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Graduate Intrapreneurial Behaviour and University Background in South Africa

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A research report was 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 Management in Entrepreneurship and New Venture Creation

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ABSTRACT

The purpose of the study was to ascertain the effect of university background on graduates' intrapreneurial behaviour and graduate success in South Africa and whether there was a difference between graduates from historically advantaged versus previously disadvantaged universities. The study focused on the intrapreneurial behaviour of university graduates from South African public tertiary institutions because a review of the literature indicated that minimal research had been ascribed to the study of intrapreneurial behaviour of this sector of the university population.

A quantitative study was conducted on the effect of South African university background on graduates' success on a sample of 74 respondents from 17 tertiary institutions, amidst the constraints of the prevailing Covid-19 pandemic at the time. A cross-sectional method was used to collect the data. The findings infer that university background is important in increasing graduates' intrapreneurial behaviour and influences graduate success. Furthermore, there is no difference between graduates from historically advantaged and previously disadvantaged universities. The study confirmed that graduates tend to network with like-minded counterparts, resulting in knowledge exchange and innovative thinking in creating solutions to socio-economic problems.

The findings contribute to the general theory of education and business organizational practice by confirming that university background is an important element underpinning graduate success, because the knowledge gained by university graduates can significantly contribute to addressing the challenges of poverty, inequality and unemployment in society. The study highlighted the need to create an enabling environment for entrepreneurship at university level to develop intrapreneurial behaviour and innovative outcomes in the broader society beyond study graduation phase. It is recommended that additional funding be allocated towards increasing university graduate output targets.

Key words: graduate success, employability, university learning, public universities, individual intrapreneurship.

DECLARATION

I, **Nokukhanya Shongwe**, 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 Management in the Field of Entrepreneurship at the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination in this or any other university.

Nokukhanya Shongwe



Signed at Ngodini, Kabokweni (Mpumalanga)

On the 16th ..... day of July 2023.

DEDICATION

My late brother Zithulele ‘zith mrie’ Mahaye, this is for you. You taught me the importance of education and after 15 years OF YOUR PASSING, I did it bhuti!

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To God, without His grace, covering and protection I would not have been able to come this far. When all seemed to be falling apart, He carried me and gave me the strength to continue as He said in His Word ‘2 Corinthians 1v20, “No matter how many promises God has made, they are ‘Yes’ in Christ. And so, through Him the ‘Amen’ is spoken by us to the glory of God”.

My supervisor Dr. Rob Venter, WITS Business School staff and classmates thank you for supporting me during my studies.

My mom Martha Busisiwe ‘Seyisile’ Mahaye Shongwe for what she instilled in me from an early age that what you start you must finish it doesn’t matter how long it takes. Your entrepreneurial spirit that fed us from the day I was able to notice at an early stage and follow her path and exemplary behaviour I hope will be passed on to the next generations. Mpangazitha, Myakayaka wena Ka Johannes, kaMningiza, I’ll forever be indebted to you.

My children Ntethe, Tshiwa, Mua, my Dzi if it was not for your patience, persistence, interrogation forced me even when I had to start from scratch to prove that nothing is impossible.

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CHAPTER 1: INTRODUCTION

1.1 Introduction

Entrepreneurs are individuals who organise and manage a business and are willing to take business risks to make profit (Webster,1966). Pinchot (1985) may, among others, be accredited with the notion of ‘intrapreneurship’ derived from the concept of 'intra- corporate entrepreneurship' as he believed that for organisations to succeed within societies, they inadvertently require entrepreneurial thinking within the organisation itself. In this context, intrapreneurship is discernible in individuals who act entrepreneurial and think beyond the organisational boundaries to bring about entrepreneurial ideas in the organisation (Antoncic & Hisrich, 2003). Human capital plays a role in the success of ventures and requires attention of the role that graduates imbued with entrepreneurial acumen to contribute to the success of ventures (Parker, 2011). Intrapreneurship implies developing innovative ideas by individuals within existing organisations. The logical step is to search for graduates who contribute to organisational competitive advantage by introducing new innovations for current existing problems (Blanka, 2018).

South Africa is in a favourable position to benefit from the employment of graduates with an entrepreneurial mindset from public universities. Graduates have the potential to assess the environment and societal challenges, and subsequently proactively propose practical innovative solutions to contribute towards building a knowledge economy. Knowledge economies are shown to be made up of three pillars, namely people, processes, and information infrastructure (World Bank, 2020). The study examines whether university background impacts on graduates’ intrapreneurial behaviour and success in South Africa.

1.2 Theoretical background to the study

South Africa as a young nation, with a struggling economy requires every citizen, especially graduates with their knowledge gained at university to contribute to economic revival . Employability and intrapreneurial abilities of graduates are

important for the country as a lot of funding is injected into higher education by the state to increase knowledge for the benefit of the country (Iwu et al., 2021).

There are three theories that are important that the researcher has relied upon to guide the study. With unemployment increasing, employers have been requesting that universities consider graduate transferable, relevant skills as one of the important factors to graduate and this requires new ways of doing things in the higher education sector.

The first theory linked to intrapreneurship is Ajzen's Theory of Planned Behaviour whose focus is on the entrepreneur as an individual within the organization and is intentional in his behaviour when bringing innovation and taking risks (Ajzen, 1985, 1991; Blanca, 2019). Intrapreneurship is seen as a "bottom up" approach and more relevant as the individual comes up with innovation, answers, takes risks within the organisation and influences the change that they want to see while contributing to the organisations' success (Blanca,2018).

The second key theory that helped to navigate the study is the human capital theory (Schulz, 1961), which advocates the importance of education and how education contributes to the knowledge economy and improving the lives of society. Becker (1994) highlighted the importance of knowledge and skills and that it has a direct effect on the economy. Human Capital theory sees education as important in improving the lives of individuals and increasing productivity (Schulz, 1961; Becker, 1994).

Human capital theory has been shown through empirical studies to be positively linked to nascent entrepreneurs (Kim, Aldrich & Keister, 2003; Davidson & Honing, 2003; Korunka et al., 2003). Research shows that human capital increases opportunity recognition and the success of entrepreneurship (Anderson & Miller, 2003; Davidson & Honing, 2003). In 1776, Smith stated that education is the bedrock of human capital for any nation. Human capital of graduates is seen as key to the employability and success of graduates (Aliu & Aigbavboa, 2019).

The study was based on the Network theory because it presupposes networking

and sharing of knowledge. It assumes transfer of knowledge within universities; using entrepreneurial knowledge within organisations to interact with people from different backgrounds, cultures and beyond country and region is the goal. Further, networks don't have to be direct, but information may be transferred based on sharing of similar connections and knowledge and, in some cases, networking with people with similar environments. All ties are beneficial, including weak ties, networks can be an individual's choice or structural (Lazarsfeld & Merton, 1954; Granovetter, 1973; McPherson, Smith-Lovin & Cook, 2001; Borgatti & Halgin, 2011).

Universities are encouraged to share entrepreneurial knowledge regionally and globally for the benefit of graduates and communities in general. Different types of networks may contribute to innovative skills and knowledge acquisition and the overall success of graduates (Mishra, 2020).

1.3 Context of the study

Employers in SA prefer graduates from certain universities leading to graduate success from those universities and inadvertently disadvantaging graduates from the other universities. A university environment despite its background, in general, and irrespective of social or academic status must be perceived as conducive for exchanging ideas, experimenting, innovation, cooperating and networking with industry and therefore should be used for successful knowledge transfer to its graduates through scientific ways that are innovative and forward thinking to enable their graduates to address social, political, and economic challenges (Blanka, 2018).

Universities have evolved over time in South Africa, and some gained the status of being universities. South African universities were divided in the 1960's to cater for two sectors of society, namely the historically advantaged and the historically disadvantaged. This was after the Extension of University Education Act, Act 45 of 1959 which had a deep-rooted effect on the history of universities as separate institutions were created for the different ethnic groups in South Africa. Groups from the previously disadvantaged were not allowed into certain programmes nor to

register in other institutions as there was segregation in higher education admissions (Murray, 1990). The countries education system was reviewed after 1994 in order to ensure inclusion between the Historically Advantaged Institutions (HAI) and Historically Disadvantaged Institutions (HDI) for the benefit of the economy and society to ensure inclusivity and a skilled workforce that would contribute to the economy (Ensor, 2003).

Universities are shaped by certain social climates which have links to social, political, and educational reforms. Historically disadvantaged institutions in South Africa have a conflicted history with their past and there is not enough written history about the historically disadvantaged institutions (Strydom, 2016). It should be noted that historians in the 20th century have been accepting the role of governments in higher education whilst in other countries such as the Sweden government, involvement in higher education is viewed as affecting research and internal governance (Rothblatt,1997). Three classifications were created to cater for different groups in South Africa, namely: elite universities to do basic research, followed by applied research for the Afrikaner universities, then the last group (historically disadvantaged) was for the training of civil servants without any research for homelands (Muller, 2003).

Employers are biased against graduates from historically disadvantaged universities as they believe graduates from historically advantaged universities are better prepared for employment (Baldry, 2015). Studies show that there is a difference in employability amongst the graduates from historically advantaged and the historically disadvantaged universities (van Broekhuizen, 2016). Some employers focus on which university a graduate attended to decide whether they are employable instead of assessing whether they have the employability skills, attributes and competencies required to succeed (Ndebele & Ndlovu, 2019).

Higher education institutions promote knowledge by increasing human capital through education to address the needs of the society and help countries fare better globally. Universities and corporates need to work together in training students for practical work in diverse fields. University offers training to communities which is an

important contribution for knowledge dissemination within the global economy (Alarifi, 2020).

According to the Department of Higher Education in S.A. report (2021:8), the higher education sector's core functions are as follows:

a) Educate and equip people with high-level skills to meet the employment needs of the public and private sectors,

b) produce new knowledge and assess and find new applications for existing knowledge,

c) provide opportunities for social mobility while strengthening equity, social justice, and democracy to deal with the injustices brought about by the post-apartheid system.

There have been many changes in higher education since 1994 and currently education is classified in three categories (traditional, comprehensive and university of technology). The clustering was done based on performance and how efficient productivity in the institution is (Cloete, 2014). In category one, there are seven institutions, category two has ten institutions and category three has six institutions. It should be noted that the three institutions established after 1994 are not included in the three categories. South Africa has seen a sharp increase (52.6%) in the number of graduates between 2009 and 2019 in public higher education institutions, the success rate was 82% in 2019 (DHET, 2021).

According to the DHET report, twenty of twenty-six South African universities offer entrepreneurship modules which are predominantly business schools and most higher education managers believe more needs to be done to create a conducive environment to foster an entrepreneurial mindset for their graduates. In 2011, a Technical Task Team was established to assist in creating an enabling environment for an entrepreneurial ecosystem in public universities in South Africa and ensure that entrepreneurship education is part of the university's strategy (DHET, 2021).

The Higher education strategy, according to the DHET 2021 report is to increase graduates' entrepreneurial skills, which can be applied within existing organisations, allowing graduates to be intrapreneurial. South Africa had a population of 60.14 million at mid-year of 2021, with unemployment calculated to be 34.9% in quarter three and only 2.7% were graduates (degreed) compared to 57% without grade 12, 37.8% with grade 12 and 7.2% with other qualifications other than a degree (Stats SA, 2021). This justifies the study on how universities can contribute to graduates bringing solutions to the country's problems.

The Gross Domestic Product in the third quarter of 2021 was at 1.2% (Stats SA, 2021) and has not been improving. COVID-19 has exacerbated the issues that the country is facing; the many social ills such as poverty, unemployment, failing state entities, the increasing divide between the haves and the have nots, corruption, HIV, and many other problems.

The university environment is a safe place for exchanging ideas, experimenting, innovation, cooperating and networking with industry and therefore should be used for the successful transfer of knowledge using scientific ways that are pioneering and forward thinking to address social, political, and economic challenges in the country (Blanka, 2018). The South African economy with half of the universities ranking amongst 2000 in the world in 2021, have a role to play within society in addressing the social ills in SA and graduates are key in bringing solutions with the knowledge gained at university. This may attribute to the gap in existing research affirming the importance of graduates in bringing innovation within organisations and the impact of university background on the intrapreneurial behaviour of graduates.

1.4 Research problem, purpose, research question and aims of the study

South African universities with their wealth of knowledge, history, expertise, ranking, and entrepreneurial offerings have an important role in shaping graduates' intrapreneurial behaviour and their success in the marketplace to bring innovative ideas in the workplace. With the adjustments in higher education, the focus is to

test whether the changes within higher education in South Africa have been beneficial in creating equality amongst all graduates in terms of graduate success and intrapreneurial behaviour. The researcher has identified a knowledge gap in the literature in linking university background, graduate success and intrapreneurial behaviour in South Africa. It therefore becomes imperative to examine the relationship between university background, graduate success and the intrapreneurial behaviour of graduates from South African universities.

1.4.1 Research questions:

Primary research question

What is the relationship between the university background and intrapreneurial behaviour among graduates in South Africa?

Sub-questions:

1. *Does university background have an influence on graduate success?*
2. *How does graduate success mediate the relationship between university background and intrapreneurial behaviour?*
3. *What are the differences in terms of university background, graduate success and intrapreneurial behaviour between the graduates from historically advantaged and previously disadvantaged universities?*

1.4.2 Research objectives:

Primary objective

To examine the relationship between the university background and intrapreneurial behaviour among graduates in South Africa.

Secondary objectives

1. *To determine the role that South African university background plays in the success of graduates.*
2. *To determine the impact of university background on success.*
3. *To establish if there are differences in terms of university background, graduate success and intrapreneurial behaviour between the historically*

advantaged and the previously disadvantaged universities graduates.

1.5 Conceptual/theoretical definition of terms

The following conceptual/theoretical definitions of key terms are used throughout this research study:

1. **Intrapreneur** - An individual who is employed and sees opportunities and is innovative within an organisation (Camelo-Ordaz, Fernandez-Alles, Ruiz-Navarro, & Sousa-Ginel, 2012).
2. **Intrapreneurial behaviour** - is used interchangeably with corporate venturing and corporate entrepreneurship, it involves starting a new venture within an existing organisation for the purpose of creating economic value and taking advantage of new opportunities (Parker, 2011). The study will be focusing on individual intrapreneurial behaviour.
3. **University** - a safe place to learn where one's potential is changed and shaped. The main purpose is to transfer knowledge, it is a producer of new knowledge to create a better future, wisdom, and values simultaneously changing the societies within where they operate even though the society as it evolves has an impact on the way the university within a particular area operates. Universities are seen as repositories, creators of human heritage. They are the core guardians and creators of knowledge as they discover, shape how this knowledge is applied, where one can gain more knowledge (Duderstart, 2009, p.7).
4. **University ranking system** - refers to ranking universities against each other for competitiveness globally using academic and administrative variables such as research, publications, teaching, students per faculty, international students, quality of teaching as well as citations. The variables differ from one ranking institution to another which universities can use to strategically position themselves to compete globally based on their capabilities (Soh, 2017).
5. **University background** – for the purpose of this study, university background is the university that the graduate attended, influence of what the graduate was taught and its impact on the graduates' behaviour and success. This may include

amongst others how the environment, students active learning, programme, and courses taken as part of the degree influenced or impacted on the behaviour of its graduates, thus the university structure determines what the graduate will learn (Chigbu & Nekwevha, 2022).

6. **University clusters** – with the change in 1994, the government felt the need to realign the education system as it was seen to be discriminatory so there were mergers and public institutions were reduced from 31 to 23 then and currently standing at 26 with the addition of three new universities introduced in 2014. There are three clusters 1,2,3 grouped according to their performance and production of research outputs (Van Broekhuizen, 2016).
7. **Graduate** - for the purpose of this study, graduate is a person who has a degree at an institution of higher learning and within the institution are based in a program or department instead of a university or faculty (Harper & Quaye, 2015:340). A graduate is a person whom according to the South African Post-Secondary Education (SAPSE) (1982;1995) has satisfied all the requirements of the degree, diploma, or certificate for which s/he was enrolled.
8. **Graduate success** - it involves attributes of trust, collaboration, critical thinking, communication, social capital and being able to share knowledge whilst able to work with teams over and above programme specific knowledge. It is similar to graduate employability and about being conscious of the importance of knowledge and being motivated to share knowledge (Browner & Jansen,2019). For graduate success to be achieved, it requires motivation and an atmosphere that pre-exists in an academic environment that is nurturing and fosters success.

1.6 Contribution of the study

Graduates innovative skills are not optimally used; this study will highlight the importance of graduate human capital, which is vital for South Africa and the economy. Graduates possess the skills to assist companies to grow, create more jobs and reduce unemployment whilst bringing solutions (van Wetten, Gerards & de Grip, 2020). Many studies have focused on graduate salaries instead of employability/graduate success. This research will contribute to increasing knowledge about the impact of university performance and its prestige as

highlighted in one study (Ciriaci & Muscio, 2014).

With the new dispensation, new policies were put in place to guide and give new direction to higher education, leading to the formation of new institutional landscapes and configurations in South Africa whose intention was to create a higher education that was inclusive and beneficial to South African citizens. Changes were meant to contribute to growth in the economy regionally and shape graduates for the labour market (Badaat, 2009; Cleote, 2014; Mzangwa, 2019). Intrapreneurial behaviour and whether there is a need to evaluate the sufficiency of their strategies in developing intrapreneurial graduates. This research aimed to determine whether graduates' university background influenced their intrapreneurial behaviour and success.

The findings highlighted the significance of university background on graduates' intrapreneurial behaviour and success. With the incorporation of entrepreneurship education, are graduates succeeding in implementing intrapreneurial skills within organisations? The study examined how South African universities contribute to increasing graduates. Countries that are successful and able to compete globally are those that focus on increasing their knowledge base and are able to transfer those skills for the benefit of their countries. Education and educated societies are able to convert the knowledge to address future challenges faced by the country (Sera et. al, 2020), which is intrapreneurial by definition as they network with other likeminded academics internationally and share knowledge.

The study will supplement the body of knowledge regarding the role of intrapreneurial and university education from all South African universities and also considers the success of graduates intrapreneurial behaviour in increasing innovation and the role they play in the economy. My review of theory covers the following authors: (van Wetten, Gerards & de Grip, 2020); (Ciriaci & Muscio, 2014); (Badaat, 2009); (Cleote, 2014); (Mzangwa, 2019) (Blanka, 2018); (Browner & Jansen; 2019); (Duderstart, 2009); (Sera et al., 2020). The results highlight the influence of university background on intrapreneurial behaviour among graduates in South Africa indicative of why employers, policy makers and government need

to support the increase of graduates to assist in addressing issues of poverty, unemployment amongst others.

1.7 Delimitations of the study:

- The study was limited to graduates in South Africa who completed their studies within the last five years.
- Graduates that were considered for the study are those that studies only in public institutions and have completed their degree in a South African institution.
- Only those graduates under the age of 45 years were allowed to participate in the study.
- In this study graduates are considered to be those who have completed a degree.
- The study didn't look at how the environment, gender and age influence graduate success and intrapreneurial behaviour.

1.8 Report Outline

The research report is outlined as follows:

Chapter 1: This chapter gives an overview of the study, thereafter it gives the background to the problem, summarizes the problem statement, research objectives, research questions and the significance of the study.
Chapter 2: Focuses on the variables, hypotheses for the study and the literature reviewed.
Chapter 3: Provides a worldview and the methodology approach used for the research process. It outlines research instruments used, sampling methods, the sample size and data collection procedures.
Chapter 4: This chapter analyses and presents the results of the tested hypotheses in relation to the independent variables against the dependent variables.
Chapter 5: This chapter presents the study's findings compared to the literature and the claims made in the study.
Chapter 6: Gives a summary of the entire study, recommendations to government and policy makers, and suggestions for future studies.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

The chapter discusses the literature that supports the intrapreneurial behaviour of individuals and how university education can contribute to graduates' intrapreneurial behaviour and success. For graduates to be intrapreneurial, institutional background plays a role in shaping graduates' behaviour and success as employees that contribute and change their organisations and underwrite innovation.

The focus of the literature is to expand on the variables, which are the university background, graduate success and intrapreneurial behaviour. For this study, the focus is on the individual as an intrapreneur (Blanka, 2018), showing how knowledge gained at university influences graduate success (Browner & Jansen; 2019), leading to intrapreneurial behaviour (Duderstart, 2009). Graduates are taught by academics who contribute globally to the knowledge base that other countries take advantage of in addressing and changing the economic outlook in their countries (Sera et al., 2020).

2.2 University Background

Universities are seen as academic environments where scholars engage in teaching, research, and community engagement. A university is seen as a place to train professionals who are to serve their societies socio-economic, political, and cultural needs (Alemu, 2018). Amongst the role of universities is the promotion of networking and critical thinking amongst its citizens, bringing about scientific breakthroughs and are responsible for increasing human capital (Dahlum & Wig, 2021). Universities are a way that governments use to build skilled workers, enhance research, knowledge production and contribute to the development and progress of economies. Universities are at times used for promoting entrepreneurial models for their governance using commercialization, knowledge exchange, technological methodologies, and networking strategies as part of their system

together with teaching and research (Tang & Chau, 2020).

Universities are critical for knowledge creation as they increase skills and contribute to innovation for economic growth and development. Academic staff are known to collaborate with the corporate sector in different areas as advisors, consultants, conducting workshops, and sitting in industrial advisory committees. Universities and corporates work together in training students for practical work in diverse fields. University offers training to communities which is an important contribution for knowledge dissemination within the global economy (Alarifi, 2020). Universities work together with the private sector and government for knowledge and skill transfer, and innovation leading to entrepreneurship for the benefit of all three sectors, known as triple helix. In the 20th century the environment must be considered as well as the society within which it operates, termed as quadruple helix, terms that were initiated in 1995 and 2000 by Etzkowitz and Leydesdorff (Cai & Lattu, 2022).

The study is looking at the university that the graduate studied and its influence on the graduate as the university from which a graduate studied seems to be associated with a certain reputation and that graduate stands a better chance of being employed and getting a better salary (Shanmugam & Bano, 2020). Rated universities are those that are preferred by employers, which disadvantages students as their reputation places them at an advantage at the expense of other graduates. The reputation of an institution leads to favouritism and getting assistance than the less reputable institutions. Attending universities that have certain reputations have an influence on students' behaviour (Pitan & Muller, 2019). In other countries competition is encouraged between universities to increase efficiency and effectiveness within the institutions (Ciriaci & Muscio, 2014). Intrapreneurial studies have linked high research with increased human capital and therefore institutions which produce more research are seen as having an impact on human capital through network learning and spill over (Ciriaci & Muscio, 2014). The labour market increases the demand for universities, leading to diversification and popularity for world class universities and rankings are used as a performance indicator. Most of the ranked universities in South Africa. are found in urban areas,

which allows them an opportunity to partner with big companies and have networks that are beneficial to their graduates (Pitan & Muller, 2019). In order for universities to survive and be competitive, they need to apply strategies that will assist in ensuring that their reputation and standing is recognized globally. In applying strategies, they need to continuously balance their contribution to the social good of their societies whilst maintaining their competitive edge (Pucciarelli, 2016). Intrapreneurship allows for competitiveness by exploiting all types of knowledge to gain new ideas. Goal orientation and gaining new knowledge by employees is important to be innovative and assist organisations to succeed and improve performance (Klofsten, 2021).

With time, competition amongst the universities to attract students increased and universities started participating in world rankings to get the best students. The world rating report in 2021, conveyed that out of the twenty-six institutions of higher learning in South Africa, thirteen institutions had made it to the 2000 world rankings list (CWUR, 2021), the ratings are surprisingly in line with the changes made when clustering universities by the CHET (refer to appendix B) according to performance and staff in South Africa. The CWUR uses different variables that includes among others the number of alumni employment (including alumni which are in the Forbes influential CEO list), influence in journals, citations, number of publications and quality of education offered. Hence, universities transfer knowledge and skills to graduates to enable them to succeed.

2.2.1 Historically Advantaged & previously Disadvantaged Universities in South Africa

South African higher education has gone through 3 phases of change since 1990 and the last was the socialization phase, this takes into consideration the political, social, economic, cultural, and educational structures within the South African society (Fourie M., 1990). Three groupings were created to cater for different groups in South Africa, namely: elite universities to do basic disciplinary, followed by applied research for the Afrikaner universities, then the last group (historically disadvantaged) was for training of civil servants without any research for

homelands (Muller,2003).

Universities evolved to different categories, and some gained the status of being universities South African universities were divided in the 1960's to cater for two sectors of society, namely the historically advantaged and the historically disadvantaged. This was after the passing in 1959 of the University Extension Act, which had a deep-rooted effect on the history of universities as separate institutions were created for the different ethnic groups in South Africa. Universities are shaped by certain social climates which have links to social, political and educational reforms. It must be noted that in plural societies, it may be that society and universities have issues that they have agreements and disagreements, and this is what the current climate of the South African universities which is in line with the saying of the Oxford university historian, Rothblatt. Historically disadvantaged institutions have a conflicted history with their past and there is not enough written history about the historically disadvantaged institutions (Strydom B, 2016).

The Higher Education landscape in South Africa is divided into three clusters (list in appendix) namely:

- Cluster 1 consists of the institutions which are classified as the top performing institutions and in 2021, all of them were in the top 2000 ranked institutions in the world. All the universities in cluster 1 were previously advantaged institutions.
- Cluster 2 is made up of the institutions whose productivity is below the performance of the universities that belong to cluster 1. In this category, 6 institutions were in the top 2000 world ranked institutions in 2021. Within this group half of the institutions were previously advantaged, and the other half were previously disadvantaged.
- Cluster 3 comprises of institutions which are not in the list of performing institutions, mostly linked to research productivity. None of the institutions were in the list of the 2000 ranked institutions in 2021 and all of them were previously disadvantaged except for 1 institution.

It should be noted that the clusters consist of 23 institutions and this was before 2014 and 3 universities (Sol Plaatjie, Mpumalanga and Sefako Makgatho) were established in South Africa and are not listed in the clustering of institutions.

This study examines how the universities in each cluster influence their graduates' intrapreneurial behaviour. Disparities in higher education still exist with systematic failures within the current higher education system in SA. The South African higher education system requires redistribution for equal access and benefits for all graduates in the higher education arena in South Africa (Luckett and Shay, 2020).

The number of unemployed graduates is mostly from the previously disadvantaged institutions, indicative that one's institution contributes to the graduates' employability as employers use the university to evaluate whether the graduate is employable.

Graduates must have the required employability attributes to increase their chances of succeeding (Ndebele N. and Ndlovu J, 2019).

2.2.2 University Learning

Attending university has an impact on one's perspective and how one views life and the people around them (Case & Marshall, 2018). Universities are known for facilitating networks and the transfer of knowledge and innovation. They are seen as sources of knowledge and responsible for training of professionals and increasing skilled human power (Huggins et al., 2019). Universities are seen as having an important role as change agents within competitive societies enabling technology, innovation and contributing to economic development within their environment (Klofsten et al., 2019). The purpose of a university includes, amongst others, intellectual development for both males and females to a higher development of knowledge and it is about a community involved in studying and research. This is also dependent on the needs of the society where the university is operating. Universities are prestigious and privileged institutions advancing scholastic and academic thought and culture; they have the power to change the world. Education is about transferring knowledge and skills to allow carrying out activities of life. The role of a university is teaching new generations; preserving and

discovering knowledge; and contributing talent, ideas, advice and challenge to the wider community (Alemu, 2018).

In the past 30 years entrepreneurship education has been increasing for economic growth and development (Kurotimi et al,2017). Those countries which have been including entrepreneurship in their programmes have shown to have more innovators and their economies benefitting from graduate entrepreneurs leading to the 21st knowledge economy (Kurotimi et al., 2017). Entrepreneurship education at universities is vital for the transfer of knowledge for growth and sustainability of economies for a country that wants to be competitive on the global stage. Universities play a role of mentoring entrepreneurs and entrepreneurial behaviour for their graduates and in the process expose them to role models in entrepreneurship (Boldureanu et al., 2020).
Students taught entrepreneurship develop a need for achievement, risk propensity and internal locus of control which are entrepreneurial traits (Ndofirepi, 2020). Offering entrepreneurship education at university gives students a different perspective of life and a positive outlook towards entrepreneurship without having to develop their own businesses (Jena, 2020). It also contributes to self-discipline amongst graduates, which is key in assisting them to address some of the social ills facing South Africa (Iwu et al., 2021). Entrepreneurship education has been on the rise and seen in three stages by other authors with Kartz, Pittaway, Cope, Vesper, Gartner, Fayolle, Pittway, Linan and Van Praag having contributed to entrepreneurship education during the first two phases of entrepreneurial education growth periods (Aparicio et al, 2019).

South African universities are seen as places where knowledge is kept and available and play a role in the development of nations. Entrepreneurship has been growing within higher education in South Africa (Urban & Chantson, 2019). This is important for graduates intrapreneurial behaviour and graduate success by having role models contributing to intrapreneurship and economic recovery in South Africa. University education encapsules the necessary business and innovative skills and knowledge to solve social and economic challenges for their societies.

The university environment is key in shaping graduates' thinking and behaviour as they interact, network with others, and find role models contributing to strong and weak ties, which are important in increasing their knowledge (Lazarsfeld & Merton, 1954; Granovetter, 1973; McPherson, Smith-Lovin & Cook, 2001; Borgatti & Halgin, 2011). It is based on this environment that graduates can gain the necessary skills and knowledge to develop intrapreneurial behaviour which is integral in solving social and economic challenges within their societies. Therefore, university learning has a significant impact on intrapreneurial behaviour and graduate success.

2.3 Graduate Success

Graduate success can be described as certain skills set required for graduates to be employable and succeed after completion of their studies. These can be hard or soft skills and universities prepare graduates for the world of work (Pang et al., 2019). It's about developing certain skills and self-awareness for graduates to be employable and able to act without supervision making them take ownership of their future careers by effectively putting their knowledge into practice (Maxwell & Armellini, 2019). Below the key skills required for graduate success are discussed.

2.3.1 Interactive Skills

The world of work acknowledges and rewards social skills as the environment requires extensive interaction for productivity and in the process reduces requirements for coordination. Certain behaviours and attitudes are required to be able to work in a group comprising of people from different backgrounds. Such behaviours help in ensuring that one can fulfil their goal. One is expected to be able to build and keep networks and resolve conflicts should they arise (Zaman et al., 2019).

2.3.2 Problem solving and decision-making skills

For problem solving, one needs to be able to understand the problem and this involves thinking capabilities. To find solutions to problems, one must have the

ability and awareness of their thinking process which is known as metacognition. In problem solving, one must know that they need metacognition which is a process an individual uses to think about how to go about thinking to enable them to develop a strategy that they can use to solve a problem and therefore must apply a thought process. Individuals must be taught to develop ways of thinking, which is important in education as they then use this thought process to solve problems using gained knowledge that is in one's mind and improves on their knowledge (Siagan, 2019).

2.3.3 Continuous learning orientation

Continuous learning is linked with mastering knowledge and gaining new skills through study and experience. It is critical for gaining new knowledge regarding the organisations resources, abilities and skills to fill a gap that enables them to gain knowledge and competitive advantage. Entrepreneurial leadership and learning increase an organisations performance. Learning helps organisations to disengage current processes and use the latest innovations and gain competitive advantage leading to long term success (Sawaean & Ali, 2020).

2.3.4 Enterprising skills

When graduates are given enterprising skills during their university studies it increases their enterprising spirit. Providing such skills at university level is critical for the students to have an attitude for enterprising and gives the graduate an opportunity to participate in job creation (Espanol et al., 2021). Students who took entrepreneurship as an elective show high enterprising skills after five years of study and increased intrapreneurial skills in relation to their attendance of entrepreneurial education (Holienka, 2019).

2.3.5 Presenting and applying information skills

Presentation skills are one of the key skills that are important as they are used to succeed in academic and professional life. Oral presentation is key in

communicating with other people, it assists in achieving academic success and gaining privileges over others in the workplace. Having good presentation skills allows the presenter to impress their audience and convey their ideas to get buy in from them. Oral presentation gives students the skills to coherently address their audience and forms a key component for graduates to succeed in the workplace. Presenting and applying information skills can be learnt and universities play a role in improving students presentation skills and ability to apply their knowledge (Salem, 2019). A person's ability to express their ideas, opinions, and arguments directly in a manner that is polite and comprehensible by others (Wildan et al., 2019).

2.3.6 Goal directed behaviour

High levels of stress reduce one's focus, and goal directed behaviours (van Ruitenbeek et al., 2021). A Goal directed process at times takes over the emotions or actions tendency leading to concrete action or correcting the action. Emotional aspects of behaviour and a goal directed process intervenes and takes over non emotional aspects involved in planning and regulation. When goal directed processes are involved, they are known to be flexible and can produce adaptive behaviour. Goal directed behaviour allows for better understanding, enhanced prediction of outcome and ability to have better strategies allowing for behavioural change to take place (Moors & Fischer, 2018).

2.3.7 Ethical and responsible behaviour

A moral grasp can be achieved through education that starts at home and is continuous until the day one departs from earth. Education is one of the key components in a global strategy in promoting a culture of integrity, high ethical standards and is the key against fighting corrupt activities (Miron et al., 2021). University education is seen to be responsible for the full formation of moral vision and purpose for students. Academic integrity is important to learn and forms part of quality academic education. Human beings have been given a conscious which allows them to differentiate between ethical and unethical behaviour. Copying, Plagiarism, collusion, and cheating are all seen as different forms of unethical and irresponsible behaviour. Academic dishonesty is indicative of a lack of discipline

and moral decay showing absence of a disciplined culture. When there is a lack of discipline, it shows that it is normal to break rules and integrity is no longer valued. Integrity and discipline are key components required by employers as it leads to accountability. Research has shown that graduates who have copied during their studies are found to have been involved in other illegal activities such as drugs, risky driving, lying and other illegal behaviours (Guerrero-Dib et al., 2020).

2.3.8 Analytical thinking skills

Analytical thinking leads to meaningful learning which allows students and graduates to relate their knowledge to new experiences (Prawita et al., 2019). It is the ability to identify correct intentions and conclusions between questions, statements, concepts, descriptions representing beliefs, reasons, information, and opinions which are required to face the challenges that are experienced in the twenty first century.

2.3.9 Strategic renewal skills

With the continuous change in the environment, organisations are forced to evolve to survive therefore strategic renewal also involves the renewal of human capital. Organisations with a desire to succeed in their strategic renewal need to involve their human resources as they form an important component in their strategic renewal; it is a high-risk process which involves uncertainty and requires new ways of thinking and identifying opportunities in advance beyond what the organisation already has in place. When an establishment is implementing their strategic renewal strategy, talented employees play a role in the implementation, and bring about innovative ideas to motivate other employees. Talented employees become behavioural change models and are able to articulate the vision in a way that energizes other employees (Jarvi & Khoreva, 2019).

2.3.10 Venture behaviour

Venture behaviour is concerned with reputation, being competent, focusing on quality and abiding by the rules. It involves an interest in high technology, networking, and a focus beyond money with a passion for assisting women, early-stage projects and benefitting disadvantaged groups (Freear, Sohl & Wetzel, 2002). Venture behaviour involves being competitive, controlling, good at networking and the ability to handle pressure (Van Osnabrugge, 2000). Fundamentally, venture behaviour is about human, social and intellectual capital (Kim & Hall, 2018). It is about social networking, being influential and able to persuade others, more importantly it's about being selective in your interactions. Venture behaviour involves knowledge transfer, tacit knowledge, learning, and networking; it is about being able to mobilise (Pierrakis & Saridakis, 2019).

For a broader understanding of graduate entrepreneurial capabilities, the following antecedents are implied, namely, risk-taking, innovativeness and proactiveness.

2.4 *Behaviour Antecedents Influencing Intrapreneurial Graduates*

Intrapreneurship consists of two aspects according to Pinchot (2010) namely, a set of good business practices acknowledging people who have entrepreneurial mindset within an existing organization and it involves individuals or teams that shows entrepreneurial behaviour within organisations. Having intrapreneurial individuals within organisations is what leads to successful organisations. These individuals have the following attributes:

2.4.1 Risk-taking

Risk-taking is critical for intrapreneurship as resources are invested, risking the potential of losing should the innovation not succeed. Risk-taking may involve the scanning of environments and using existing innovations to bring about change in another environment (Gawke et al., 2019). Intrapreneurs are not afraid of stating

their opinions even if it means it will affect their reputation, impact on their finances and linked to taking personal decisions in the intrapreneurs career (Boon et al., 2013). They differ from entrepreneurs because they are not concerned about making money even though both are risk takers.

Risk-taking behaviour is motivated by the belief and need for a better future state by having high expectations. They have intelligent interests, creativity and an inclination to novelty and love variation and are open to experience. Risk takers love exploring and getting new knowledge. Intrapreneurs are known to have a positive attitude towards collaboration towards goal-directed strategies (Rinella et al., 2019).
Intellectual risk-taking is important for individuals to have creative confidence and creative behaviour (Beghetto et al., 2021). The risk takers have high levels of resilience and capacity to deal with stress, age has a contributing factor to the tolerance of risk (Prell et al., 2020).

To succeed academically, one must be able, and willing to take risks. Universities can increase graduates risk-taking behaviour by planning activities that motivate their students to take more risks. Critical thinking and problem-solving skills which are key for graduates to succeed have been found to have risk-taking behaviours (Akbay & Delibalta, 2020).

2.4.2 Innovativeness

Intrapreneurial innovation is when employees are not reliant on managers to give direction to their performance and are creative with bringing about change within established organisations. Changing landscapes creates an environment that is conducive for innovative behaviour to bring about services by intrapreneurs to explore and implement innovations within organisations. Intrapreneurs change the status quo within existing organisations and must consider certain relevant dimensions when considering strategies that will assist them to achieve their innovations within organisations. In order for innovation to be successful, continuous behaviour and actions by the intrapreneur is required throughout the

period of implementation.
Networks plays an important role in ensuring credibility, knowledge sharing and having competitive advantage for the innovation. Innovations require a culture change within organisations to be successful (Moss et al., 2021).

The organisation must create a conducive environment for intrapreneurs to be innovative as innovation cannot be achieved by machinery alone, it requires human capital with a creative mind. For innovation to be successful within the organisation, the company needs to remove barriers. Innovation is dependent on skills and the creative abilities of individuals within the organisation which must also promote an innovative culture. In order for innovation to take place there is a need for continuous engagement, support, willingness to lead, experimenting, and creativity which will lead to new services, products, and solutions. Therefore, intrapreneurship encourages growth, profitability, rejuvenation, and renewal which is important for the company's survival and competitiveness within markets (Lee, 2020).

For companies to be sustainable, it requires that employees play a part and be innovative and at times depend on socio-economic trends in the environment (Neessen et al., 2019). Graduates with higher intrapreneurial skills are heavily involved in innovation. The only difference is that their involvement is dependent on their fields of study; those that are in the sciences are more involved in brokering whilst those in business fields and sciences also have high creative skills which are used for innovation, and business graduates use championing skills for innovation. The potential

of graduates is not maximised for innovation by organisations, the skills mismatch leads to the underutilisation of human capital (van Wetten et al., 2020).

2.4.3 Proactiveness

Proactive individuals reflect on their knowledge and are always looking to gain more knowledge, at times intrapreneurs require space to be able to function (Boon et al., 2013). They proactively use existing resources to create new products (Gawke et al., 2019). This kind of behaviour is critical for countries like South Africa whose

economies are struggling as such employees use what is available to come up with new products/ innovations using knowledge gained and experience.

These individuals set their own goals, developed by themselves which leads to taking charge of a project or goal not yet set in motion. Such individuals anticipate the future and capitalise on upcoming opportunities instead of responding to current problems (Gawke et al., 2019). Proactive behaviour is seen as the initiated behaviour by a person in order to constructively improve the functioning of an organisation or team effort. Self- initiated behaviours are termed proactive behaviour. Proactive behaviour in talented people leads to different types of resources being used to access networks that are beneficial to their future. They are able to build talent status that they use to address issues at the right time and place with the relevant people which leads to fast tracking their development (Meyers, 2020).

A proactive personality has been found to have a positive impact on the independence, interaction, change, uncertainty, complexity, and worldview of engineering students (Nagahi et al., 2020). Proactive decision making is important in increasing an individual's satisfaction with their decision making and the decisions of organisations. Proactive individuals have objectives and continually purposefully, actively search for information, and systematically identify alternatives. Proactive people are found to be stable individuals, enhancing their cognitive skills in decision making for higher decision satisfaction (Sibert & Kunz, 2020). University education equips graduates with an entrepreneurial capability background, which includes proactiveness, innovativeness and risk-taking; these capabilities will potentially, enable graduates to proactively design innovative solutions.

2.5 Hypotheses formulation

2.5.1 The relationship between university background and intrapreneurial behaviour

University background premised on entrepreneurship skills of innovation,

proactiveness, and risk-taking create an enabling environment for better chances of graduate success in the marketplace and subsequent business success. Some reputable universities which enhance these skills tend to produce graduates which are attractive to employers. These enhancement complimentary soft skills may include systematic and cognitive skills for problem solving, conceptual reasoning and critical thinking which allow graduates the ability to create solutions and design systems that meet social, industrial, and commercial needs (Kim & Lee,2006; Bano & Vasantha, 2020). The hypothesis will therefore test how university background increases graduates intrapreneurial behaviour using the theory resented in chapter 2.

Against this background the following hypotheses are formulated:

Hypothesis 1:

H1: *There is a positive relationship between university background from South African universities and intrapreneurial behaviour*

2.5.2 Graduate success as a mediator between university background and intrapreneurial behaviour

Individuals who are graduates can provide solutions to their organisations and society. A country's success is dependent on their graduates and its competitive advantage depends on their human capital and intellectual capital. For a society to be successful, it requires education as it is seen as an enabler with knowledgeable, skilled employees who contribute to its success. It is said that educated and informed societies are productive and have a competitive advantage (Aliu & Aigbavboa, 2019). Graduates are seen to be involved in process innovation linked to knowledge as well as methods.

Having intrapreneurial skills, increases the chances of being innovative (van Wetten et al., 2020).

Hypothesis 2:

H2: *Graduate success mediates the relationship between South African university background and intrapreneurial behaviour*

2.5.3 Historically advantaged and previously disadvantaged university graduates

Employers prefer graduates from historically advantaged universities in South Africa than those who are from the historically disadvantaged universities. The university that a graduate attended gives them an advantage when looking for employment (Lee & Brinton, 1996). The clustering of universities in South Africa is based on performance, 13 of the 26 public universities in South Africa are ranked and the ranking is in line with the CHE clustering as those not ranked are from the historically disadvantaged universities (CWUR, 2021).

Hypothesis 3:

H0: *There are no differences in terms of university background, graduate success and intrapreneurial behaviour between the historically advantaged and previously disadvantaged graduates*

H3: *There are differences in terms of university background, graduate success and intrapreneurial behaviour between the historically advantaged and previously disadvantaged graduates*

2.6 Conceptual framework of hypotheses

The conceptual framework for this research is illustrated in Figure 1 below.

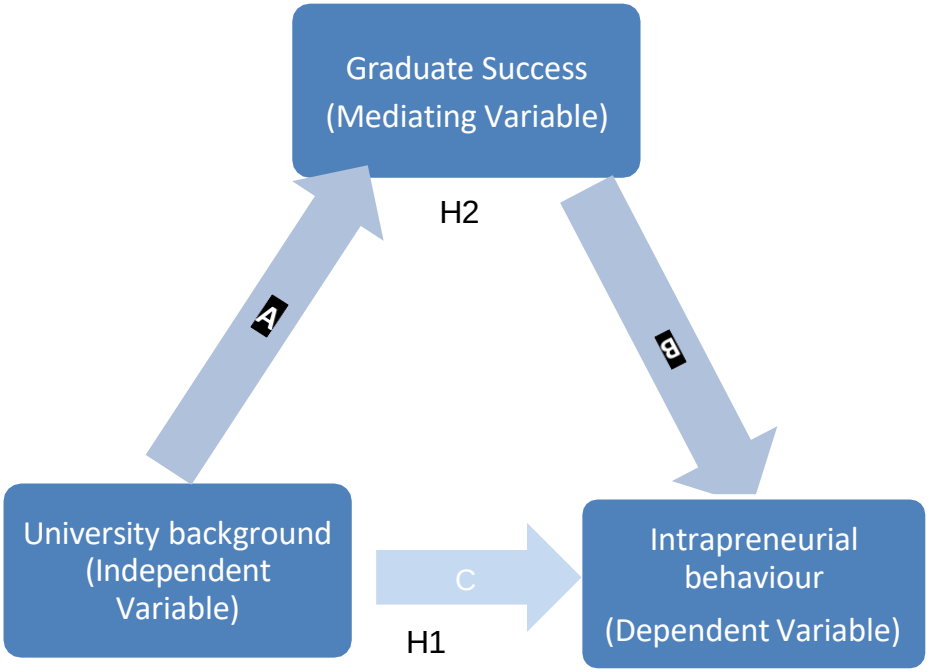


Figure 1: Conceptual Framework

Adapted from: Duncan (1985)

The theory from the literature guided the conceptual framework for the study which can be seen in Figure 1. It illustrates the hypothesis formulation and variables; University Background is the Independent variable (IV), Intrapreneurial behaviour is the dependent variable (DV) and Graduate Success is the mediating variable.

2.7 Conclusion of Literature Review

The chapter examined all the literature related to the role of university background on graduate success/employability and intrapreneurial behaviour of graduates. It firstly looked at the South African universities and changes within higher education from 1994 to date. Focus then changed to how university background influences graduates' success/employability and intrapreneurial behaviour. University background is seen to be important in contributing to countries' economies and therefore imperative to the role and behaviour of graduates from South African

universities in relation to the impact they have on graduates' success and how they contribute to innovation, success based on their knowledge and networks gained. The literature led to the development of the hypothesis to see how South African universities influence intrapreneurial behaviour and graduate success. The next chapter will focus on the research methodology used by the Author to collect data.

CHAPTER 3: RESEARCH METHODOLOGY

The chapter focuses on the research method that the researcher followed to answer the research questions. The chapter considered the research paradigm and design of the research which was chosen by the researcher. To conduct the study, clarity of who the population was and how the sample was chosen is deliberated. The tool used to conduct the study is explained and the issue of internal, external validity and reliability of the tool was addressed so that the outcome of the study is acceptable.

3.1 Research Paradigm and Approach

How researchers view and make sense of the world and reality has shifted. Kuhn (2012) acknowledged this paradigm shift and says it has been transient throughout history.

There are six paradigm shifts acknowledged by Kuhn, namely constructivism, interpretivism, feminism, positivism, post-positivism, and critical theory (Denzil & Lincoln, 2011). Creswell using theoretical stance mentioned only four paradigms, which are post-positivism, participatory/advocacy, social constructivism, and pragmatism (Creswell, 2014). Positivism and post-positivism continuum focus mainly on quantitative, and constructivism is used mainly for qualitative research. This study is post-positivist in nature as the researcher is estimating the truth (Creswell, 2014) given its claim that graduates are intrapreneurial and succeed because of their university background. This claim can be changed, reformed, and refined by other researchers who say otherwise. Post-positivism tries to be as objective as possible (Marcella et al., 2017).

The study was quantitative in nature and manipulated using a questionnaire to confirm what the researcher observed. Empirical statements were explained in numerical terms when a statistical method (SPSS) was used. Empirical evaluations were used to confirm the degree to which the hypothesis is true (Cohen,1980). On the other hand, to explain this research differently, Creswell (1994) sees quantitative as research that is used in explaining a phenomenon using numerical data that is analysed by using methods that are mathematical in nature. The study

was inclined towards measuring social reality by using quantities to establish numerical data. The world is seen, and the beliefs are that it is real and therefore tries to be objective whilst applying rigid rules and guides to the data collection and in its analysis, which is quantitative research. It must be noted that quantitative studies allow for unlimited phenomena which makes it flexible (Sukamolson, 2020). Therefore, the study conducted is quantitative in nature.

3.2 Research Design

Research design refers to specific guidelines, steps and formulas that are used to map how the research project will be achieved for a specific research purpose. Research designs have different classifications based on their research rigour to prove cause and effect relationships between variables. The research design of this study is classified as non-experimental as no control group, experimental intervention or random assignment or matching were used (Fouche et al., 2021, p.163).

The methodological approach used in this study is quantitative research which has its origin in positivism. The reason why this research study is classified as quantitative is because it relies on measurement to compare and analyse the variables of this study. Quantitative research also uses questionnaires as a data-gathering method.
Furthermore, this study is cross-sectional as data was not collected over an extended period of time which has the advantage that data could not be affected by changes over time (Sekaran, 2013; Cooper & Schindler, 2014).

The research focus was on how university background (independent variable) influences graduates' success (mediating variable) and intrapreneurial behaviour (dependent variable). Since data was collected using a questionnaire with a 7-point Likert scale, once off, it is cross-sectional and was posted on LinkedIn to reach a wider audience and give all graduates the possibility of being selected (Straits & Singleton, 2018).

The broad research question had been formulated and helps to have a broad

understanding of the graduates. The questionnaire was opened for a period of five weeks and accessible to graduates (Fouche et al., 2021, ,p.163). The study was quantitative in nature and data was collected using a cross-sectional method (Cooper & Schindler, 2014).

3.3 Population and Sample

3.3.1 Population

For the purposes of research, a population is defined as a “totality of persons, events, organisational units, case records or other sampling units with which the research problem is concerned” (Cozby, 2009, p.136). The population for the study was graduates from universities in South Africa. The graduates completed their degrees in one of the public institutions of higher learning amongst the 26 institutions (universities) in South Africa. There are approximately 1,7 million graduates from South African universities according to the Department of Higher Education in 2019, representing 6% of the South African population. The population of the study spanned 17 out of the 26 public universities. Even though all 26 public universities make up the population of graduates from universities, nine of the universities were unresponsive and chose not to participate in the study and were therefore not included in the population of the study.

3.3.2 Sample and sampling method

Non-probability sampling, and more specifically snowball and convenience/availability sampling was used. The reason for this is that the researcher was dependable on those graduates who were willing to participate in the study. It was also not possible to get a sample frame of all graduates at all South-African universities. The disadvantage of this sampling method is that the probability that a given individual will be included in the sample cannot be specified beforehand (Cooper & Schindler, 2008; Nkosi, 2017). 258 graduates submitted questionnaires,184 of the questionnaires were incomplete as certain questions were not answered. Therefore, only questionnaires of 74 graduates could be used.

The sample size was therefore 74 graduates (graduates with first degree to doctoral degrees) from a total population of 1,7 million graduates. Sample size that is between 30 and 500 is acceptable (Roscoe,1975). According to Sekeran (2000) the sample should consists of at least 384 graduates to be representative of the population (see table 3.1). Therefore, the sample is not representative of the whole population upon which the research hypotheses are applicable, and the results will not be able to be generalized to the overall population.

N	S	N	S	N	S	N	S
10	10	140	103	420	201	1800	317
15	14	150	108	440	205	1900	320
20	19	160	113	460	210	2000	322
25	24	170	118	480	214	2200	327
30	28	180	123	500	217	2400	331
35	32	190	127	550	226	2600	335
40	36	200	127	600	234	2800	338
45	40	210	132	650	242	3000	341
50	44	220	136	700	248	3500	346
55	48	230	140	750	254	4000	351
60	52	240	144	800	260	4500	354
65	56	250	148	850	265	5000	357
70	59	260	152	900	269	6000	361
75	63	270	155	950	274	7000	364
80	66	280	159	1000	278	8000	367
85	70	290	162	1100	285	9000	368
90	73	300	165	1200	291	10000	370
95	76	320	169	1300	297	15000	375
100	80	340	181	1400	302	20000	377
110	86	360	186	1500	306	30000	379
120	92	380	191	1600	310	40000	380
130	97	400	196	1700	313	50000	381
						100000	383
						>100000	384

Figure 2: Sample size for a given population size

(Sekaran, 2000, p.295)

Snowball sampling was used as it is convenient due to the limited knowledge and access to the population and after few respondents were approached to answer the

questionnaire, the researcher requested referrals by asking the graduates to forward the link to other graduates. Snowball sampling helped in reaching other graduates which assisted in accessing alumni within the five weeks that the researcher collected the data. This was based on social networks that the researcher had of graduates within higher education, using WhatsApp, Facebook, and LinkedIn (Parker et al., 2019). This form of sampling assisted as the intention was to get graduates and they were able to refer others and forward the link to ensure that the purpose that the research was intended for was achieved.

It was convenient for the researcher to use different social media platforms such as LinkedIn, WhatsApp, and Facebook as South Africa was still under lockdown, so it was shared amongst graduates, colleagues, and friends (Qureshi et al,2020). Graduates use the platforms to connect with people and is beneficial for networking, and communicating openly to graduates throughout the world, which made it possible to reach more graduates from South African universities. Social media platforms are used daily by people mostly under the age of 45 years and seen to be popular for networking (Bhaskaran et al,2017). Universities are now using social media for connecting and sharing information with students, and graduates and seen as a liberal form for interacting (Boateng & Amankwaa,2016). (Cresswell, 2014, p.382).

Table 1 below presents a detailed description of the sample included in this study.

Table 1: Description of sample

Description of respondent type	Size
• Graduates representing 17 of 26 institutions in South Africa. • Employed, self-employed, non-employed graduates with first degrees, honours, masters, and doctoral graduates. • Age is key as most people graduate from 20 years of age – the cut off was 45 years as the researcher wanted to control the knowledge gained in the workplace.	74

3.4 The research instrument

Taking into consideration time constraints and the importance of ensuring that the tool measured what the researcher wanted to test, as well as the significance of piloting to ensure that constructs were relevant and valid. The researcher opted to use a questionnaire that had been used by other researchers and therefore did not require that the tool be piloted before being used. The tool was in English as South African universities use English as one of the mediums of instruction even though South Africa has 12 official languages.

The questionnaire used was taken from four researchers (Coetzee, 2012; Lourens & Fourie-Malherbe, 2017; Gawke et al., 2019; Amolo, 2015) as they covered all the constructs that the researcher wanted to study. The researchers had already addressed issues related to clarity of wording, layout, filtering, validity, and reliability so that the tool investigates the variables as required (Fouche et al., 2021, p.241). Refer to Table 2 below.

There were 15 questions with a minimum of four sub-questions and a maximum of five (77 questions in total) which took a maximum of 15 minutes to complete. Respondents had to choose whether they wanted to participate or not and those

that were not interested were then excluded. Participants who didn't study in any of the 26 South African public universities and those who were above the age of 45 were excluded from continuing with the questionnaire.

Question one was about the respondents' personal information, question two to ten was more focused on graduate success, question 11 to question 14 was looking at intrapreneurial behaviour, and question 15 was more focused on the university background and how university influences how graduates view entrepreneurship. All questions were structured, and respondents could even use their mobile phones to respond.

Table 2 highlights the literature sources that informed the development of the research instrument.

Table 2: Measurement instrument

Description of construct/variables/items	Sourced from	Prior reliability and validity issues
Graduate success	Coetzee (2012)	
Intrapreneurial behaviour	Gawke et al. (2019)	• Cronbach alpha ranged between .87 and .91
University background /entrepreneur education and how they impacted on their behaviour	Amolo (2015)	• Cronbach alpha for the scale ranged between .74 and .94, which showed its reliability

Table 2 illustrates the key variables of the study and their literature inspirations. The

Cronbach alpha values are used as a frame of reference to compare with the Cronbach alpha scores for these variables when used in the context of this study. The next section outlines the procedure for data collection.

3.5 Procedure for data collection

For this study as it is quantitative in nature, a questionnaire was distributed to respondents using Qualtrics. This method is best suited to ensure that the collection is done within a limited period, with less error due to transferring of data and accessibility of respondents as primary data was sourced using a questionnaire. The data collection was constrained by geographical and spatial location and therefore limited the collection of data from the whole population of graduates (Regmi et al., 2016). The sample collected was to allow rigorous analysis to test the hypothesis and theory stated by the researcher. Due to time constraints and willingness of participants to complete the questionnaire, convenience / availability sampling and snowball sampling was used (Amolo,2015).

Due to the collection of data using Qualtrics allowed the researcher to collect data within five weeks (10 November to 13 December 2021) from graduates in different geographical locations. The tool was configured in such a way that graduates were able to respond using laptops, desktops, or their mobile phones to respond to the questionnaire which increased chances of a larger sample and representation (Molnar, 2019). The questionnaire was distributed in English as it is the language used in most South African universities as the mode for teaching. Time constraints presented a limitation as it would have been beneficial if the researcher was able to access all graduates using the alumni office, but the process would have required getting access via ethics committees which have their own set dates for meetings, thus the researcher had to find alternatives in order to access graduates using other modes such as LinkedIn, WhatsApp, and referrals which was convenient as the researcher didn't have the privilege to know who the contacts forwarded the Qualtrics links to. The online data collection was attractive for the researcher as it was easy to use, cost-effective and the data was easily and immediately downloaded (Bryman et al., 2014; Amolo, 2015).

3.6 Data analysis and interpretation

This section presents how data was prepared for use for descriptive statistics, which summarized the survey results. Thereafter, inferential statistics were used to test the hypotheses.

3.6.1. Data transforming and cleaning

The data was subjected to a rigorous process to analyse it formally and in a rigid format (Mkandawire, 2019). Since the data was raw as it was collected using a questionnaire on SPSS version 27; it was simplified (cleaned to exclude responses that were not completed) to analyse completed responses and conduct proper analysis, using a descriptive statistical method instead of the inferential method.

The descriptive method summarises the mean and standard deviation (SD) in the data presented and assumptions were made based on the statistical data that has been summarised including the normality. The description data focused on measuring frequency, mean, standard deviation, central tendency, and the variation. The inferential method was used to draw conclusions based on the data and had random variation (Mishra et al., 2019).

The tool used didn't allow participants to continue with the questionnaire without answering the preceding question, leading to some not completing the survey. The method of dealing with missing data was critical for the validity of the conclusion of the study and minimising bias. To ensure validity, a total of 258 responses were received and data with less than 90 % completion was excluded using listwise deletion (Galawe, 2017).

The researcher was left with a sample of 74 respondents who fully completed the questionnaire (Hughes et al., 2019). This was to ensure that the researcher had error free data before doing the analysis. SPSS allows the checking of whether the sample is sufficient by using the Kaiser-Meyer-Olkin measure of sampling

adequacy (KMO-test). The sample was adequate as the value of KMO must be greater than 0.5, and for the study it was .8, which meant the sample size was adequate to proceed to use factor analysis to test validity. Little's MCAR test was conducted to assess whether cases with missing values were missing at random and the results were: Chi-Square = 262.268, DF = 253, Sig. = .331. Since the p-value (0.331) was greater than 0.05, it implied that the missing values were appearing at random. Thus, missing values for rating questions were replaced by the mean of the other values with non-missing values.

3.7 Validity and reliability of research

Internal Validity measures were explained to demonstrate trust in the study. These steps included evaluating content validity and construct validity. External validity measures were explained to demonstrate trust in relation to external sources. These steps included face validity and predictive validity.

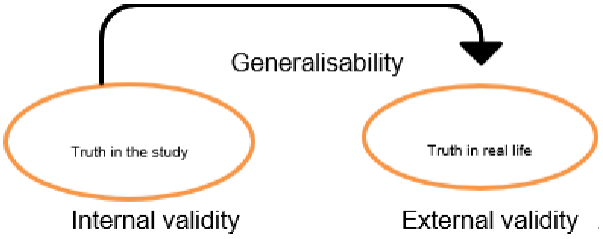


Figure 3: Internal and External Validity (Patino & Ferreira, 2018)

3.7.1 Validity

The questionnaire consists of the following types of validity:

3.7.1.1 Content validity

The researcher opted to make use of a tool that was previously used by other researchers and looked at a scale which was valid for testing intrapreneurship and graduate success. The tool was able to assist in measuring and collecting data that

was valid to test what the researcher intended to measure. Factoring was done by the researcher to ensure that the measurements were able to measure what was intended (Sürücü & Maslakçı, 2020).

3.7.1.2 Predictive validity

Correlation between the scores was calculated and was within the scores of the scales used which was .7 and .9.

3.7.1.3 Construct validity

An existing tool was used which was created by other researchers using local language and was able to address the effect of university background on intrapreneurial behaviour. Assumptions were made about the causes of intrapreneurial behaviour in graduates who studied at South African universities and were valid based on the outcome of the research contributes to general knowledge about university background and intrapreneurial behaviour (Estering et al., 2021).

3.7.1.4 Face validity

The tool was easily understood by the participants as it was used previously and adjusted. It was relevant as only graduates were given the questionnaire (Cresswell, 2014, p.177).

3.7.2 Reliability

Reliability is about the consistency of the data and more than one set of data was compared and assumptions made about graduates. Item-total correlations was used to test for internal consistency (Vu, 2021). Reliability involves consistency using the measuring tool (Schindler, 2019). It is when the measuring instrument gives similar results when testing is done at different times, it should be noted that it should be

expected that the results did differ due to the different times that the tool was being used (Sürücü & Malakci, 2020). In this case the Cronbach Alpha was used to test the reliability for internal consistency of the tool and according to the rule of thumb the alphas must range between .6 and .9 (Hair, Risher, Sarstedt & Ringle, 2019). Cronbach Alpha when tested ranged between .6 and .95. It should be noted that the scales used were previously used by other researchers.

Qualtrics was used by the researcher to collect data and allowed the respondents to participate without any pressure from the researcher. This was important to reduce errors whilst handling the data. The respondents could choose when to respond, which was based on what was comfortable for them and added to the reliability of the questionnaire without any pressure from the researcher. All the items used on the scale were clear and only measuring what was required for the study (Creswell, 2016).

3.8 Research Ethics

The researcher obtained ethical clearance to ensure that the study met ethical requirements and was given approval by WBS ethics committees (clearance certificate number WBS/EN0516053N /792) to ensure compliance with the code of ethics, refer to appendix A. The research conducted by the Author was not a duplication of work published before and was the researchers own work. Participants were not influenced in any way with regards to their responses. Throughout the study, the researcher remained impartial and maintained honesty, integrity, and respected the participants by allowing them to respond privately and without guidance on what responses were expected by the researcher (Edwards, 2019).

A cover letter detailing the purpose of the study was used with an estimate time to complete the questionnaire. This was done for participants above the age of 18 as they are considered adults in South Africa, therefore don't require consent from parents to choose whether to participate in the study. A questionnaire was distributed to graduates from South African public institutions of higher learning. To maintain ethical compliance, the questionnaire did not require respondents' names to ensure

that their identities were protected (Williams & Barbie, 2021).

The link was sent to the respondents and their personal details were not required. The questionnaire was online and could be answered on a mobile phone, which minimized contact and therefore didn't expose respondents to COVID-19. Each respondent was asked for consent and if wasn't given, the questionnaire ended.

Data collected for the study was stored safely on SQL as Qualtrics was used for the collection of data and treated as confidential. Data collected on SMARTRIQS is temporarily stored and deleted on a continuous basis, which protects the participants and only the developer has access to the server where the data is stored (Molnar,2019).

3.9 Limitations of the study

The study was cross-sectional using a questionnaire, it didn't allow for the graduates to add any other information that they might deem fit to strengthen the findings.

Secondly, the collection of data took place during examinations and lockdown due to COVID-19, so people were no longer paying attention but rather looking forward to taking a break thus it was expected to result in fewer responses. The data was from those that were willing to participate and couldn't use random sampling; non-probability sampling was used through referrals and those that have access to social media as there was not enough time to go through the alumni offices of each institution as that required approvals from ethics committees to get access to the contacts of all their graduates. The study may have been better if the researcher had more time to collect data and a bigger sample to work with.

3.10 Conclusion

This chapter focused on how the data collection process was done. The paradigm chosen was post-positivist as it is believed that the researcher cannot be totally independent from the study. The research as a quantitative study was done using a questionnaire and distributed via Qualtrics which made it easy for distribution and user- friendly for downloading to clean and analyse the data.

The population being graduates from 17 South African universities and although the plan was to use random sampling to ensure true representation of the graduates, it ended up being a non-probability study using purposive, also known as convenient sampling as most respondents were referred and from social media.

The sample of responses received was 258 but only 74 were usable as responses that had more than 1 factor missing were discarded. The responses were collected from graduates over a period of five weeks and collected using a cross-sectional method as the respondents could complete the survey whenever it was convenient. The questionnaire was designed in such a way that the respondents were obliged to answer and not miss any questions. The tool was reliable as it is a tool that has been used by other researchers and therefore has been tested and valid. The next chapter will present the data that was collected for the study.

CHAPTER 4: PRESENTATION OF RESULTS

4.1 Introduction

This chapter presents the outcome of the results based on the methodology discussed in chapter 3 for the collection of data. It starts off by looking at the respondents (graduates) who participated in the study and the size of the responses that were received and how they impacted the study. The characteristics of the graduates are presented. The data presented depicts how graduates see the influence of South African university studies and their influence on graduates' success and intrapreneurial behaviours. Descriptive stats with mean and standard deviation, KMO and Bartlett's Test to see whether the tool tested what it is supposed to test (i.e., validity) before doing the regression to test whether the research hypotheses were supported or rejected.

4.2 Sample characteristics

This section is divided into eight sections which covers the demographic profile of respondents like the sex, age, race, highest qualification, where they studied, and when they completed their last degree.

4.2.1 Demographic profile of respondents

4.2.1.1 Biological sex

Respondents were asked to disclose their genders and the results are presented in Figure 4 below.

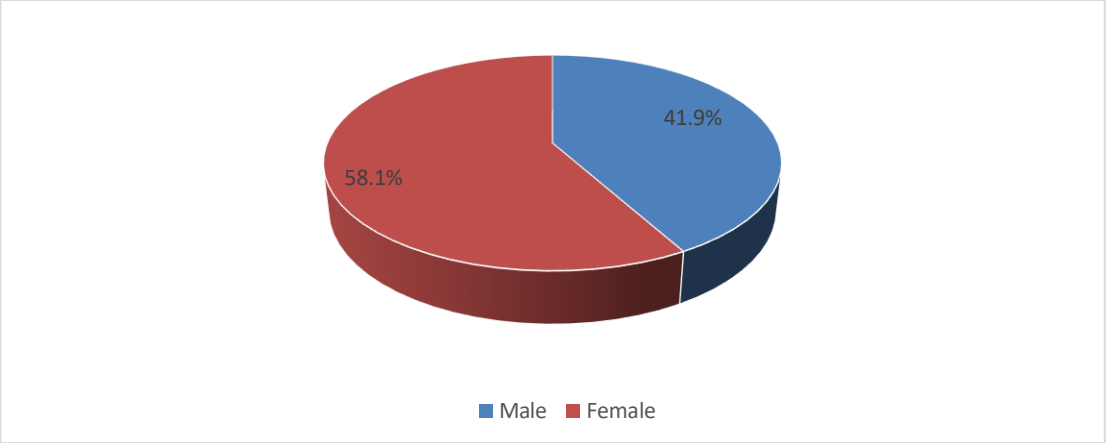


Figure 4: Biological sex

Figure 4 shows that the number of female respondents is 58.1% compared to 41.9% males from the usable sample of 74 graduates.

4.2.1.2 Age

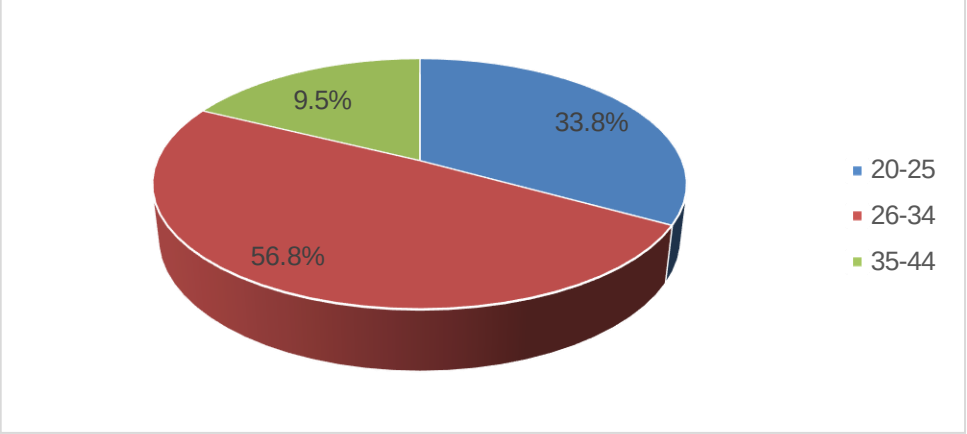


Figure 5: Age

Figure 5 shows that only 33.8% of graduates were between the ages of 20 to 25 years, 56.8% were between the ages of 26 to 34 years of age and only 9.5% were in the age group of 35 to 44 years old. The age group between 26 to 34 seemed to be the highest participating group graduating from South African universities. This is concerning with the high number of unemployment rates in South Africa and seems to be in line with STATS SA youth unemployment rates. It should be noted that 4.1% of the graduates in South African universities are non-South African.

4.2.1.3 Race

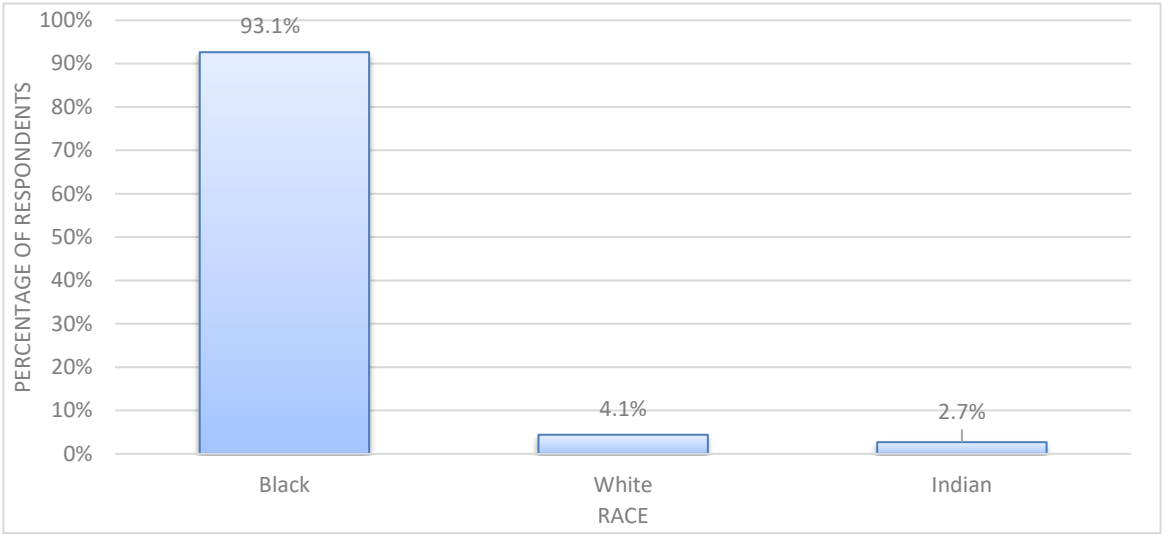


Figure 6: Race

Figure 6 shows that the highest proportion of respondents were black graduates at 93.1%, with 4.1% whites who participated in the study and 2.7% represented Indians.

4.2.1.4 Highest Qualification

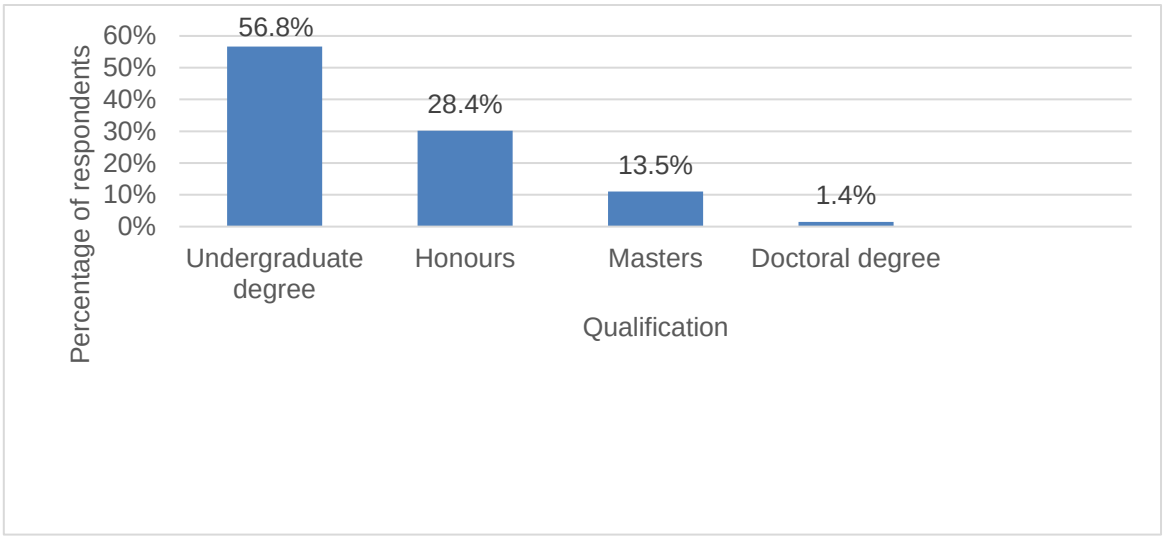


Figure 7: Highest Qualification

Figure 7 indicates that 56.8% of graduates had their first degree, 28.4% had an honours degree, 13.5% graduated with a master's degree and only 1.4% of the graduates that participated in the study had a doctoral degree.

4.2.1.5 When last degree was completed

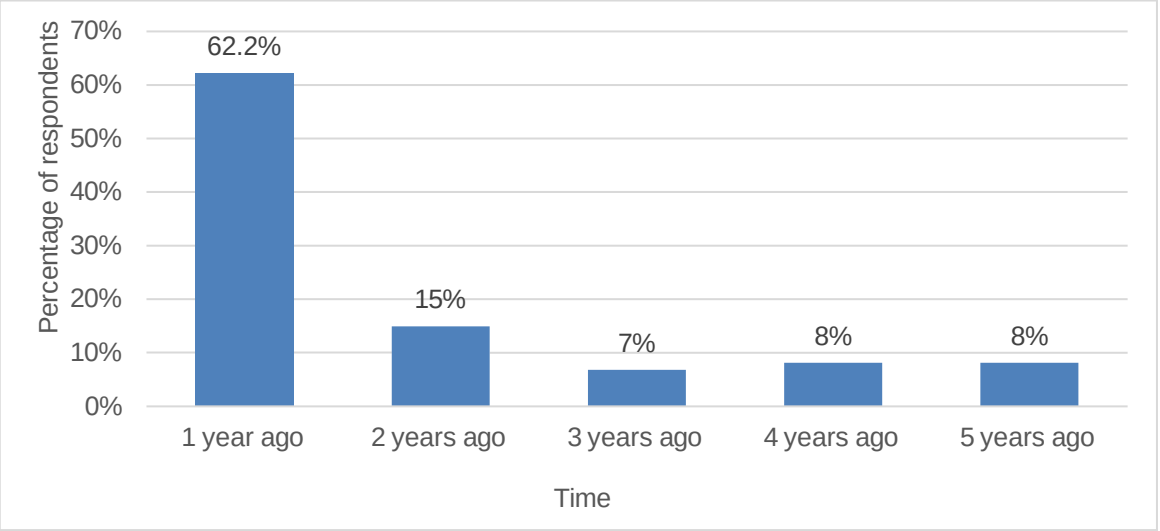


Figure 8: When did you complete your last degree?

Figure 8 shows that the highest proportion of respondents in the study, completed their latest degree in the past year (December 2021, still fresh from university) at 62.2%, followed by graduates who completed their studies 2 years ago at 14.9% and those who completed in the past 4 and 5 years at 8.1%, with the last category standing at 6.8% for those who completed in the past 3 years.

4.2.1.6 Employment status

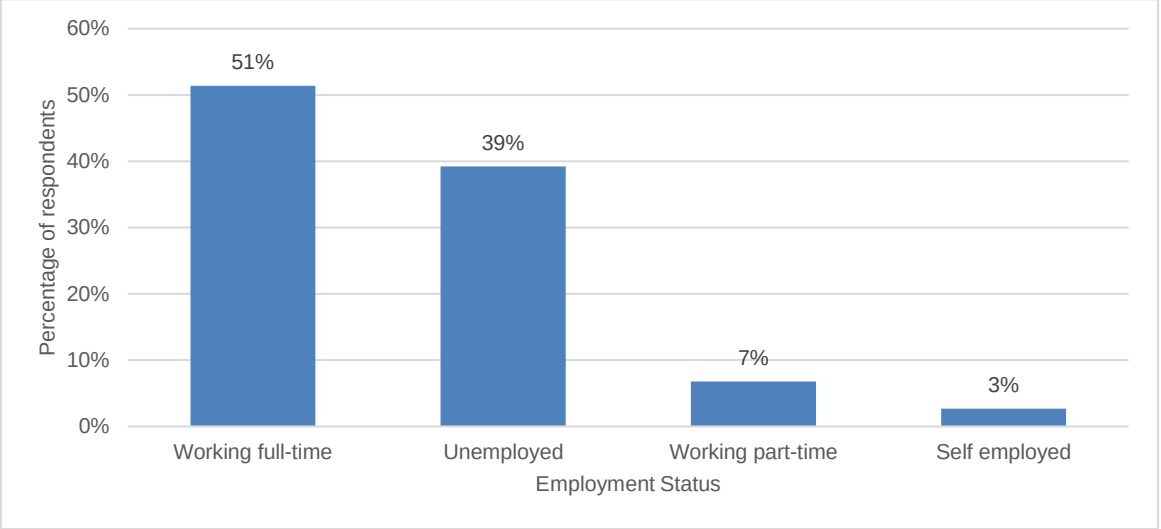


Figure 9: Employment status

Figure 9 shows that the proportion of graduates in full-time employment is 51.4%, while 6.8% are in part-time employment, with 2.7% that are self-employed and 39.2% unemployed.

4.2.1.7 Historically Advantaged and Historically Disadvantaged

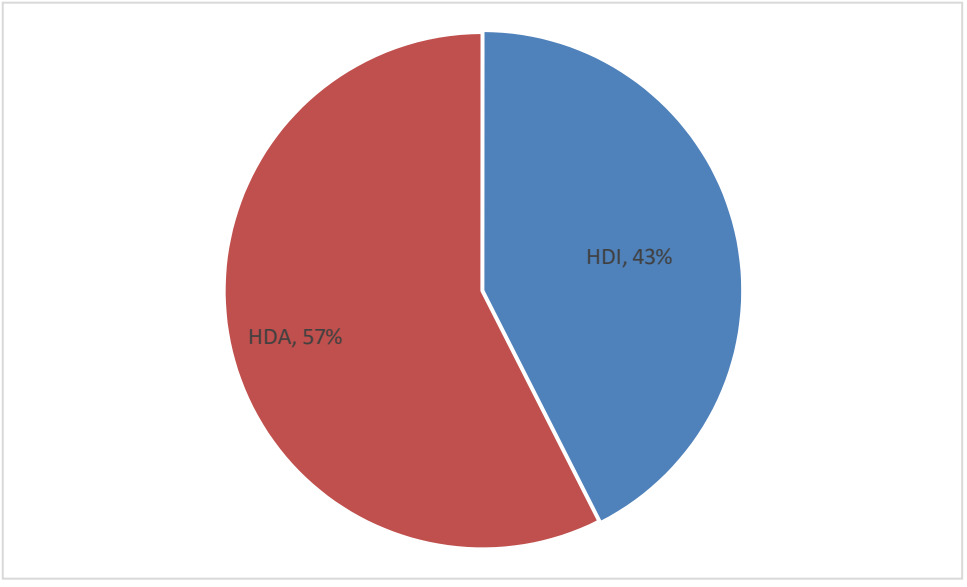


Figure 10: Historically Advantaged or Disadvantaged

Figure 10 illustrates the distribution of attendance by the graduates between historically advantaged and disadvantaged public universities in South Africa. The pie chart is a comparison of how many of the 74 respondents are from HAD versus HDI institutions. Further analysis shows that 43% (32 graduates) are from historically disadvantaged institutions and 56.8% (42 graduates) were from the historically advantaged institutions in the study.

4.2.1.8 Universities represented

Table 3: University Representation

Did you complete your latest qualification at an institution of higher learning (University) in South Africa?					
		Frequency	%	Valid %	Cumulative %
	Nelson Mandela Metropolitan University	2	2.7	2.7	2.7
	North West University	5	6.8	6.8	9.5
	Rhodes University	5	6.8	6.8	16.2
	Stellenbosch University	1	1.4	1.4	17.6
	The University of Cape Town	2	2.7	2.7	20.3
	The University of South Africa	6	8.1	8.1	28.4
	Tshwane University of Technology	12	16.2	16.2	44.6
	University of Johannesburg	9	12.2	12.2	56.8
	University of KwaZulu Natal	5	6.8	6.8	63.5
	University of Limpopo	2	2.7	2.7	66.2
	University of Mpumalanga	1	1.4	1.4	67.6
	University of Pretoria	5	6.8	6.8	74.3
	University of the Free State	5	6.8	6.8	81.1
	University of the Witwatersrand	5	6.8	6.8	87.8
	University of Venda	3	4.1	4.1	91.9
	Vaal University of Technology	1	1.4	1.4	93.2
	Walter Sisulu University	5	6.8	6.8	100
	Total	74	100	100	

Table 3 shows the universities in South Africa that respondents indicated they had attended. It should be noted that a few universities are not reflecting as their graduates didn't respond to the questionnaire. The table shows the number of graduates from the institution that responded and percentage in comparison to the total number of graduates that responded. Those that responded represent all institutions in South Africa as the Department of Higher Education is responsible for ensuring that the policy applies to all the public institutions in S.A.

4.2.2 Descriptive Statistics of Constructs

Table 4: Descriptive Statistics

Construct	Sub-Construct	Mean	Std. Deviation	N
University Background	University Learning	2.42	1.40	74
Graduate Success	Interactive skills	1.68	0.66	74
	Problem-solving and decision-making skills	1.91	0.64	74
	Continuous learning orientation	1.73	0.71	74
	Enterprising skills	2.20	0.86	74
	Presenting and applying information skills	1.86	0.59	74
	Goal-directed behaviour	1.89	0.74	74
	Ethical and responsible behaviour	1.62	0.62	74
	Analytical thinking skills	2.05	0.85	74
	Strategic Renewal Behaviour	2.25	1.01	74
	Venture behaviour	2.76	1.47	74
Intrapreneurial Behaviour	Risk Taking	2.30	1.13	74
	Innovativeness	2.07	0.90	74
	Proactiveness	1.86	0.72	74

Table 4 shows the averages (mean) of scores based on the graduates' responses, whilst the standard deviation talks about the spread of the graduates' responses showing variations from the mean. If the standard deviation scores are low, it says that the scores are closer to each other, and a higher standard deviation tells that the scores are spread wider.

4.3 Validity and Reliability of Constructs

4.3.1 Validity

The validity testing was done to ensure the method that the researcher used was able to measure what it was meant to measure, which is whether university background has a relationship with intrapreneurial behaviour and graduate success. The high validity in the scores meant that it applies amongst all graduates who studied at South African public universities. Face validity is seen as the questionnaires' probing of university background, employability and constructs related to intrapreneurial behaviour. Some researchers see it as weak evidence of validity. Criterion was for measuring constructs gauging the extent the scores correlate with the other variables.

The testing used by the researcher showed that validity was high as all the KMO scores showed that the data is suitable for factor analysis as Kaiser (1975) suggested that KMO>.9 was marvelous, those ranging in the .80 were meritorious, while those in the
.70's were middling and .60s mediocre with the .50s range miserable and less than .50 deemed unacceptable. Hair et al. (2006) suggested accepting a value >.5. Values in the range between 0.5 and 0.7 are mediocre, while values between 0.7 and 0.8 are good. The researcher performed Principal Axis Factoring to extract factors using Promax, data reduction was done, and the variation explained. The initial EFA run with all construct together highlighted a problem with divergence exacerbated by the low sample size. Therefore, separate runs of EFA were done for each construct.
Table 5 summarizes the suitability showing all constructs used were valid based on factor analysis results:

Table 5: Validity of Constructs

Dimension	Construct	Number of Items	KMO	Eigenvalue	Percentage of Explained Variation
University Background	University Learning	4	0.820	2.591	64%
Graduate Success	Interactive Skills	5	0.505	1.98	40%
	Problem-solving and decision making	5	0.824	2.141	43%
	Continuous learning orientation	5	0.814	2.775	55%
	Enterprising skills	5	0.643	1.943	39%
	Presenting and applying information skills	5	0.702	1.597	32%
	Goal-directed behaviour	5	0.664	1.829	37%
	Ethical and responsible behaviour	5	0.692	1.82	36%
	Analytical thinking skills	5	0.710	2.269	45%
	Strategic renewal skills	5	0.783	2.646	53%
	Venture behaviour	5	0.885	3.905	78%
Intrapreneurial Behaviour	Risk taking	4	0.655	2.203	55%
	Innovativeness	5	0.819	2.813	56%
	Proactiveness	5	0.800	2.468	49%

To determine the convergent validity for each of the three dimensions (University Background, Graduate Success, Intrapreneurial Behaviour), pattern matrixes were created to highlight how all individual statements aligned with their respective constructs. The results are presented in the following tables:

Table 6: University Learning Pattern Matrix

Pattern Matrix[a]	
	Factor
	1
15.3 Since I took this course I have a better understanding of business	.890
15.2 The university has helped me to develop my entrepreneurial skills and knowledge	.806
15.1 My interest towards new venture creation was raised during the course of my studies	.786

15.4 Being at university has provided me with an opportunity to reflect on developing business ideas	.729
Extraction Method: Principal Axis Factoring.	
a. 1 factors extracted. 7 iterations required.	

Table 6 highlights the pattern matrix for university background which is just the university learning factor. This individual factor (university learning) was represented by a collection of four factor loadings. In addition, each of the items demonstrated a factor loading greater than 0.3, which confirms that the statements associated with university learning fit well within the factor (Pallant, 2016).

Thus, the university background composite variable can be calculated and used for additional analysis to prove or disprove the research hypotheses. The validity results for the next dimension are presented in Table 7 below.

Table 7: Intrapreneurial Behaviour Pattern Matrix

Pattern Matrix[a]			
	Factor		
	1	2	3
12.1 I boldly move ahead with a promising new approach when others might be more cautious.			.323
12.2 I will be willing to give up some salary in exchange for the chance to try out my business idea if the rewards for success were adequate.			.898
12.3 In the course of my work, I will take calculated risks despite the possibility of failure.			.492
13.1 I create new ideas or solutions for difficult issues	.470		
13.2 I search out new working methods, techniques or instruments	.933		
13.3 I try to mobilize support for innovative ideas	.785		
13.4 I attempt to acquire approval for innovative ideas	.781		
13.5 I transform innovative ideas into useful applications	.685		

14.1 I actively attack problems		.600	
14.2 Whenever something goes wrong, I search for a solution immediately		.497	
14.3 Whenever there is a chance to get actively involved, I take it		.866	
14.4 I take initiative immediately even when others don't		.563	
14.5 I use opportunities quickly in order to attain my goals		.848	
Extraction Method: Principal Axis Factoring. Rotation Method: Promax with Kaiser Normalization.			
a. Rotation converged in 4 iterations.			

Table 7 highlights the pattern matrix for intrapreneurial behaviour which comprises three individual factors. The detailed results for each factor are as follows:

- The first factor (Risk-taking) was represented by a collection of three factor loadings. In addition, each of the items demonstrated a factor loading of greater than 0.3, which confirms that the statements associated with risk-taking fit well within the factor (Pallant, 2016).
- The second factor (Innovativeness) was represented by a collection of five factor loadings. Additionally, each of the items demonstrated a factor loading of greater than 0.3, which confirms that the statements associated with innovativeness fit well within the factor (Pallant, 2016).
- The third factor (Proactiveness) was represented by a collection of five factor loadings and each of the items demonstrated a factor loading of greater than 0.3, which confirms that the statements associated with proactiveness fit well within the factor (Pallant, 2016).

In conclusion, all three factors representing intrapreneurial behaviour demonstrated convergent validity and their construct validity was established. Thus, the intrapreneurial behaviour composite variable can be calculated and used for additional analysis to prove or disprove the research hypotheses.

With regards to graduate success, unfortunately, the sample size was not sufficient to lead to the convergence of the 10 individual factors using the exploratory factor

analysis technique (Refer to Appendix D – Graduate Success Initial Pattern Matrix). However, confirmatory factor analysis was used to validate each of the individual factors comprising of graduate success, and the results are presented in Table 8 below.

Table 8: Graduate Success Pattern Matrix

Factor loadings				
Factor	**Indicator**	**Estimate**	**AVE**	**CCR**
Venture behaviour	Q11.1	0.886*	0.828	0.960
	Q11.2	0.950*		
	Q11.3	0.926*		
	Q11.4	0.865*		
	Q11.5	0.919*		
Strategic renewal skills	Q10.1	0.838*	0.679	0.894
	Q10.3	0.781*		
	Q10.4	0.788*		
	Q10.5	0.884*		
Analytical thinking skills	Q9.2	0.865*	0.718	0.884
	Q9.3	0.810*		
	Q9.4	0.865*		
Ethical and responsible behaviour	Q8.1	0.848*	0.569	0.866
	Q8.2	0.610*		
	Q8.3	0.769*		
	Q8.4	0.643*		
	Q8.5	0.866*		
Goal-directed behaviour	Q7.1	0.804*	0.544	0.855
	Q7.2	0.768*		
	Q7.3	0.661*		
	Q7.4	0.795*		
	Q7.5	0.645*		
Presenting and applying information skills	Q6.3	0.606*	0.542	0.778
	Q6.4	0.772*		
	Q6.5	0.814*		

Enterprising skills	Q5.2	0.860*	0.633	0.837
	Q5.3	0.825*		
	Q5.4	0.691*		
Continuous learning orientation	Q4.1	0.863*	0.677	0.912
	Q4.2	0.722*		
	Q4.3	0.948*		
	Q4.4	0.776*		
	Q4.5	0.785*		
Problem-solving and decision making	Q3.1	0.725*	0.576	0.844
	Q3.3	0.685*		
	Q3.4	0.829*		
	Q3.5	0.788*		
Interactive Skills	Q2.2	0.731*	0.615	0.826
	Q2.4	0.729*		
	Q2.5	0.882*		

* p-value < 0.05

Table 8 highlights the pattern matrix for graduate success which comprises ten individual factors. The detailed results for each factor are as follows:

- The first factor (Venture behaviour) was represented by a collection of five factor loadings. Each of the items demonstrated a significant factor loading estimate, an AVE greater than 0.5 and composite reliability greater than 0.6 (Hair et al., 2017). This confirms the validity of the venture behaviour factor in relation to all other factors that make up graduate success.
- The second factor (Strategic renewal skills) was represented by a collection of four factor loadings and each of the items demonstrated a significant factor loading estimate with an AVE greater than 0.5 and composite reliability greater than 0.6 (Hair et al., 2017). This confirms the validity of the strategic renewal skills factor in relation to all other factors that make up graduate success.
- The third factor (Analytical thinking skills) was represented by a collection of three factor loadings. In addition, each of the items demonstrated a significant factor loading estimate, an AVE greater than 0.5 and composite

reliability greater than 0.6 (Hair et al., 2017). This confirms the validity of the analytical thinking skills factor in relation to all other factors that make up graduate success.

- The fourth factor (Ethical and responsible behaviour) was represented by a collection of three factor loadings. Additionally, each of the items demonstrated a significant factor loading estimate, an AVE greater than 0.5 and composite reliability greater than 0.6 (Hair et al., 2017). This confirms the validity of the Ethical and responsible behaviour factor in relation to all other factors that make up graduate success.
- The fifth factor (Goal-directed behaviour) was represented by a collection of three factor loadings. In addition, each of the items demonstrated a significant factor loading estimate, an AVE greater than 0.5 and composite reliability greater than 0.6 (Hair et al., 2017). This confirms the validity of the goal-directed behaviour factor in relation to all other factors that make up graduate success.
- The sixth factor (Presenting and applying information skills) was represented by a collection of three factor loadings and each of the items demonstrated a significant factor loading estimate, an AVE greater than 0.5 and composite reliability greater than 0.6 (Hair et al., 2017). This confirms the validity of the Presenting and applying information skills factor in relation to all other factors that make up graduate success.
- The seventh factor (Enterprising skills) was represented by a collection of three factor loadings. Each of the items demonstrated a significant factor loading estimate, an AVE greater than 0.5 and composite reliability greater than 0.6 (Hair et al., 2017). This confirms the validity of the enterprising skills factor in relation to all other factors that make up graduate success.
- The eight factor (Continuous learning orientation) was represented by a collection of three factor loadings. The items each demonstrated a significant factor loading estimate with an AVE greater than 0.5 and composite reliability greater than 0.6 (Hair et al., 2017). This confirms the validity of the continuous learning orientation factor in relation to all other factors that make up graduate success.
- The ninth factor (Problem-solving and decision-making) was represented by

a collection of three factor loadings. In addition, each of the items demonstrated a significant factor loading estimate, an AVE greater than 0.5 and composite reliability greater than 0.6 (Hair et al., 2017). This confirms the validity of the problem-solving and decision-making factor in relation to all other factors that make up graduate success.

- The tenth factor (Interactive Skills) was represented by a collection of three factor loadings. Each of the items demonstrated a significant factor loading estimate, an AVE greater than 0.5 and composite reliability greater than 0.6 (Hair et al., 2017). This confirms the validity of the interactive Skills factor in relation to all other factors that make up graduate success.

In conclusion, all ten factors representing graduate success demonstrated convergent validity and their construct validity was established. Thus, the graduate success composite variable can be calculated and used for additional analysis to prove or disprove the research hypotheses. Having established the validity of each of the main dimensions in this research, each identified factor will be tested for reliability in the next section.

4.3.2 Reliability

The accuracy and relevance of the instrument for the university background, intrapreneurial behaviour and graduate success/employability accuracy was measured using reliability statistics. Meaning this instrument will produce the same results when measured in different circumstances. Cronbach Alpha scores are between 0 and 1, generally scores between 0.6 and 0.7 are seen as acceptable, 0.8 or above are seen as great or very good but scores beyond .95 may reflect redundancy (Hulin, Netemeyer & Cudeck, 2001). According to Perry et al. (2004), an Alpha score of 0.5 to just below
0.7 is moderately reliable, as the scores were above .4 for all questions, none were removed. Table 9 below summarizes the reliability results:

Table 9: Reliability of Constructs

Construct	Initial Number of Items	Initial Cronbach Alpha	Items Removed	Revised Cronbach Alpha
University Learning	4	0.876	None	0.876
Interactive Skills	5	0.598	2.1, 2.3	0.641
Problem -solving and decision making	5	0.767	3.2	0.751
Continuous learning orientation	5	0.854	None	0.854
Enterprising skills	5	0.699	5.1, 5.5	0.779
Presenting and applying information skills	5	0.632	6.1, 6.2	0.651
Goal-directed behaviour	5	0.715	None	0.715
Ethical and responsible behaviour	5	0.712	None	0.712
Analytical thinking skills	5	0.734	9.1	0.777
Strategic renewal skills	5	0.828	10.2	0.815
Venture behaviour	5	0.945	None	0.945
Risk taking	3	0.686	None	0.686
Innovativeness	5	0.862	None	0.862
Proactiveness	5	0.805	None	0.805

Table 9 clearly highlights that all constructs demonstrated acceptable levels of reliability; however, several constructs (Interactive Skills, Problem-solving and decision-making, Enterprising skills, Presenting and applying information skills, Analytical thinking skills, Strategic renewal skills) did have items removed to increase their Cronbach alpha scores to more acceptable levels.

4.4 Results pertaining to Hypothesis 1

- Table 10,11 and 12 shows that a significant regression equation was found F=50.554, p<0.001 with an R-square of .413. the correlation coefficient ® of .643 indicates that UL is correlated to graduate success. The adjusted R-square in the results indicates that UL explains 41.3% of the variability of graduate success. The regression coefficient is significant, with a p-value of less than 0.001. the null hypothesis is therefore, rejected at the 1% level of significance.

In light of the relatively small sample size, extra care was taken to ensure that regression assumptions were evaluated, such as autocorrelation using the Durbin-Watson test; and the normality of the regression residuals depicted by the Histogram and P-P plot of the residuals (Refer to Appendix D for all additional statistics to evaluate the regression analysis assumptions).The Durbin-Watson test is close to 2 and below

3, therefore no indication to suggest that the errors are correlated for university learning and graduate success (Durbin & Watson, 1951; Field, 2013).

Table 10: Model Summary: Hypothesis 1

Model Summary[b]					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.643[a]	.413	.405	.56556	2.204
a. Predictors: (Constant), University Learning					
b. Dependent Variable: NEW_AVE_Intrapreneurial_Behaviour					

- The ANOVA shows that there was a significant effect of the IV (university learning) on DV (graduate success) at the p<.01 level for the three conditions (F (1,72) =50.628, p=0.00).

ANOVA is a method mostly used to test differences amongst means, it computes a measure of variance between means of each grouping and within groups. The ANOVA was used to calculate the effect of the single variances on dependent variables and the level of significance was observed. It calculates both the F and p-value. The F-value determines the size of the ration to reject the null hypothesis for a particular sample size and level of significance. P-values of 0.05 and lesser are seen as significant (Cooper & Schindler, 2008; Evans, 2010; Nkosi, 2010).

Table 11: Regression ANOVA: Hypothesis 1

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	16.193	1	16.193	50.628	.000[b]
	Residual	23.029	72	.320		
	Total	39.223	73			
a. Dependent Variable: NEW_AVE_Intrapreneurial_Behaviour						
b. Predictors: (Constant), University Learning						

The regression showed *B* was .643 and significant at .001, therefore intrapreneurial behaviour is influenced by university learning.

Table 12: Regression Coefficients: Hypothesis 1

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.232	.132		9.332	.000
	University Learning	.336	.047	.643	7.115	.000
a. Dependent Variable: NEW_AVE_Intrapreneurial_Behaviour						

The normal probability plot shows no evidence of outliers nor unidentified variables as it is a straight line.

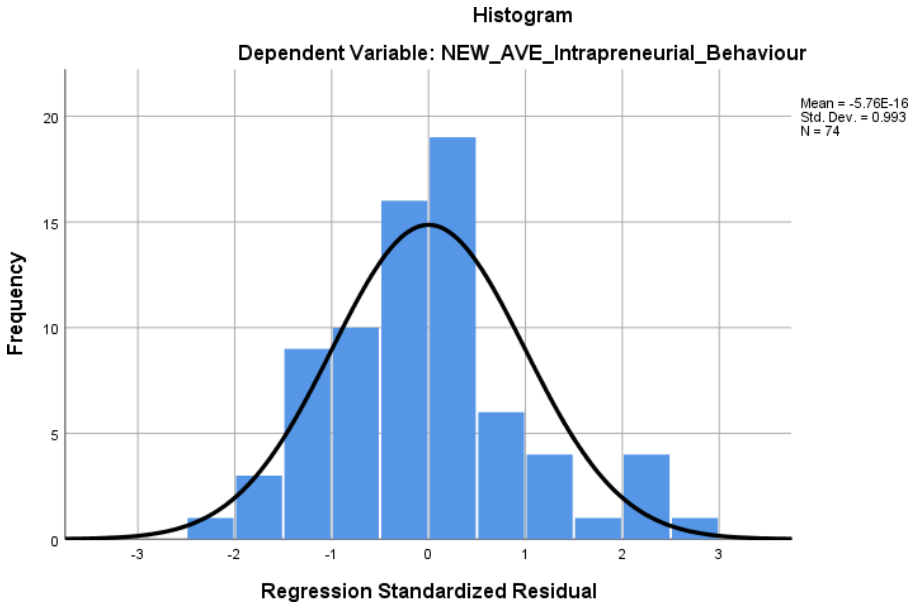


Figure 11: Residuals Histogram: Hypothesis 1

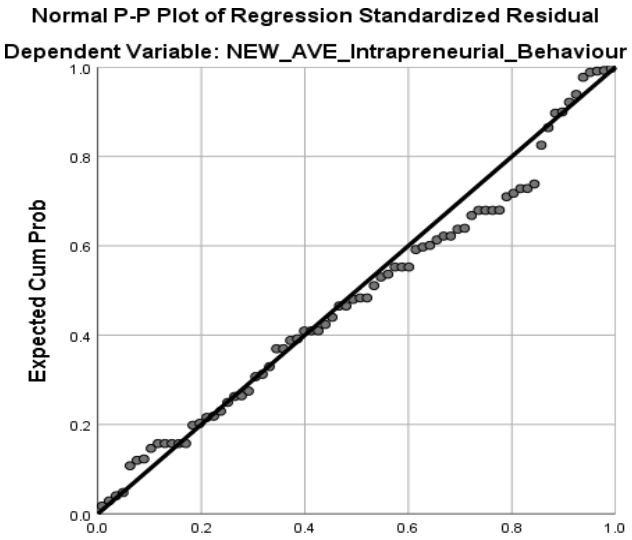


Figure 12: Residuals P-P Plot: Hypothesis 1

Therefore, the hypothesis is supported that there is a positive relationship between university background from South African universities and graduate success/employability.

4.5 Results pertaining to Hypothesis 2

Mediation was done and this process involved three steps, linear regression on

university background was done to see whether there was a direct relationship with graduate success.

Table 13 below provides support for the influence of the three forms of regression performed. The initial process with university background in the first model, the effect was significant at 0.336, however, in Step two when graduate success was added to the model, the effect became more significant (0.791, $p < 0.05$). The third step was when the mediator was added in the model and the slope of the predictor variable decreased from (0.297, $p < 0.05$) to (0.102, $p < 0.05$) and the R2 improved from 0.413 to 0.703 which was a significant R-square change and provides support for the second hypothesis.

Table 13: Mediated Regression Results: Hypothesis 2

	UB > IB			UB + GS > IB			UB > GS		
	B	*SE*	*β*	*B*	*SE*	*β*	*B*	*SE*	*β*
Intercept	1.232	0.132		0.218	0.154		1.283	0.117	
University Background (UB)	0.336***	0.047	0.643	0.102***	0.044	0.194	0.297***	0.042	0.640
Graduate Success (GS)				0.791***	0.095	0.701			
F	50.628***			84.000***			49.846***		
R2	0.413			0.703			0.409		
Notes: IB = Intrapreneurial Behaviour, B = unstandardized parameters, B = standardized parameters, *** p < 0.01, ** p < 0.05, p < 0.10									

**Therefore, the hypothesis is supported that graduate success mediates the relationship between university background and intrapreneurial behaviour.*

4.6 Results pertaining to Hypothesis 3

There is a difference between Historically Disadvantaged Institutions (HDI) and Historically Advantaged Institutions (HAI) on university learning, graduate success and intrapreneurial behaviour.

For years, a few employers, parents, and potential students believed that graduates from certain universities are better than those from other universities. Based on the descriptive table and Homogeneity tables, there is not much of a difference between HDI and HAI graduates' influence from the university background on graduate success and intrapreneurial behaviour. The mean values between the two groups indicate very little difference in university learning with 2.30 for the HDI and 2.51 for the HAI, whilst the graduate success mean between the two groups is 1.96 for HDI and 2.00 for HAI suggestive that there is no difference in relation to graduate success. Similarly, when intrapreneurial behaviour between the two groups was tested it was 1.98 for HDI and 2.11 for HAI graduates.

The study therefore accepted the null hypothesis and rejected the alternative that graduates from historically advantaged institutions are more intrapreneurial and employable than graduates from historically disadvantaged universities.

Table 14: Comparison of Means: Hypothesis 3

Descriptives							
		N	Mean	Std. Deviation	Std. Error	Minimum	Maximum
University Learning	HDI	32	2.3031	1.21906	.21550	1.00	6.00
	HAI	42	2.5143	1.53314	.23657	1.00	7.00
	Total	74	2.4230	1.40084	.16284	1.00	7.00
Graduate Success	HDI	32	1.9538	.73294	.12957	1.00	3.53
	HAI	42	2.0371	.58451	.09019	1.05	3.40
	Total	74	2.0011	.64942	.07549	1.00	3.53
Intrapreneurial Behaviour	HDI	32	1.9831	.76073	.13448	1.00	3.85
	HAI	42	2.0952	.71661	.11058	1.00	3.85
	Total	74	2.0468	.73301	.08521	1.00	3.85

The data was split into two groups to test homogeneity of variance between the two graduate groups (HAI & HDI) with a p-value of <0.05 and therefore the null hypothesis was accepted, and the sample size was equal. Consequently, university learning variance is 13.4% which is not significant, 6.7% for graduate success and for intrapreneurial behaviour is high at 81.6%. In all 3 constructs the Levene's test shows very minimal differentiation.

Table 15: Levene's Test: Hypothesis 3

Test of Homogeneity of Variances					
		Levene Statistic	df1	df2	Sig.
University Learning	Based on Mean	2.302	1	72	.134
	Based on Median	1.023	1	72	.315
	Based on Median and with adjusted df	1.023	1	65.959	.315
	Based on trimmed mean	1.760	1	72	.189
Graduate Success	Based on Mean	2.938	1	72	.091
	Based on Median	2.372	1	72	.128
	Based on Median and with adjusted df	2.372	1	69.600	.128
	Based on trimmed mean	2.767	1	72	.101
Intrapreneurial Behaviour	Based on Mean	.277	1	72	.600
	Based on Median	.332	1	72	.566
	Based on Median and with adjusted df	.332	1	71.844	.566
	Based on trimmed mean	.309	1	72	.580

The ANOVA shows that there is no significant variance between the groups as the F is.409 for university learning, .297 for graduate success and higher for intrapreneurial behaviour at .422. Overall, there is no significance in variance. The significance is way over 0.05 and therefore the null hypothesis cannot be rejected in this case.

Table 16: ANOVA Results: Hypothesis 3

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
University Learning	Between Groups	.810	1	.810	.409	.524
	Within Groups	142.441	72	1.978		
	Total	143.251	73			
NEW_AVE_ Graduate_Success	Between Groups	.126	1	.126	.297	.588
	Within Groups	30.661	72	.426		

	Total	30.787	73			
NEW_AVE_ Intrapreneurial_Behaviour	Between Groups	.228	1	.228	.422	.518
	Within Groups	38.995	72	.542		
	Total	39.223	73			

There is insufficient evidence to reject the null hypothesis and it can be concluded that there are no significant differences between graduates from historically advantaged institutions and graduates from the historically disadvantaged institutions.

4.7 Summary of the results

The chapter analysed the data collected to accept or reject the hypothesis proposed in Chapter 2 which was supported by theory. In chapter 4, presentation of the data collected from 74 graduates was completed using SPSS to test the hypotheses. All the data was from graduates who had their last degree completed at a South African public university. Since the data collected was from graduates who were willing to participate, it made the study valid and reliable as the questions asked were in line with what the researcher hypothesized. Even though there are universities whose graduates didn't participate, the Department of Higher Education regulates all universities and therefore the outcome is representative of all the universities.

The demographic statistics of respondents regarding the unemployed, race and age are representative and in line with Stats SA reporting that most citizens are black, and the highest number of university graduates are in the age group of 26-34. The Cronbach alpha was mostly above the acceptable level of .7 and the Bartletts test supported the scale used at above .7 for almost all of them.

Descriptive statistics were supportive with the median and standard deviation correlation above .4, which supports the hypothesis, and the regression was linear for hypothesis 1,2 and 3 and ANOVA was above 40% supporting the hypotheses. Linear regression was conducted to test and in chapter 5 a detailed explanation will

be provided to present the findings.

CHAPTER 5: DISCUSSION OF THE RESULTS

5.1 Introduction

This chapter will deliberate the results of the study in relation to literature vis-a-vis South African universities graduates' employability/success, intrapreneurship behaviour and the hypotheses.

5.2 Sample Characteristics

5.2.1 Demographic profile of respondents

Participants in the study favoured females at 58% than males with 41.9%. According to a previous study of the 6% graduates in South Africa 52.3% were females and 47.7% males (Stats SA, 2021), therefore the study was not far off from the statistics released by Stats SA (2021) regarding the split between females and males in higher education.

The highest number of graduates in South African universities are the 25-34 age group according to the study, followed by the 20-24 age group. According to higher education report, South African universities consist mainly of the 25 to 34 age group (DHET, 2021). Most representation was African at 93%, whites at 4.1% which might have been due to the data collection being non-probability, using purposive and convenience sampling in contrast to other studies at 4.1% blacks and 23.4% whites representing the highest number with degrees according to a DHET (2021) report.

The next section discusses the control variables in the study.

5.2.1.1 Gender

South Africa has a population of 60.6 million, 51.1% are females and 48.9% males according to a Stats SA, 2021 report. The unemployment rate was 33.9%, with

more unemployed females than males. Graduate success/employability means more graduates are employed than unemployed, according to the statistics even though the unemployment was lesser amongst graduates, more females than males are unemployed. With the many policies meant to assist with reducing unemployment amongst women, increasing the number of female graduates is the step in the right direction as this addresses most of the social ills in the communities. The study shows that more females are in higher education and the number of female graduates is higher which is in line with the growing number of women within society and therefore increasing the number of female graduates will create an enhanced, educated society, which will be a knowledge society, and in turn, automatically increases the number of educated citizens in South Africa.

5.2.1.2 Age

In South Africa, a study conducted in 2017 revealed that only 8.2% of the population between the ages 25-34 have a bachelor's degree, which is far lower compared to other countries such as the United Kingdom leading with 33.9%. South Africa was shown to be better compared with other African countries. This is critical as those with degrees have a lower unemployment rate at 10% whilst those with less than a high school qualification stood at 37% and 35% respectively (DHET, 2021). For the South African population to reduce unemployment amongst the country's youth, there is a need to focus on increasing university education, as this will contribute to graduate success/ employability, which is important to the economy and to compete internationally.

The unemployment status according to quarter four, in the 2021 report was 2.7% for graduates, 44.7% of the age group was between 15-34 years and the rest were in the age group 35 to 64 years. This is worrying as it reflects a disparity and that youth females are not being prioritised by government and companies even though the country claims that they recognise and take gender and youth unemployment issues seriously.

South Africa requires the development of strategies to increase graduates amongst

the youth, which represent the bulk of the countries citizens who are supposed to be able to gain knowledge and assist the country to succeed economically and perform (Klofsten, 2021). The unemployment rate in the country, which is mostly amongst the youth and the low graduate numbers amongst the youth is reflected in the countries performance economically and international standing. No matter the good policies the country has put in place, without aligning with the number of graduates, not much will change in the country's economic performance and standing. By increasing knowledge amongst the youth, this would automatically improve behaviours and attitudes needed to work with different people, solve conflict and fulfil their goals (Zaman et al., 2019). It is critical as we have observed the number of youths involved in strikes, meaning the importance of raising their knowledge should be prioritised which will then contribute to reducing conflict and unemployment leading to graduate success. Education increases one's thinking process, changes their way of thinking and developing strategies that are vital for success and benefit communities, by addressing issues faced by the youth and the country in a more positive way (Siagan, 2019).

5.2.1.3 Highest Qualification

The study showed that 56.8% of graduates have first degrees, 28.4% of the graduates have an honours degree, 13.5% graduated with a master's degree and only 1.4% of graduates in South African universities with a doctoral degree participated. The DHET (2021) report showed that 55.6% students are doing undergraduate degrees, 5.8% masters and 2.3% doctoral degrees from South African public universities. It is concerning that the number of graduates with masters and doctorate degrees are lower in comparison to international graduates.

Universities need to increase the number of students participating in postgraduate studies as it has been proven that countries whose citizens are highly educated contribute positively to the knowledge dissemination and the economy (Alirifi, 2020). With the high unemployment rate and lower unemployment amongst graduates, the study supports the importance of education and its contribution in ensuring that future generations have the knowledge and capacity to warrant that

knowledge transfer and talent is preserved. This can only be achieved by increasing university graduates which in the process will improve the success of the country as the South African economy is not in a good state and the study has shown that graduates are able to assist with challenges faced by communities (Alemu, 2018).

5.2.1.4 Employment Status

The questionnaire didn't request information relating to why respondents were unemployed as some were unemployed to focus on furthering their studies, while others might have chosen to take a break from studying for other reasons, therefore the reason for unemployment was not detected in the study. According to a Stats SA, (2021) report only 2.7% of graduates are unemployed, meaning 97% of graduates are employed from the total of 1.7 million in South Africa. Underemployment is something that the study didn't address.

In the last quarter of 2021, the unemployment rate in South Africa was 34.9% (Stats SA, 2021), which is indicative of a similar trend with the graduate's unemployment rate at 39.2% in the study. In South Africa the unemployment rate of graduates was 2.7% in comparison with 34.9% unemployment for the total population of 60 million South Africans.

One needs to be cautious as the data was collected between 10 November to 09 December 2021, so it should be noted that the questionnaire was distributed during November and December 2021, when some of the respondents had finished their degrees in November 2021.

5.2.1.5 Historically Disadvantaged/Historically advantaged University information

In the study, 43% of graduates are from historically disadvantaged institutions and 56.8% were from the historically advantaged institutions. According to research, since 1994 there has not been much change with regards to the attendance of students in historically disadvantaged institutions; most were from the previously

disadvantaged groups whereas the historically advantaged universities have seen a change (Baldry, 2015).

What has been good from the research is that graduates' responses are similar from both the HDI and the HAI, meaning the focus for South Africa should be increasing the number of graduates, which increases knowledge and would therefore improve the dissemination of knowledge, impacting positively on innovation (Espanol et al., 2021).

The participation from the universities was mostly from the HAI supporting studies that claim that the university that one has attended increases one's success (Bano & Vasantha, 2020). The partaking might have been because the graduates are employed and have access to tools that enabled them to participate in the study as attendance to certain universities increases one's employability and social mobility (Cloete, 2016).

5.2.2 Descriptive Statistics of Constructs

5.2.2.1 University Background

University learning is the independent variable for the study of graduates and how being at university influences graduates. The graduates' responses had a mean (which is the average of the graduates' responses) of 2.42, showing that the graduates agreed that the university had a role in all graduates' learning.

5.2.2.2 Graduate Success

In general graduate attributes are important for graduates and supported as the responses from the data showed that the graduates mostly agreed and responded positively to questions about graduate success. The researcher focused on the attributes with the highest scores and lowest scores to see how they were ranked by graduates.

- **Interactive skills –** the sub construct responses data showed that the central tendency of the graduates' responses showed a consensus with a mean score of 1.68 and a standard deviation of 0.66 reflecting the data clustered around the mean. This means that the respondents agree with research on the importance of education and increasing knowledge, communication and networking skills (Zaman et al., 2019).
- **Ethical and responsible behaviour –** the sub construct gives the researcher comfort as the data's central tendency was 1.62, meaning most of the graduates agree to the importance of being ethical and responsible graduates in a country which is currently battling with corruption. Having graduates who are ethical and esponsible is critical for future generations. Universities are therefore taking their role within societies seriously and meeting one of the key roles of contributing to their environment and societal needs (Pucciarelli, 2016). The standard deviation for this sub construct is 0.62 which says that the data points were closer to the mean.
- **Venture behaviour -** when it came to this sub construct graduates agreed as the data points were somewhat centralised as the average of the scores was 2.76.

5.2.2.3 Intrapreneurial Behaviour

- **Risk-taking** is an important sub construct for intrapreneurship, like entrepreneurship. People who are risk takers are important for coming up with innovations within organisations. The average mean score for risk-taking amongst graduates was 2.30 for the study, which means the data points were closer to each other signifying some agreements amongst graduates when it comes to risk-taking questions. The graduates answered questions related to taking calculated risks. This is a good score as it means that most graduates are willing to take risks and involves critical thinking in taking calculated risks which is important if one wants to succeed (Akbay & Delibalta, 2020).
- **Proactiveness** is important for intrapreneurial behaviour and is confirmed by the central tendency of the data at 1.86, with a standard deviation of 0.72 meaning that the data sets were closer to the mean. Graduates from South

African universities are able to take initiative, which is critical to bringing solutions and new ideas within an organisation (Meyers, 2020).

5.3 Discussion pertaining to Hypothesis 1

H1: There is a positive relationship between university background from South African universities and intrapreneurial behaviour

The first hypothesis tested whether there is a positive relationship between university learning from South African universities and graduate success/employability. The results presented in Table 10 highlight that there is a significant positive relationship between university background and graduate success ($\beta = 0.628$, $p < 0.01$). The study revealed the importance of the role of universities in contributing to societies and the country. The results of the study are in line with the literature presented by the researcher in chapter 2 that entrepreneurship increases higher education in South Africa (Urban & Chantson, 2019). According to Matinde (2018) the curricula should be designed to include graduate attributes teaching them entrepreneurial and intrapreneurial skills that are important for graduates' success/employability. This shows how the visions of the universities need to be clear and how being at the university changes and improves the graduate's life and how they go back and contribute to their communities.

The study participants supported that having graduate attributes increased their chances of succeeding with regards to employability (Ndebele & Ndlovu, 2019). Graduates are important for South Africa as according to Stats SA (2021), of the 35% that are unemployed only 2.6% are graduates. Education seems to be the only solution for South Africa as a country as only the educated with degrees are advantaged in having the highest probability of being employed.

University education increases one's skills and chances of networking (Zaman et al., 2019) as one is taught interactive skills (Cronbach Alpha = .598) increasing their chances of meeting people from different backgrounds and cultures. This enables them to think beyond what they know and see things from other people's perspective. The more graduates the country produces, the higher the chances of

addressing some of the social ills extant in society as we learn how to interact with others regionally and globally since South Africa is amongst the countries with the least graduates, according to Stats SA (2021), there are only 1,7 million graduates. The R-square (.628) supported the influence of university learning on graduate success by 50%.

Government and employers need to take part in promoting the importance of education amongst the youth as the highest number of unemployed individuals is amongst the youth and consequently, young people make up a majority of the population. University education is a critical factor in determining graduate success and employability.

All the responses on the probability plot graph from graduates with regards to graduate success/employability agreed as it was a straight line with no outliers, showing that university played a role in their employability/success, which is supported by literature presented in chapter 2 (Stats SA). This means that government, universities, and society need to work harder to keep graduates in higher education to increase their knowledge and interaction with other graduates. Respondents indicated that being at university had a positive impact as all the graduate attributes were embraced and rated positively by the participants as important.

5.4 Discussion pertaining to Hypothesis 2

H2: Graduate success/employability positively mediates the relationship between South African university background and intrapreneurial behaviour

The second hypothesis tested whether graduate success/employability positively mediates the relationship between South African university background and intrapreneurial behaviour. The results presented in Table 13 illustrate that graduate success has a significant mediating effect ($\beta = 0.786$, $p < 0.01$) on the relationship between university background and intrapreneurial behaviour. Therefore, it can be concluded that graduate success is a vital component to enable intrapreneurial behaviour by reinforcing the South African university background of students.

With an R-square increasing to .719, when graduate success was added to mediate between university learning and intrapreneurial behaviour this finding was supported by research in chapter 2, Aliu and Aigbavboa (2019) who stated that educated and informed societies are productive and create competitive advantages. Furthermore, van Wetten et al., (2020) suggest that graduates are seen to be involved in process innovation linked to knowledge as well as methods because having intrapreneurial skills, increases the chances of being innovative.

Graduates can work independently without supervision, allowing their managers to focus on other things. Graduates' innovation is something that South Africa needs currently as they can use networks when needed to address and resolve issues of critical importance without being dependent for direction. University graduates are seen to have the requirements to contribute positively with productivity of the country (Moss et al., 2021). Knowledge sharing assists with importing what works in other environments and used to the advantage of the user and South Africa can learn from such.

With the histogram at normal distribution, it supports the mediation of graduate success on the intrapreneurial behaviour of graduates. Through education, graduates can be innovative which the country's economy and society will benefit positively from.

The intrapreneurial behaviour construct, made up of proactiveness, innovativeness and risk-taking is vital to take the country forward as intrapreneurial behaviour is applied by graduates within existing companies. There were no outliers from the probability box, showing that graduates are all in agreement and have the skills to be intrapreneurial and bring new ideas by taking risks whilst being employed (Camelo-Ordaz et al., 2012:3). Therefore, the study confirmed the role that graduate success/employability has in developing the intrapreneurial behaviour of graduates.

5.5 Discussion pertaining to Hypothesis 3

H3: There are no differences in terms of university background, graduate success and intrapreneurial behaviour between the historically advantaged and previously disadvantaged graduates

Employers in South Africa prefer graduates from certain universities leading to graduate employability from those universities and disadvantaging graduates from the less desirable universities. Studies show that a university environment is safe for exchanging ideas, experimenting, innovation, cooperating and networking with industry and therefore should be used for successful knowledge transfer through scientific ways that are innovative and forward thinking to address social, political, and economic challenges in the country (Blanka, 2018).

Furthermore, some studies also showed that certain universities better prepare their students leading to graduate employability from those universities (Blanka, 2018). On the other hand, other researcher such as Pitan and Muller (2019) found that graduates from rated universities are those that are preferred by employers, which disadvantages students from previously disadvantaged institutions. This means that the reputation of an institution leads to favouritism and getting assistance than the less reputable institutions. Hence, attending universities that have certain reputations have an influence on students' graduate success and to an extent their intrapreneurial behaviour. The results dispute research published stating that universities with high research output means that their graduates are more successful and employable than those from universities with less research output (Ciriaci & Muscio, 2014).

Other research asserts that the institution that a student attends is not relevant other than what the student does and engages him/herself with whilst at university. They even go further to state that what counts more is what the graduate does outside of class that is more important (Kuh, 2002). Austin's theory argues that students learn by being involved (Austin,1985).

The outcome of the research has shown that there are no differences in graduates between institutions who are ranked, historically advantaged university background and those from previously disadvantaged backgrounds. The test for homogeneity of variance between HAI & HDI showed a p-value <0.05 proving that all graduates show the same intrapreneurial and employability behaviours.

All graduates in the study have shown similar responses and are all intrapreneurial in their behaviour, going against the belief that university background has a role to play in graduates' success and intrapreneurial behaviour. It should be noted that the findings of this study place a responsibility on government, employers, and parents. Government must review their expenditure on higher education as the study showed that graduates from universities are more successful than graduates from other higher education institutions.

Therefore, focus should be to increase university graduates as that will benefit society. Employers need to relook how they have preferences for graduates from certain universities as this disadvantages the students from universities that aren't ranked highly. The new structuring since 1994, propelled changes in higher education policies in South Africa and expenditures which had a positive role in bringing about equality and proved beneficial for intrapreneurial behaviour and the graduate success of university graduates as the knowledge transfer, skills and networking amongst graduates has been positive for all graduates. New studies over a longer period with a bigger sample size would be essential for future research.

5.6 Conclusion

Graduates with a maximum of 5 years working experience were involved in the survey. There was representation from almost all public universities in South Africa and those that were surveyed were required to have studied their last degree at a South African university.

The study raised critical issues, which are:

- University education is important as it increases the chances for graduates to succeed and be employable, as graduates are the only cohort with the lowest unemployment rate.

- Entrepreneurial education is important for all graduates in South Africa as it increases their intrapreneurial behaviour which is key for the economy.

- The institution a graduate has attended is not important as graduates from both the historically advantaged and the previously disadvantaged show similar traits; what is important is instilling the graduate attributes in all students to increase their chances. This is in line with another study that the university attended doesn't influence graduates' employability/graduate success (Baldry, 2015).

Based on the study, entrepreneurial education is not about being an entrepreneur, existing companies need graduates with an entrepreneurial mindset to bring innovative ideas and be intrapreneurial within the organisations that they work for.

There are no differences in graduates from historically advantaged and previously disadvantaged universities. University education is central in changing South Africa's economy and across the region as some of the graduates who studied in South Africa's universities are from other countries regionally and internationally.

CHAPTER 6: CONCLUSIONS, IMPLICATIONS AND RECOMMENDATIONS

6.1 Introduction

This chapter provides conclusions about the study conducted on graduates' success/employability and intrapreneurial behaviour. Key findings are presented whilst summarising the whole study and recommendations provided for government, universities, and employers. The chapter will conclude by suggesting important considerations for future studies.

6.2 Conclusions of the study

University reputation doesn't have to be used against graduates as there are no differences between graduates; all universities are guided by the Department of Higher Education policy, so even though they have their own statutes, they must meet the guidelines from the department rather than reputation as stated in other research (Shanmugam & Bano, 2020).

Graduate success is dependent on university learning as graduate attributes are integral for graduates' employability. Graduate success mediates the relationship with the attributes gained which enables them to be intrapreneurial in their behaviour and due to the networks gained at university can bring about innovations (Sera et al., 2020), contribute, and share their knowledge with their communities (Alarifi, 2020) to everyone's benefit.

6.3 Implications and Recommendations

Much work needs to be done to highlight the significance of higher education amongst the youth as South Africa has large numbers of unemployed youth without education. More monitoring by government is required, similar to the previous study done by the Technical Team (2011) whose focus was to create an enabling environment for entrepreneurship and evaluate the work done and what impact it had on graduates and entrepreneurial behaviour amongst graduates. Employers need to work closely with all higher education institutions to increase the

employability of graduates instead of employing graduates from certain universities due to their reputations as most of the reputations are insignificant and this impacts negatively on the economy.

6.4 Limitations of the study

- The study was limited in that it focused on measuring intrapreneurial behaviour and graduate success, however, there might be more factors with regards to graduate success and universities in South Africa.
- The focus was on university background and not graduates' family background which according to other studies have suggested that one's family and upbringing have an influence on behaviour.
- The study concentrated on South African universities only and would have been of benefit to study the region.
- Input was from graduates and no input from their employers or the universities they attended.
- The sample comprised of graduates with degrees as per the definition for the research.
- Non-responsiveness was another limitation for the study.
- The researcher hopes that the respondents were truthful in their responses as it a questionnaire, but the delimitation is that they only respond based on the questions and are not able to express their own opinions.
- Another delimitation was that the study focused on graduates from public South African universities and excluded private university graduates.
- The graduates might have been biased as they might have responded based on what they thought the researcher expected to please the researcher (Gonyea, 2005).
- Since the non-probability and snowballing sampling was used, the results cannot be generalized to the whole population.

6.5 Recommendations for further research

Further research should consider all graduates in higher education and compare which group is more intrapreneurial as well as why the unemployment rate of university graduates' is lower than other graduates. It is important to know the difference as government's expenditure on higher education is not dependent on which higher institution one attends whilst the expenditure is not justified by differences in the unemployment rate between the groups.

A repeat of the study over a longer period with a bigger sample should be done for all university graduates as the study was cross-sectional and data collected over 5 weeks.

6.6 Conclusion

In conclusion, the importance of entrepreneurial education for university graduates is a key factor in the knowledge economy. Graduates network with like-minded people and there is a knowledge exchange, which is beneficial for employers, regions, and countries as the graduate's benefit from the exchange leading to innovative solutions. Paying attention to youth education is important for the economy as it increases knowledge which will give graduates the edge to compete globally and network with like-minded people. Knowledge economies are the ones thriving and for South Africa's economy to improve, the country needs to concentrate on increasing entrepreneurial education for all university graduates to propel intrapreneurial behaviours. South African universities need to be attentive to increasing their graduate output to be competitive on a global stage.

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APPENDIX A: CLEARANCE CERTIFICATE

Graduate School of Business Administration
University of the Witwatersrand, Johannesburg

Wits Business School Ethics Committee
Constituted under the University Human Research Ethics Committee (Non-Medical)

Ethics Clearance Certificate

Ethics protocol number: WBS/EN0516053N/792
This certificate is only valid with a legitimate ethics protocol number and signed by the Researcher (below).

Project title	Graduate intrapreneurial behavior and university background in South Africa
Investigator / Researcher	MS NOKUKHANYA SHONGWE
Nature of Project	MM (Entrepr & New Venture Creation)
Decision of the Committee	Approved, provided stakeholders and participants are guaranteed anonymity and confidentiality.
Issue Date of Certificate	2021-10-20
Expiry date	Date of submission of the project report
Chairperson	Prof Anthony Stacey ☎ +27 11 717 3587 +27 82 880 4531 anthony.stacey@wits.ac.za

Declaration by Researcher

One copy must be signed by the Researcher and returned to the Chairperson of the Wits Business School Ethics Committee.

I fully understand the conditions under which I am authorized to carry out the abovementioned research and I guarantee to ensure compliance with these conditions. Should any departure to be contemplated from the research procedure as approved I undertake to resubmit the protocol to the Committee.

Signature

20-10-2021
Date:

APPENDIX B: QUESTIONNAIRE

Graduate intrapreneurial behavior and University background in South Africa

Start of Block: Consent

Q1.1

Dear Participant,

I am completing my Master's degree in Entrepreneurship at the Graduate School of Business Administration, Wits Business School at the University of the Witwatersrand, Johannesburg (Wits). One of the requirements for the award of the degree is the completion of a research report. I am therefore requesting your assistance in ensuring that I meet the requirements by completing the survey. My research topic is: **'Graduate intrapreneurial behavior and University background in South Africa'**. The questionnaire is to establish how university background impacts on graduates intrapreneurial behavior and success for graduates who completed their last degree studies at a South African university. This questionnaire is anonymous, and any information obtained from the survey will only be used for my research and you won't be affected in any way by your responses. Therefore, your participation in the study is highly valued and appreciated. Please feel free to contact me if you wish to receive the outcome of this research. This survey will take approximately 15 minutes to complete.

You are more than welcome to contact me (0516053N@wits.ac.za) or my Supervisor Dr Robert Venter (Robert.Venter@wits.ac.za) should you want further information.

Yours sincerely,
Nokukhanya Shongwe
Student number:
0536053N Cell: 078
144 0655

Please choose below whether you consent to do the survey:

- ○ Yes (1)
- ○ No (2)

Skip To: End of Survey If Dear Participant, I am completing my Master's degree in Entrepreneurship at the Graduate School... = No

Q1.2 Please choose your age group

- ○ 20-25 (1)
- ○ 26-34 (2)
- ○ 35-44 (3)
- ○ 45-100 (9)

Skip To: End of Survey If Please choose your age group = 45-100

Q1.3 Please choose your sex

- ○ Male (1)
- ○ Female (2)
- ○ Non-binary / third gender (3)
- ○ Prefer not to say (4)

Q1.4 Did you complete your latest qualification at an institution of higher learning (University) in South Africa?

- ○ Yes (1)

○ No (2)

Skip To: End of Survey If Did you complete your latest qualification at an institution of higher learning (University) in... = No

Q1.5 Please choose your latest institution from the dropdown 1 (1)

▼ The University of Cape Town (1) ... Mangosuthu University of Technology (26)

Q1.6 What is your highest qualification?

○ Undergraduate degree (1)

○ Honours (2)

○ Masters (3)

○ Doctoral degree (4)

Q1.7 when did you complete your latest degree?

○ 1 year ago (1)

○ 2 years ago (2)

○ 3 years ago (3)

○ 4 years ago (4)

○ 5 years ago (5)

Q1.8 What is your current employment status?

○ Self-employed (1)

- ○ Working part-time (2)
- ○ Working full-time (3)
- ○ Unemployed

(4) Q1.9 What is your race?

- ○ Black (1)
- ○ White (2)
- ○ Coloured (3)
- ○ Indian (4)
- ○ Prefer not to say (5)

End of Block: Consent

Start of Block: Interactive skills

Q2.1 I find it easy to listen to and understand what others are saying

- ○ Strongly agree (1)
- ○ Agree (2)
- ○ Somewhat agree (3)
- ○ Neither agree nor disagree (4)
- ○ Somewhat disagree (5)
- ○ Disagree (6)

- ○ Strongly disagree (7)

Q2.2 I can use technology effectively to communicate with others

- ○ Strongly agree (1)
- ○ Agree (2)
- ○ Somewhat agree (3)
- ○ Neither agree nor disagree (4)
- ○ Somewhat disagree (5)
- ○ Disagree (6)
- ○ Strongly disagree (7)

Q2.3 I take care to use appropriate vocabulary and grammar when communicating with others

- ○ Strongly agree (1)
- ○ Agree (2)
- ○ Somewhat agree (3)
- ○ Neither agree nor disagree (4)
- ○ Somewhat disagree (5)
- ○ Disagree (6)
- ○ Strongly disagree (7)

Q2.4 I find it easy to communicate effectively with people from different cultures, backgrounds and authority levels

- Strongly agree (1)
- Agree (2)
- Somewhat agree (3)
- Neither agree nor disagree (4)
- Somewhat disagree (5)
- Disagree (6)
- Strongly disagree (7)

Q2.5 I am able to build wide and effective networks of contacts to achieve my goals

- Strongly agree (1)
- Agree (2)
- Somewhat agree (3)
- Neither agree nor disagree (4)
- Somewhat disagree (5)
- Disagree (6)
- Strongly disagree (7)

End of Block: Interactive skills

Start of Block: Problem-solving and decision-making skills

Q3.1 I make quick but clear decisions that spur others on towards action

- Strongly agree (1)
- Agree (2)
- Somewhat agree (3)
- Neither agree nor disagree (4)
- Somewhat disagree (5)
- Disagree (6)
- Strongly disagree (7)

Q3.2 I can probe for further information to enhance my understanding of a problem

- Strongly agree (1)
- Agree (2)
- Somewhat agree (3)
- Neither agree nor disagree (4)
- Somewhat disagree (5)
- Disagree (6)
- Strongly disagree (7)

Q3.3 I can structure information in a way that meets the needs of my audience

- Strongly agree (1)
- Agree (2)
- Somewhat agree (3)
- Neither agree nor disagree (4)
- Somewhat disagree (5)
- Disagree (6)
- Strongly disagree (7)

Q3.4 I consider the complexities of the larger cultural, business and economic reality when approaching a problem or situation

- Strongly agree (1)
- Agree (2)
- Somewhat agree (3)
- Neither agree nor disagree (4)
- Somewhat disagree (5)
- Disagree (6)
- Strongly disagree (7)

Q3.5 I offer unique and novel ideas that add new knowledge and insights to a problem or situation

- ○ Strongly agree (1)
- ○ Agree (2)
- ○ Somewhat agree (3)
- ○ Neither agree nor disagree (4)
- ○ Somewhat disagree (5)
- ○ Disagree (6)
- ○ Strongly disagree (7)

End of Block: Problem-solving and decision-making skills

Start of Block: Continuous learning orientation

Q4.1 I follow up on goals, tasks, and assignments to ensure successful completion

- ○ Strongly agree (1)
- ○ Agree (2)
- ○ Somewhat agree (3)
- ○ Neither agree nor disagree (4)
- ○ Somewhat disagree (5)
- ○ Disagree (6)
- ○ Strongly disagree (7)

Q4.2 I monitor my performance against deadlines and milestones

- ○ Strongly agree (1)
- ○ Agree (2)
- ○ Somewhat agree (3)
- ○ Neither agree nor disagree (4)
- ○ Somewhat disagree (5)
- ○ Disagree (6)
- ○ Strongly disagree (7)

Q4.3 I make sure that I keep myself up to date on technical knowledge and new developments in my field

- ○ Strongly agree (1)
- ○ Agree (2)
- ○ Somewhat agree (3)
- ○ Neither agree nor disagree (4)
- ○ Somewhat disagree (5)
- ○ Disagree (6)
- ○ Strongly disagree (7)

Q4.4 I am always on the lookout for ways to improve my knowledge and skills, and develop myself as a person

- ○ Strongly agree (1)
- ○ Agree (2)
- ○ Somewhat agree (3)
- ○ Neither agree nor disagree (4)
- ○ Somewhat disagree (5)
- ○ Disagree (6)
- ○ Strongly disagree (7)

Q4.5 I accept and tackle demanding goals with enthusiasm

- Strongly agree (1)
- Agree (2)
- Somewhat agree (3)
- Neither agree nor disagree (4)
- Somewhat disagree (5)
- Disagree (6)
- Strongly disagree (7)

End of Block: Continuous learning orientation

Start of Block: Enterprising skills

Q5.1 I prefer to work under my own direction

- Strongly agree (1)
- Agree (2)
- Somewhat agree (3)
- Neither agree nor disagree (4)
- Somewhat disagree (5)
- Disagree (6)
- Strongly disagree (7)

Q5.2 I consider the consequences of solutions by examining their feasibility

and weighing their impact within the larger cultural, business or economic reality

- Strongly agree (1)
- Agree (2)
- Somewhat agree (3)
- Neither agree nor disagree (4)
- Somewhat disagree (5)
- Disagree (6)
- Strongly disagree (7)

Q5.3 My arguments for solutions are grounded in both subject-/discipline-specific and general knowledge about global and local affairs

- Strongly agree (1)
- Agree (2)
- Somewhat agree (3)
- Neither agree nor disagree (4)
- Somewhat disagree (5)
- Disagree (6)
- Strongly disagree (7)

Q5.4 When controlling costs and budgets, I usually think in terms of profit, loss and added value

- ○ Strongly agree (1)
- ○ Agree (2)
- ○ Somewhat agree (3)
- ○ Neither agree nor disagree (4)
- ○ Somewhat disagree (5)
- ○ Disagree (6)
- ○ Strongly disagree (7)

Q5.5 I find it easy to identify business opportunities for myself, my community or organisation

- ○ Strongly agree (1)
- ○ Agree (2)
- ○ Somewhat agree (3)
- ○ Neither agree nor disagree (4)
- ○ Somewhat disagree (5)
- ○ Disagree (6)
- ○ Strongly disagree (7)

End of Block: Enterprising skills

Start of Block: Presenting and applying information skills

Q6.1 I can write my ideas and opinions clearly to convince my audience

- ○ Strongly agree (1)
- ○ Agree (2)
- ○ Somewhat agree (3)
- ○ Neither agree nor disagree (4)
- ○ Somewhat disagree (5)
- ○ Disagree (6)
- ○ Strongly disagree (7)

Q6.2 I avoid using unnecessary jargon or complicated language when presenting my ideas or insights

- ○ Strongly agree (1)
- ○ Agree (2)
- ○ Somewhat agree (3)
- ○ Neither agree nor disagree (4)
- ○ Somewhat disagree (5)
- ○ Disagree (6)
- ○ Strongly disagree (7)

Q6.3 I find it easy to commit information to memory quickly

- Strongly agree (1)
- Agree (2)
- Somewhat agree (3)
- Neither agree nor disagree (4)
- Somewhat disagree (5)
- Disagree (6)
- Strongly disagree (7)

Q6.4 I consider a wide range of alternatives prior to making a decision.

- Strongly agree (1)
- Agree (2)
- Somewhat agree (3)
- Neither agree nor disagree (4)
- Somewhat disagree (5)
- Disagree (6)
- Strongly disagree (7)

Q6.5 The solutions I offer make a positive difference in my personal life, community or workplace

- Strongly agree (1)

- ○ Agree (2)
- ○ Somewhat agree (3)
- ○ Neither agree nor disagree (4)
- ○ Somewhat disagree (5)
- ○ Disagree (6)
- ○ Strongly disagree (7)

End of Block: Presenting and applying information skills

Start of Block: Goal-directed behaviour

Q7.1 I find it easy to access the information I need to solve problems or make decisions

- ○ Strongly agree (1)
- ○ Agree (2)
- ○ Somewhat agree (3)
- ○ Neither agree nor disagree (4)
- ○ Somewhat disagree (5)
- ○ Disagree (6)
- ○ Strongly disagree (7)

Q7.2 I try to find the real cause of problems before taking action

- ○ Strongly agree (1)

- Agree (2)
- Somewhat agree (3)
- Neither agree nor disagree (4)
- Somewhat disagree (5)
- Disagree (6)
- Strongly disagree (7)

Q7.3 I usually set realistic goals

- Strongly agree (1)
- Agree (2)
- Somewhat agree (3)
- Neither agree nor disagree (4)
- Somewhat disagree (5)
- Disagree (6)
- Strongly disagree (7)

Q7.4 I develop plans for specific goals and tasks

- Strongly agree (1)
- Agree (2)

- ○ Somewhat agree (3)
- ○ Neither agree nor disagree (4)
- ○ Somewhat disagree (5)
- ○ Disagree (6)
- ○ Strongly disagree (7)

Q7.5 I find it easy to meet deadlines

- ○ Strongly agree (1)
- ○ Agree (2)
- ○ Somewhat agree (3)
- ○ Neither agree nor disagree (4)
- ○ Somewhat disagree (5)
- ○ Disagree (6)
- ○ Strongly disagree (7)

End of Block: Goal-directed behaviour

Start of Block: Ethical and responsible behaviour

Q8.1 I accept responsibility for the results of my decisions and actions

- ○ Strongly agree (1)
- ○ Agree (2)
- ○ Somewhat agree (3)

- ○ Neither agree nor disagree (4)
- ○ Somewhat disagree (5)
- ○ Disagree (6)
- ○ Strongly disagree (7)

Q8.2 I personally take the credit or blame for the results of my work

- ○ Strongly agree (1)
- ○ Agree (2)
- ○ Somewhat agree (3)
- ○ Neither agree nor disagree (4)
- ○ Somewhat disagree (5)
- ○ Disagree (6)
- ○ Strongly disagree (7)

Q8.3 I uphold the ethics and values of my profession, community or workplace in all I do

- ○ Strongly agree (1)
- ○ Agree (2)
- ○ Somewhat agree (3)
- ○ Neither agree nor disagree (4)

- ○ Somewhat disagree (5)
- ○ Disagree (6)
- ○ Strongly disagree (7)

Q8.4 I encourage responsible behaviour towards the community and the environment

- ○ Strongly agree.
- ○ Agree
- ○ Somewhat agree
- ○ Neither agree nor disagree
- ○ Somewhat disagree
- ○ Disagree
- ○ Strongly disagree

Q8.5 I find it easy to provide direction to others, and to motivate and empower them

- ○ Strongly agree
- ○ Agree
- ○ Somewhat agree
- ○ Neither agree nor disagree
- ○ Somewhat disagree
- ○ Disagree

- ○ Strongly disagree

End of Block: Ethical and responsible behaviour

Start of Block: Analytical thinking skills

Q9.1 I feel confident in my ability to draw insightful conclusions from numerical data

- ○ Strongly agree
- ○ Agree
- ○ Somewhat agree
- ○ Neither agree nor disagree
- ○ Somewhat disagree
- ○ Disagree
- ○ Strongly disagree

Q9.2 I can break information into component parts to see relationships and patterns

- ○ Strongly agree
- ○ Agree
- ○ Somewhat agree
- ○ Neither agree nor disagree
- ○ Somewhat disagree
- ○ Disagree
- ○ Strongly disagree

Q9.3 I can make a rational judgment from analysing information and data

- Strongly agree
- Agree
- Somewhat agree
- Neither agree nor disagree
- Somewhat disagree
- Disagree
- Strongly disagree

Q9.4 I can give accurate explanations of information and data presented to me

- Strongly agree
- Agree
- Somewhat agree
- Neither agree nor disagree
- Somewhat disagree
- Disagree
- Strongly disagree

End of Block: Analytical thinking skills

Start of Block: Strategic Renewal Behavior

Q10.1 I conceptualize new ways of working for my organization

- Strongly agree
- Agree
- Somewhat agree
- Neither agree nor disagree
- Somewhat disagree
- Disagree
- Strongly disagree

Q10.2 I utilize insights of other experts to innovate in my organization

- Strongly agree
- Agree
- Somewhat agree
- Neither agree nor disagree
- Somewhat disagree
- Disagree
- Strongly disagree

Q10.3 I undertake activities that change the work practices of my organization

- Strongly agree
- Agree
- Somewhat agree
- Neither agree nor disagree
- Somewhat disagree
- Disagree
- Strongly disagree

Q10.4 I exploit opportunities in the labour market or society to renew my organization

- Strongly agree
- Agree
- Somewhat agree
- Neither agree nor disagree
- Somewhat disagree
- Disagree
- Strongly disagree

Q10.5 I actively mobilize people and resources to change my organization

- Strongly agree
- Agree

- ○ Somewhat agree
- ○ Neither agree nor disagree
- ○ Somewhat disagree
- ○ Disagree
- ○ Strongly disagree

End of Block: Strategic Renewal Behavior

Start of Block: Venture behavior

Q11.1 I undertake activities to set up new business units

- ○ Strongly agree
- ○ Agree
- ○ Somewhat agree
- ○ Neither agree nor disagree
- ○ Somewhat disagree
- ○ Disagree
- ○ Strongly disagree

Q11.2 I undertake activities to reach new market or communities for my organization

- ○ Strongly agree
- ○ Agree

- Somewhat agree
- Neither agree nor disagree
- Somewhat disagree
- Disagree
- Strongly disagree

Q11.3 I undertake activities that result in new departments outside of my organization

- Strongly agree
- Agree
- Somewhat agree
- Neither agree nor disagree
- Somewhat disagree
- Disagree
- Strongly disagree

Q11.4 I undertake activities that result in new projects within my organization

- Strongly agree
- Agree (2)
- Somewhat agree
- Neither agree nor disagree

- Somewhat disagree
- Disagree
- Strongly disagree

Q11.5 I actively establish new collaborations with experts outside of my own profession

- Strongly agree
- Agree
- Somewhat agree
- Neither agree nor disagree
- Somewhat disagree
- Disagree
- Strongly disagree

End of Block: Venture behavior

Start of Block: Risk-taking

Q12.1 I boldly move ahead with a promising new approach when others might be more cautious.

- Strongly agree
- Agree
- Somewhat agree
- Neither agree nor disagree

- ○ Somewhat disagree
- ○ Disagree
- ○ Strongly disagree

Q12.2 I will be willing to give up some salary in exchange for the chance to try out my business idea if the rewards for success were adequate.

- ○ Strongly agree
- ○ Agree
- ○ Somewhat agree
- ○ Neither agree nor disagree
- ○ Somewhat disagree
- ○ Disagree
- ○ Strongly disagree

Q12.3 In the course of my work, I will take calculated risks despite the possibility of failure.

- ○ Strongly agree
- ○ Agree
- ○ Somewhat agree
- ○ Neither agree nor disagree
- ○ Somewhat disagree

- Disagree
- Strongly disagree

Q12.4 In the course of my work, I will take calculated risks despite the possibility of failure.

- Strongly agree
- Agree
- Somewhat agree
- Neither agree nor disagree
- Somewhat disagree
- Disagree
- Strongly disagree

End of Block: Risk-taking

Start of Block: Innovativeness

Q13.1 I create new ideas or solutions for difficult issues

- Strongly agree
- Agree
- Somewhat agree
- Neither agree nor disagree
- Somewhat disagree

- ○ Disagree
- ○ Strongly disagree

Q13.2 I search out new working methods, techniques or instruments

- ○ Strongly agree
- ○ Agree
- ○ Somewhat agree
- ○ Neither agree nor disagree
- ○ Somewhat disagree
- ○ Disagree
- ○ Strongly disagree

Q13.3 I try to mobilize support for innovative ideas

- ○ Strongly agree
- ○ Agree
- ○ Somewhat agree
- ○ Neither agree nor disagree
- ○ Somewhat disagree
- ○ Disagree
- ○ Strongly disagree

Q13.4 I attempt to acquire approval for innovative ideas

- Strongly agree
- Agree
- Somewhat agree
- Neither agree nor disagree
- Somewhat disagree
- Disagree
- Strongly disagree

Q13.5 I transform innovative ideas into useful applications

- Strongly agree
- Agree
- Somewhat agree
- Neither agree nor disagree
- Somewhat disagree
- Disagree
- Strongly disagree

End of Block: Innovativeness

Start of Block: Proactiveness

Q14.1 I actively attack problems.

- Strongly agree
- Agree
- Somewhat agree
- Neither agree nor disagree
- Somewhat disagree
- Disagree
- Strongly disagree

Q14.2 Whenever something goes wrong, I search for a solution immediately

- Strongly agree
- Agree
- Somewhat agree
- Neither agree nor disagree
- Somewhat disagree
- Disagree
- Strongly disagree

Q14.3 Whenever there is a chance to get actively involved, I take it

- Strongly agree

- ○ Agree
- ○ Somewhat agree
- ○ Neither agree nor disagree
- ○ Somewhat disagree
- ○ Disagree
- ○ Strongly disagree

Q14.4 I take initiative immediately even when others don’t.

- ○ Strongly agree
- ○ Agree
- ○ Somewhat agree
- ○ Neither agree nor disagree
- ○ Somewhat disagree
- ○ Disagree
- ○ Strongly disagree

Q14.5 I use opportunities quickly in order to attain my goals

- ○ Strongly agree
- ○ Agree
- ○ Somewhat agree

- ○ Neither agree nor disagree
- ○ Somewhat disagree
- ○ Disagree
- ○ Strongly disagree

End of Block: Proactiveness

Start of Block: University Learning

Q15.1 My interest towards new venture creation was raised during the course of my studies

- ○ Strongly agree
- ○ Agree
- ○ Somewhat agree
- ○ Neither agree nor disagree
- ○ Somewhat disagree
- ○ Disagree
- ○ Strongly disagree

Q15.2 The university has helped me to develop my entrepreneurial skills and knowledge

- ○ Strongly agree
- ○ Agree

- ○ Somewhat agree
- ○ Neither agree nor disagree
- ○ Somewhat disagree
- ○ Disagree
- ○ Strongly disagree

Q15.3 Since I took this course I have a better understanding of business

- ○ Strongly agree
- ○ Agree
- ○ Somewhat agree
- ○ Neither agree nor disagree
- ○ Somewhat disagree
- ○ Disagree
- ○ Strongly disagree

Q15.4 Being at university has provided me with an opportunity to reflect on developing business ideas

- ○ Strongly agree
- ○ Agree

- ○ Somewhat agree
- ○ Neither agree nor disagree
- ○ Somewhat disagree
- ○ Disagree
- ○ Strongly disagree

End of Block: University Learning

APPENDIX C: CURRENT HEI CLASSIFICATIONS

EI and HE qualification classifications

Instcode	Abbreviation	Institution	Type	HAI/HDI	CHET Cluster	2021 Ranked (Y/N)
H02	UCT	University of Cape Town	Traditional	HAI	1	Y
H08	UKZN	University of KwaZulu-Natal	Traditional	HDI	1	Y
H11	NWU	North- West University	Traditional	HDI	1	Y
H12	UP	University of Pretoria	Traditional	HAI	1	Y
H13	RU	Rhodes University	Traditional	HAI	1	Y
H15	US	University of Stellenbosch	Traditional	HAI	1	Y
H21	WITS	University of Witwatersrand	Traditional	HAI	1	Y
H01	CPUT	Cape Peninsula Univ of Technology	Technology	HDI	2	N

H03	CUT	Central Univ of Technology	Technology	HAI	2	N
H04	DUT	Durban Institute of Technology	Technology	HDI	2	N
H05	UFH	University of Fort Hare	Traditional	HDI	2	N
H06	UFS	University of the Free State	Traditional	HAI	2	Y
H07	UJ	University of Johannesburg	Comprehensive	HAI	2	Y
H10	NMU	Nelson Mandela University	Comprehensive	HAI	2	Y
H14	UNISA	University of South Africa	Comprehensive	HAI	2	Y
H16	TUT	Tshwane University of Technology	Technology	HDI	2	Y
H20	UWC	University of Western Cape	Traditional	HDI	2	Y
H09	UL	University of Limpopo	Traditional	HDI	3	N
H17	UV	University of Venda	Comprehensive	HDI	3	N
H18	VUT	Vaal University of Technology	Technology/Comprehensive		3	N

H19	WSU	Walter Sisulu University		rehensive	HDI	HAI
3		N		Technology		
H22	UZ	University of Zululand	Comp			HDI
3						
		N				
H25	MUT	Mangosuthu Univ of Technology				
		3	N			
						HDI

Ref: Van Broekhuizen H. 2016

NOTES: Comprehensive University (offers both degrees and diplomas) ; University of Technology; HDI: Historically Disadvantaged Institution; HAI: Historically Advantaged Institution; Cluster 1(Top performing institutions in South Africa); Cluster 2 (their production is below those that are in cluster 1; Cluster 3 (almost all previously disadvantaged institutions with the exception of VUT). The 3 new institutions are not included in the list as they started operating after 2014.

APPENDIX D: CONSISTENCY MATRIX

Main Research question: TO ASCERTAIN THE EFFECT OF UNIVERSITY'BACKGROUND ON GRADUATES INTRAPRENEURIAL BEHAVIOUR , SUCCESS IN SOUTH AFRICA						
Aims of research	**Literature Review**	**Hypotheses**	**Variables (Independent & Dependent)**	**Source of data**	**Type of data**	**Analysis**

1. To establish the effect of universities on graduate intrapreneurial behaviour	Soh, 2017 Širá E., 2020	Actual Hypothesis 1 University background increases graduate intrapreneurial behaviour	ID= University background DV= intrapreneurial behaviour CV= Age and years of experience	Questionnaire on the demographics section	Nominal	1. Descriptive 2. Correlation

Main Research question : TO ASCERTAIN THE EFFECT OF UNIVERSITY'BACKGROUND ON GRADUATES INTRAPRENEURIAL BEHAVIOUR , SUCCESS IN SOUTH AFRICA						
Aims of research	**Literature Review**	**Hypotheses**	**Variables (Independent & Dependent)**	**Source of data**	**Type of data**	**Analysis**
2. Assess the career success rate of graduates from South African	Kuratko et al, 2015	Actual Hypothesis 2 Graduates from S.A Universities are successful	ID= Graduate DV= career success	questionnaire Q 1-10	Ordinal (7-Likert scale)	3. ANOVA 4. Regression

universities						

APPENDIX E: Additional Statistics

Normality of Constructs

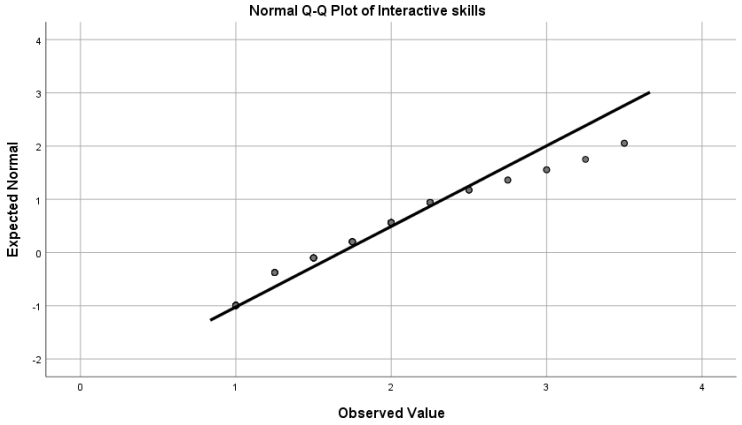
Tests of Normality						
	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Interactive skills	0.158	74	0.00	0.880	74	0.000
Problem-solving and decision-making skills	0.105	74	0.04	0.952	74	0.007
Continuous learning orientation	0.167	74	0.00	0.870	74	0.000
Enterprising skills	0.150	74	0.00	0.936	74	0.001
Presenting and applying information skills	0.091	74	.200*	0.955	74	0.010

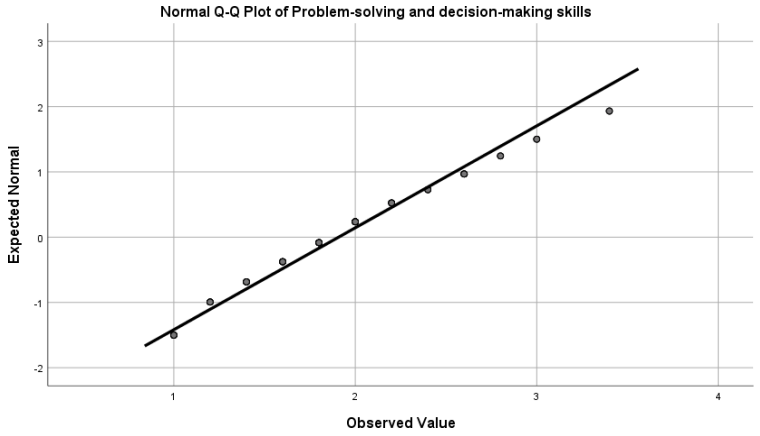
Goal-directed behaviour	0.116	74	0.01	0.902	74	0.000

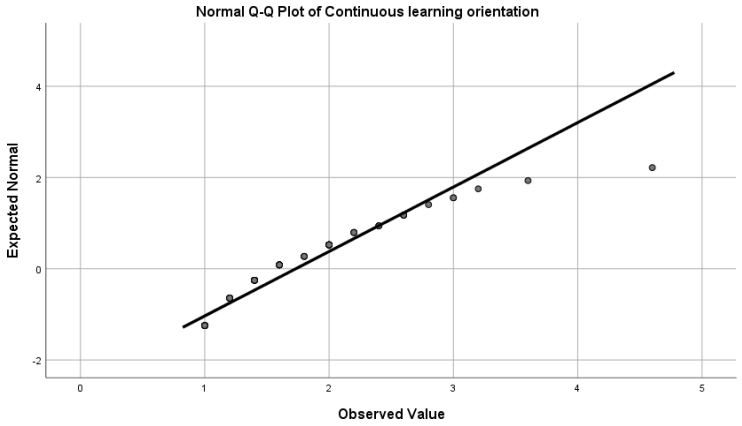
Ethical and responsible behaviour	0.159	74	0.00	0.865	74	0.000
Analytical thinking skills	0.120	74	0.01	0.923	74	0.000
Strategic Renewal Behavior	0.123	74	0.01	0.931	74	0.001
Venture behavior	0.176	74	0.00	0.898	74	0.000
Risk-taking	0.164	74	0.00	0.911	74	0.000
Innovativeness	0.127	74	0.00	0.917	74	0.000
Proactiveness	0.114	74	0.02	0.929	74	0.000
University Learning	0.157	74	0.00	0.868	74	0.000
Graduate Success	0.116	74	0.02	0.955	74	0.010
Intrapreneurial	0.112	74	0.02	0.949	74	0.005

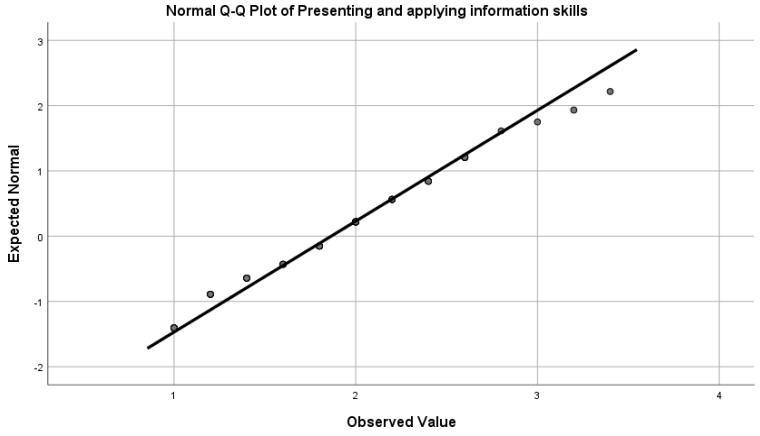
Behaviour						
***. This is a lower bound of the true significance.**						
a. Lilliefors Significance Correction						

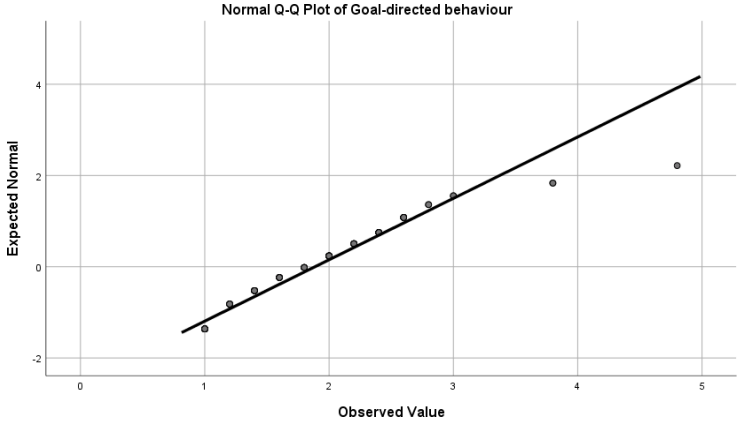
Graphical Frequency distributions

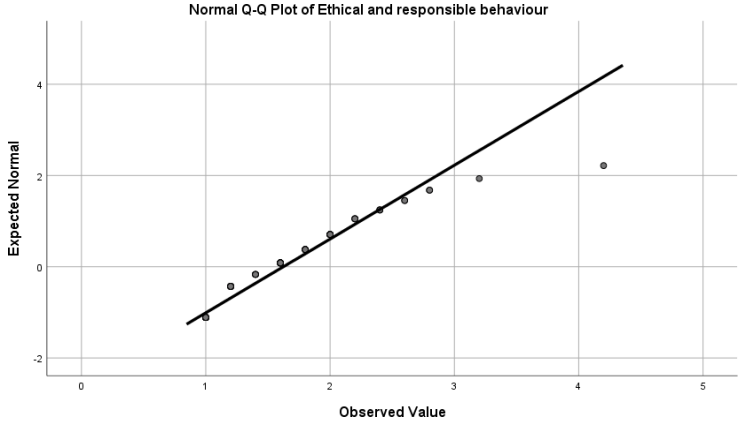


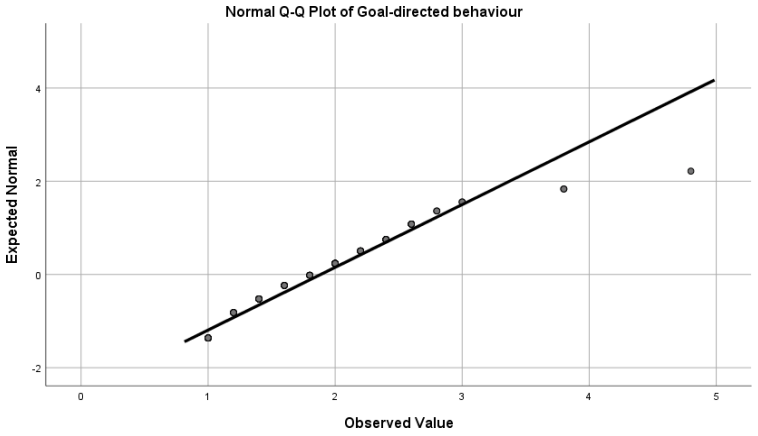

Normal Q-Q Plot of Problem-solving and decision-making skills
Expected Normal
Observed Value
3
2
1
0
-1
-2
1
2
3
4

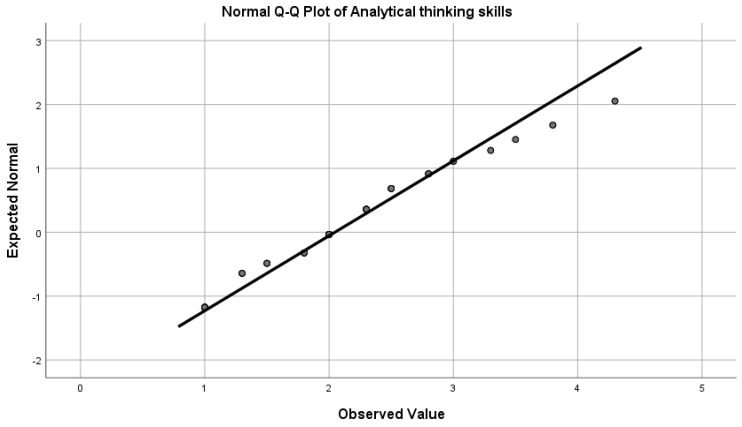

Normal Q-Q Plot of Continuous learning orientation
Expected Normal
Observed Value
4
2
0
-2
0
1
2
3
4
5

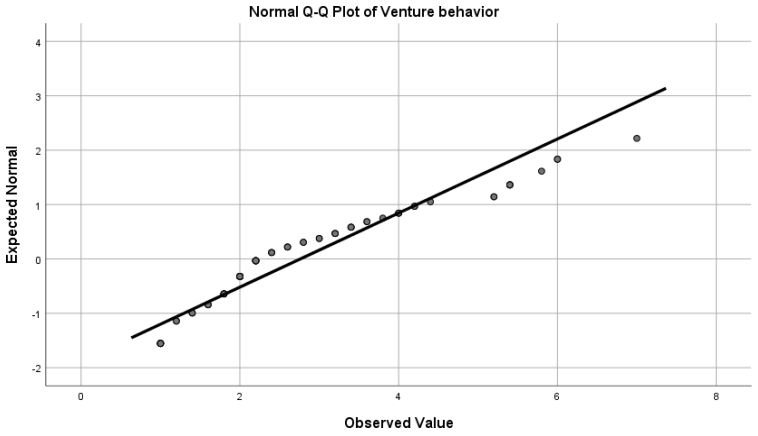

Normal Q-Q Plot of Presenting and applying information skills
Expected Normal
Observed Value
3
2
1
0
-1
-2
1
2
3
4

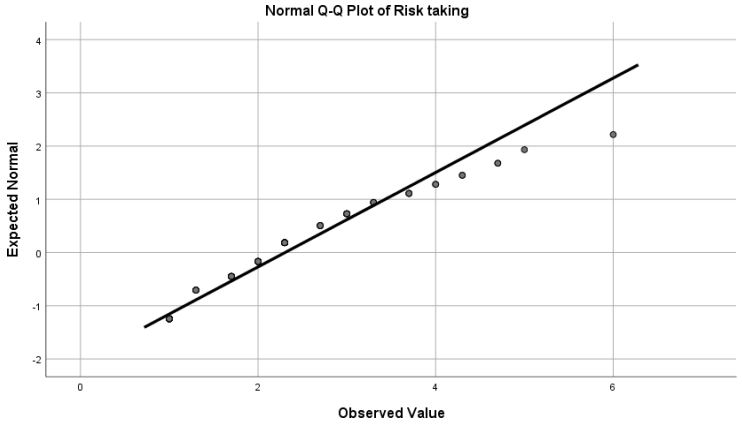

Normal Q-Q Plot of Goal-directed behaviour
Expected Normal
Observed Value
4
2
0
-2
0
1
2
3
4
5

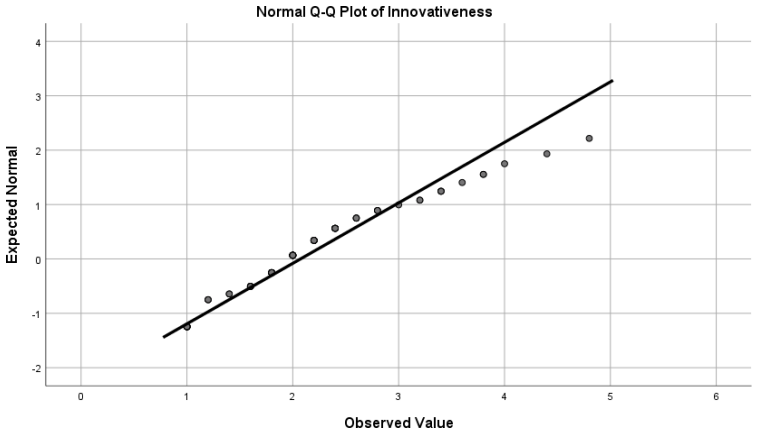

Normal Q-Q Plot of Ethical and responsible behaviour
Expected Normal
Observed Value
4
2
0
-2
0
1
2
3
4
5

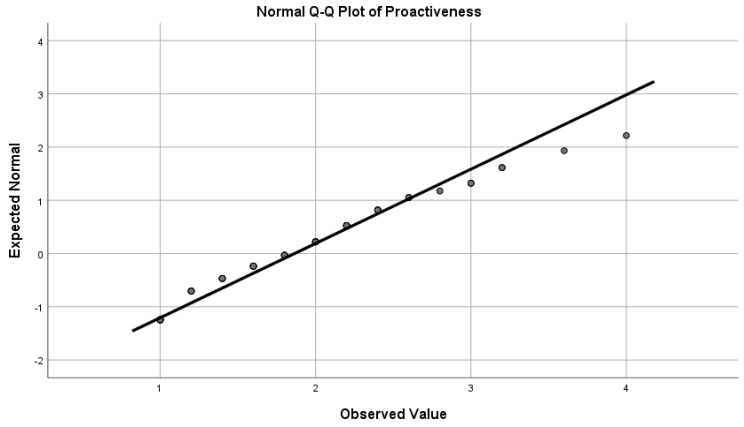

Normal Q-Q Plot of Goal-directed behaviour
Expected Normal
Observed Value
4
2
0
-2
0
1
2
3
4
5

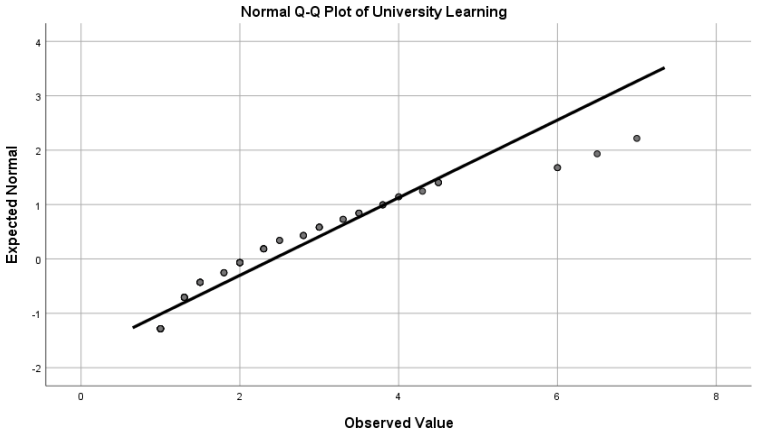

Normal Q-Q Plot of Analytical thinking skills
Expected Normal
Observed Value
3
2
1
0
-1
-2
0
1
2
3
4
5

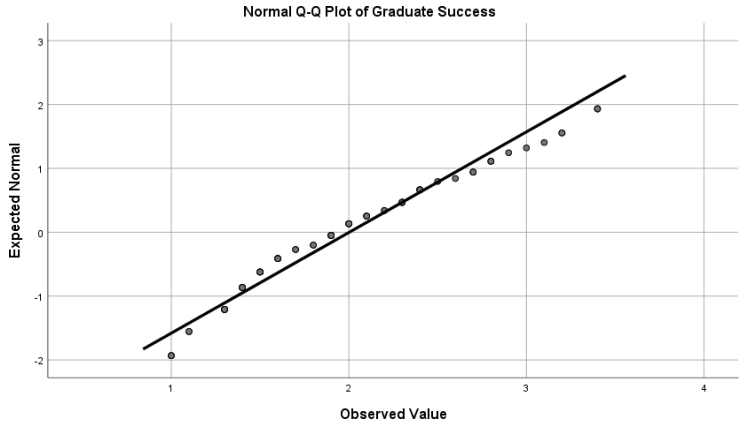

Normal Q-Q Plot of Venture behavior
Expected Normal
Observed Value
4
3
2
1
0
-1
-2
0
2
4
6
8

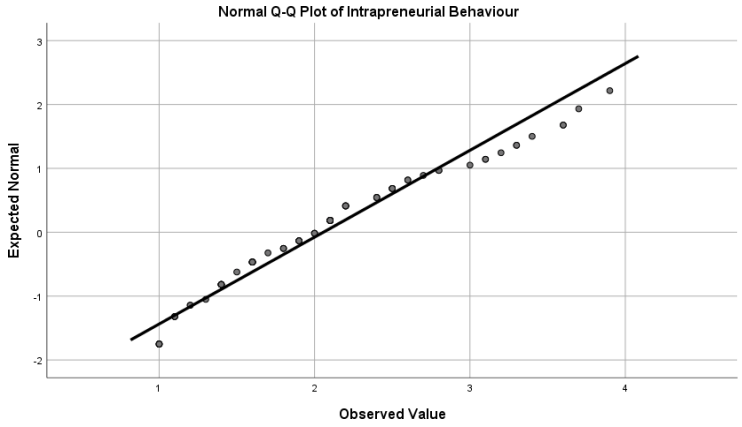

Normal Q-Q Plot of Risk taking
Expected Normal
Observed Value
4
3
2
1
0
-1
-2
0
2
4
6


Normal Q-Q Plot of Innovativeness
Expected Normal
Observed Value
4
3
2
1
0
-1
-2
0
1
2
3
4
5
6


Normal Q-Q Plot of Proactiveness
Expected Normal
Observed Value
4
3
2
1
0
-1
-2
1
2
3
4


Normal Q-Q Plot of University Learning
Expected Normal
Observed Value
4
3
2
1
0
-1
-2
0
2
4
6
8


Normal Q-Q Plot of Graduate Success
Expected Normal
Observed Value
3
2
1
0
-1
-2
1
2
3
4


Normal Q-Q Plot of Intrapreneurial Behaviour
Expected Normal
Observed Value
3
2
1
0
-1
-2
1
2
3
4

Presenting	Enter	Conti Intera	Probl		
.582**	.599**	.645**	.536**	1	Interactive skills
.495**	.361**	.391**	1		Problem-solving and
.611**	.488**	1			Continuous learning
.458**	1				Enterprising skills
1					Presenting and applying
					Goal-directed behaviour
					Ethical and responsible
					Analytical think skills
					Strategic Rene Behavior
					Innovativeness

Inter-Construct Correlations

d

Proactiveness	University Learning

ct														
	.568**	.395**	.471**	.449**	.481**	1								
Ethical	.546**	.330**	.484**	.361**	.375**	.572**	1							
Analytical	.585**	.442**	.556**	.511**	.586**	.571**	.590**	1						
Strategic	.697**	.509**	.550**	.595**	.607**	.494**	.392**	.609**	1					
Venture	.547**	.365**	.530**	.552**	.529**	.299**	.287*	.577**	.749**	1				
Risk-taking	.384**	.250*	.536**	.365**	.402**	.287*	0.099	.330**	.463**	.621**	1			

Innovative	.714**	.457**	.599**	.574**	.599**	.545**	.353**	.526**	.779**	.652**	.485**	1		
Proactiven	.523**	.324**	.536**	.429**	.489**	.476**	.379**	.378**	.506**	.465**	.472**	.508**	1	
University	.415**	.267*	.536**	.463**	.454**	.464**	.317**	.431**	.542**	.567**	.506**	.462**	.559**	1

****. Correlation is significant at the 0.01 level (2-tailed).**

The Pearson correlation showed strong relationships between the variables and was between +1 and -1. In the study all of them are positive and we have few that are below 3 (meaning the relationship is minimal, overall, the relationship between the variables is medium to large. All the variables have a relationship with university background represented by university learning.

Graduate Success Initial Pattern Matrix

PatternMatrix[a]

	Factor								
1	2	3	4	5	6	7	8	9	10
2.1 I find it easy to listen to and understand what others are saying	.580								

2.2 I can use technology effectively to communicate with others						.452				
2.3 I take care to use appropriate vocabulary and grammar when communicating with others									.459	
2.4 I find it easy to communicate effectively with people from different cultures, backgrounds, and authority levels			.328							
2.5 I am able to build wide and effective networks of contacts to achieve my goals			.532							

3.1 I make quick but clear decisions that spur others on towards action	.316									
3.2 I can probe for further information to enhance my understanding of a problem							.505		.527	
3.3 I can structure information in a way that meets the needs of my audience							.572			
3.4 I consider the complexities of the larger cultural, business, and economic reality when approaching a problem or situation		.675					.413			

3.5 I offer unique and novel ideas that add new knowledge and insights to a problem or situation							.735			
4.1 I follow up on goals, tasks, and assignments to ensure successful completion			.798							
4.2 I monitor my performance against deadlines and milestones			.340			.424				
4.3 I make sure that I keep myself up to date on technical knowledge and new developments in my field	.321		.447							

4.4 I am always on the lookout for ways to improve my knowledge and skills, and develop myself as a person			.665							
4.5 I accept and tackle demanding goals with enthusiasm			.854							
5.1 I prefer to work under my own direction										.829
5.2 I consider the consequences of solutions by examining their feasibility and weighing their impact within the larger cultural, business, or economic reality		.869								

5.3 My arguments for solutions are grounded in both subject-/discipline-specific and general knowledge about global and local affairs							.333		.568	
5.4 When controlling costs and budgets, I usually think in terms of profit, loss and added value		.819								
5.5 I find it easy to identify business opportunities for myself, my community or organisation										.403
6.1 I can write my ideas and opinions clearly to convince my audience	.499						.346			

6.2 I avoid using unnecessary jargon or complicated language when presenting my ideas or insights						.806				
6.3 I find it easy to commit information to memory quickly		.444						.407		
6.4 I consider a wide range of alternatives prior to making a decision					.710					
6.5 The solutions I offer make a positive difference in my personal life, community or workplace		.401	.333							

7.1 I find it easy to access the information I need to solve problems or make decisions									.322	
7.2 I try to find the real cause of problems before taking action					.737					
7.3 I usually set realistic goals				.308	.585					
7.4 I develop plans for specific goals and tasks						.368	.322			
7.5 I find it easy to meet deadlines			.427	.464						
8.1 I accept responsibility for the results of my decisions and actions					.790					
8.2 I personally take the credit or blame for the results of my work				.323	.454				.320	

8.3 I uphold the ethics and values of my profession, community, or workplace in all I do						.404				
8.4 I encourage responsible behaviour towards the community and the environment				.777						
8.5 I find it easy to provide direction to others, and to motivate and empower them			.707	.501						

9.1 I feel confident in my ability to draw insightful conclusions from numerical data	.409	.375	.372							

9.2 I can break information into component parts to see relationships and patterns									.404	
9.3 I can make a rational judgment from analysing information and data				.842						
9.4 I can give accurate explanations of information and data presented to me				.804						
10.1 I conceptualize new ways of working for my organization		.313						.452		

10.2 I utilize insights of other experts to innovate in my organization								.711		

10.3 I undertake activities that change the work practices of my organization								.559		
10.4 I exploit opportunities in the labour market or society to renew my organization	.659									
10.5 I actively mobilize people and resources to change my organization	.687									
11.1 I undertake activities to set up new business units	.910									

11.2 I undertake activities to reach new market or communities for my organization	.976									
11.3 I undertake activities that result in new departments outside of my organization	.991									
11.4 I undertake activities that result in new projects within my organization	.883	-.334								
11.5 I actively establish new collaborations with experts outside of my own profession	.864									

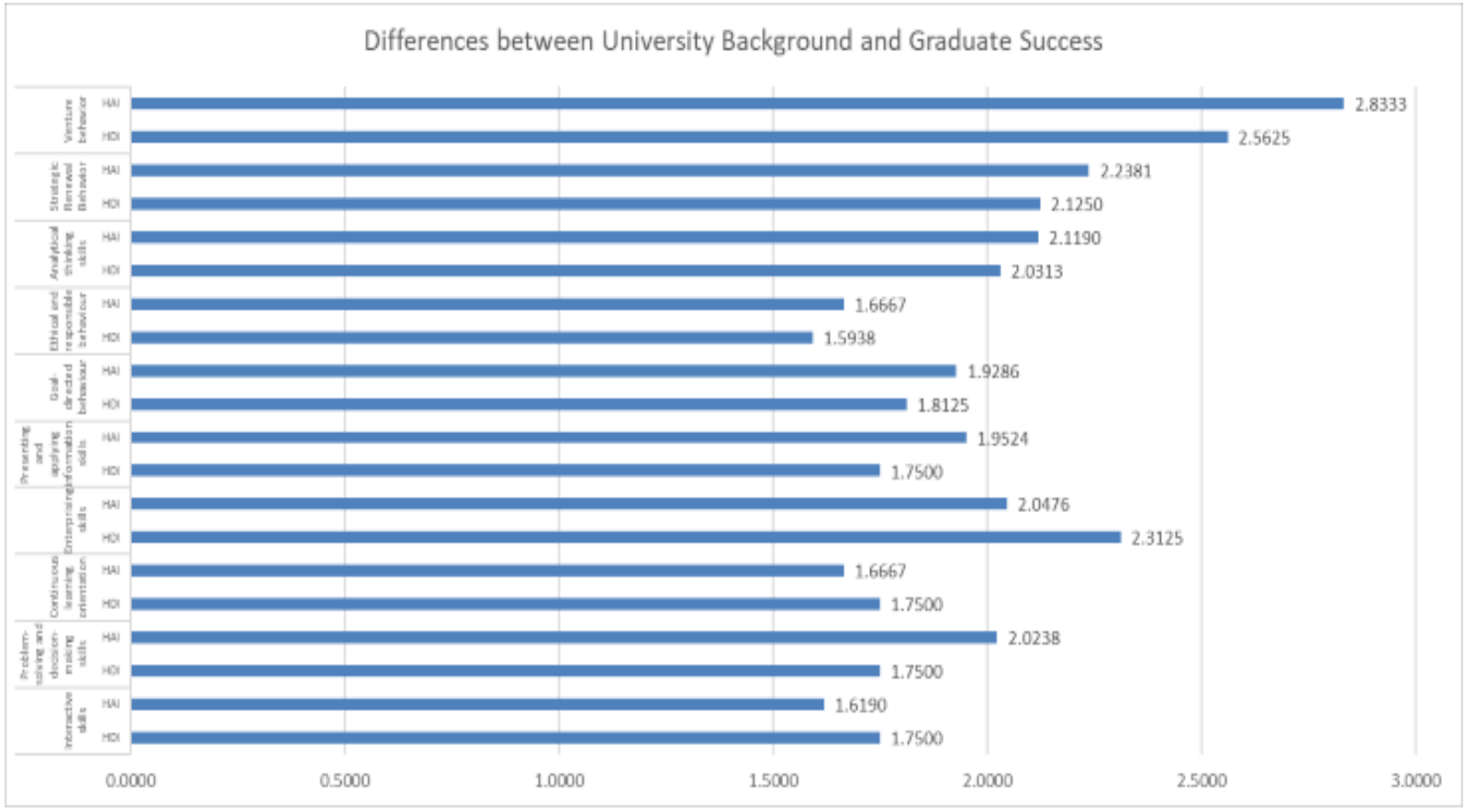
Extraction Method: Principal Axis Factoring.

Rotation Method: Promax with Kaiser Normalization.

a. Rotation converged in 10 iterations.

ANOVA Descriptive statistics

All variances on the Levene's test must follow the rule of thumb that states that if the population variances are not equal, then the 'sig' or $p < 0.05$ which will lead to rejecting the null hypothesis. In this case all the populations that will be compared are almost equal.


Differences between University Background and Graduate Success
Venture behavior
Strategic Renewal Behavior
Analytical thinking skills
Ethical and responsible behaviour
Goal-directed behaviour
Presenting and applying information skills
Enterprising skills
Continuous learning orientation
Problem-solving and decision-making skills
Interactive skills
HAI
HDI
2.8333
2.5625
2.2381
2.1250
2.1190
2.0313
1.6667
1.5938
1.9286
1.8125
1.9524
1.7500
2.0476
2.3125
1.6667
1.7500
2.0238
1.7500
1.6190
1.7500
0.0000
0.5000
1.0000
1.5000
2.0000
2.5000
3.0000