entrepreneurs exhibited high levels of visionary leadership and innovativeness compared to their more anxious counterparts.

(Adeniran & Johnston, 2012), concluded that whilst a lot of opportunities exist for the creation of vibrant small enterprises in South Africa, a lot of work needs to be done to shift the negative perceptions that most South Africans have towards entrepreneurship. The author identified educational system revamp as a key policy tool in empowering entrepreneurs through reducing the fear of failure factor attached to new enterprise formation.

An analysis of the relationship between personality traits and entrepreneurial intent, focusing on grit was undertaken by Butz, Hanson, Schultz, & Warzynski (2018), using data obtained from undergraduate university students in the United States. There was sufficient evidence to indicate a positive link between entrepreneurial intent and grit. The study recommended that universities and other institutions of higher learning should incorporate grit into their learning environment in order to foster entrepreneurial intent among students.

Relying on a 50-year dataset, Damian, Spengler, Sutu, & Roberts (2019), conducted a study which examined the stability of personality traits over time. The authors concluded although an individual's core personality remains stable throughout their lifetime, some personality traits do change over time as the individual interacts with their environment. The research highlighted that factors such as lifetime experiences are likely to be a key factor in positively influencing changes in some personality characteristics.

According to Ki-Young, Bozkurt & Sunkara (2012), personality characteristics have an impact on human behaviour, and understanding the relationship between the two variables may lead to desired outcomes. Research done by Parmer & Dillard (2015), shows that demographic characteristics and personality traits have a strong influence on consumer behaviour in the automobile industry. Using evidence obtained from the Indian market, Dholakia (1978), showed that personality theory was a factor impacting the usage of different product brands. In support of the personality trait approach,

Yunus, Wahab, Ismail & Othman (2018), concluded that knowledge of personality traits has an impact on individual development as it promotes the adoption of the necessary corrective action.

2.6. Personality Traits

John *et al* (2010), defined personality traits as the relatively enduring patterns of thoughts, feelings and behaviours that distinguish individuals from one another. Other studies conducted by various scholars in recent years have shown that over time, personality characteristics are subject to change.

According to Moyer (2016), multiple personality trait approaches have gained prominence as tools for conducting personality assessments, chief among them being the Big Five Approach. Goldberg (1981), defines the five broad personality traits, namely, Openness, Conscientiousness, Extraversion, Agreeableness and Neuroticism (OCEAN). According to Soto (2018), each category in the Big Five is comprises a set of behavioural characteristics that are closely related. John *et al* (2010), described the broad personality traits in the Big Five Approach as follows:

- Openness depicts one's willingness and ability to pursue unfamiliar things, through engaging with new ideas and new experiences in their life. Individuals with high openness to experience scores are usually imaginative, open to knowledge, adventurous, flexible and challenge the existing knowledge.
- Conscientiousness relates to socially-conditioned behavioural traits which facilitate diligence and goal-orientation in the execution of duties. Individuals with high conscientiousness scores tend to be hardworking, thorough in their approach, self-disciplined, reliable, resourceful, persistent and ambitious.
- Extraversion is the ability to generally exhibit positive emotions towards life experiences and outcomes. Individuals that exhibit high extraversion scores tend to be sociable, outgoing, confident, talkative, articulate and affectionate.
- Agreeableness describes one's level of harmony with their society. Individuals exhibiting high agreeableness scores tend to be selfless, compassionate, cooperative, popular, modest and trustworthy.

- Neuroticism depicts how emotionally-reactive an individual is. In this regard neuroticism is contrasted with emotional stability through sub-traits like anxiety, anger, depression, and vulnerability.

Sun Youn & Ohtake (2014), affirms that the Big Five personality traits are a good predictor of success in different occupations. Saucier & Goldberg (1996), posit that although it is not perfect, the Big Five Approach provides a robust structure for organising personality traits. Other researchers such as Anglim & O'Connor (2018), have argued that although the Big Five represents an excellent general personality framework that is adaptable across multiple situations, scholars and other stakeholders should be aware of the other personality traits measures and make use of them where possible.

2.7. Entrepreneurial Intention Among Undergraduate Students

Using data from 881 colleges and universities in China, You, Zhu, & Ding, (2017), found evidence of very low rates of entrepreneurial intention and enterprise survival. In a study to assess the entrepreneurial traits among Clothing, Textile and Interior Decoration undergraduate students, Adetoun & Olajide (2015), concluded that, even though the students were exposed to introductory entrepreneurship courses in their curriculum, their level of entrepreneurial traits was low. They further opined that more work needed to be done in order to foster entrepreneurial traits among undergraduate students, through for example, creating more mentorship networks with established entrepreneurs and facilitating entrepreneurship workshops and seminars. In their study, Nihan, Özgür, & Olcay (2016), found evidence of high levels of entrepreneurial intentions among undergraduate university students, which varied by gender, university and educational programme.

2.8. Entrepreneurial Traits and Entrepreneurial Success

Farrington (2012), examined whether possessing certain personality traits is a key determinant to success as an entrepreneur. There was evidence of a strong linkage between personality traits and entrepreneurial success. Of particular importance is that entrepreneurs who exhibit high levels of extraversion and conscientiousness and are open to experience have a higher likelihood of succeeding as entrepreneurs. This

view is also supported by Karabuluta (2016), who found evidence of a causal relationship between personality traits and entrepreneurial intentions. In a study to examine whether personality traits have an impact on entrepreneurial development, Caliendo, Fossen, & Kritikos (2011), showed that personality traits significantly impact entrepreneurial processes. They also suggested that there are several other reliable personality traits outside the Big Five Approach, which have a bearing on entrepreneurial intentions and the probability of success as an entrepreneur.

2.9. Demographic Variables and Entrepreneurship

Soomro, Abdelwahed Abdelmegeed, & Shah (2019), evaluated the relationship between demographic factors and entrepreneurial success in Pakistan. The authors concluded that while education, gender and experience positively impacted entrepreneurial success, there was no evidence of age being a contributing factor in one's success as an entrepreneur. Yeboah, Kumi, & Jacob (2013), conducted research to assess the entrepreneurial intention among polytechnic students in Ghana. The authors concluded that demographic characteristics such as age, gender, personality type and religion have an impact on entrepreneurial intention.

2.10. Research Questions

Based on the results of the literature reviewed, the following research questions were formulated:

a. "Do undergraduate students in South Africa possess the personality traits required for new venture creation and success?"
b. "Do demographic variables (gender, age, ethnicity, work experience, academic status, faculty of study, level of income and marital status) of undergraduate students in South Africa influence new venture creation and success?"

2.11. Hypothesis

Anchored on the Psychological Entrepreneurship Theory and guided by the research questions above, the study was aimed at testing the hypothesis that it is possible to establish correlations between specific personality traits and entrepreneurial intent and performance to develop effective psycho-educational policy implementation tools. The author posited that undergraduate university students have low entrepreneurial

personality traits, and this research sought to find ways of improving entrepreneurial intention and success. This hypothesis was underpinned on previous research by Herrington & Kew, (2018), which has highlighted the relatively low level of new venture formation and the high failure rate among new business enterprises in South Africa. Adeniran & Johnston (2012), also painted a bleak picture of entrepreneurial success, pointing that approximately 70-80 percent of all new enterprises fail within the first two years of establishment. In this regard, the research will test the following hypothesis:

H_0^1: Undergraduate university students have significantly low entrepreneurial traits.

H_1^1: Undergraduate university students have significantly high entrepreneurial traits.

Studies by Soomro *et al* (2019), and Yeboah *et al* (2013), have shown that some demographic factors are significantly related to entrepreneurial intention and entrepreneurial success. In order to test the validity of this relationship among undergraduate students in South Africa, the author assumed that there were no statistically significant differences in entrepreneurial intention and entrepreneurial success between the demographic variables (gender, age, ethnicity, work experience, academic status, faculty of study, level of income and marital status).

H_0^2: No statistically significant relationships exist between the entrepreneurial traits of undergraduate students and the following demographic variables:

$H_0^{2.1}$: Gender

$H_0^{2.2}$: Age

$H_0^{2.3}$: Ethnicity

$H_0^{2.4}$: Work experience

$H_0^{2.5}$: Academic status

$H_0^{2.6}$: Faculty of study

$H_0^{2.7}$: Level of income

$H_0^{2.8}$: Marital status

H_1^2: Statistically significant relationships exist between the entrepreneurial traits of undergraduate students and the following demographic variables:

$H_1^{2.1}$: Gender

$H_1^{2.2}$: Age

$H_1^{2.3}$: Ethnicity

$H_1^{2.4}$: Work experience

$H_1^{2.5}$: Academic status

$H_1^{2.6}$: Faculty of study

$H_1^{2.7}$: Level of income

$H_1^{2.8}$: Marital status

2.12. Instrumentation

Using results based on confirmatory factor and multiple regression analyses, Wathanakom, Khlaisang, & Songkram (2020), found evidence to support the view that innovativeness has predictive power for entrepreneurial intention among undergraduate students.

2.13. Chapter Summary

The literature review showed that several scholars support the Psychological Entrepreneurship Theory, which purports that personality traits are a key determinant of an individual's success as an entrepreneur (entrepreneurial success) and new venture formation (entrepreneurial intention). The available literature also showed that insufficient information on entrepreneurship among students results in a low perception index. The Big Five Approach has emerged as the prominent theory linking personality traits to entrepreneurial intention and entrepreneurial success. Research

has shown that while the Big Five Model accurately captures the broad personality traits, there are some personality approaches that need to be considered in appropriate circumstances.

CHAPTER 3: METHODOLOGY

3.1. Introduction

This chapter details the approach that was used in examining the levels of entrepreneurial traits among undergraduate university students in South Africa. The methodology presents an overview of the research strategy adopted for testing the hypothesis on which this research was based. Additionally, it explores the research design, the population and sample characteristics, as well as the sampling methods used in the research. This chapter will also look at how the research instrument was developed, including its core items, procedures used in data collection, as well as how the research addresses ethical issues. Finally, this chapter will detail the data analysis and interpretation approach, the limitations of the research, including the accuracy and applicability of the results and/or recommendations from the research.

3.2. Research Paradigm and Strategy

The research was underpinned by a quantitative approach emphasising quantification in data collection and data analysis (Ahmad & Seymour, 2008). This approach focused on the use of specific, standardised procedures for collecting and measuring data (Black, 2010). Most of the data collected in this research was based on a 5-scale Likert rating method, which allowed for the conversion of qualitative data into quantitative data which could be easily subjected to statistical analysis and hypothesis testing. This enabled a more rigorous analysis of the variables, focusing on both the direction and strength of any relationship, if any. As a scientific approach, the quantitative method was selected for its accuracy and because it is less likely to be impacted by researcher subjectivity, as is the case with the qualitative approach (Hair, Money, Samouel, & Page, 2007).

3.3. Research Design

This study was based on a cross-sectional research design, which involved the quantitative or quantifiable data collection for one or more variables at a specific time interval and statistical analysis done to reveal any relationships in the variables (Lavrakas, 2008). Observations were made on a “cross-section”, or representative sample of the population being investigated (Adu, 2019).

3.4. Population and Sample

According to Gravetter & Forzano (2009), the research focus should guide the participants' selection process, to satisfy the research objectives and respond comprehensively to the research questions. The sample of undergraduate university students' personality traits allowed us to gain an understanding of whether undergraduate university students in South Africa possess the personality traits required for new venture creation and entrepreneurial success, to assess the viability of entrepreneurship as a career option for university graduates in South Africa.

3.4.1. Population

The target population of the research had the following characteristics:

a. **Age:** All respondents were adults aged 18 years and above;

b. **Undergraduate university students:** Only undergraduate students from the University of Witwatersrand were utilised in this research.

3.4.2. Sample

The sample was drawn from University of Witwatersrand, a large public university located in the city of Johannesburg, whose large student enrolment figures support respondent diversity.

3.5. Sampling Method

The stratified sampling approach was used to collect the data used in the research. The sample was subdivided into homogeneous groups, also known strata, to enable the results of the research to be more representative of the research universe. Some of the criteria used in subdividing the sample include gender, year of study, faculty, and race. If properly applied, stratified sampling improves the accuracy of the research results at no incremental cost (Hair *et al*, 2007).

3.6. Sample Size

Although larger samples are preferred in quantitative research, cost and time constraints restrict some researchers to using smaller samples (Parkes & Liu, 2016). According to bin Ahmad & binti Halim (2017), a minimum sample size of 60 will adequately represent the characteristics of the target population, with a 90%

confidence level and a 10% error rate. The sample size of 62 is above the target sample size and is thus more representative of the population.

3.7. Research Instrument

A self-administered, online questionnaire with the same questions was sent to the target sample of respondents. The goal was to measure several variables and concurrently test the hypothesis (Saris & Gallhofer, 2014). There is no need for the assistance of an interviewer when using this data collection instrument, and participants complete the questionnaire on their own (Patten, 2017). The advantages of questionnaires are that administration is cheaper and quicker; respondents can complete the questionnaire at their own convenience; and there is no interviewer variability (Gravetter & Forzano, 2009).

3.8. Research Instrument Items and Source

The questionnaire design focused on key entrepreneurial traits among undergraduate university students. In addition to their responses on entrepreneurial personality traits questions, respondents were also requested to provide certain demographic data, including: (a) gender, (b) age, (c) year of study, (d) race, (e) marital status, (f) faculty of study, and (g) employment status. The entrepreneurial personality traits section will cover the five sub-categories namely: (a) openness to experience, (b) conscientiousness, (c) extraversion, (d) agreeableness, and (e) neuroticism. The personality traits in the questionnaire are influenced by the Big Five Inventory (BFI), a self-reporting template for measuring personality dimensions in the Big Five Approach (John, Donahue, & Kentle, 1991) and (John *et al*, 2010).

3.9. Data Collection

The questionnaire was administered through Qualtrics, an online survey platform. In an online questionnaire, respondents are provided with a website link that directs them to a particular website for them to complete the survey (Bryman, 2012). The main benefit of web surveys is its cost effectiveness due to the low cost of survey administration. Finally, Qualtrics has automatic data capturing and database management functionalities, which save time and eliminate data capturing mistakes associated with using manual systems (Bryman, 2012). As respondents were

answering the questionnaire, all their responses were recorded on Qualtrics in real time, thus enabling the researcher to access the data in report format at any time during the research process.

3.10. Ethical Issues

In the interest of full disclosure, all relevant information relating to the research, including information on the researcher as well as the aims of the research, was availed to the target survey sample. The objective of this research was purely of an academic nature and no sponsorship was obtained to conduct this research. The researcher did not derive any commercial benefit from this research, and this information forms part of the disclosures made in a cover letter which was circulated to all prospective respondents.

The researcher ensured the security of all confidentiality information obtained during this study. Such confidential information included sensitive and personal information such as demographics and personality traits. No information on respondents' identification was requested, including any details which may compromise their identity. Wits Business School, through its Faculty Academic Ethics Committee assessed the research proposal and all its supporting documentation before granting an ethical clearance prior to the commencement of this research to ensure that it did not pose the risk of any harm to any of the respondents.

All data provided by the respondents was password encrypted and stored on a secure electronic server.

3.11. Data Analysis

3.11.1. Data Coding

Data coding represents the starting point in the processing of quantitative data, enabling the narrowing of a wide range of data into specific attributes for a variable (Adu, 2019). It converts results of questionnaires into meaningful numerical information (Auerbach & Silverstein, 2003). A set of rules is then created and numbers are assigned to the specific characteristics of a variable to enable the conversion of the raw data into a format that can easily be read

by computer software (Adu, 2019). In this study, each variable was assigned a numeric score numeric depending on the number of categories in that variable. Gender was assigned the scores 1, 2, 3 and 4 corresponding to male, female, non-binary and prefer not to say, respectively. Responses to personality trait questions were assigned the scores 1, 2, 3, 4 and 5, corresponding to Strongly Disagree, Disagree, Neutral, Agree and Strongly Agree, respectively.

3.11.2. Data Entry

To facilitate easier data manipulation using statistical software packages such as Microsoft Excel, the numerical codes assigned in the previous stage are converted into a format that the software can read (Adu, 2019). In this case, the questionnaire was administered through Qualtrics, an online platform that captures, stores and allows for a report of all responses to be automatically generated using software packages such as Microsoft Excel. All the survey responses were downloaded in a Microsoft Excel report, which allowed for further analysis to be done.

3.11.3. Data Cleaning

All data was checked for errors in order to eliminate them. If left unchecked, errors may invalidate the results of a study (Auerbach & Silverstein, 2003). The results of the survey were filtered to eliminate incomplete surveys, survey results with some responses that were not captured, and surveys that were completed by other students outside the target sample, for example, Postgraduate, Masters and Doctor of Philosophy (Ph.D.) students. Queries were run on the raw data from the surveys and from the initial 134 survey responses, only 62 valid survey responses remained after the data cleaning process.

3.11.4. Research Data Analysis

Data analysis entails interpreting data to come up with conclusions related to the objectives of the study (Adu, 2019). The researcher utilised multiple computer aided analysis techniques to provide a data collection summary and to examine the relationships between the study variables. Different visual

formats such as tables and graphs were used to present the demographic information of the respondents in the survey, by age, gender, ethnicity, faculty of study, year of study, work experience, marital status and level of income (Auerbach & Silverstein, 2003). Statistics such as the mean, standard deviation and the frequency distribution were also used to describe the data obtained from the survey, and presented in tabular format. The descriptive statistics were utilised as tools to determine the level of personality traits for the sample as well as for the different demographic clusters. The internal validity of the factors used in the research instrument was also tested using factor analysis by calculating the Cronbach's alpha value for each of the ten personality traits (Louw, van Eeden, Bosch, & Venter, 2003). The author identified entrepreneurial intention and entrepreneurial success as the dependent variables, while entrepreneurial traits and demographic variables were identified as the independent variables in the study. Finally, pairwise two-tailed hypothesis tests were conducted to measure the relationship between any of the entrepreneurial traits and the demographic variables used in the study (Steenekamp, van der Merwe, & Athayde, 2011).

3.12. Limitations of the Study

During the research process, the following limitations were faced, both from an administrative perspective and a technical perspective:

3.12.1. Administrative limitations

a. Invalid questionnaires – As a result of using self-administered questionnaires, there was a higher probability of invalid questionnaires due to incompleteness (Bourque & Fielder, 2003). This may partly explain the fact that from the initial 134 survey responses, only 62 (47 percent) survey responses were valid.
b. Time constraints – Due to the target population, it is more likely that the students were more likely to be handling academic registration issues, as opposed to responding to the questionnaire, thus compromising the final report submission date. This may partly explain why only 134 respondents

(26.8 percent) from a target sample of 500 students participated in the research.

c. COVID-19 – The research was conducted during the global advent of the COVID-19 pandemic, and this may have inhibited the ability of some university students to participate in the survey due to the global health crisis and its impact on lives and livelihoods. This may also partly explain the relatively low survey respondent rates in comparison to the target population size.

3.12.2. Technical Limitations

a. Research design and data collection instruments – Due to the use of a self-report measure, there is a risk of an exaggeration of positive traits and vice-versa (Bourque & Fielder, 2003). It is expected that some respondents were biased in their self-assessments, thus skewing the results. Consequently, linkages between study variables must be interpreted with caution.

b. Respondent error – as the respondents were unable to seek clarity from the researcher on confusing questions, the likelihood exists that respondents may incorrectly interpret questions (Fandrych, 2009). Although the researcher worked closely with the supervisor in the questionnaire development process to reduce this risk, the high percentage of invalid questionnaires (53 percent) may partly reflect respondents' failure to interpret some of the questions.

3.13. Validity and Reliability

Validity relates to how a concept is precisely captured in a study and reliability relates to the accuracy of the research instrument in measuring the variables under consideration.

3.13.1. Internal Validity

Internal validity refers to the possibility that errors in the research design are a result of conclusions being drawn from potentially false experimental results. (Neuman, 2014). Given that this research utilised self-administered questionnaires, the researcher could not control the outcome variable, as a

result, causality between the variables could not be established but could only be inferred. Consequently, this restricts the internal validity of the study, and is therefore a limitation. In order to improve the validity of the study, all personality traits were selected on the basis of empirical evidence linking them to entrepreneurial formation and entrepreneurial success. The reliability of the research instrument was tested through a factor analysis of each of the personality trait variables using the Cronbach alpha statistic.

3.13.2. External Validity

External validity refers to the applicability of the research results in a wider context (Neuman, 2014). Although the accuracy of research results was improved through the use of stratified sampling, the research findings may not be representative of the entire universe of undergraduate university students in South Africa, which limits the applicability of the research.

3.14. Chapter Summary

This methodology adopted in this research enabled a critical analysis of the hypothesis that undergraduate university students in South Africa exhibit low levels of entrepreneurial traits. The main research instrument used was an online questionnaire based on the Five Factor Model. The researcher also addressed all ethical issues encountered during the research process. The questionnaire was sent to 500 undergraduate students at University of Witwatersrand, with a target of 62 respondents. Finally, the data was analysed and interpreted using various statistical approaches, including comparisons of the study results with the findings from previous studies. The information from the study was then used to provide objective answers to the research problem.

CHAPTER 4: DATA ANALYSIS AND RESULTS

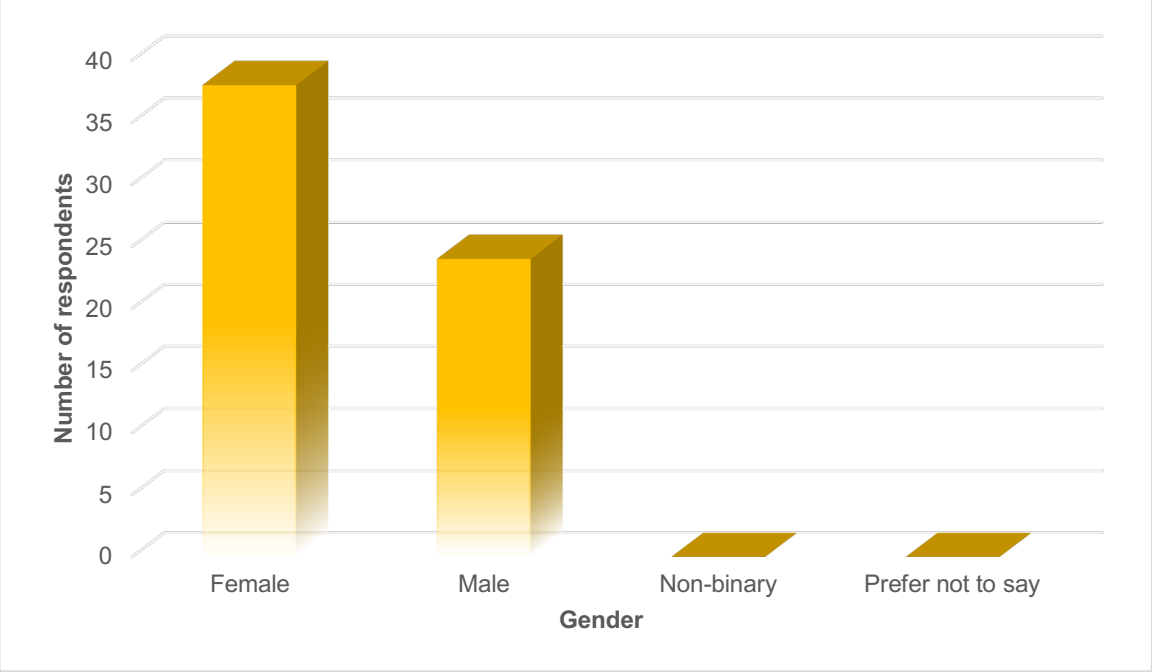
4. Introduction

This research was aimed at uncovering the level of entrepreneurial traits among undergraduate students in South Africa. The research instrument was a survey questionnaire with a total of 18 questions divided into two sections. The first eight (8) questions were focused on uncovering biographical data such age, sex, course major, year of study and marital status. The second section comprised ten (10) Likert scale type questions, aimed at uncovering key entrepreneurial traits such as risk-taking ability, innovativeness, and locus of control. From a sample of 500 students that received the questionnaire, 134 responses were received, with 62 being valid.

4.1. Descriptive Findings

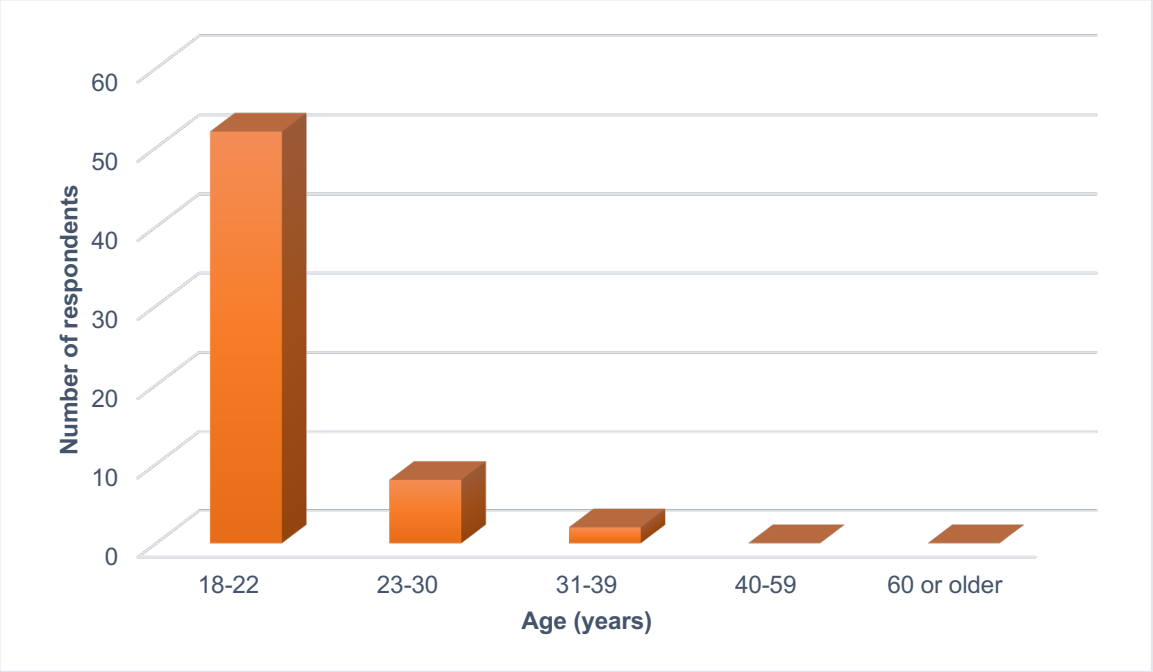
The results from the sample of 62 questionnaires were analysed in order to uncover the demographic characteristics in the sample, and the results are presented below.

Figure 1: Gender



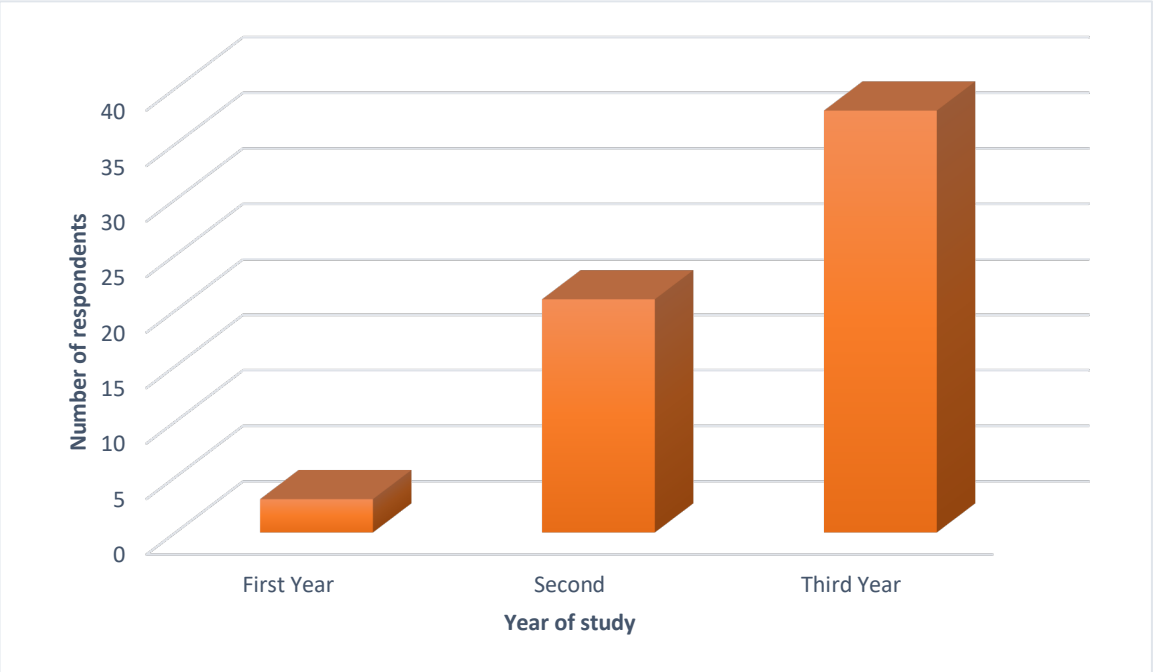
The sample of 62 respondents comprised 38 female students and 24 male students.

Figure 2: Age



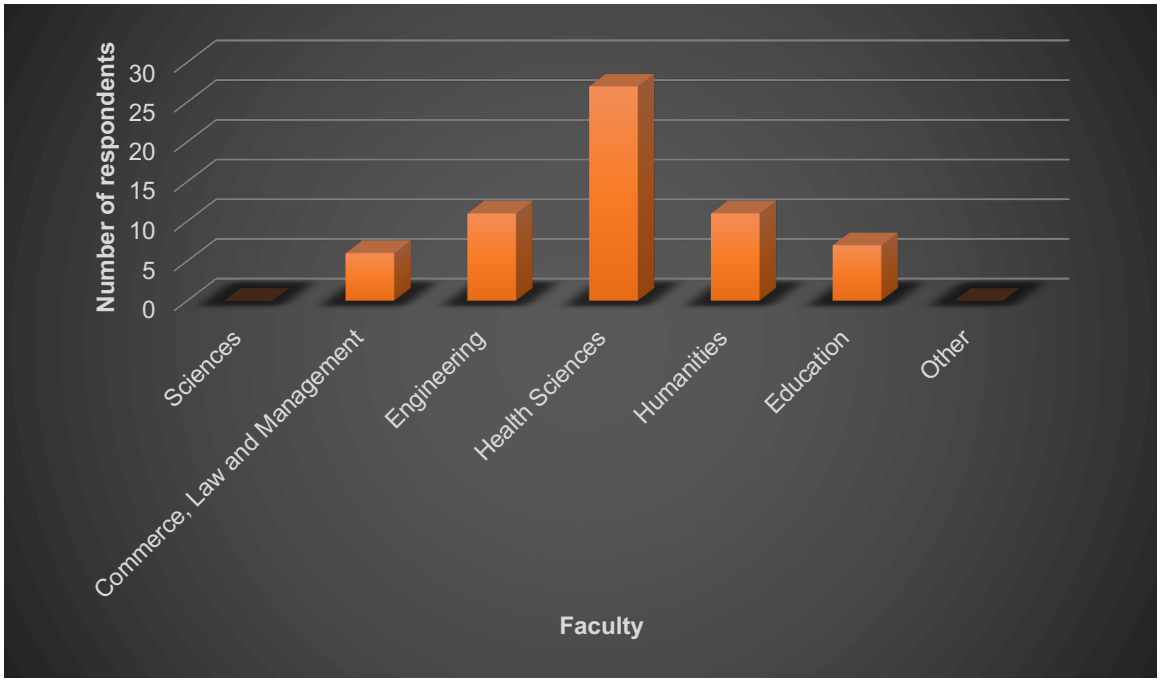
The sample of 62 respondents comprised 52 students who were between the ages of 18 and 22, eight who were aged between 23 and 29, with only two being between the ages of 30 and 40

Figure 3: Year of Study



The sample of 62 students comprised of 3 first-year students, 21 second-year students, and 38 students who were in the third year of their academic studies

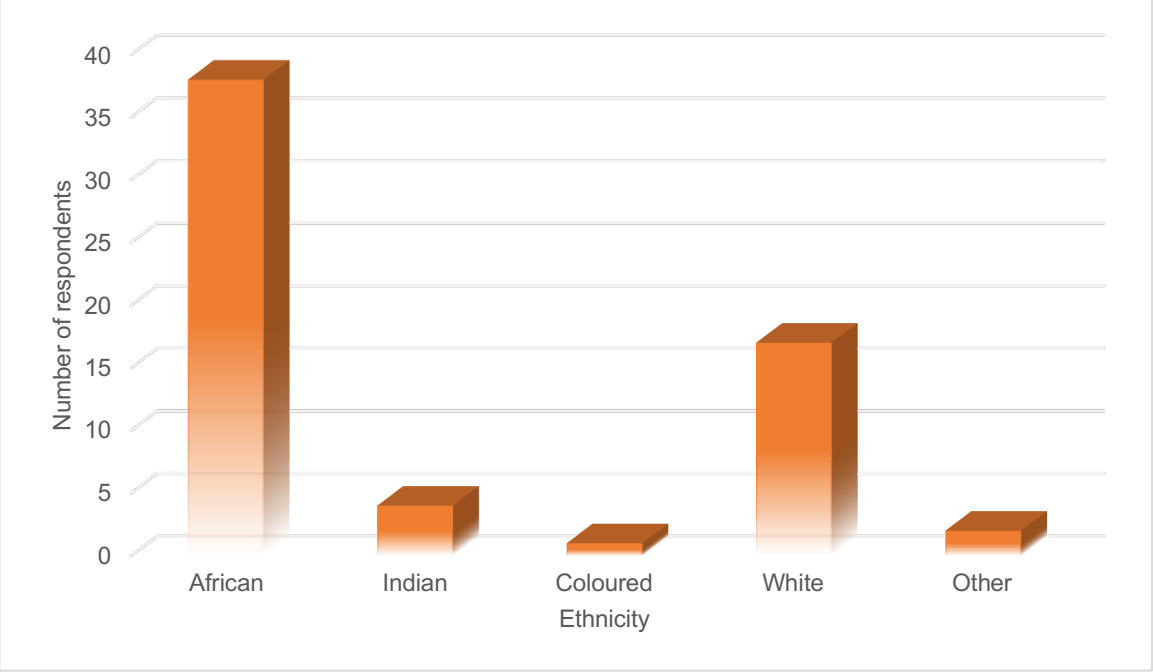
Figure 4: Faculty of Study



The breakdown of the sample of 62 students by faculty of study was as follows:

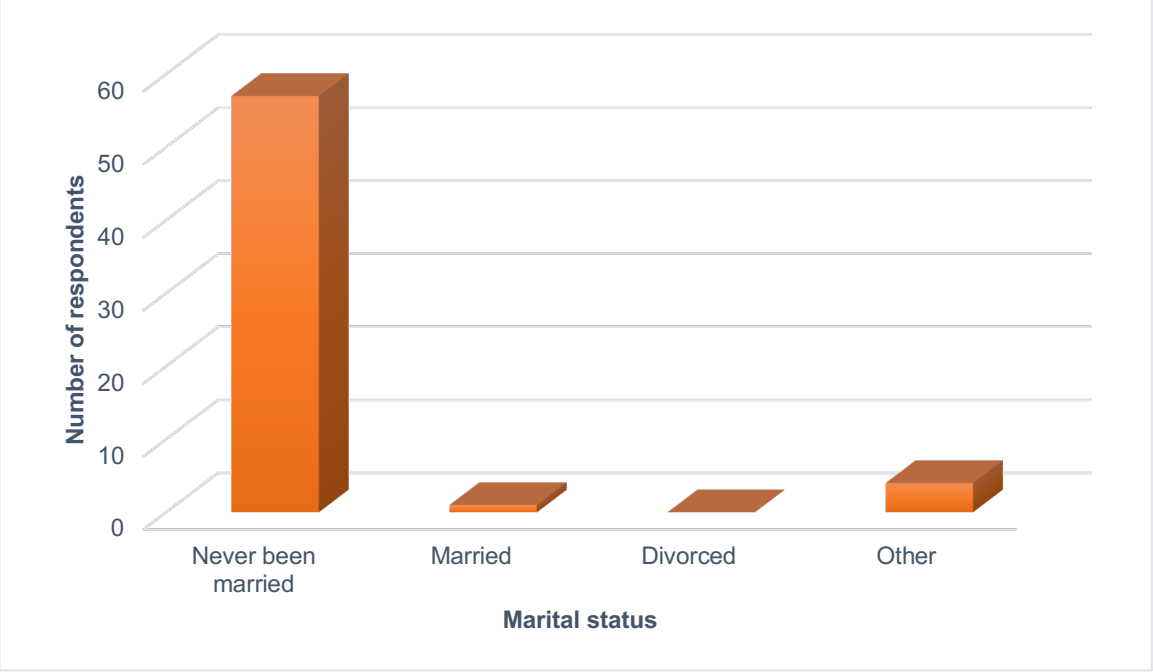
- Commerce Law and Management was represented by 6 students in the study.
- Engineering had 11 student participants in the study.
- Health science students were the highest participating group, with 27 students.
- Humanities had 11 students who participated in the study.
- The education faculty had 7 students who took part in the study.

Figure 5: Ethnic Origin



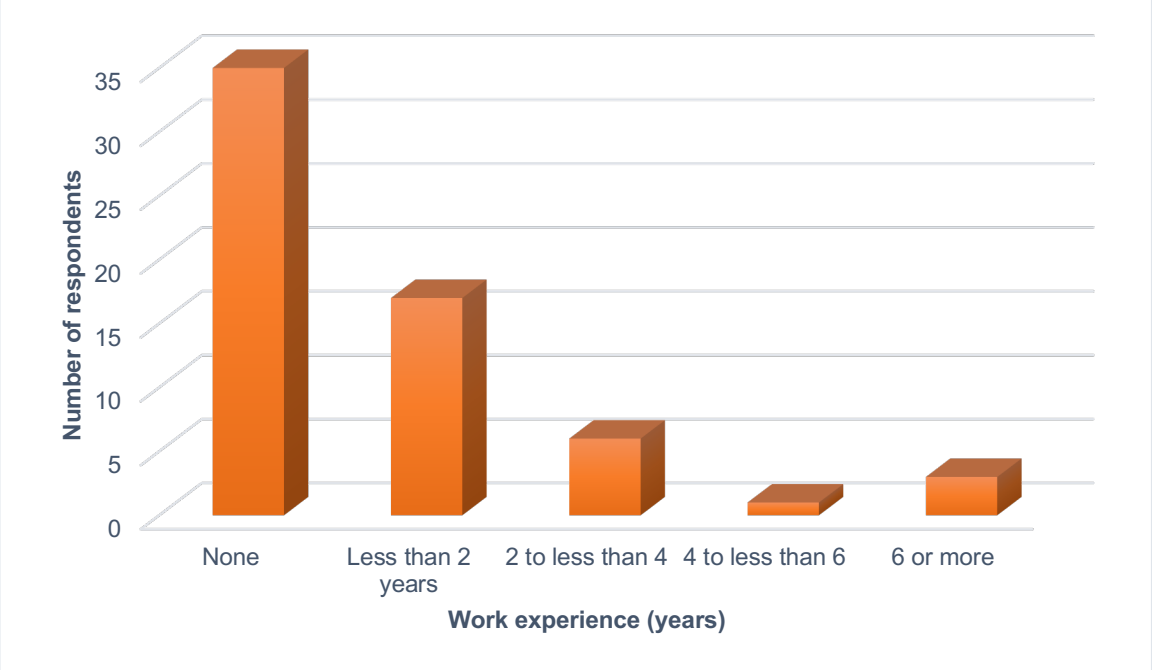
The sample of 62 respondents was comprised of 37 African students, 17 White students, 4 Indian students, one coloured student and four students from Other ethnic origins.

Figure 6: Marital Status



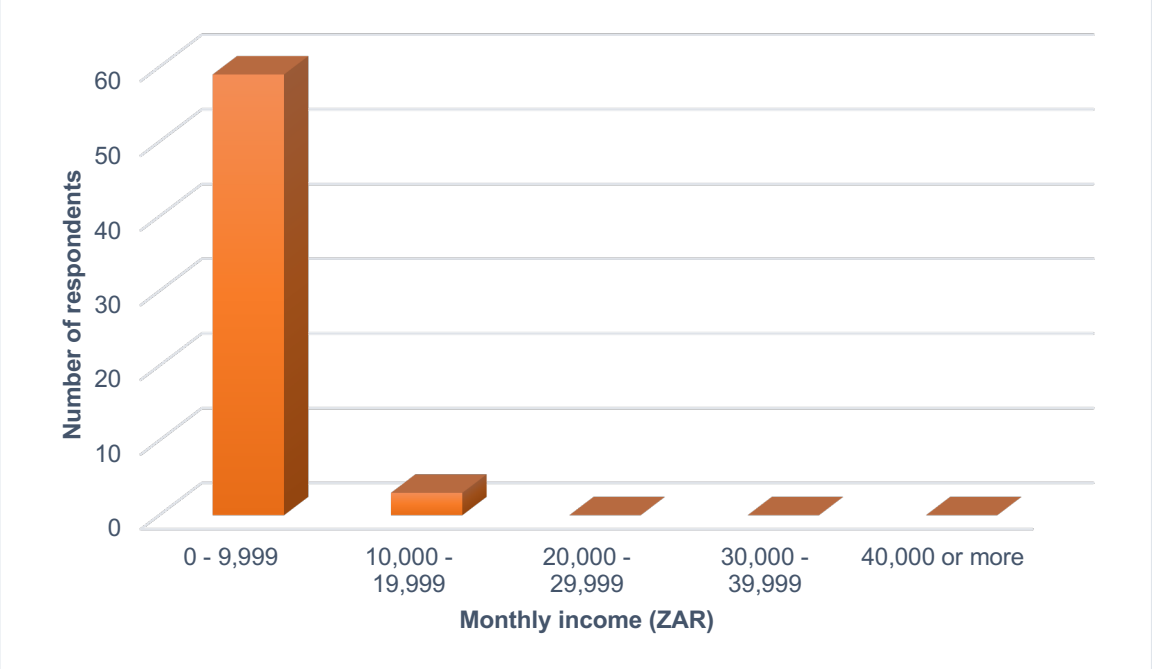
The 62 students who were sampled comprised of 57 students who have never been married, 1 who was married, and 4 whose marital status was indicated as other. None of the students in the sample were divorced at the time of the study.

Figure 7: Work Experience



Of the 62 respondents who were part of the sample, 35 had no work experience, 17 had less than two years work experience, 6 had between two- and four-years' work experience, one had experience ranging between four and six years, while three had more than six years work experience.

Figure 8: Level of Income



Of the 62 respondents, 59 of the students each had a monthly income of between zero and R9,999, while the remaining three students had monthly incomes of between R10,000 and R19,999.

4.2. Data Analysis Procedures

The data for this research was analysed in three phases, involving the following procedures:

i. The first phase included an inspection of the data through descriptive statistics such as the mean, standard deviation and the frequency distribution. Each Likert scale response was assigned a score ranging between 1 and 5, with the numbers 1, 2, 3, 5 and 5 assigned to the responses Strongly disagree; Disagree; Neutral; Agree; and Strongly agree, respectively. A weighted average score of all the responses per personality trait was used as a proxy for the level of undergraduate students' entrepreneurial trait (Caliendo, Fossen, & Kritikos, 2011). Mean scores between 1 and 2.6 indicate low levels of entrepreneurial traits, scores between 2.6 and 3.4 are indicative of average levels of entrepreneurial traits, while mean scores above 3.4 indicate high levels

of entrepreneurial traits. A frequency distribution of the responses was also constructed to categorise the proportion of all the responses into three broad levels entrepreneurial traits (low, average and high).

ii. In the second phase, there was an evaluation of the research instrument using factor analysis by calculating the Cronbach's alpha value for each of the ten personality traits (Louw, van Eeden, Bosch, & Venter, 2003); and

iii. In the third and final phase, significance testing was conducted on each of the personality traits to test if there is any significant evidence of any relationship between any of the entrepreneurial traits and the demographic variables used in the study (Steenekamp, van der Merwe, & Athayde, 2011).

4.3. Results

Table 1: Summary of Descriptive Statistics

Personality trait	Mean	Std Deviation	Frequency Distribution		
			Low	Average	High
1. Extraversion	3.23	0.70	15%	47%	39%
2. Agreeableness	3.89	0.59	2%	16%	82%
3. Conscientiousness	3.92	0.70	3%	23%	74%
4. Neuroticism	2.94	0.88	32%	34%	34%
5. Openness to experience	4.10	0.59	2%	13%	85%
6. Need for achievement	3.64	0.67	5%	31%	76%
7. Locus of control	3.32	0.61	11%	50%	53%
8. Risk taking propensity	3.57	0.56	2%	8%	66%
9. Tolerance for ambiguity	3.75	0.68	2%	5%	74%
10. Degree of innovativeness	3.68	0.54	0%	3%	69%

Table *1* shows the average (mean) scores for each personality trait, as well as the variation around those mean scores (standard deviation. The table also shows how the scores are proportionally distributed between those that scored lowly on a personality trait, those that had an average score for that trait, and those that had high scores (Damian, Spengler, Sutu, & Roberts, 2019). Table 1 indicates relatively high personality trait mean scores, with 61 percent of the respondents obtaining above the Likert system threshold of 3.4. It was however noted that students fared relatively poorly with respect to extraversion and neuroticism, hence more work is required to improve the entrepreneurial traits of undergraduate students.

Table 2: Results of Factor Analysis

Personality trait	Number of items	Cronbach's Alpha
1. Extraversion	6	0.80
2. Agreeableness	6	0.66
3. Conscientiousness	6	0.85
4. Neuroticism	6	0.82
5. Openness to experience	6	0.69
6. Need for achievement	5	0.75
7. Locus of control	5	0.48
8. Risk taking propensity	5	0.36
9. Tolerance for ambiguity	5	0.61
10. Degree of innovativeness	5	0.44

The Cronbach's alpha statistic was used to determine the internal validity of the factors used in the research questionnaires (Yıldırıma, Çakırb, & Olcay). The Cronbach's alpha statistic is used in most social research studies to test the reliability of the scales that have been used in constructing a research questionnaire (Taber, 2018). Cronbach's alpha statistics of above 0.8 indicate excellent factor validity, scores between 0.6 and 0.8 are regarded as good, those between 0.5 and 0.6 are regarded as acceptable, while scores below 0.5 are unacceptable (Daud, Khidzir, Ismail, & Abdullah, 2018). Using Cronbach's alpha, seven out of ten entrepreneurial traits were rated good or excellent, while three were considered unacceptable, and thus indicative of the need to further refine the questionnaire.

Significance testing was conducted using a two-tailed t-distribution at the 5% level of significance (Rym Hachana, 2018). The critical values of t were -1.96 and +1.96, signifying the acceptance region, and any values outside this range resulted in the null hypothesis being rejected (Damian, Spengler, Sutu, & Roberts, 2019). The t-test statistics for the personality traits and demographic variables are presented in Table 3 below.

Table 3: Significance Testing Results

	Extraversion	Agreeableness	Conscientiousness	Neuroticism	Openness to experience	Need for achievement	Locus of control	Risk taking propensity	Tolerance for ambiguity	Degree of innovativeness	All
Gender											
Male	3.4	3.9	4.1	2.8	4.2	3.8	3.4	3.3	3.8	3.8	3.7
Female	3.1	3.9	3.8	3.0	4.0	3.5	3.3	3.7	3.7	3.6	3.6
T - statistic	-13.4957	-23.2008	-19.4934	-11.0315	-24.2578	-17.6914	-16.6310	-25.7134	-19.4537	-20.3192	-
Faculty of Study											
• Commerce. Law & Management	3.4	3.6	3.7	3.5	3.5	3.3	3.6	3.5	3.7	3.7	3.6
• Engineering	3.3	3.7	3.7	2.8	4.0	3.9	3.4	3.4	3.9	3.9	3.6
• Health Sciences	3.3	3.9	4.2	2.8	4.2	3.7	3.2	3.5	3.7	3.7	3.6
• Humanities	2.9	4.0	3.7	3.1	4.1	3.6	3.1	3.8	3.9	3.5	3.6
• Education	3.2	4.3	3.9	2.9	4.4	3.5	3.6	3.7	3.7	3.7	3.7
T - statistic	4.5900	1.0643*	0.6596*	5.8059	-0.4959*	2.3498	4.4096	3.2194	1.7567	2.1503	-
Age											
• 18-22	3.2	3.9	4.0	2.9	4.1	3.7	3.3	3.6	3.7	3.7	3.6
• 23-29	3.2	3.9	3.8	3.1	3.7	3.6	3.3	3.6	3.8	3.4	3.5
• 30-39	3.8	4.1	3.7	3.7	4.6	3.6	3.6	3.4	4.8	4.4	4.0
T - statistic	-19.8822	-28.6150	-24.3940	-14.8867	-29.1694	-22.9793	-22.2321	-25.0711	-27.5446	-27.4648	-
Ethnicity											
• African	3.1	3.8	3.8	2.9	4.0	3.7	3.4	3.6	3.9	3.7	3.6
• Indian	2.8	4.1	4.0	3.0	4.1	3.6	3.2	3.3	3.6	3.7	3.4
• Coloured	3.3	4.2	3.8	3.2	5.0	3.8	3.4	3.2	4.6	4.2	3.9
• White	3.5	3.9	4.2	3.0	4.1	3.7	3.2	3.7	3.5	3.6	3.7
• Other	3.4	3.6	3.8	2.6	4.3	3.2	3.1	3.1	3.5	3.6	3.4
T - statistic	-6.4908	-9.4874	-10.1098	-4.2626	-10.8326	-7.8323	-6.1946	-7.8769	-7.8252	-8.1377	-

	Extraversion	Agreeableness	Conscientiousness	Neuroticism	Openness to experience	Need for achievement	Locus of control	Risk taking propensity	Tolerance for ambiguity	Degree of innovativeness	All
Year of Study											
• First-year	3.0	3.2	3.3	3.0	3.2	4.0	3.8	4.4	4.4	3.2	3.5
• Second year	3.4	4.0	4.2	2.6	4.2	3.8	3.4	3.5	3.8	3.8	3.7
• Third year	3.1	3.8	3.8	3.2	4.1	3.5	3.3	3.1	3.8	3.8	3.5
T - statistic	-5.1434	-12.1408	-10.5520	-3.4038	-14.2837	-8.4402	-6.6429	-9.6619	-9.7818	-10.4592	-
Work Experience											
• none	3.0	3.8	3.9	3.1	4.0	3.7	3.3	3.7	3.8	3.6	3.6
• 0 – 2 years	3.4	4.0	4.0	2.7	4.0	3.5	3.2	3.3	3.7	3.7	3.6
• 2 – less than 4 years	3.9	3.9	4.2	2.4	4.5	4.1	3.7	3.3	3.1	3.9	3.7
• 4 – less than 6 years	3.7	3.8	3.5	3.0	5.0	3.4	4.0	3.8	4.4	3.6	3.8
• 6 years or more	3.6	4.1	3.6	3.4	4.4	3.3	3.2	3.6	4.7	3.8	3.8
T - statistic	-11.6750	-14.8741	-13.8296	-6.8304	-17.6931	-11.9359	-10.9242	-11.5365	-13.6223	-14.0794	-
Marital Status											
• Never been married	3.2	3.9	4.0	2.9	4.1	3.7	3.3	3.6	3.7	3.7	3.6
• Married	4.2	4.0	3.5	4.2	4.2	3.4	3.8	3.6	5.0	4.6	4.0
• Other	2.9	3.5	3.3	3.3	3.9	3.5	3.4	3.8	4.4	3.4	3.5
T - statistic	-14.8385	-20.5475	-18.6848	-12.6474	-22.8172	-18.2992	-17.6860	-20.7561	-23.4691	-19.9349	-
Level of Income											
• 0 – R9.999	3.9	2.9	4.1	3.6	3.3	3.6	3.7	3.7	3.9	2.9	3.6
• R10.000 – R19.999	3.1	3.6	3.8	3.2	4.4	3.5	3.0	2.9	3.8	4.1	3.5
T - statistic	-23.1011	-34.4225	-30.8201	-16.6288	-40.0754	-28.6664	-26.7748	-30.3610	-29.9714	-37.8235	-

*accept H_0

4.4. Summary

This research was aimed at uncovering the level of entrepreneurial traits among undergraduate students in South Africa. The research instrument was a survey questionnaire with a total of 18 questions divided into two sections. From a sample of 500 students that received the questionnaire, a total of 134 (26.8 percent) responses were received, of which 62 were valid. The demographic information from the valid questionnaires was summarised to uncover key details in the data, such as the mean scores for each of the personality trait categories. Factor analysis using Cronbach's alpha was conducted on each of the variables to test the validity of the research instrument and the results were presented. Significance testing was used to uncover evidence of a statistical difference in the levels of entrepreneurial traits and demographic variables.

CHAPTER 5: DISCUSSION OF RESULTS

5. Introduction

This research, based on the Psychological Entrepreneurship Theory, focused on investigating the level of entrepreneurial traits among undergraduate students in South Africa. In analysing the research results, the author sought to answer the following research questions:

a. “Do undergraduate students in South Africa possess the personality traits required for new venture creation and success?”
b. “Do demographic variables (gender, age, ethnicity, work experience, academic status, faculty of study, level of income and marital status) of undergraduate students in South Africa influence new venture creation and success?”

The results of the study showed that in general, undergraduate students possess the entrepreneurial traits that impact new venture formation and entrepreneurial success. In particular, the highest scores were recorded for Openness to experience (85%), agreeableness (82%), and need for achievement (76%). These results are consistent with the findings of Nihan *et al.* (2016), who also found evidence of high levels of entrepreneurial intentions among undergraduate university students. These high levels of entrepreneurial traits may be a result of the increased presence of entrepreneurship in the education curriculum, including policy initiatives by government and similar organisations promoting entrepreneurship as a viable career alternative. However, relatively low scores were recorded for some personality traits, as evidenced by neuroticism (34%), extraversion (39%), and locus of control (53%). These results are aligned to Adetoun & Olajide (2015), who concluded that there is a need to continuously develop the entrepreneurship knowledge base, to maximise the benefits from new and successful enterprises.

The results indicate there is strong evidence of statistically significant differences for all the demographical variables and the entrepreneurial traits. This is consistent with the findings made by Abdelwahed *et al* (2019), Onil & Mavuyangwa (2019), Nihan *et al* (2016), and Soomro *et al* (2013).

5.1.1. Gender

	Neuroticism	All
Gender		
Male	2.8	3.7
Female	3.0	3.6
T - statistic	-11.0315	-

There was significant evidence of a statistical difference in the levels of entrepreneurial traits between male and female undergraduate students. Evidence from the study showed that male students tended to have a higher level of personality traits associated with entrepreneurial intention and entrepreneurial success across all the variables except for Neuroticism.

5.1.2. Age

	Conscientiousness	Need for achievement	Locus of control	All
Age				
18-22	4.0	3.7	3.3	3.6
23-29	3.8	3.6	3.3	3.5
30-39	3.7	3.6	3.6	4.0
T - statistic	-24.3940	-22.9793	-22.2321	-

There was evidence of a significant statistical difference in the levels of entrepreneurial traits between the different age categories of undergraduate students. Evidence from the study showed that older students tended to have a higher level of personality traits associated with entrepreneurial intention and entrepreneurial success across all the variables except for Conscientiousness and Need for Achievement.

5.1.3. Ethnicity

	All
Ethnicity	
African	3.6
Indian	3.4
Coloured	3.9
White	3.7
Other	3.4
T - statistic	-

There was significant evidence of a statistical difference in the levels of entrepreneurial traits between undergraduate students from different ethnic

origins. Evidence from the study showed that Coloured and White exhibited a higher inclination towards entrepreneurial intention and entrepreneurial success across all the variables, when compared with the African and Indian students.

5.1.4. Faculty of Study

	Agreeableness	Conscientiousness	Openness to experience	All
Faculty of Study				
Commerce. Law & Management	3.6	3.7	3.5	3.6
Engineering	3.7	3.7	4.0	3.6
Health Sciences	3.9	4.2	4.2	3.6
Humanities	4.0	3.7	4.1	3.6
Education	4.3	3.9	4.4	3.7
T - statistic	1.0643*	0.6596*	-0.4959*	-

While there was significant evidence of a statistical difference in the levels of entrepreneurial traits between undergraduate students from different faculties across most of the variables, there was no significant evidence of any statistical difference among three of the variables (Agreeableness, Conscientiousness, and Openness to experience).

5.1.5. Academic Status

	All
Year of Study	
First-year	3.5
Second year	3.7
Third year	3.5
T - statistic	-

There was significant evidence of a statistical difference in the levels of entrepreneurial traits between undergraduate students in different years of study. Evidence from the study showed that second year students tended to have a higher level of entrepreneurial traits in comparison with first year and third year students.

5.1.6. Marital Status

	All
Marital Status	
Never been married	3.6

	All
Married	4.0
Other	3.5
T - statistic	-

There was significant evidence of a statistical difference in the levels of entrepreneurial traits between married undergraduate students and those in the other categories. Evidence from the study showed that married students displayed higher levels of personality traits associated with entrepreneurial intention and entrepreneurial success across all the variables.

5.1.7. Work Experience

	All
Work Experience	
none	3.6
0 – 2 years	3.6
2 – less than 4 years	3.7
4 – less than 6 years	3.8
6 years or more	3.8
T - statistic	-

There was significant evidence of a statistical difference in the levels of entrepreneurial traits between undergraduate students with different levels of work experience. Evidence from the study showed that students with more work experience exhibited a higher level of personality traits associated with entrepreneurial intention and entrepreneurial success compared to their less-experienced peers.

5.1.8. Level of Income

	All
Level of Income	
0 – R9.999	3.6
R10.000 – R19.999	3.5
T - statistic	-

In general, higher levels of income were associated with higher levels of entrepreneurial intention and entrepreneurial success among undergraduate students.

5.2. Strengths and Weaknesses

The study was underpinned by a robust set of variables whose influence on entrepreneurial traits has been widely researched. However, according to Moodley (2016), a wider sample size would have made the results more representative to the undergraduate student universe in South Africa. In addition, there may also be other demographic variables as student nationality, that may require exploring in order to gain a deeper understanding of the levels of entrepreneurial traits among undergraduate students (Caliendo, Fossen, & Kritikos, 2011).

One key limitation of the research is that it was focused on the study of the psychological state of the entrepreneur. The individuals are either trying to become entrepreneurs, with no past business performance, or are entrepreneurs who have succeeded (Louw *et al.*, 2003).

Finally, the research results may give a misleading narrative that personality traits, as espoused by the Psychological Entrepreneurship Theory, provide a complete theory of entrepreneurship. However, the literature showed that there are other management theories of entrepreneurship, which must be considered as important components of a multidimensional model (Simpeh, 2011).

CHAPTER 6: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

6.1. Introduction

This research focused on investigating the level of entrepreneurial traits among undergraduate students in South Africa. The study was aimed at answering the research questions of: (a) whether undergraduate students in South Africa possess the personality traits required for new venture formation and success; and (b) whether demographic variables have an impact on new venture creation and entrepreneurial success. The results of the study showed that in general, students regard themselves as being equipped with entrepreneurial traits that impact new venture formation and entrepreneurial success. In particular, the highest scores were recorded for Openness to experience (85%), agreeableness (82%), and need for achievement (76%). These high levels of entrepreneurial traits may be a result of the increased presence of entrepreneurship in the education curriculum, including policy initiatives by government promoting entrepreneurship as a viable career alternative.

Relatively low scores were recorded for some personality traits, as evidenced by neuroticism (34%), extraversion (39%), and locus of control (53%). These results are indicative of the need to continuously develop the entrepreneurship knowledge base, to maximise the benefits from new and successful enterprises.

6.2. Recommendations for Policy

Although entrepreneurship is now part of the education curriculum, especially in undergraduate and postgraduate business courses, more still needs to be to propagate more knowledge on entrepreneurship among learners, especially those in primary and secondary schools (Hachana, Berraies, & Dans, 2018). The wholesale adoption of entrepreneurship education across the entire education spectrum may lead to learners having well-developed entrepreneurial traits, with potentially increased levels of venture creation and success in South Africa. This is also consistent with the recommendations made by Boldureanu, Ionescu, Bercu, Bedrule-Grigorut, & Boldureanu (2020).

6.3. Recommendations for Practice

Organisations and policy makers with decision making responsibilities for entrepreneurs or entrepreneurial support programmes should consider incorporating personality measures into their selection criteria. According to Hachana *et al* (2018), enforcing this policy will result in a more effective resource allocation process, as support will be given to those with the requisite personality traits and are more likely to succeed as entrepreneurs. The result is an increase in the number of high-impact SMEs which can positively contribute to reducing the triple evils of poverty, unemployment, and unequal income distribution in South Africa.

6.4. Recommendations for Future Research

Results of the factor analysis showed that the research instrument could be refined by replacing some of the personality trait categories in the questionnaire. The body of knowledge in this field can also be enriched through broadening the research to cover undergraduate students at other universities in South Africa, as well as other educational institutions such as Technical and Vocational Education and Training (TVET) colleges across South Africa (Ali, 2019).

Future research may also be focused on employing longitudinal study methods on prospective entrepreneurs as they create and manage their ventures. This view is supported by Damian *et al* (2019) who have espoused that it gives insights into the personality traits of successful and unsuccessful entrepreneurs.

6.5. Conclusion

Although the study showed that there are relatively high levels of entrepreneurial traits among undergraduate university students in South Africa, it must be noted that there are some entrepreneurial traits that are still under-developed and will need to be enhanced, to maximise the benefits of entrepreneurship among university students. The statistically significant differences for all the demographical variables and the entrepreneurial traits, requires the adoption of a more focused approach that acknowledges these entrepreneurial trait gaps between different demographic groups to improve the level of entrepreneurial traits among university undergraduate students (Zhou & Rosini, 2015).

In line with the Psychological Entrepreneurship Theory, the research showed that personality significantly influences entrepreneurial choices and affects entrepreneurial processes in many ways (Landström, 1999). In addition, the research showed that personality traits only partly explain entrepreneurial decisions. Consistent with the management theories of entrepreneurship espoused by Simpeh (2011), it is critical to use a comprehensive set of information about traits and other variables to predict what Is required to develop new venture and succeed as an entrepreneur.

REFERENCES

Adeniran, T. V., & Johnston, K. A. (2012). Investigating the dynamic capabilities and competitive advantage of South African SMEs. *African Journal of Business Management, 6*(11), 4088-4099.

Adetoun, A. A., & Olajide, R. G. (2015). Assessment of Entrepreneurial Traits among Undergraduate Students of Clothing, Textile and Interior Decoration. *International Journal of Marketing Studies, 7*(4), 94-104.

Adu, P. (2019). *A Step-by-Step Guide to Qualitative Data Coding.* New York: Routledge.

Ahmad, N., & Seymour, R. G. (2008). *Definitions Supporting Frameworks for Data Collection.* Paris: Organisation for Economic Co-operation and Development.

Ali, I. (2019). Empirical paper Personality traits, individual innovativeness and satisfaction with life. *Journal of Innovation & Knowledge, 4*(1), 38-46.

Allan Gray Orbis Foundation. (2019). The State of Entrepreneurship in South Africa.

Alvareza, S. A., & Busenitz, L. W. (2001). The entrepreneurship of resource-based theory. *Journal of Management, 27*(1), 755–775.

Anglim, J., & O'Connor, P. (2018). Measurement and Research Using the Big Five, HEXACO, and Narrow Traits: A Primer for Researchers and. *Australian Journal of Psychology.*

Asmal, R., Soni, P., & David, J. E. (2016). Downgrade and junk status looms on the horizon for the South African economy: Finance minister in a no win situation as toxic politics takes centre stage. *International Journal of Accounting Research (IJAR), 2*(11), 50-90.

Auerbach, C., & Silverstein, L. B. (2003). *Qualitative Data: An Introduction to Coding and Analysis.* New York and London: New York University Press.

Bawuah, K., Buame, S., & Hinson, R. (2006). Reflections on Entrepreneurship Education in African Tertiary Institutions. *Acta Commercii, 6*(1), 1-9.

bin Ahmad, H., & binti Halim, H. (2017). Determining Sample Size for Research Activities: The Case of Organizational Research. *Selangor Business Review, 2*(1), 20-34.

Black, K. (2010). *Business Statistics: Contemporary Decision Making* (6th Edition ed.). Houston: John Wiley and Sons, Inc.

Boldureanu, G., Ionescu, A., Bercu, A.-M., Bedrule-Grigorut, M. V., & Boldureanu, D. (2020). Entrepreneurship Education through Successful Entrepreneurial Models in Higher Education Institutions. *Sustainability , 12*(1267).

Bourque, L. B., & Fielder, E. P. (2003). *How to Conduct Self-Administered and Mail Surveys.* Carlifonia: Sage.

Bryman, A. (2012). *Social Research Methods.* New York: Oxford University Press.

Bushe, B. (2019). The causes and impact of business failure among small to micro and medium enterprises in South Africa. *Africa's Public Service Delivery and Performance Review, 7*(1), 1-26.

Butz, N. T., Hanson, S. J., Schultz, P. L., & Warzynski, M. M. (2018). Beyond the Big Five: does grit influence the entrepreneurial intent of university students in the US? *Journal of Global Entrepreneurship Research, 8*(1), 1-16.

Caliendo, M., Fossen, F. M., & Kritikos, A. (2011). *Personality Characteristics and the Decision to Become and Stay Self-Employed.* Berlin: Institute of Labor Economics.

Damian, R. I., Spengler, M., Sutu, A., & Roberts, B. W. (2019). Sixteen going on sixty-six: A longitudinal study of personality stability and change across 50 years. *Journal of Personality and Social Psychology, 117*(3), 674–695.

Daud, K., Khidzir, N., Ismail, A., & Abdullah, F. (2018). Validity and reliability of instrument to measure social media skills among small and medium entrepreneurs at Pengkalan Datu River. *International Journal of Development and Sustainabil*.

Davidsson, P., & Honig, B. (2003). The role of social and human capital among nascent entrepreneurs. *Journal of Business Venturing, 18*(3), 301-331.

Dhaliwal, A. (2016). Role Of Entrepreneurship In Economic Development. *International Journal of scientific research and management (IJSRM), 4*(6), 4262-4269.

Dholakia, R. R. (1978). Personality Trait Theory and Consumer Behaviour. *Vikalpa, 3*(2), 111-119.

Diandra, D., & Azmy, A. (2020). Understanding Definition of Entrepreneurship. *Journal of Management Accounting and Economics, 7*(5), 235-241.

Drucker, P. F. (1986). Entrepreneurship: Practice and Principles. *Personnel Strategies and Productivity Improvement, 10*(1), 105-109.

Dzansi, D. Y., Rambe, P., & Coleman, W. J. (2015). Enhancing new venture creation success in South Africa: a project management perspective. *Problems and Perspectives in Management, 13*(2), 418-426.

Ellingson, J. E., Sackett, P. R., & Connelly, B. S. (2007). Personality Assessment Across Selection and Development Contexts: Insights Into Response Distortion. *Journal of Applied Psychology, 92*(2), 386–395.

Fandrych, I. (2009). The importance of English communication skills in multilingual settings in Southern Africa. *English Today, 25*(3), 49-55.

Farrington, S. M. (2012). Does personality matter for small business success? *South African Journal of Economic and Management Sciences, 15*(4), 381-401.

Fatoki, O. (2014). The Causes of the Failure of New Small and Medium Enterprises in South Africa. *Mediterranean Journal of Social Sciences, 5*(20), 922-927.

Filser, M., Kraus, S., Roig-Tierno, N., Kailer, N., & Fischer, U. (2019). Entrepreneurship as Catalyst for Sustainable Development: Opening the Black Box. *Sustainability, 11*(4503), 1-18.

Goldberg, L. (1981). Language and Individual Differences: The Search for Universals in Personality Lexicons. In L. Wheeler (Ed.), *review of Personality and Social Psychology: Vol. 2* (pp. 141-165). Carlifonia: Sage.

Gorgievski, M. J., & Stephan, U. (2016). Advancing the psychology of entrepreneurship: a review of the psychological literature and an introduction. *Applied Psychology, 65*(3), 437-468.

Gravetter, F., & Forzano, L.-A. B. (2009). *Research Methods for the Behavioral Sciences* (7th Edition ed.). Belmont: Waswoth Cenage Learning .

Hachana, R., Berraies, S., & Dans, Z. F. (2018). Identifying personality traits associated with entrepreneurial success: does gender matter? *Journal of Innovation Economics & Management, 3*(27), 169-193.

Hair, J. F., Money, A. H., Samouel, P., & Page, M. (2007). *Research methods for business.* Chichester: Wiley.

Herrington, M., & Kew, P. (2018). *attitude towards the small and medium business sector in South Africa 2017/18.* Global Economic Monitor.

John, O. P., Donahue, E. M., & Kentle, R. L. (1991). *The Big Five Inventory--Versions 4a and 54.* Berkeley, CA: University of California,Berkeley, Institute of Personality and Social Research.

John, O. P., Robins, R. W., & Pervin, L. A. (2010). *Handbook of Personality: Theory and Research* (3rd Edition ed.). New York: The Guilford Press.

Karabuluta, A. T. (2016). Personality Traits on Entrepreneurial Intention. *Procedia - Social and Behavioral Sciences, 229*(1), 12-21.

Kew, J. (2016). Obstacles and Opportunities for Youth Entrepreneurship A Co-ordinated Approach Critical to Promote Youth Entrepreneurship. *Short Paper Series on Youth Unemployment*.

Ki-Young, J., Bozkurt, I., & Sunkara, S. T. (2012). Creating Effective Project Teams Using Personality Models. *Northeast Decision Sciences Institute Conference Proceedings*, (pp. 403-414).

Kuratko, D. F. (2008). *Entrepreneurship: Theory, Process, and Practice.* Ohio: South-Western Cengage Learning.

Laguna, M., & Purc, E. (2016). Personality Traits and Training Initiation Process: Intention, Planning, and Action Initiation. *Frontiers in Psychology, 7*(1767), 1-11.

Landström, H. (1999). The Roots of Entrepreneurial Research. *New England Journal of Entrepreneurship, 2*(2), 9-20.

Lavrakas, P. J. (2008). *Encyclopedia of Survey Research Methods.* California: SAGE Publications Inc.

Lingelbach, D. C., De La Vina, L., & Asel, P. (2005). What's Distinctive About Growth-Oriented Entrepreneurship in Developing Countries?

Louw, L., van Eeden, S., Bosch, J., & Venter, D. (2003). Entrepreneurial traits of undergraduate students at selected South African tertiary institutions. *International Journal of Entrepreneurial Behavior & Research, 9*(1), 5-26.

Mahadea, D., & Kaseeram, I. (2018). Impact of unemployment and income on entrepreneurship in post-apartheid South Africa: 1994–2015. *The Southern African Journal of Entrepreneurship and Small Business Management, 10*(1), 1-9.

Moodley, S. (2016). *Creating entrepreneurs in South Africa through education.* Pretoria: University of Pretoria.

Moyer, S. (2016). *Applying Trait Theory to Determine the Causality of the Entrepreneur's Success.* Lakeland: Southeastern University.

Muhammad, A. S., Zainuddin, Z., Hamid, A. C., & Khalid, M. K. (2014). Fostering Micro-Entrepreneurship as Panacea to Poverty Eradication in the Malaysian Economy: A Conceptual Perception. *Asian Social Science, 10*(13), 287-292.

Neneh, N. B. (2012). An exploratory study on the entrepreneurial mindset in the small and medium enterprise (SME) sector: A South African perspective on fostering small and medium enterprise (SME) success. *African Journal of Business Management, 6*(1), 3364-3372.

Neuman, W. (2014). *Social Research Methods: Qualitative and Quantitative Approaches.* Essex: Pearson.

Nihan, Y., Özgür, Ç., & Olcay, B. A. (2016). Ready to Dare? A Case Study on the Entrepreneurial Intentions of Business and Engineering Students in Turkey. *Social and Behavioral Sciences, 229*, 277-288.

Onil, O., & Mavuyangwa, V. (2019). Entrepreneurial intentions of students in a historically disadvantaged university in South Africa. *Acta Commercii, 19*(2), 1-7.

Parkes, G., & Liu, R. R.-Y. (2016). "Let's Put the Person Back into Entrepreneurship Research" A study of entrepreneurs' personality and innovations. *Annual British Academy of Management (BAM) Conference*.

Parmer, L., & Dillard, J. (2015). The relationship between personality and consumer behaviour buying patterns within the automobile industry. *International Journal of Management and Marketing Research, 8*(1), 1-13.

Patten, M. L. (2017). *Questionnaire Research: A Practical Guide* (4th Edition ed.). New York: Taylor and Francis.

Rauch, A., & Frese, M. (2009). A Personality Approach to Entrepreneurship. In S. Cartwright, & C. L. Cooper (Eds.), *The Oxford Handbook of Personnel Psychology* (pp. 121-136). Oxford: Oxford University Press and British Academy.

Razmus, W., & Laguna, M. (2018). Dimensions of Entrepreneurial Success: A Multilevel Study on Stakeholders of Micro-Enterprises. *Frontiers in Psychology*, 791.

Reynolds, P. (1991). Sociology and Entrepreneurship . *Entrepreneurship: Theory & Practice, 16*(2), 47-70.

Reynolds, P. D., Hay, M., & Camp, S. M. (1999). *Global Entrepreneurship Monitor: Executive Report.* London: Kaufman Centre for Entrepreneurial Leadership.

Ribeiro-Soriano, D. (2017). Small business and entrepreneurship: their role in economic and social development. *Entrepreneurship & Regional Development, 29*(1-2), 1-3.

Ridha, R. a. (2017). Entrepreneurship intention in agricultural sector of young generation in Indonesia. *Asia Pacific Journal of Innovation and Entrepreneurship, 11*(1), 76-89.

Ridha, R. N., Burhanuddin, B., & Wahyu, B. P. (2016). Entrepreneurship intention in agricultural sector of young generation in Indonesia. *Asia Pacific Journal of Innovation and Entrepreneurship, 11*(1), 76-89.

Roberts, B. W., & Robert, H. (2001). *Personality Psychology in the Workplace.* Washington, DC: American Psychological Association.

Rym Hachana, S. B. (2018). Dans, Rym; Berraies, Sarra; Dans, Zied, Ftiti. *Journal of Innovation Economics & Management , 3*(27), 169-193.

Saris, W. e., & Gallhofer, I. N. (2014). *Design, Evaluation, and Analysis of Questionnaires for Survey Research* (2nd Edition ed.). Barcelona: Wiley.

Saucier, G., & Goldberg, L. R. (1996). The language of personality: Lexical Perspectives on the Five-Factor Model . In J. Wiggins (Ed.), *The Five Factor Model of Personality: Theoretical Perspectives* (pp. 21-50). New York : Guilford Press.

Simodisa. (2015). *Accelerating the Growth of SMEs in South Africa.*

Simpeh, K. N. (2011). Entrepreneurship theories and Empirical research: A Summary Review of the Literature. *European Journal of Business and Management, 3*(6), 1-8.

Soomro, B. A., Abdelwahed Abdelmegeed, N. A., & Shah, N. (2019). The Influence of Demographic Factors on the Business Success of Entrepreneurs: An Empirical Study from the Small and Medium- Sized Enterprises Context of Pakistan. *International Journal of Entrepreneurship, 23*(2), 1-12.

Soto, C. J. (2018). Five personality traits. In M. H. Bornstein, M. E. Arterberry, K. L. Fingerman, & J. Lansford (Eds.), *The SAGE encyclopedia of lifespan human development* (pp. 240-241). Carlifornia: Sage.

Statistics South Africa. (2020). *Quarterly Labour Force Survey - Quarter 1: 2020.* Pretoria: StatsSA.

Steenekamp, A., van der Merwe, S., & Athayde, R. (2011). An investigation into youth entrepreneurship in selected South African secondary schools: An exploratory study. *Southern African Business Review, 15*(3), 46-75.

SunYoun, L., & Ohtake, F. (2014). The Effects of Personality Traits and Behavioral Characteristics on Schooling, Earnings, and Career Promotion. *RIETI Discussion Paper Series 14-E-023*, pp. 1-25.

Taber, K. (2018). The Use of Cronbach's Alpha When Developing and Reporting Research Instruments in Science Education. *Research in Science Education, 48*, 1273–1296.

Tejumade, V. A., & Kevin, A. J. (2012). Investigating the dynamic capabilities and competitive advantage of South African SMEs. *African Journal of Business Management, 6*(11), 4088-4099.

United Nations. (1999). *The Development of Entrepreneurship and Small Business in Transitional Economies.* New York: UN Department of Economic and Social Affairs Division for Public Economics and Public Administration.

Vasiliadis, A., & Poulios, T. (2007). Entrepreneurship among graduates: Reality and prospects in tertiary education. *Proceedings of the Academy of Entrepreneurship*, 75-82.

Wathanakom, N., Khlaisang, J., & Songkram, N. (2020). The study of the causal relationship between innovativeness and entrepreneurial intention among undergraduate students. *Journal of Innovation and Entrepreneurship volume, 9*(15), 1-13.

Williams, C. (2007). Research Methods. *Journal of Business & Economic Research, 5*(3), 65-72.

World Bank. (2018). *Overcoming Poverty and Inequality in South Africa - An Assessment of Drivers, Constraints and Opportunities.* Washington DC: The World Bank Group.

Yeboah, A. S., Kumi, E., & Jacob, B. A. (2013). An Assessment of Entrepreneurship Intention Among Sunyani Polytechnic Marketing Students. *International Review of Management and Marketing, 3*(1), 37-49.

Yıldırıma, N., Çakırb, Ö., & Olcay, B. A. (n.d.). Social and Behavioral Sciences. *Procedia, 229*(1), 277–288.

You, Y., Zhu, F., & Ding, X. (2017). College Student Entrepreneurship in China: Results from a National Survey of Directors of Career Services in Chinese Higher Education Institutions. *Current Issues in Comparative Education (CICE), 19*(2), 64-83.

Yunus, M. R., Wahab, N. B., Ismail, M. S., & Othman, M. S. (2018). The Importance Role of Personality Trait. *International Journal of Academic Research in Business and Social Sciences, 8*(7), 1028–1036.

Zelekha, Y., Yaakobi, E., & Avnimelech, G. (2018). Attachment orientations and entrepreneurship. *J Evol Econ, 28*(1), 495–522.

Zhou, W., & Rosini, E. (2015). Entrepreneurial Team Diversity and Performance: Toward an Integrated Model. *" Entrepreneurship Research Journal, 5*(1), 31-60.