An examination of the factors that influence postgraduate students' intention to stay in higher education
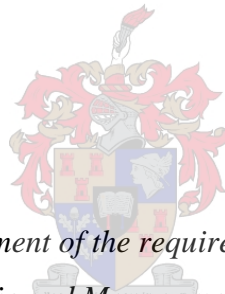
by

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DECLARATION

By submitting this thesis electronically, I, Adelaide de Villiers, declare that the entirety of the work contained therein is my own, original work, that I am the sole author thereof (save to the extent explicitly otherwise stated), that reproduction and publication thereof by Stellenbosch University will not infringe any third party rights and that I have not previously in its entirety or in part submitted it for obtaining any qualification.

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ABSTRACT

The National Development Plan (NDP) was established with the vision of uniting South Africa's citizens, growing the economy, and building the capabilities of the state and leadership. Part of this vision is the enhancement of education and training through early childhood development, quality schooling, and higher education. Even though training, education, and innovation are not a solution to all of South Africa's problems, these factors bolster society's ability to develop competitively, solve problems, reduce inequality, and eliminate poverty. These efforts are currently hampered by a lack of quality education, training, and innovation. In the space of higher education, the aim is to produce more postgraduates each year.

The skills of educated professionals are in high demand in South Africa, as they allow organisations to gain a competitive advantage and engender knowledge that is responsive to a range of societal desires. A well-educated workforce with postgraduate qualifications also plays an important role in the national system, as these graduates have the knowledge and skills that underpin global growth and expansion. Postgraduate students who complete their honours or Master's degree can experience benefits such as a higher income, personal development, increased career prospects, global opportunities, enhanced credibility, self-differentiation, professional advancement, and better work opportunities. However, South Africans are currently enjoying very few of these benefits, because the country is not delivering on its targets for postgraduates, which can be attributed to dropout or discontinuation of studies.

Various studies have focused on student dropout rates at undergraduate level, with even fewer having focused on student retention at postgraduate level. Moreover, there is a gap in extant literature regarding the factors that impact postgraduate students' decision to stay at university. The present study therefore investigated what factors impact postgraduate students' intention to stay, i.e. complete their higher education studies (not to remain in academia as a career choice).

A quantitative research approach was followed in order to find support for a structural model of postgraduates' intention to stay, which was developed through a thorough review of the literature. Postgraduates from Stellenbosch University were invited to participate in the study, and 494 students completed the online questionnaire. The data collected were analysed using

a variety of techniques, including item analysis, exploratory factor analysis, structural equation modelling, and partial least squares structural equation modelling.

Support was found for five of the seven hypotheses. According to the respondents, motivation, career preparation, and academic fit have an impact on their decision to stay at university and complete their postgraduate studies. They also indicated that their level of engagement has little impact on their decision to stay, and that social support from friends, family, and significant others have no direct impact on their decision to stay.

This study's contribution lies in the examination of the primary factors that impact postgraduate students' motivation to complete their studies, rather than dropping out. The information can be used to understand and influence student retention.

OPSOMMING

Die Nasionale Ontwikkelingsplan (NOP) is geformuleer met die doel om Suid-Afrika se populasie te ontwikkel en ekonomiese groei aan te moedig. Deel van die doelwitte is die verbetering van opvoeding en opleiding deur middel van vroeë kinderontwikkeling en hoë-kwaliteit onderrig en tersiêre opleiding. Die afwesigheid van opleiding, opvoeding, en ontwikkelingsgeleenthede verhoed Suid-Afrika om mededingend te groei, probleme op te los, ongelykhede te beveg, en armoede aan te spreek. Sonder opleiding en ontwikkeling is dit baie meer uitdagend om die land se doelwitte te bereik. 'n Toename in die lewering van nagraadse studente kan gesien word as een metode om die land se vooropgestelde doelwitte te bereik.

Die vaardighede van nagraadse studente is hoog in aanvraag in Suid-Afrika. Die rede hiervoor is dat gekwalifiseerde voornemende werknemers die werksmag met baie kennis en vaardighede betree. Organisasies met 'n opgeleide werksmag is in 'n beter posisie om mededingend te kompeteer. Die land sal ook bevoordeel word deur 'n hoogs geskoolde werksmag, aangesien hierdie individue die kennis en vaardighede het wat globale groei en ontwikkeling bevorder. Nagraadse kwalifikasies bied ook voordele soos verhoogde inkomste, persoonlike ontwikkeling, globale geleenthede, verhoogde aansien, self-onderskeiding, professionele ontwikkeling, en beter werksgeleenthede. Tans geniet Suid-Afrika baie min van dié voordele, aangesien die land nie genoeg nagraadse gegradueerdes jaarliks aflewer nie.

Die rede vir die tekort aan 'n vaardige werksmag kan toegeskryf word aan die hoë getal studente wat universiteite verlaat voordat hul graadstudies of nagraadse kwalifikasies voltooi is. Die huidige studie het ten doel gehad om te bepaal watter faktore studente sal aanmoedig om hul nagraadse studies te voltooi. Volgens bestaande navorsing is faktore soos motivering, beroepsvoorbereiding, betrokkenheid, sosiale ondersteuning, en akademiese gepastheid die mees algemene rolspelers in studente se besluit om op universiteit te bly totdat hul graad voltooi is (nie hul voorneme om in die akademie te bly as 'n loopbaankeuse nie).

'n Kwalitatiewe navorsingsbenadering is gevolg om ondersteuning te vind vir die strukturele model vir nagraadse studente se voorneme om te bly. Die model is uit bestaande literatuur ontwikkel. Nagraadse studente van Stellenbosch Universiteit is gebruik as steekproef vir die studie. 'n Totaal van 494 studente het die aanlyn vraelys volledig voltooi. Die data is ontleed

deur middel van verskeie tegnieke, soos item-analise, verkennende faktoranalise, en strukturele vergelykingmodellering.

Ondersteuning is vir vyf van die sewe hipoteses gevind. Volgens die respondente beïnvloed faktore soos motivering, beroepsvoorbereiding, en hoe goed hulle by hul akademiese keuses pas hul besluit om op universiteit te bly en hul nagraadse kwalifikasie te voltooi. Die respondente het ook aangedui dat hul vlak van betrokkenheid nie 'n sterk invloed het nie, en dat sosiale ondersteuning van familie, vriende, en 'n belangrike ander persoon in hul lewe geen impak het op hul besluit om te bly nie.

Die doel van die navorsing was om insig te verkry aangaande die faktore wat nagraadse student beïnvloed om hul nagraadse studies te voltooi. Die resultate van die studie kan deur instansies soos universiteite en ondernemings gebruik word om student-ontwikkeling op 'n nagraadse vlak te bevorder. Die bevindinge kan ook gebruik word om professionele ontwikkeling aan te moedig.

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Introduction

1.1   Background

The National Development Plan (NDP), introduced in 2012, is a detailed blueprint for addressing inequality in South Africa and substantially reduce poverty by 2030. According to the NDP, education, training, and innovation are fundamental factors in South Africa's long-term development plan, and serve as core elements of this blueprint, with the ultimate aim of creating an equal society. Education allows people to take control of their lives, empower themselves, define their identity, raise balanced families, and contribute to developing a responsible society (NDP, 2012). Despite the strides South Africa has made in transforming and growing its education system, much work is still required to meet the objectives set by the NDP.

Globally, tertiary enrolments were roughly 65 million in 1990. This figure increased significantly, to 170 million, in 2009, and to 207 million in 2014, an increase of 160% over a period of almost 20 years (British Council, 2012). It is estimated that, by 2025, there will be 262 million students enrolled globally (Maslen, 2012). Higher education is expanding every year, and is allowing more individuals the opportunity to grow their intellectual ability and expand their career prospects. In addition, there is a correlation between purchasing power parity (PPP), gross domestic products (GDP) per capita, and gross tertiary enrolments.

An increase in GDP per capita is likely to increase the tertiary enrolment ratio. This is generally a reflection of rising household income, growth in the middle class, and a higher demand due to a changing economy (British Council, 2012). However, South Africa is one of the few countries that have not shown this trend. Statistics show that, in 2012, South Africa's total tertiary enrolment, as a percentage of the total population of students five years after secondary education, was 18.99%. This is very low when considering the tertiary enrolment rate of countries like America (91.39%), Europe (59.83%), and Austria (72.31%) in the same year (Roser & Ortiz-Ospina, 2018). The low enrolment is the result of, mainly, historical influences, such as apartheid, which limited the educational and vocational opportunities of certain race groups. Unequal distribution of wealth and resources continue to contribute to inequality with regard to higher educational and other opportunities for the majority of South Africa's citizens (Altbach, Reisberg, & Rumbley, 2009). Research has shown that South Africa has the lowest

tertiary gross enrolment rate (5%) by geographical region (Altbach et al., 2009). However, after apartheid, structures were put in place to address the inequalities created by this oppressive system.

In 1989, the National Commission on Higher Education (NCHE) was appointed to preserve what was valuable and to attend to what was defective and in need of transformation within the education sector. The Commission had two overarching goals: modernise higher education by making use of international experiences and liberate higher education from the limitations that were imposed on it during apartheid (NCHE, 1996). In addition, the National Plan for Higher Education (NPHE) established five policy goals to promote transformation in higher education: (1) producing graduates with acceptable competencies and skills, (2) redressing past inequalities, (3) promoting diversity across the institutional landscape by means of programmes that meet national knowledge needs, (4) promoting research that is connected to the development needs of people, and (5) restructuring the basis of higher education to eliminate inequality (Department of Education, 2001).

Education White Paper 3 also had the purpose of transforming higher education after apartheid. This White Paper outlined initiatives for transforming higher education through planning, governance, and effective funding (Department of Education, 1997). The plans and structures that were put in place after apartheid contributed positively towards the transformation of higher education. In comparison to the rest of the education system, the higher education sector has grown and made the most progress in terms of transformation, equity, and achieving goals of equality (CHE, 2016). This is a positive development, as higher education and learning are vital to South Africa's growth and advancement.

The significance of learning cannot be emphasised enough, because it is a self-enlightening process that is important for the overall development of individuals and society (O'Dubhslainé, 2006). Higher education enables learners to form their own opinion, and it develops their ability to think and reason. Furthermore, it contributes to their career progression, because it helps them realise their career aspirations (O'Dubhslainé, 2006). Being well educated also assists people in the process of building character; it teaches individuals how to distinguish between right and wrong, and equips them to grow independently. Kautilya, an ancient Indian philosopher, was of the opinion that education enriches individuals' understanding of themselves (as cited in Buzzle, 2014). Moreover, education can be regarded as an investment

in human capital. Higher education is therefore of great importance, and holds many benefits for South Africa's future.

The benefits associated with higher education are numerous (Baum, Ma, & Payea, 2013). The most prominent are the increased probability of securing employment and attractive remuneration. This provides educated individuals with the opportunity to experience economic well-being (LaTour, 2014) and a higher socio-economic status (Baum et al., 2013). Furthermore, educated employees are more likely to enjoy medical aid and a pension through contributions provided by the employer (Baum et al., 2013).

On a personal level, higher education provides an individual with the opportunity to develop through the acquisition of skills that set him or her apart from those without higher education. These skills include effective communication, critical thinking, discipline, increased knowledge and a sense of accomplishment (LaTour, 2014). Therefore, higher education allows individuals to enjoy both financial and personal benefits, which can also extend to society at large.

Economists are of the opinion that higher education correlates directly with economic growth (Jack, 2016). Mankiw, Romer, and Weil (1992) agree that education is indeed a fundamental element of economic development and economic well-being. The theoretical literature on growth holds that there are three means by which education could affect the economic development of a country. First, education adds to the human capital of a country's labour force. This may contribute to higher productivity levels (Mankiw et al., 1992). Secondly, the innovation capacity of the economy can also experience growth as new and creative products are introduced into the market (Hanushek, 2016; Lucas, 1988). Lastly, tertiary education enables the distribution of knowledge that can better a country (Nelson & Phelps, 1996). There is also the further consideration that the higher remuneration paid to university graduates increases government's tax revenue (Baum et al., 2013; Hill, Hoffman, & Rex, 2005). This increase in tax revenue allows the government to spend less on income support programmes for unemployed individuals (Baum et al., 2013). Higher education can, therefore, be regarded as a financial return on investment (Baum et al., 2013).

In addition, social benefits associated with enhanced educational attainment include a lower crime rate, greater public participation, improved personal health, and fewer social service demands (Hill et al., 2005). The aforementioned signifies that both society and individuals

enjoy the benefits associated with higher education. Hill et al. (2005) postulate that these benefits might also accrue to subsequent generations. However, the benefits emanating from higher education can only be experienced if a considerable number of individuals obtain a higher education degree and enter the labour market. The concerning reality is that not all learners who enter tertiary education complete their tertiary studies; many leave prior to graduation, for multiple reasons (Gumede, 2017).

There are various reasons why students leave university before completing their degree. One of the main reasons is poor academic fit (Long, Ferrier, & Heagney, 2006). According to research, 21.6% of students drop out due to having made the wrong career choice (Long et al., 2006). Financial limitations can also play a role (Bennett, 2003; Bozick, 2007; Roderick, 1993). In many cases, the financial pressure associated with higher education prevents students from accessing it, and hampers the graduation of those in the system. Some students leave university to find employment and help their families financially, and because they do not have the funds to continue their studies (Matsolo, Ningpuanyeh, & Susuman, 2018; Roderick, 1993).

A lack of support and interest from others is regarded as another factor that contributes to dropout (Smith, 1998). Some students are pressured by their families to start working, as they do not see the value of higher education, and offer little support (Smith, 1998). The absence of support from lecturers can also play a role in student dropout (Sagenmüller, 2018). Research shows that students appreciate support from their lecturers and a personalised learning experience; without such support, students may be more inclined to drop out (Sagenmüller, 2018).

Lack of motivation and poor class attendance can also account for the high dropout rate among students (Roderick, 1993; Vallerand & Bissonnette, 1992). Students with poor attendance eventually fall so far behind that it is almost impossible for them to regain lost ground. This leads to poor grades, which then can lead to dropout (Lanham, 1999).

From the above, it is evident that dropout can be caused by various factors or situations. The reasons discussed above apply to both undergraduate and postgraduate students (Pierrakeas, Xenos, Panagiotakopoulos, & Vergidis, 2004). Research has found considerable similarities in examining the reasons for undergraduates' and postgraduates' dropout rates (Pierrakeas et al., 2004), for example, financial constraints, lack of support, and lack of motivation.

Students dropping out of university prior to graduation costs the economy in terms of lost earnings and unrealised tax revenue. Furthermore, people with no qualifications might find it challenging to secure employment, which may force them to live on government assistance (Latif, Choudhary, & Hammayum, 2015). Tertiary education is very important to economic development, as it influences entrepreneurship, employment opportunities, and productivity growth. Non-completion of a tertiary education lead to a decline in these three factors of the economic development of a country (Latif et al., 2015). The country's economy will not be able to grow, improve, and compete globally. Economic growth then either stagnates or declines. Therefore, dropout has lasting negative consequences (Letsaka & Maile, 2008).

According to the National Plan for Higher Education (NPHE), the South African graduation rate was 15% in 2002. This is one of the lowest in the world (Department of Education, 2002; Minister of Education, 2001), and has not improved much in subsequent years. In 2008, it was reported that one in three students was dropping out of university (Letsaka & Maile, 2008). In 2015, the Department of Higher Education reported that 47.9% of university students did not complete their degree (Gumede, 2017). This is of particular concern, given the shortage of skilled employees and the change that has taken place in employment distribution.

Furthermore, The United Nations Development Program ranked South Africa 32nd out of 177 countries for spending on basic education; however, South Africa was ranked 59th with regard to the cost of higher education. While these are not the worst ratings, it is evident that the country's investment in education has not yielded the expected returns. In 2002, the Department of Education reported that student dropout cost the National Treasury an estimated R4.5 billion in subsidies and grants (Human Sciences Research Council, 2008).

In 2015, the government announced that it would provide loans and bursaries totalling R9.5 billion (South African Press Association [SAPA], 2015). The government also announced that it planned to spend up to R24 billion by 2020 on higher education for poor and working-class families. This money was allocated to allow specified students to receive free higher education. Therefore, if only half of South Africa's university students graduate from their selected programme, it will be a disappointing return on government's investment (SAPA, 2015).

In 2017, there were 1.2 million students enrolled at both public and private higher education institutions (Department of Higher Education and Training, 2019). Of the 1.2 million students,

only 210 931 students in public higher education institutions (3.9% more than in 2016) and 35 922 students in private higher education institution graduated (a 9.5% decrease in comparison to 2016). South Africa has a very low graduation rate when compared to other countries (Broekhuizen, 2016). In 2015, the completion rate for diplomas and certificates was 47.8%, and the completion rate for degrees was 61.6%. This is low when compared to the 80% completion rate of countries like Denmark and the United Kingdom (Jeynes, 2017). South Africa's inability to produce more postgraduates deprives the country and individuals from the benefits related to postgraduate qualifications (Academy of Science of South Africa, 2010; Zewotir, North, & Murray, 2015).

The progress of postgraduate students is also of interest to the field of industrial psychology. A high graduation rate enables people practitioners to recruit from a large pool of applicants with the knowledge and skills that will further an organisation's global growth and expansion. By employing highly skilled people, the organisation gains a competitive advantage, and can generate knowledge that is responsive to a broad range of societal desires (CHE, 2009; Zewotir et al., 2015). In addition, these individuals contribute to the knowledge base of the company (Zewotir et al., 2015). The benefits of a postgraduate qualification extends beyond the organisation, to the individuals themselves. The completion of an honours or Master's degree can potentially lead to improved career prospects for employees. The outcome of this investment in personal development is that they can expect higher earnings, personal fulfilment, global employment opportunities, self-differentiation, increased credibility, and professional advancement (Regent, 2018; Top Universities, 2014; Wolverhampton, 2018).

There exists an urgent imperative to grow the number of postgraduate students that graduate from higher education institutions. The Council on Higher Education (CHE) (2009) is of the opinion that postgraduate studies should receive the necessary support and funding to combat the low graduation rate the country is currently experiencing. Fike and Fike (2008) argue that, while it is important to know why students leave university, it is even more important to understand why they stay. The aim of the present study is thus to determine what factors influence postgraduate students to stay at university and complete their studies.

Intention to stay refers to the likelihood that an employee or student plans to stay at a specific organisation or university (Al-Omari, Qablan, & Khasawneh, 2008). Hewitt Associates (2004) define intention to stay as a person's level of commitment towards an organisation or institution. A person's intention refers to how hard he or she is trying to perform certain

behaviours (Ajzen, 2001). Intention to stay can also be regarded as an inverse concept of intention to quit, or turnover intention (Johari, Yean, Adnan, Yahyad, & Ahmad, 2012). A multitude of studies have focused on turnover or intention to quit, as opposed to intention to stay in education and the workplace (Demetriou & Schmitz-Sciborski, 2011).

Numerous researchers have attempted to identify the factors that influence students to stay at university (Demetriou & Schmitz-Scborski, 2011; Khalifa, Nasser, Ikhlef, Walker, & Amali, 2016; McGivney, 2004; Pascarella & Terenzini, 2005; Thomas, 2002; Viljoen, 2012), making use of a both qualitative and quantitative approaches. For example, Khalifa et al. (2016) used qualitative research techniques to explore student retention. The themes that emerged as possible predictors of student success and retention included social motivation, academic advising, amenities, parental support, faculty support, peer support, academic programme fit, extracurricular activities, and academic preparation. Quantitative examinations have considered the influence of different indicators of intention to stay, such as academic experience, academic preparedness, institutional expectations and commitment, academic and social fit, employability, family support and -commitment, university support services, engagement, motivation, and financial support (McGivney, 2004; Pascarella & Terenzini, 2005; Thomas, 2002). Other studies have emphasised academic preparedness, academic engagement, social engagement, financial means, and demographic characteristics (Demetriou & Schmitz-Scborski, 2011), as well as academic fit and psychological conditions (Viljoen, 2012).

These studies were all conducted in the last 15 years, and share commonalities regarding pertinent factors that influence intention to stay, e.g., engagement, social support, motivation, academic fit, and career preparation. However, these studies focused primarily on undergraduate students, and very few were extended to postgraduate groups. As mentioned, Pierrakeas et al. (2004) demonstrated that a number of similarities exist when considering undergraduates' and postgraduates' dropout. It is thus considered a worthwhile exercise to examine whether the same factors play a role in postgraduates' intention to stay. Hence, the present study examined whether the same factors apply to postgraduates with regard to specific factors that impact their intention to stay. The research was guided by the following research question:

1.2   What factors predict intention to stay among postgraduate students?

The study sought to uncover the factors that predict postgraduate students' intention to stay at university and complete their honours or Master's degree, through a thorough examination of the current literature. These factors were combined in a conceptual model, from which a structural model of postgraduates' intention to stay was developed and which was tested on a sample of postgraduate students, with the aim of determining the factors that predict postgraduate students' intention to stay at university. To achieve these outcomes, the following objectives were set:

- To develop a structural model of postgraduates' intention to stay, based on the current literature, that depicts the latent variables that impact postgraduate students' intention to stay at university;

- To empirically test the fit of the proposed structural model of postgraduates' intention to stay, depicting the relationships between the identified latent variables that impact postgraduate students' intention to stay at university; and

- To evaluate the significance of the hypothesised paths in the proposed structural model of postgraduates' intention to stay.

The results from this study may contribute to a better understanding of the latent variables that constitute the nomological network of variables that influence students' intention to stay at university and complete their postgraduate studies. This information can be used by universities and lecturers to encourage student retention. It could also be used to develop sustainable interventions that inspire students to stay at university and complete their postgraduate studies. It is hoped that the results of this study will contribute to efforts aimed at increasing the number of postgraduate students produced by South African universities each year.

1.3   Summary

The preceding discussion considered the importance and benefits of higher education for individuals, society, and the economy. Higher education contributes to a well-educated workforce with a higher income, lowers the unemployment rate of a country, and enhances possibilities for innovation and growth for both organisations and individuals. Postgraduate qualifications therefore offer South Africa a means to gain a competitive advantage, and to compete internationally. However, the dropout rate of university students has been a challenge for many years. More recently, is has become apparent that the country has too few

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postgraduates in the workforce, as South Africa's higher education institutions do not deliver the desired number of postgraduates each year. Therefore, the present research study will attempt to determine to what extent specific variables impact postgraduate students' intention to stay at university and complete their honours and Masters degrees.

Chapter 2:
Literature review

2.1   Introduction

In the introductory argument, the higher education system in South Africa and the high rate of university dropout were emphasised. This literature review will focus on the identification and articulation of relevant literature in this field of study. The fundamental purpose of the literature review is to contextualise and validate the research, and to demonstrate its position in the existing body of knowledge.

In light of the primary objectives of this study, this chapter commences with a discussion of South Africa's higher education system, followed by the reasons for student dropout. This is followed by an investigation of the factors that motivate students to complete their higher education. These factors will be analysed in an attempt to determine whether they impact students' intention to stay at university. This will culminate in a conceptual model of postgraduates' intention to stay, depicting the selected factors that influence postgraduate students' intention to stay at university and complete their studies.

2.2   Conceptualisation of higher education

Higher education encompasses all post-secondary training, education, and research guidance at educational institutes such as universities. In order to be categorised as a university, state authorities have to authorise the institution as an institution of higher education. Higher education institutions have three main functions: education, research, and contributing to society, which are interconnected (Japan International Cooperation Agency, 2004). *Higher education* refers to all learning and educational programmes that lead to qualifications that adhere to the requirements of the Higher Education Qualification Framework (HEQF) (CHE, 2018).

The HEQF contains the qualifications, characteristics, and purpose of all higher education qualifications in South Africa, and defines how the HEQF forms a vital part of the National Qualification Framework (NQF). The HEQF also allocates responsibility for setting and developing higher education qualifications and the standards to which they need to adhere. The CHE ensures that these qualifications meet the criteria set by the South African Qualifications Authority (SAQA) for registration with the NQF. The CHE is responsible for quality assurance

with regard to higher education. This includes the accreditation of programmes, institutional reviews, and national reviews. The CHE therefore advances the objectives and aims of the NQF (CHE, 2018). The requirements of the Higher Education Qualification Sub-framework (HEQSF) provide a benchmark for monitoring the development and implementation of programmes of higher education qualifications. According to the CHE (2013), there are four overarching aims of higher education. The first is to meet the learning needs of individuals by developing their intellectual abilities. The second is to provide the labour market with high-level expertise and competencies, to ensure growth in society. The third aim is to encourage the development of a reflective capacity, and the fourth is to contribute to the creation and sharing of knowledge.

There are three types of institutions in South Africa that individuals can attend to obtain a post-matric qualification: universities, universities of technology, and comprehensive universities. Universities offer formative, undergraduate, honours, Master's, and doctoral degrees. Universities of technology offer career-focused undergraduate diplomas and BTech diplomas. These institutions also offer a limited number of Master's and doctoral programmes. Comprehensive universities offer programmes typical of universities and universities of technology (Bunting & Cloete, 2010).

2.2.1   Higher education in South Africa

As mentioned, higher education refers to all learning programmes that culminate in qualifications that adhere to the requirements of the HEQSF (CHE, 2017). According to Kishun (2002), education and its outcome knowledge is the primary wealth creator in the global economy, and it can also be viewed as the cornerstone for the development of high-level skills, of which any country is in need. There is also an acknowledgement of the worth of higher education as a means to bring about democratic and economic reform in a country.

The Commission for Africa views universities as a place of development of the skilled individuals that South Africa needs (Commission for Africa, 2005). Higher education is significant in developing countries like South Africa, due to the country's acute need for skills and capabilities to establish a productive niche and address social problems (Scott, Yeld, & Henry, 2007). Fisher and Scott (2011) emphasise that higher education plays a role of paramount importance in producing qualified graduates who can contribute to resolving the skills shortages experienced in South Africa. In addition to reducing skills shortages, various other benefits are attributed to the attainment of higher education.

2.2.2 Benefits of higher education

Higher education attainment enhances worker productivity and improves performance. Further, employees' earnings are strongly related to their level of education. Individuals with a higher education qualification are more likely to earn more than those with no such qualification. There are also non-monetary benefits, such as less crime in areas with a high percentage of graduates. Furthermore, an educated workforce allows economic growth, which, in turn, improves growth in the number of jobs and the increase in jobs lowers unemployment (Altbeker & Storme, 2013; Hill et al., 2005).

While some authors are of the opinion that the level of graduate unemployment is perturbing, others have denounced this claim (Altbeker & Storme, 2013; Scott et al., 2007). Statistics provided by the Centre for Development and Enterprise (CDE) for the period 2011 were compared by Altbeker and Storme (2013), in order to identify trends in unemployment. These statistics indicate that, in 2011, the unemployment rate for graduates fell below 5%, which is heartening, taking into consideration that, since 1994, the number of individuals with a university degree had more than doubled (Altbeker & Storme, 2013). The statistics also show that unskilled individuals have a higher chance of being unemployed.

As indicated earlier, 5% of people with post-matric qualifications were unemployed in 2011. In the same year, 16% of those with a one-year post-matric qualification were unemployed, 29% who had completed matric were unemployed, and those who had not completed high school showed a 39% unemployment rate (Altbeker & Storme, 2013). However, in 2018, 7.4% of people not in possession of a high school diploma were unemployed, and 5.2% of those with a high school diploma were unemployed. In the same year, 4.4% of people with some college experience were unemployed, and 3.6% of people with an associate degree were experiencing unemployment. A total of 2.7% of people with a bachelor's degree were unemployed, and 2.4% of graduates with a Master's degree could not find employment. Only 1.6% of people with a professional degree, and 1.6% of people with a doctoral degree were unemployed (Pepper, 2018). This suggests that employment opportunities rise as individuals' level of education increases.

2.2.3 Benefits and importance of postgraduate qualifications

A postgraduate student is one who has previously received one degree and is studying further to obtain a more advanced degree (Cambridge Dictionary, 2018). This advanced degree allows students to enjoy certain benefits, such as a higher income, in-depth knowledge of a certain

field, professional advancement, increased credibility, advanced career prospects, increased employability, and enhanced promotional prospects (Marone, 2016; Regent, 2018; Top Universities, 2014; Wolverhampton, 2018). A skilled workforce, in turn, allows a country the opportunity to gain a competitive advantage and compete internationally (CHE, 2009; World Economic Forum (WEF), 2012). However, too few South Africans experience these benefits, as South African universities produce an insufficient number of postgraduates each year. The result of this is an inadequately skilled workforce (WEF, 2012). Therefore, South Africa needs more individuals with postgraduate qualifications in order to overcome this problem.

Increasing the number of South African postgraduates in the workforce will serve the country well in the modern knowledge economy by make specialised knowledge available to companies. The country's need for postgraduates stems from the lack of highly skilled people in certain professions (CHE, 2009). These professionals play an important role, as they add to the economic growth and advancement of the country (CHE, 2009).

In sum, higher education and postgraduate qualifications are beneficial to the individual and the country, but South Africa does not fully enjoy these benefits, as postgraduate enrolment and graduation are a challenge for South African universities (Findley, 2018). South African universities aspire to a 50:50 ratio of postgraduates to undergraduates, but this goal has not yet been achieved (Findley, 2018). The number of postgraduates is inadequate to satisfy South Africa's development needs in terms of economic growth and human resource capacity. Furthermore, the number of undergraduates who are filtering through South African universities provides inadequate throughput to postgraduate level, and, as a developing country, South Africa has a need for greater throughput of graduates to postgraduate studies, coupled with a higher number of postgraduate students completing their qualifications (Findley, 2018). One of the reasons for the limited throughput and number of postgraduate students completing their studies is dropout.

2.2.4   Reasons for higher education dropout

Students leave university for a multitude of reasons. Undergraduate students are more prone to leaving university for reasons such as financial constraints, stress, the wrong career choice, a considerable academic workload, and a lack of time management (Pivik, 2015). According to Matthiessen (2019), students enrolled in higher education programmes may fail to adapt to the high demand of higher education, causing them to drop out. Other reasons for dropout could

be the wrong choice of vocation, resource scarcity, and schooling deficits (Van Wyk De Vries Commission, 1972; Matthiessen, 2019).

While postgraduate student may also drop out for the aforementioned reasons, there are other variables that may play a role. Mouton et al. (2015) examined the top three reason why honours, Master's, and doctoral students drop out. Findings indicated that honours students are more prone to dropout due to high academic demands, limited time, and financial challenges. Master's students consider dropping out due to financial challenges, lack of sufficient academic supervision, and limited time. Doctoral students drop out due to financial challenges, limited time, and challenges in their personal life.

In 2015, 47.9% of students left university before completing an academic programme — a retention of 52.1% (Gumede, 2017). While it is important to understand why some students drop out, it is even more important to understand why others stay (Fike & Fike, 2008). Koen (2007) argues that studies on student retention are of great importance, as the information can be used to retain students and remedy South Africa's higher education dropout rate. The research on factors that impact postgraduate students' intention to stay could inform preventative measures to minimise student dropout.

2.3   Intention to stay

Intention refers to the extent to which a person is willing to try to perform a specific behaviour (Ajzen, 1991). The concept of intention to stay signifies the extent to which an employee plans to stay at a certain organisation, or that a student plans to stay at university (Al-Omari et al., 2008; Lyons, 1971; Kim, Price, Mueller, & Watson, 1996). Intention to stay can be described as the extent to which an individual has made plans to either accomplish or not accomplish certain tasks (Bienvenu, 2000). According to Tinto (1975), there are three main factors that influence students' intention to stay or leave an academic institution. These three factors are: (1) individual characteristics (e.g., personality, family background, and previous educational experience); (2) characteristics of the academic institution (e.g., size, quality, and type); and (3) students' interface with the academic environment (i.e. social interactions with the university environment and academics).

Intention to stay is the inverse of intention to quit (Johari et al., 2012). To date, a number of researchers have focused their attention on determining the factors that contribute to dropout

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or intention to quit among pupils, students, and employees, in an effort to combat dropout or turnover. Therefore, the present study focused on the intention of postgraduate students to stay.

Student retention refers to ensuring students succeed (graduate) (Cotter, 2013). The term *persistence* is often used in studies in this field, and *student persistence* refers to continued enrolment (National Student Clearinghouse Research Centre, 2015). The end goal of student retention and persistence is thus the same as that of intention to stay. Student retention is a pertinent concern of higher educational institutions and is the target of multiple interventions and strategies. According to Viljoen and Deacon (2013), there are three main reasons why universities focus on addressing the issue of retention: (1) finances, due to the decrease in tuition income for the university if students leave prior to graduation (Bean, 1986; Bringle, Hatcher, & Muthiah, 2010); (2) higher education institutions have an ethical responsibility to ensure students' success (Bringle et al., 2010); and (3) universities' staff members might feel demoralised when students do not complete their academic course because they feel that the quality of the teaching was sub-standard.

Thomas (2002) conducted a qualitative study to determine what factors enhance retention among undergraduate or postgraduate students. Focus groups, questionnaires, and interviews were used to gather information from 32 participants. The results indicated that academic experience, institutional expectations and commitment, academic preparedness, academic and social fit, finance and employability, family support and -commitment, and university support services are influential indicators of student retention. McGivney (2004) also conducted research to determine what factors contribute towards persistence in adult learning. She used a sample of 476 adult learners completing undergraduate studies, with *adult learners* referring to students older than 25 years. The findings indicated that engagement, motivation, family support, effective tutors, financial support, pre-entry information, and supportive learning groups impact students' intention to stay at university.

Demetriou and Schmitz-Sciborski (2011) indicate that undergraduate students' desire to graduate is influenced by academic preparation, finance, academic engagement, social engagement, and demographic characteristics. Similarly, Viljoen (2012) examined academic fit, psychological conditions, engagement, and social support in a sample of 304 first-year students enrolled at the North-West University and found corresponding results. When examining the aforementioned studies, several commonalities amongst the influencing variables are evident.

Seminal researchers in education, Pascarella and Terenzini (2005), argue that academic preparedness, motivation, and student engagement are the best predictors of intention to stay. The importance of motivation and engagement was also highlighted in a study conducted by Xiong et al. (2015). The study considered the impact of engagement and motivation as retention strategies in higher education. A total of 17 359 students participated in the study, and results indicated that motivation (internal and external) and engagement indeed contribute toward students' intention to stay at university.

More recently, a study by Khalifa et al. (2016) looked at factors that play a role in student persistence among students at a higher education institute in Qatar. The aim of the study was to determine what challenges students experience in higher education. A total of 35 students partook in the study. Information was collected through interviews, and the themes generated indicated that students in higher education have a need for academic advising, amenities, parental support, faculty support, help from friends and/or peers, programme fit, extracurricular activities, preparation for university, and motivation (Khalifa et al., 2016). What was interesting about this study was that the researchers did not have pre-determined factors that they considered during the study. Despite this, their findings are aligned with those of previous studies on this phenomenon, both qualitative and quantitative.

From the aforementioned information, it is evident that deciding to stay at university can be the result of a vast number of determinants that have been proven valuable in various research initiatives. In the present study, the most common variables used in the studies discussed above were examined in an attempt to determine which factors carried the most weight. The variables mentioned in most of the studies are: engagement, social support, and career preparation (see Table 2.1). Academic fit and motivation featured to a lesser degree, but, upon further investigation, it was clear that these variables are important when examining students' intention to stay at university.

According to statistics, one-third of students are uncertain about their choice of academic course, and therefore experience a misfit between their interest and the reality of the academic course (Klochkova, 2016). The misfit between student and course accounts for 21.6% of all cases of student dropout (Long, Ferrier, & Heagney, 2006). A lack of academic fit is not the only factor that impacts dropout among students. According to Lerdpornkulrat, Koul, and Poodej (2018), a lack of motivation and disengagement can be regarded as two of the main reasons underlying student dropout in higher education. The same can be said about a lack of

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social support; research shows that students regard the absence of social support as a predictor of student dropout (Moodley & Singh, 2015). Incorrect career choices and the absence of career preparation can also lead to dropout (Moodley & Singh, 2015). Most of the students in Stott's (2014) study indicated that they had not received any career preparation. In most cases, they had selected career paths based on advice from their family or friends. Furthermore, selecting the incorrect career may cause students to feel disengaged from their studies (Stott, 2014).

In sum, a lack of any of the factors that support student retention — academic fit, social support, career preparation, motivation, and engagement — could result in student dropout. Therefore, the aim of the present study was to determine whether the presence of these factors could result in the inverse of dropout, namely intention to stay, specifically among postgraduate students. The various factors that were mentioned most in the studies discussed above were grouped together (see Figure 2.1) to show what the various researchers found, and to indicate the overlap between the findings of the various studies.

ENGAGEMENT	SUPPORT	ACADEMIC FIT	CAREER PREPARATION	MOTIVATION
• **Engagement** (Mcgivney, 2004) • **Academic engagement** (Demetriou & Schmitz-Sciborski, 2011) • **Social engagement** (Demetriou & Schmitz-Sciborski, 2011) • **Student engagement** (Pascarella & Terenzini, 2005) • **Engagement** (Viljoen, 2012) • **Engagement** (Xiong, Li, Kornhaber, Suen, Pursel, & Goins, 2015).	• **Family support** (Mcgivney, 2004) • **Social support** (Viljoen, 2012) • **Supportive learning groups** (Mcgivney, 2004) • **Social support** (Sommer, 2013) • **Parental support** (Khalifa, Nasser, Ikhlef, Walker, & Amali, 2016) • **Faculty support** (Khalifa et al., 2016) • **Help from peers/friends** (Khalifa et al., 2016) • **Sufficient support** (Retief & Mbambo-Thata, 2008)	• **Academic fit** (Viljoen, 2012) • **Programme fit** (Khalifa et al., 2016)	• **Academic preparation** (Demetriou & Schmitz-Sciborski, 2011) • **Academic preparedness** (Pascarella & Terenzini, 2005) • **Academic advising** (Khalifa et al., 2016) • **Preparation for university** (Khalifa et al., 2016) • **Good career choices** (Retief & Mbambo-Thata, 2008)	• **Motivation** (McGivney, 2004) • **Motivation** (Khalifa et al., 2016) • **Motivation** (Pascarella & Terenzini, 2005) • **Motivation** (Xiong et al., 2015).

Figure 2.1. Common factors impacting student's intention to stay at university

Sources: Demetriou & Schmitz-Sciborski (2011); Khalifa et al. (2016); McGivney (2004); Pascarella & Terenzini (2005); Thomas (2002); Viljoen (2012); Xiong et al. (2015); Sommer (2013); Retief & Thata (2008)

Figure 2.1 summarises the findings on intention to stay of various researchers. The most salient factors were identified by noting those that were mentioned more than once across the various studies. The following section provides a literature review on these factors, which were included in the dimensions of the proposed model of postgraduates' intention to stay (see Figure 2.3). The factors include; student engagement, career preparation, social support, motivation, and academic fit. Student engagement is discussed in the next section, with subsequent sections elaborating on the other factors.

2.4   Student engagement

Student engagement, in various forms, has been a central interest in the field of education for a number of decades. This may be due to the fact that enhancing student engagement is an acknowledged way of improving learning and enhancing academic outcomes (Lester, 2013). Axelson and Flick (2011) propose that the level of student engagement at a university or college could be considered a valid predictor of institutional success and excellence. Students who are engaged and committed to their educational work are better equipped to achieve academic success (Skinner, Furrer, Marchand, & Kindermann, 2008).

Student engagement not only predicts attendance, effective learning, and satisfactory grades, it enhances academic resilience, ultimately contributing to student retention (Sinclair, Christenson, Lehr, & Anderson, 2003). In addition, student engagement addresses issues such as boredom, poor performance, and dropout (Axelson & Flick, 2011; Fredrick, Blumenfeld, & Paris, 2004; Krause & Coates, 2008).

Improvement in student learning and engagement is a responsibility shared by the institution and students alike. Thus, institutional policies and role players such as lecturers, as well as non-institutional factors such as friends and family, play a role in facilitating student engagement (Kuh, Kinzie, Buckley, Bridges, & Hayek, 2007; Zepke & Leach, 2010; Zepke, Leach, & Butler, 2014). While there is some consensus on the benefits of student engagement, the same cannot be said about definitions of the concept. The lack of uniformity in the definitions is testament to the complex nature of engagement (Ciric & Jovanovic, 2016).

Engagement is a multifaceted, complex concept, resulting in diverse definitions and descriptions. To get a clear gasp of the term, the work of various researchers was considered. The notion of engagement evolved from Astin's (1984) concept of student involvement. Pascarella and Terenzini (1991) favoured Astin's definition, and added that, the more students

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are engaged or involved in academic work, the greater their general cognitive development and knowledge acquisition will be.

According to Axelson and Flick (2011), student engagement refers to how interested or involved students are in their academic work and learning activities. It is therefore regarded as more than participation or involvement, also requiring sense-making and feelings related to an individual's learning, peers, and institution (Harper & Quaye, 2009). It also includes how cognitively invested individuals are in their educational institution and their classes (Axelson & Flick, 2011).

Pace (1984) connected engagement with quality of effort, and proposed that, when students take initiative and make an effort, they derive value from their college experience. Engagement can also be understood as an interaction between students with faculty members and other students (Astin, 1993). The most widely used definition of engagement is: "the degree, or extent to which students participate in educational practices" (Kuh et al., 2007). Educational practices may constitute activities such as spending time in consultation with an instructor and studying. According to Kuh (2009), the most widely recognised view of student engagement in higher education forefronts the role of teaching practices and student behaviour in student engagement.

Student engagement can therefore be regarded as a developing construct that incorporates a range of student behaviours and institutional practices related to student achievement and satisfaction, including teaching practices, time on task, and social and academic integration (Kuh, 2009). It is clear from the above that engagement is a complex concept that needs on-going exploration to understand what the construct encompasses entails, as well as the factors that facilitate and adversely influenced it.

The literature on student engagement provides four approaches to understanding engagement. The first is the behavioural perspective, which focuses on effective and accurate teaching. The second is the psychological perspective, which regards engagement as an internal process. The third, the socio-perspective, considers the social context, and the fourth approach is the holistic perspective, which draws the different strands together (Kahu, 2013). Each of these perspectives is further explored.

2.4.1 Behavioural perspective

The behavioural perspective is not limited to one type of behaviour, but various behaviours that denote engagement. Birch and Ladd (1997) define behavioural engagement as the degree of involvement that students display in learning and performing academic tasks. This includes effort (such as concentration), contributing to meaningful classroom discussions, and persistence. Finn (1993) refers to 'positive conduct', which includes behaviours such as adhering to classroom norms, following rules, and the absence of disruptive behaviour. When measuring behavioural engagement, some researchers measured conduct, participation, and persistence using one scale (Birch & Ladd, 1997).

There are many measurements of engagement; however, the most well-known instrument in the behavioural school of thought is the National Survey of Student Engagement (NSSE). The NSSE has been adapted and used in countries such as Australia, New Zealand, the United Kingdom, and South Africa. This tool measures "the extent to which students actively engage in activities directly related to success in higher education and the conditions that institutions provide for such engagement" (NSSE, 2008, p. 3).

The NSSE was designed in 1998. By 2008, approximately 769 colleges had administered the test to more than 1.4 million students (Strydom, Mentz, & Kuh, 2010). The NSSE results are given in the form of five benchmarks of satisfactory educational practices that institutions make use of to estimate the effectiveness of their improvement efforts (Kuh, 2003). Kuh, Kinze, Shuh, and Whitte (2005) define the benchmarks as follows:

- **Academic challenge** places focus on whether students experience their academic tasks and work as intellectually stimulating and challenging.
- **Active learning interactions** are grounded on the premise that individuals learn more effectively when they are involved in educational activities. The items in this section of the questionnaire focus on how involved the students are in the classroom, e.g., participation in classroom discussions.
- **Interaction** refers to student–staff and student–faculty interaction. The focus is on how effective and regularly students engage with staff on matters such as their future plans and grades.
- **Enriching educational experiences** refers to complementary learning opportunities that students participate in in order to enhance their academic experiences. These types of experiences are programmes such as internships and community service.

- **Supportive learning environment** refers to the quality of a student's relationships on campus.

In 2006, the NSSE was adapted for the South African context, and named: South African Survey of Student Engagement (SASSE). In addition to the five benchmarks listed above, the SASSE provides additional information on university activities, educational programmes, effective time usage, personal development, and students' satisfaction with the educational institution (Strydom et al., 2010).

Despite the widespread use of the NSSE, significant criticism has been raised against this tool. According to Porter (2011), the definition of the domain is too broad, and multiple items lack justification. The NSSE questions are also worded too vaguely. Porter (2011) is also of the opinion that the NSSE questions expect better recall of events than is likely for some students. Also, Porter (2011) criticised the NSSE for not showing a statistically significant correlation with measures of moral reasoning and critical thinking. In addition, Korzekwa (2007) found little evidence of the instrument's predictive validity, as a study across 14 institutions found a weak link between the NSSE benchmarks and academic success. The validity of students' responses could also be questioned. The reason for this is that students sometimes find it difficult to understand certain academic terms used in the NSSE. This causes experts to question the reliability of the students' responses (Kuh, 2001). The use of a survey for measuring the behavioural dimension is also considered a limitation (Laird, Shoup, Kuh, & Schwarz, 2008). Another limitation with regard to a survey instrument is that the dynamics of the dimensions, as well as the complexity of the dynamics, are overly simplified.

2.4.2   Psychological perspective

From a psychological perspective, engagement is viewed as an internal psychosocial process that advances over a period, and may vary in intensity over time (Kahu, 2011). From this perspective, engagement can be viewed as a complex phenomenon with intersecting dimensions. Some researchers conceptualise engagement as a combination of dimensions — behavioural, emotional, cognitive, and conative. Earlier work limited engagement to only one of these dimensions; however, later research portrayed engagement as a combination all four dimensions (Fredrick et al., 2004; Fredrick & McColskey, 2012).

In the three-component Model of Engagement of Fredrick et al. (2004), the *Behavioural* dimension considers involvement and participation in activities and tasks that may be

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academic, extracurricular, or social. Participating in these activities is important in attaining a positive academic outcome. Finn (1993) posits that participation in school-associated activities, both inside and outside the classroom, leads to success, which then creates a sense of belonging.

The *Cognitive* dimension considers students' psychological investment and the effort they exert to grasp knowledge and skills (Newman, Wehlage, & Lamborn, 1992). This dimension is related to how effectively students use different learning techniques (Fredricks et al., 2004). Individual characteristics such as expectations, self-efficacy, and motivation are incorporated into the psychological perspective (Jimerson, Campos, & Greif, 2003). In addition, the dimension refers to the will to succeed and be successful in an academic-related activity (Como & Mandinach, 2004; Harris, Bolander, Lebrum, Docq, & Boury, 2004).

The *Affective* dimension considers the emotional intensity that is attached to the learning experience (Askham, 2008). A student with a high level of engagement will engage behaviourally and cognitively in an academic activity. The student is therefore motivated to learn by an interest in the academic topic. In addition to the behavioural, emotional, and cognitive perspective.

While not considered in the Model of Engagement of Fredrick et al. (2004), the *Conative* dimension, which refers to the will to succeed, deserves consideration. Theorists such as Corno and Mandinach (2004) regard conation as a separate perspective or dimension (Corno & Mandinach, 2004; Harris et al., 2004). However, Fredericks et al. (2004) argue that conation should not be considered a separate dimension, because the *Behavioural*, *Cognitive*, and *Affective* dimensions adequately capture the psychological state of engagement.

There are also some limitations with regard to the psychological perspective. One of the key limitations is the lack of clear definitions and distinct differentiation between the various dimensions. Jimerson et al. (2003) examined 45 articles, and found that 31 did not define the dimensions. Furthermore, there is considerable overlap with constructs studied previously, such as values, learning approaches, and motivation. There is also an overlap among dissimilar dimensions (Fredrick et al., 2004). Moreover, researchers have not reached consensus on the relationships between the dimensions. Newman, Wehlage, and Lamborn (1992) contend that students do not have to be emotionally engaged in a topic in order to complete their academic work and learn effectively, but Gibbs and Poskitt (2010) reason that emotional and behavioural

engagement are important rudiments for cognitive engagement. However, despite these limitations, the psychological perspective still has much to offer.

Previously, thinking and feelings were treated as separate constructs or processes in psychology, but, in recent years, these processes have been considered interwoven and inseparable (Forgas, 2000). Engagement is viewed as multi-dimensional, thus allowing a rich understanding of the experiences of the individual (Fredricks et al., 2004).

2.4.3   Socio-cultural perspective

The socio-cultural perspective considers the influence of the social context on students' experiences. Work done by Mann (2001) shows that contextual factors such as disciplinary power and academic culture could contribute to student disconnectedness during higher education. In addition, Thomas (2002) proposed that institutional habits could result in cultural and social bias within an educational setting, in favour of leading social groups. This could result in low retention rates in higher education.

A constructive approach by Dall'alba and Barnacles (2007) suggests that higher education may need to take an ontological turn by educational institutions engaging with individual students and considering what they know, who they are, and how they act. By doing this, the individuals are not disconnected from the academic work and the higher educational institution. Barnett and Coate (2005) elaborated on ontological engagement, suggesting that it entails engagement with the political nature of the world and active citizenship.

According to McInnis (2001), student engagement is influenced by the wider socio-political context. Hence, the decline in academic engagement could be due to societal changes, for instance, market-driven change and changes in higher education. The socio-cultural perspective emphasises the impact of the social setting on students' level of engagement. It also holds that higher education institutions should not only consider student support systems, and that attention should also be directed towards the institution's philosophy and the wider social and political debate underlying student engagement.

2.4.4   Holistic perspective

The holistic perspective encompasses elements of the behavioural, psychological, and socio-cultural perspective. The holistic perspective draws together the impacts on student engagement described in the former perspectives:

- active learning, from the cognitive dimension, which stems from the psychological perspective;
- the impact of external circumstances in the socio-cultural perspective; and
- institutional support, from the behavioural perspective (Kahu, 2011).

Kahu (2011) proposed a conceptual framework of engagement (depicted in Figure 2.2), in which she included the organisation, the role of the student, and socio-cultural effects on engagement.
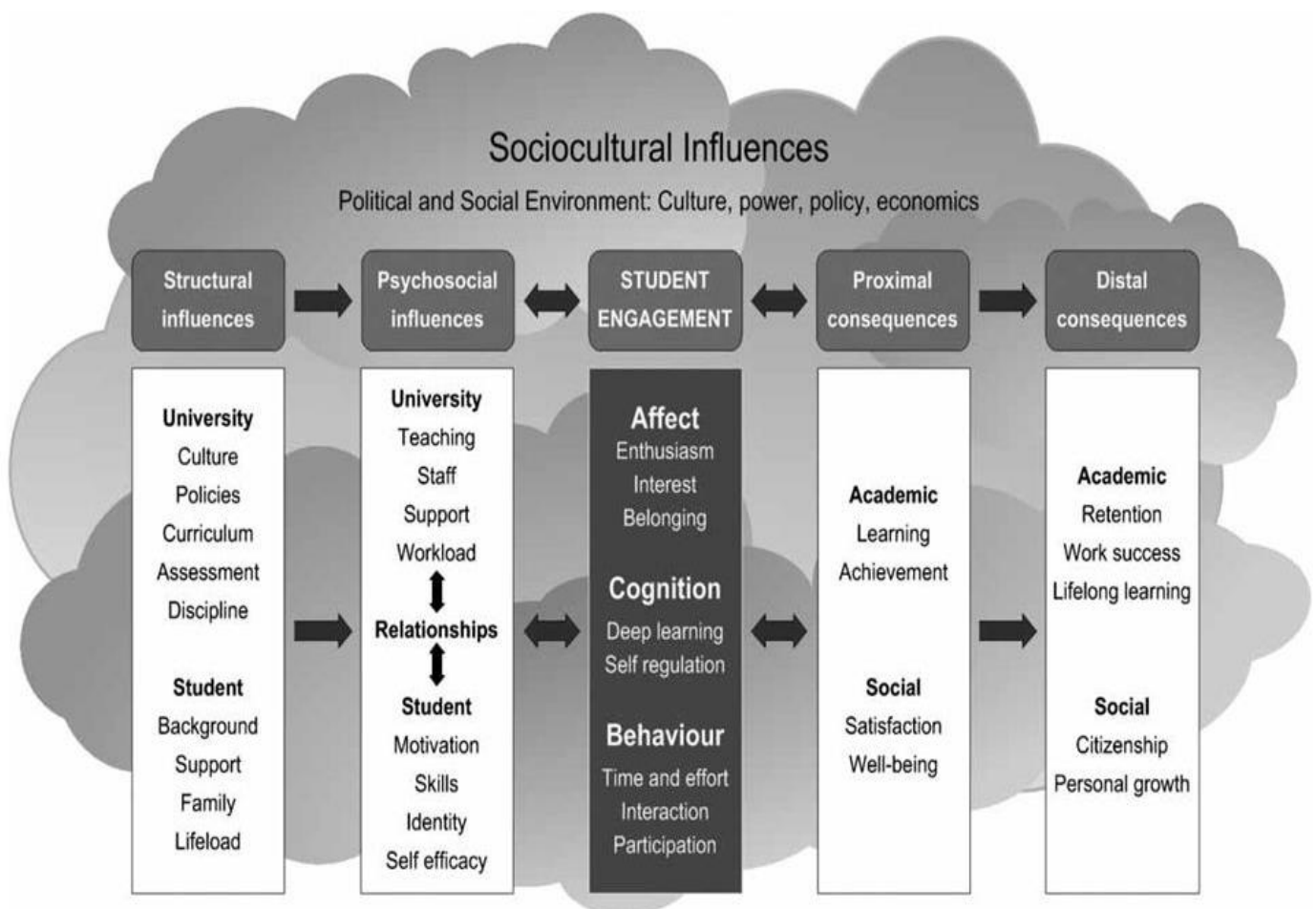
Figure 2.2. Conceptual framework of engagement, antecedents and consequences.

Reprinted from Framing student engagement in higher education by E. R. Kahu, 2011, Studies in Higher Education, 38(5), 758-773. Copyright 2019 by Taylor and Frances.

In essence, there are four perspectives through which engagement can be examined, namely behavioural, psychological, socio-cultural, and holistic. All of these perspectives have merit. However, the present study focused on the psychological perspective, as several researchers

have recognised that psychological engagement is of great importance in producing positive outcomes (Dawes & Larson, 2011; Weiss, Little, & Bouffard, 2005).

The psychological perspective of engagement endorses the multi-dimensional conception of engagement, i.e. the behavioural, cognitive, and affective dimensions (Rose-Krasnor, 2009). As mentioned earlier, the behavioural dimension is more focused on the behavioural aspects of the individual (Fredricks et al., 2004), whereas the cognition dimension is related to the student's psychological investment in an academic course (Newmann et al., 1992). The affective dimension considers the emotional intensity of the student's attachment to the learning experience (Askham, 2008).

The psychological perspective therefore acknowledges the dynamic interplay of different dimensions of engagement. However, before students can become engaged in their studies, they have to select the career path that fits them best. Career development and preparation are needed before this decision can be made (Arbona, 2000; Kenny, Blustein, Haase, Jackson, & Perry, 2006; Perry, Liu, & Pabian, 2010). A longitudinal study by Kenny et al. (2006) confirmed that career preparation, which includes career planning, career decision-making, and confidence, reduces the risk of learning disengagement, which is regarded as one of the main causes of university dropout.

The factor *Career preparation* is included in the proposed model of postgraduates intention to stay (see Figure 2.3). Career preparation is the first step in the important developmental process of career development. Career development is discussed in the next section, where after the focus moves to career preparation which is pertinent to the current study.

2.5   Career development

A person's work identity is formed in the process of career development. This process begins with preparation for a career choice, followed by the choice of career, entry, and continuous adjustment to work (Super, 1990). This process is a significant part of human development, and could span an individual's entire lifetime.

Career development continues as the individual begins to explore different occupational fields (McKay, 2017). According to Solberg, Howard, Blustein, and Close (2002), when students explore their core identities by linking their academic and school experiences to future work, it not only helps the students define who they are, it also helps them to stay engaged in their

academic setting. It is important that students understand that what they are being taught at school is relevant and significant to their future (Repetto & Andrews, 2012).

According to Webb, Repetto, Seabrooks-Blackmore, Patterson, and Alderfer (2014), there are three overarching components of career development: self-determination (also called 'person-centred planning'), career assessment, and career planning. Self-determined people are more self-aware, they make more educated decisions, and they tend to set goals for themselves (Thoma & Getzel, 2005; Wehmeyer, Agran, & Hughes, 1998). They are often better prepared to control their destinies (Seabrooks-Blackmore & Williams, 2012). Person-centred tactics involve a guided process that ensures that the person's needs are met (Seabrooks-Blackmore & Williams, 2012). Career assessments are used to inform adolescents as they plan and prepare for higher education (Neubert, 2012). Assessments can guide individuals towards the occupational field that suits them best (Neubert, 2012).

Career planning also forms an important part of career development. It is the ongoing process whereby individuals explore their interests and abilities, and then select a career path that is aligned with their interests and abilities (Webb et al., 2014). Career planning thus involves consideration of the individual's skills and interests, as well as the continuously changing work environment, which requires flexibility and the skill to function in an array of different settings (Hanley-Maxwell & Izzo, 2012).

Career development is not a simple concept and has been explored for many years. From as early as the 1970s, career development was employed to address social issues such as poor life skills, high dropout rates, and preparation for post-school studies (Brolin, 1996; Herschbach, 2001; Kolstoe, 1996). Career development can be regarded as a lifelong process, and part of career development is preparing for a certain career path. Career preparation refers to the process of preparing for a career by exploring career paths, deciding on a path that suits one best, and then having the self-assurance to achieve one's set career goals (Skorikov, 2007; Stringer, Kerpelman, & Skorikov, 2011).

According to literature, career preparation can be regarded as a predictor of intention to stay (Demetriou & Schmitz-Sciborski, 2011; Khalifa et al., 2016; Pascarella & Terenzini, 2005; Retief & Mbambo-Thata, 2008). Career preparation was therefore explored in the present study.

2.5.1 Career preparation

Career preparation is pertinent to postgraduate students, because, if a student does not have a clear goal towards which he or she is working, that student might be more inclined to drop out when postgraduate studies become difficult. Career preparation helps students to put career goals in place that they have to achieve, and, in many cases, postgraduate studies form part of the plan.

Skorikov (2007) argues that career planning, career decision-making, and career confidence are all interconnected and work collectively to inform career preparation. The following sections unpack these elements of career preparation and how these add to students' engagement and intention to stay at university.

2.5.1.1 Career planning

Skorikov (2007) defines career planning as a future-orientated behavioural and attitudinal approach to an anticipated pathway. Career planning can also be seen as a means to help students see the many options they have with regard to career opportunities. Wheelock and Dorman (1988) posited that career planning can be employed in a motivational manner, to inspire students to complete their studies, rather than drop out. The importance of a good career plan cannot be stressed enough; however, the implementation of a study plan can be challenging at times.

It is important that students establish a foundation of career exploration and career awareness before they commence with their career-planning journey. Career planning begins with career awareness, progresses to career exploration, and culminates in actual planning. Sometimes, students are not completely sure what a specific occupation demands. However, when students are in a position where they can explore different career prospects, they gain a better understanding of what each career will require of them. With the right knowledge, they are better equipped to make informed and realistic career-related decisions. Career awareness assists in career planning, because it allows students to become familiar with the world of work and see the different career options that are open to them (Wheelock & Dorman, 1988).

Career exploration is essential, because this process guides learners, and assists them in the process of determining their career-related values, needs, and interests, by means of exploring various occupations (Oakland Department of Vocational and Technical Education, 1996). Career exploration provides information that can be very useful to students when they are in

the process of setting career goals for themselves. Wheelock and Dorman (1988) indicated that guidance programmes offer opportunities to students to grow aspirations, which inspire individuals to consider various career options. Career planning should only commence once the processes of gaining career awareness and career exploration have been completed successfully.

Career planning refers to the plans that adolescents make regarding their future occupation. The career-planning process can be seen as an individual-centred approach that includes an assessment of opportunities, self-assessment, and action planning for career goals (Iles & Mabey, 1993). Just like many other career-orientated processes, career planning is a continuous process that plays a vital role in career decision-making (Rothwell, Jackson, Knight, Lindholm, Wang, & Payne, 2005).

2.5.1.2 Career decision-making

Decision-making is the process of identifying and selecting various alternatives, based on personal preference (Reason, 1990). Career-related decision-making refers to the decision individuals makes with regard to which career path they are going to pursue (Sharf, 2002).

According to Parson (1909), career-related decisions should be built on three overarching factors: 1) a good understanding of who you are, what you are good at, what your interests are, and what your limitations are; 2) knowledge of the advantages and disadvantages related to a certain occupation, as well as the requirements pertaining to different occupational fields; and 3) rational decision-making based on information from the first two points (Jones, 1994). These three points form a process that leads to informed career-related decisions.

Williams (2012) conducted a research study in which he considered the impact of career-related knowledge and information on career-related decision-making and intention to stay at university. His study confirmed that career knowledge (gained through, e.g., workshops) helped students to make informed career-related decisions. However, the career decision-making process is characterised by various challenges; therefore, some students might make uninformed decisions regarding the career path they want to follow (Gati & Saka, 2001).

Students face multiple challenges in deciding on a career path. Agarwal (2015) notes that deciding on a career path is a big responsibility for a young person, and many young individuals make the wrong choice, due to hurdles they encounter.

- First, a lack of financial resources can impact the career decision-making process (Agarwal, 2015). In some cases, the course the individual wants to study is very expensive, and individuals may therefore settle for a course that is more affordable, even though it is not really what they want to study. In other cases, an individual receives a scholarship for a particular course, and then feels obligated to complete that course.

- Secondly, some students select the same career path as their friends, causing them to make an uninformed career decision (Agarwal, 2015).

- Thirdly, a lack of access to good educational institutions can impact the decision-making process negatively. Some educational institutions do not have enough vacancies for all who apply; this may cause some students to select any course that allows them access to the university, even though that course is not their first choice (Agarwal, 2015).

- Fourthly, some students do not pursue a career path based on their interests, for fear that the selected career will fail to secure them an attractive job and income. Many learners then study a degree that they are not passionate about, as they feel obligated to select the 'safe' career path (Agarwal, 2015).

One of the primary reasons for uninformed decision-making is a lack of career guidance. Learners do not receive information on the various career paths that are available, and they do not know that they should match their interests and abilities with the career they select. Individuals should consider aspects of themselves (e.g., their vocational identity) and the career before they make any decision (Agarwal, 2015).

Career decision-making is an on-going process, and after students have completed their undergraduate studies, they have to decide whether to complete a postgraduate qualification. Career decision-making does not stop when a student graduates (Leduc, Vanasse, Scott, Scott, Orzanco, Dogma, & Malham, 2011; Yap, Rosen, Sinclair, & Pearce, 2012). For example, the career decision-making process of final-year medical students requires that they make a career-related choice when deciding on their field of specialisation (Leduc, Vanasse, Scott, Scott, Orzanco, Dogma, & Malham, 2011; Yap et al., 2012).

Olwage and Mostert (2014) propose that making the correct career decision is important for student engagement, as students will not experience high levels of engagement if they have made the wrong decision with regard to their career path. Making the right career decision is

aided by exploring one's vocational identity (Cox, Bjornsen, Krieshok, & Liu, 2016). Vocational identity is clarity regarding one's career-related goals and plans (Gupta, Chong, & Leong, 2014; Holland, 1997). Holland (1997) argues that, as individuals' vocational identity increases, so does their ability to make good career-related decisions, due to their increased understanding of themselves.

2.5.1.3 Career confidence

According to Skorikov (2007), career confidence among students refers to students' belief that they will be able to attain their career goals. Students should have confidence in their vocational identity and believe that they have the capacity to complete their chosen academic course. Many studies have confirmed the notion that self-belief improves one's ability to do something (Briggs, 2014).

A study by Briggs (2014) using a sample of engineering students considered the impact of confidence on performance. The results showed that student confidence influenced performance by 12%. This means that students who believe in their capability to achieve their career goals, perform on average, 12% better than students who have no or little confidence in their own ability.

Career confidence gives students the feeling that their career goals are within their reach, and that they have the ability to achieve these. Students who have career confidence are more likely to achieve success, because they know what they want to achieve, and they work diligently towards their goals. Career confidence plays an important role as students progress through their studies (Stringer et al., 2011).

In sum, career planning, career-related decision-making, and career confidence are the building blocks of career preparation. From the foregoing information, it would seem that career preparation might be valuable in motivating students to complete their studies. The stimulation and motivation of students has also proven to be valuable with regard to postgraduate studies (Maclellan, 2005; Pintrich, 2003; Sternberg, 2005).

2.6   Motivation

Motivation refers to the psychological state of a person that causes that person to act in a certain manner. "To be motivated means to be moved to do something. A person who feels no impetus or inspiration to act is thus characterized as unmotivated, whereas someone who is energized

or activated toward an end is considered motivated" (Ryan & Deci, 2000, p. 54). Motivation among students refers to the extent to which they exert effort in an academic project or learning activity in order to achieve success. Sternberg (2005) proposes that motivation plays a pivotal role in academic success, because without motivation, students are less inclined to learn.

Research shows that the process of guiding postgraduate individuals through their study process often commences with the proposal that students reflect on their motivation to participate in postgraduate studies (Cryer, 2006; Wisker, 2001). According to Tinto (1994), lack of commitment and poor motivation can be regarded as prominent causes of student dropout. In addition, Dass-Brailsford (2005) indicates that students' goals, confidence, and degree of motivation to complete their studies directly influence their academic success. It is therefore clear that motivation plays an important role in higher education success (Maclellan, 2005; Pintrich, 2003), including in postgraduate studies (Igun, 2010). Motivation emanates from different sources, namely internal motivation, external motivation, and amotivation. These are discussed in the following section.

2.6.1 Intrinsic motivation

Intrinsic motivation is behaviour that is driven by the need for internal rewards. Individuals who experience internal motivation engage in behaviours that satisfy them. Intrinsic motivation allows a person to enjoy an activity and engage in certain behaviour without any expectation of external reward (Cherry, 2017).

Internal motivation is considered the strongest predictor of academic performance (Goodman, Jaffer, Keresztesi, Mamdani, Mokgatle, & Musariri, 2011; Schlechty, 2001). When a student is intrinsically motivated, he/she is more likely to exert academic effort and achieve academic success, experience lower levels of anxiety, and show higher levels of engagement (Wigfield & Eccles, 2002; Wigfield & Wagner, 2005). These students are also more prone to believing in themselves, as they experience higher levels of self-efficacy (Pajares, 1996), may not be easily discouraged by challenging problems (Middleton & Spanias, 1999), are more persistent, and spend more time on tasks (Lepper, 1988; Lepper & Henderlong, 2000). These students have a high level of persistence (Froiland, Oros, Smith, & Hirchert, 2012). It is thought that intrinsic motivation is more influential than extrinsic motivation (Zhu & Leung, 2011).

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2.6.2   Extrinsic motivation

Extrinsic motivation arises from reward outside of the individual. Extrinsic motivation denotes behaviour that is driven by external reward (Cherry, 2017). Students who experience external motivation are more likely to engage in learning for rewards such as lecturer- and peer approval, praise, and excellent academic grades (Mueller, Yankelewitx, & Maher, 2012). Extrinsically motivated students engage in learning to avoid punishment or to receive a reward (Dev, 1997), and may exert very little effort in order to achieve maximum reward (Lepper, 1988). Extrinsically motivated learners focus their behaviour outside themselves (Karsenti & Thibert, 1995).

The downside of extrinsic motivation is that it has a shorter effect. For example, if the student does not receive admiration from lecturers or peers, his or her level of motivation may lessen, whereas internal motivation has a more lasting effect (Brophy, 2004; Cameron, 2001; Lepper, Corpus, & Lyengar, 2005).

2.6.3   Amotivation

The absence of self-determination is referred to as amotivation (Deci & Ryan, 1985). Self-determination refers to individuals' characteristics that lead them to make decisions and choices based on their own preferences, without external influence (Collins, 2018). Amotivated people are neither externally nor internally motivated. They experience feelings of a lack of control, and might also feel incompetent. These people view their own behaviour as caused by forces outside of their control (Ayub, 2010). In many cases, these individuals feel they are not in control of their actions, and they are therefore less prone to invest time and effort to accomplish a task. Moreover, they are not able to perceive a relationship between their own actions and the outcomes of their actions (Pelletier, Fortier, Vallerand, & Briere, 2001). Amotivation is associated with poor concentration, poor psychological adjustment, and dropout (Baker, 2004; Vallerand, Pelletier, Blais, Briere, Senecal, & Vallieres, 1993; Pelletier et al., 2001). Amotivation is undesirable, as it does not have the same positive outcomes as internal and external motivation.

Level of motivation experienced by a student can influence the student's performance and desire to stay in college (Demetriou & Schmitz-Sciborski, 2011). Baker (2004) studied the relationship of intrinsic motivation, extrinsic motivation, and amotivation respectively with student adjustment, well-being, stress, and academic performance. The study found that individuals with greater levels of intrinsic motivation tend to experience lower levels of stress.

Amotivation is associated with greater levels of stress and poor college adjustment. Students with a balance of both intrinsic and extrinsic motivation tend to perform better in higher education than students who do not experience a combination of the two (Lin & McKeachie, 1999). Both intrinsic and extrinsic motivation are beneficial to students, as both motivate them to persist, achieve academically, and obtain a higher education qualification. There is, however, the consideration that people influence the behaviour of others. In this regard, social support is a significant factor in student motivation. This is discussed below.

2.7   Social support

Social support is "the social resources that people perceive to be available or that are actually provided to them by non-professionals in the context of both formal support groups and informal helping" (Cohen, Gordon, & Gottlieb, 2000, p. 4). House (1981) refers to social support as the perception and the actuality that one is cared for by others, receives support from others, and forms part of a social network. Social support can also be regarded as a 'social fund' that contains material and emotional resources from which individuals can draw when they experience stress (Cohen, 2004; Thoits, 1995). Research shows that social support from lecturers, friends, family, partners and colleagues impacts motivation, especially among postgraduate students. The perception of social support tends to motivate an individual to engage and complete a higher education qualification (Dawkins & May, 2002; Home, 1998; Vryonides & Vitsilakis, 2008).

There are many definitions of social support, but all broadly describe social support in terms of three perspectives (Burleson & MacGeorge, 2002; Goldsmith, 2004; Sarason, Sarason, & Pierce, 1994). The first is the sociological perspective, which focuses on the extent to which a person is incorporated into a social group. The second is the psychological perspective, which considers the accessibility of such support. The third is the communication perspective, which refers to the interaction between the recipient and the provider of social support (Burleson & MacGeorge, 2002; Goldsmith, 2004; Sarason, et al., 1994). The studies conducted using these definitions were originally designed around the conjecture that the outcome of social support is positive (Vangelisti, 2009). There are not only different perspectives of social support, but also different types of social support.

House (1981) postulated four types of social support, namely emotional, instrumental, informational, and appraisal support. Emotional support refers to the expression of feelings and verbal and non-verbal cues. Instrumental support refers to the provision of the necessary

resources and material. Informational support refers to providing the person with relevant information in order to reduce his or her level of uncertainty. Appraisal support is concerned with giving the individual relevant feedback.

Cutrona and Suhr (1992) extended this list, and proposed five categories of social support. The first is informational support, i.e. messages that include facts or knowledge, such as feedback and advice. The second is emotional support, and refers to empathy, caring, and concern for another. Third is esteem support, which is a message that is conveyed to someone in an attempt to promote his or her abilities, skills, and intrinsic values. The fourth is social network support — help that enhances a person's sense of belonging to a group that shares similar interests. The fifth type is tangible support, which refers to providing someone with the physical goods and services they need (Cutrona & Suhr, 1992). Different types of social support are needed in different situations; however, all types of social support hold multiple benefits.

There are compound benefits associated with social support for students. Various studies have provided evidence that social support plays a vital role in buffering the stress associated with higher education studies (Baldwin, et al., 2003; Skowron, Wester, & Azen, 2004). Students who receive social support are more likely to navigate university life successfully, and they are less prone to experiencing academic stress (Baldwin et al., 2003; Skowron et al., 2004). Goldsmith (2004) posits that social support could result in better physical health, enhanced academic achievement, and healthier interpersonal relationships. Laack (2013) supports the notion that social support has a positive impact on academic achievement. In addition, social support can contribute towards student retention. Retention theorists such as Astin (1984), Bean and Metzner (1985), Schlossberg (1989), and Tinto (1975) highlighted various social factors that could impact university students' retention or persistence, divided into internal and external sources of social support. These are discussed in the next section.

Internal sources of social support that impact student retention include faculty members, classmates, and other students at the university (Astin, 1984; Schlossberg, 1989; Tinto, 1975). External sources of social support include family, friends, and others in the individual's social network (Bean & Metzner, 1985). The following section elaborates on internal and external sources of social support.

2.7.1   Internal sources of social support

Students gain internal support from the social support they receive from faculty members, classmates, and other people at the university (Astin, 1984; Schlossberg, 1989; Tinto, 1975; Olson & Carter, 2014).

Research shows that student retention rates increase significantly when they perceive their faculty as caring and supportive (Pascarella & Terenzini, 2005; Olson & Carter, 2014). Muraskin, Lee, Wilner, and Swail (2004) also found that dedicated, accessible, and caring faculty members positively impact students' intention to stay. According to Komarraju, Musulkin, and Bhattachary (2010), the relationship between student and lecturer impacts the student's academic self-concept and level of motivation. Faculty members who show an interest in students' academic advancement contribute to the students' intellectual development (Cokley, 2000; Rosenthal, Folse, Allerman, Boudreaux, Soper, & Von Bergen, 2000). In addition, when students interact regularly with their lecturer and receive support from him or her, the students' motivation, involvement, and engagement increase (Pascarella & Terenzini, 2005; Thompson, 2001). Positive interaction among students and faculty members contributes to students' satisfaction with academic life and lowers levels of dropout (Hazler & Carney, 1993). The social support and encouragement from the lecturer allows students the opportunity to grow academically and feel more engaged in their studies.

Social support from classmates and friends can be a source of both internal and external support. An abundance of research shows that students' ability to establish and uphold positive relationships with classmates and peers can positively impact the students' academic achievements and persistence (Astin, 1993; Kuhet al., 2005; Pascarella & Terenzini, 2005; Richardson, Abraham, & Bond, 2012; Tinto, 1975). Students who experience support from their peers appear to achieve greater academic success, and they are more likely to stay at their academic institution than those who do not experience such support (Dennis, Phinney, & Chuateco, 2005; Flynn, 2014; Purswell, Yazedjian, & Toews, 2008; Robbins, Allen, Casillas, Peterson, & Le, 2006). Research conducted by Altermatt (2016) showed that academic support from classmates and friends predicts a student's academic self-efficacy. In essence, supportive relationships with peers and social support from lecturers predict the emotional, social, and academic well-being of university students (Astin, 1993; Kuh et al., 2005; Pascarella & Terenzini, 2005; Tinto, 1975). Bean and Metzner (1985) proposed that social support from

friends and family outside of the university, i.e. external support, could also be beneficial to the student.

2.7.2   External sources of social support

Parent involvement refers to the degree to which parents show interest in their child's learning (Wong, 2008). Parent involvement and support of education improve a student's attitude, morale, and academic accomplishment (Arshad & Shahzadi, 2016). According to Henderson and Berla (1994), the most prominent predictor of student academic success is parental and family involvement and support. Involved and supportive parents take an interest in their child's life, and they create a home environment that encourages learning and development (Henderson & Berla, 1994). Family support also impacts a student's engagement (Harvard Family Research Project, 2010). Research also shows that family support contributes positively towards a student's confidence, institutes readiness, and accomplishments (Arshad & Shazadi, 2016). Social support from parents and close family encourages the individual to achieve success, and this may impact a student's intention to stay at university.

The above discussion indicates that social support, both internal and external, is beneficial to a student. However, it has been found that the certain types of social support are more effective, depending on the student's gender (De la Iglesia, Stover, & Liporace, 2014).

2.7.3   Social support and gender

According to the literature, men and women have different perceptions of social support. A study conducted by De la Iglesia et al. (2014) found that men and women react the same to social support, but do not necessarily seek social support from the same sources. Women make greater use of social networks, because they are more inclined to identify a greater number of people as significant role-players in their life. Men, on the other hand, establish close relationships with others, but seek less support from others than women do (Caetano, Silva, & Vettore, 2013). Women seek more support from lecturers, family, classmates, and friends than men do (Brookmeyer, Henrich, Cohen, & Shahar, 2011; Vitoroulis, Schneider, Cerviño Vasquez, Soteras de Toro, & Santana Gonzáles, 2012). Men are also more prone to seeking support from other men, like their father (Vitoroulis et al., 2012). Furthermore, women regard social support from their friends as more important than men do (Rueger, Malecki, & Demaray, 2008).

In sum, students who receive social support from university staff, friends, classmates, and family are more likely to integrate well, academically and socially, into campus life (Hurtado & Carter, 1997). Students feeling that they belong in campus life may impact their intention to stay at university (Hausmann, Schofield, & Woods, 2007).

2.8   Academic fit

Academic fit refers to the match between an individual's personal characteristics and the characteristics of the academic course he or she is studying (Kristof-Brown, Zimmerman, & Johnson, 2005). One of the most important choices that a student makes upon entering university is a major subject. Students who select a major that is congruent with their interests and skills are more likely to persevere and achieve success in the subject (Allen & Robbins, 2008). Congruence between a student and the course he or she is studying is likely to result in decreased levels of stress, high levels of achievement, satisfaction, increased levels of engagement, and completion of studies (Furrer & Skinner, 2003; Hutz, Martin, & Beitel, 2007). Tracey and Robbins (2006) confirm that academic fit is predictive of a student's graduation. However, academic fit is not only limited to fit between the student and the academic course. The academic environment also plays a role.

Academic fit also refers to the fit between the student and the institution (academic environment). Sawitri and Dewi (2015) posit that students have a need to feel that what is academically important to them is consistent with that what the university offers. Academic institutions might differ in terms of their mission, student bodies, faculty staff, and the academic courses they offer (Sawitri & Dewi, 2014). Fit between a student and the academic environment refers to congruity between the characteristics of the person and characteristics of the environment (Kristof-Brown, Zimmerman, & Johnson, 2005). The fit between a student and an academic environment might be absent when either the environment or the student is perceived as superior to the other. The present study focused more on the fit between students and their academic course than the fit between students and their academic institution.

In summary, the preceding discussions considered the impact of career preparation, engagement, social support, and academic fit on intention to stay. The literature study on all of these concepts provided sufficient information in explaining the various concepts. However, the following section discusses the relationship between these concepts and how these relate to intention to stay.

2.9 Relationship between variables

The following section will consider the relationship between the various variables that were selected for inclusion in the present study. The proposed conceptual model of postgraduates' intention to stay (Figure 2.3) provides a diagrammatical representation of these relationships.
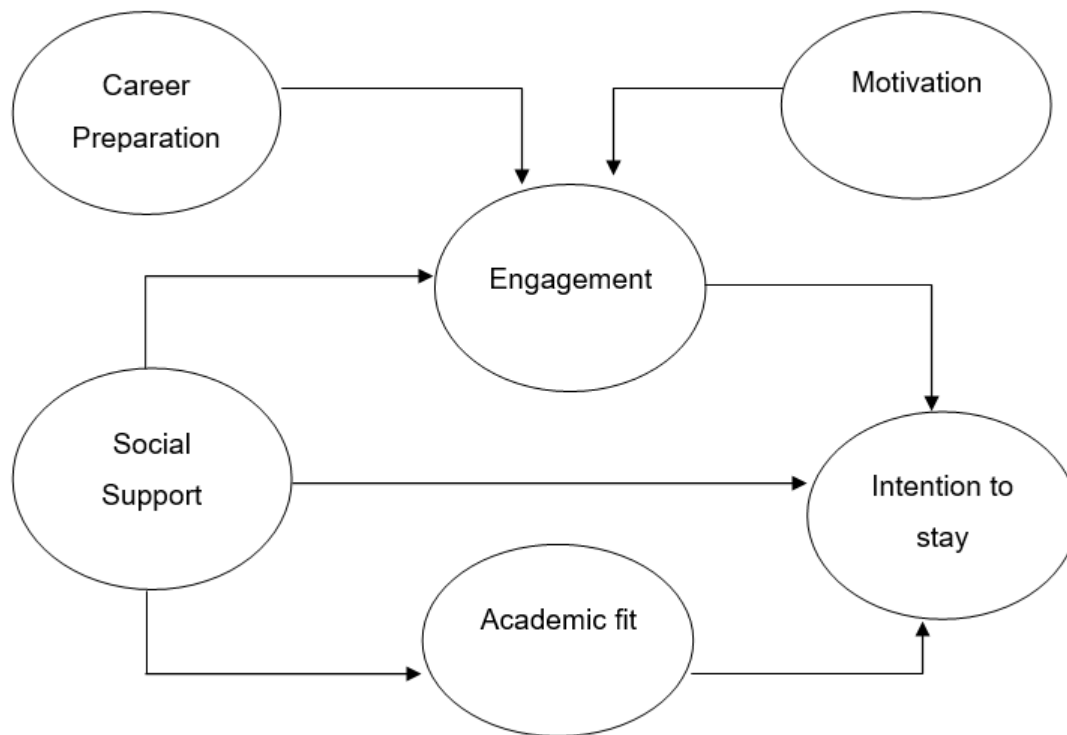
Figure 2.3. Proposed conceptual model of postgraduates' intention to stay

The proposed relationships between the variables are explained next.

2.9.1 *Relationship between career preparation and engagement*

Studies of engagement in the workplace have proliferated (Bakker, Albrecht, & Leiter, 2011). However, in more recent years, engagement has also been considered in the field of career development (Kenny et al., 2006). Career preparation is one component of career development, and consists of career planning, career decision-making, and career confidence (Stringer et al., 2011). However, research on the impact of career preparation on engagement in higher education is limited. Perry, Liu, and Pabian (2010) studied the impact of career preparation on engagement among high school students, and found that career preparation has a direct positive effect on learners' engagement in school. This suggests that these effects could be transferred to university students, as they are still in the process of career preparation and -development

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(Arbona, 2000; Kenny et al., 2006; Perry et al., 2010). This proposition could be further supported through an examination of the link between the subcomponents of career preparation respectively and engagement.

Career planning can be seen as a future-orientated attitude and also a behavioural approach to a person's envisioned career path (Perry et al., 2010). It is a process that encourages students to think about what goals they want to achieve, and what they have to do in order to achieve these goals. According to research, there is a connection between career planning and engagement (Rochester, 2017). If students invest time and resources into planning their career, they may be more prone to selecting a career that fits them best, which may, in turn, lead to higher levels of engagement. This link between career planning and engagement was also confirmed in the aforementioned study by Perry et al. (2010). Kenny and Blustein (2006) also provide support for the relationship between career planning and engagement. Their research showed that, if students plan their career path and select a career that fits their character and interests, they are more engaged in their studies.

Career decision-making impacts students' level of engagement in their studies (Olwage & Mostert, 2014). Students should have sufficient information regarding different career choices, as the right decision will positively impact their level of engagement. However, the opposite is also true; students who make the wrong choice in selecting a career will be less engaged in their studies. Therefore, effective decision-making leads to fit between the students and the academic course they are studying (Parsons, 1980). Effective decision-making, in turn, impacts students' level of commitment to and engagement in their academic course. Support has also been found for the role that effective career decision-making plays in facilitating engagement among high school learners (Kenny et al., 2006; Perry, 2008; Perry et al., 2010).

Career confidence refers to students' level of confidence that they will achieve their career goals (Skorikov, 2007). Research shows that employees who experience high levels of career confidence are more engaged in their work (Pezold, 2017). This trend can also be seen among students in a higher education setting. Research shows that students who experience a high level of career confidence are also more inclined to be engaged in their academic studies (Germeijs & Verchueren, 2007). The inverse is also true; students who are less confident in their career goals are less committed to their postgraduate studies. Students who have less interest and unclear objectives are also more likely to make career changes (Germeijs & Verchueren, 2007).

Studies that examined the link between career preparation and student engagement are limited. However, the scarce information that is available indicates that there may be a link between career preparation (career planning, career decision-making, and career confidence) and engagement. It is therefore expected that students who devote effort to effectively preparing for their careers will be more engaged in their postgraduate studies than students who do not. Therefore, the following is hypothesised:

Hypothesis 1: Career preparation has a positive impact on postgraduate students' level of engagement at university.

2.9.2 *Relationship between engagement and intention to stay*

Various studies have considered the relationship between engagement and intention to stay or turnover among employees (Gupta & Shaheen, 2017; Halbesleben & Wheeler, 2008; Van der Westhuizen, 2014). When employees feel engaged in their occupation, they are less inclined to quit their job. Employees' engagement in their work positively impacts their decision to stay with the company (Halbesleben & Wheeler, 2008; Shuck & Wollard, 2010; Van der Westhuizen, 2014). The opposite is also true; a lack of employee engagement causes higher turnover in organisations (Van der Westhuizen, 2014). According to Elangoven (2001), level of engagement is an antecedent of intention to quit or stay.

Some studies considered the impact of engagement on intention to stay among university students (Bonet & Walters, 2016; Sousa, 2015; Viljoen & Deacon, 2013). According to Sousa (2015), engagement plays a role in students' intention to stay at university. The reason for this is that, when students feel engaged in their studies and their field of study, they will be more inclined to study hard and complete the course work (Christenson, Reschly, Appleton, Berman, Spanjers, & Varro, 2008). According to Yorke (2004), engaged students experience greater academic success, which increases their intention to stay, making them less likely to drop out. Therefore, higher education institutions need to consider students' engagement and concomitant intention to stay at university, as this could predict the likelihood of students graduating (Allen & Robbins, 2008). Therefore, the present study considered the impact of engagement on students' intention to stay at university.

During the information-gathering process of the present research, it became apparent that there are limited resources that comment on the impact of engagement on postgraduate students' intention to stay. However, a few researchers confirmed the impact of engagement on intention

to stay for undergraduate students and employees (Yorke, 2004; Bonet & Walters, 2016; Sousa, 2015; Viljoen & Deacon, 2013; Crosling et al., 2009; Krause & Coates, 2008). Therefore, the present study aimed to determine whether the aforementioned is also true for postgraduate students, with the following hypothesis:

Hypothesis 2: Engagement has a positive impact on postgraduate students' intention to stay at university.

2.9.3   Relationship between social support and engagement

Hirschi, Niles, and Akos (2011) found that social support is a predictor of student engagement. These researchers considered the impact of social support, especially from parents, on students' levels of engagement. Their findings showed that most students are of the opinion that their families' support moulds their understanding of work and contributes to their level of engagement (Hirschi et al., 2011; Palladino Schultheiss, Palma, & Manzi, 2005). Research conducted by Jayarathna (2014) confirmed the relationship between social support and engagement. Xerri, Radford, and Shacklock (2018) more recently conducted research on the effect of social support from lecturers and the impact thereof on student engagement, and again confirmed the relationship. For this reason, it is postulated in the present study that social support from family, friends, and lecturers positively impacts postgraduate students' engagement, with the following hypothesis:

Hypothesis 3: Social support has a positive impact on postgraduate students' level of engagement at university.

2.9.4   Relationship between social support and academic fit

As mentioned earlier, academic fit refers to either the level of compatibility between students' personal characteristics and their selected course (Kristof-Brown et al., 2005), or the fit between students and their academic institution (Sawitri & Dewi, 2014). However, before students can experience either form of fit, they have to explore different career options and higher education institutions (Esters, 2008). This is where social support may play an important role.

The existence of a relationship between social support and effective career decision-making has long-standing support (Auster & Auster, 1981; Fitzpatrick & Silverman, 1989). Students often report that they desire the guidance, encouragement, support, and input of family, friends, and peers while exploring various career possibilities (Meikle, 2008). Family, friends, and

counsellors provide valuable guidance and resources during their process of finding an occupation that will fit their interests and ability (Madill, Montgomerie, & Stewin, 2000). Students have also indicated that the people in their support system know them well enough to know what academic course would be a good fit for them (Madill, Montgomerie, & Stewin, 2000). Madill, Ciccocioppo, Stewin, Armour, and Montgomerie (2004) also posit that social support plays a big role in influencing a student's choice of major subject. From the information provided it would seem that social support has a positive impact on academic fit. Therefore, the following is hypothesised:

Hypothesis 4: Social support has a positive impact on postgraduate students' level of academic fit at university.

2.9.5   *Relationship between social support and intention to stay*

Social support can be regarded as an interactional transaction (House, 1981). According to Zajacova, Lynch, and Espenshade (2005), supportive relationships between students and family, friends, and faculty staff are of great importance. Students who receive such social support are less likely to experience stress due to their academic workload, and they are better able to cope with stressful situations (DeBerard, Spielmans, & Julka, 2004). Furthermore, research conducted by Gloria Castellanos, Lopez, and Rosales (2005) indicated that social support has a direct effect on students' decision to stay at or leave a higher education institution. In sum, students who enjoy social support from their family, friends, and faculty members will be more inclined to stay at university and complete their studies (De la Iglesia et al., 2014; Myers, 2009).

While various studies have confirmed the link between social support and intention to stay among undergraduate students, research on postgraduates is, once again, limited. In one of the few studies, Khalifa et al. (2016) reported a link between social support and intention to stay among postgraduate students in Qatar. The present study will therefore aim to determine whether social support has the same effect on postgraduate students in South Africa. To this end, the following is hypothesised:

Hypothesis 5: Social support has a positive impact on a postgraduate students' intention to stay at university.

2.9.6   Relationship between academic fit and intention to stay

In 2006, it was reported that 21.6% of students drop out due to a lack of academic fit (Long et al., 2006). Choosing the wrong career and a lack of commitment to that career or the academic institution are therefore some of the major causes of dropout (Christie, Munro, & Fisher, 2004). Students who experience academic fit are more satisfied in their studies, and that impacts their decision to stay in or leave higher education (Schmitt, Oswald, Friede, Imus, & Merritt, 2008). Allen and Robbins (2008) and Holland (1997) also confirmed the relationship between academic fit and retention. It is therefore expected that the relationship between academic fit and intention to stay would hold for a postgraduate student sample. Therefore, the following is hypothesised:

Hypothesis 6: Academic fit between postgraduate students and their academic course has a positive impact on their intention to stay at university.

2.9.7   Relationship between motivation and engagement

In collaboration with motivation, engagement can be seen as very important for enhancing students' learning outcomes (Schlechty, 2001; Woolfolk & Margetts, 2007). Motivation can be seen as a pre-requisite for student engagement (Saeed & Zyngier, 2012). Students who experience internal and external motivation are more likely to experience high levels of engagement (Newmann, 1992; Saeed & Zyngier, 2012). However, it seems as though internal motivation is a stronger predictor of engagement (Wigfield & Eccles, 2002; Wigfield & Wagner, 2005). Xiong et al. (2015) found support for the relationship between motivation and engagement among higher education students. Internal and external motivation were found to both significantly predict student engagement, and engagement predicted student retention. By the same token, one may assume that motivation would also play an important role in postgraduate students' level of engagement. Therefore, the following is hypothesised:

Hypothesis 7: Motivation has a positive impact on postgraduate students' level of engagement at university.

The preceding section considered the relationship between the various variables and how these impact each other. There is more support for some relationships than others. The present study will aim to determine whether there is indeed a relationship among these variables, as well as how strong these relationships are, among a sample of postgraduate students.

2.10   Summary

Chapter 2 provided a background on South Africa's education system. The literature review also considered the factors that cause students to drop out of higher education, along with those that enhance their intention to stay at university. These factors employed as variables in the present study are: *Engagement*, *Career preparation*, *Social support*, *Motivation*, and *Academic fit*. The relationships between these variables were also discussed and hypothesised. The following chapter provides details of the research design and methodology.

Chapter 3:
Research design and methodology

3.1   Introduction

The importance of research lies in its ability to enhance knowledge (Russ-Eft & Preskill, 2001) and find sound answers to various questions (Rossi, Lipsey, & Freeman, 2004). Thus, thorough consideration must be given to the research design and methodology, as these determine the quality of information obtained. In this chapter, the research design, hypotheses, and methods of data collection and analysis are outlined and justified. Furthermore, the ethical issues related to data collection are discussed, along with the steps taken to ensure the reliability and the validity of the present study. Overall, Chapter 3 discusses the methodology considered to best fit the purpose of the current study, captured in the research-initiating question, which informed the collection and analysis of the data.

3.2   Research design and procedure

A research design can be viewed as a proposal or plan of how a researcher will go about conducting a research study (De Vos & Fouche, 1998). It can be regarded as a blueprint for conducting the research (Babbie & Mouton, 2001). The design of the research study refers to the plan that will be executed to empirically test the research questions (Babbie & Mouton, 2001). A research design can take either a qualitative or quantitative approach (De Vos & Fouche, 1998). Qualitative and quantitative studies differ greatly, and researchers should consider their primary aim, usage, and the different data-gathering instruments available, before making a decision.

The main objective of qualitative research is to give an in-depth account of the research topic. This approach is more exploratory in nature, whereas quantitative research places more emphasis on classifying and counting features, and also constructing various models to give an indication of what was determined. Qualitative research can be regarded as more efficient when research is still in the initial phase, whereas quantitative research is more appropriate for later research (Parkinson & Drislane, 2011).

In qualitative research, the researcher serves as the primary data-gathering instrument. The researcher chooses a data-gathering strategy based on the thrust of the research. In-depth interviews, document analysis, focus groups, and archival research are some of the data-

gathering techniques used in qualitative research (Parkinson & Drislane, 2011). Quantitative researchers use tools such as questionnaires, surveys, and measurement instruments to collect numeric data. In the present study, the aim was to question a large group of respondents; therefore, a quantitative approach was considered apt. In addition, the quantitative approach allows for the testing of relationships between variables. It is also easier to generalise results when making use of a quantitative approach. Furthermore, reliability and validity can be monitored better when using this approach.

The aim of the present research study was to develop an empirical and observable measurement of various constructs and to apply statistical analysis methods to test the various proposed relationships. For these reasons, a quantitative research design was selected for the present study.

3.3   Substantive and statistical research hypotheses

The formulation of hypotheses allows for the empirical testing of the beliefs and propositions of the researcher. Hypotheses represent tentative propositions regarding a relationship that might exist between two or more variables (Creswell, 1994).

The proposed structural model of Postgraduates' Intention to Stay (Figure 3.1, p. 48) depicts the hypotheses that were developed through theorising, discussed in the previous chapter. In testing a model, a researcher should first develop substantive research hypotheses. The following relationships were hypothesised:

> *Hypothesis 1: Career preparation has a positive impact on postgraduate students' level of engagement.*
>
> *Hypothesis 2: Engagement has a positive impact on postgraduate students' intention to stay at university.*
>
> *Hypothesis 3: Social support has a positive impact on postgraduate students' level of engagement at university.*
>
> *Hypothesis 4: Social support has a positive impact on postgraduate students' academic fit at university.*
>
> *Hypothesis 5: Social support has a positive impact on postgraduate students' intention to stay at university.*

Hypothesis 6: Academic fit has a positive impact on postgraduate students' intention to stay at university.

Hypothesis 7: Motivation has a positive impact on postgraduate students' level of engagement at university.

The statistical hypotheses stemmed from the substantive hypotheses, and represented the logic that underlies the proposed structural model of postgraduates' intention to stay, the research design, and the core of the statistical analysis techniques associated with an *ex post facto* correlation design. Structural equation modelling (SEM) was considered the most appropriate for the analysis of the present study's data. The statistical hypothesis were derived from the structural model depicted in Figure 3.1 and reported and reported in Table 3.1.

Table 3.1

Statistical Hypotheses

Hypothesis 1:	Hypothesis 4:	Hypothesis 7:
H_{01}: $\gamma_{13} = 0$	H_{04}: $\gamma_{31} = 0$	H_{07}: $\beta_{14} = 0$
H_{a1}: $\gamma_{13} > 0$	H_{a4}: $\gamma_{31} > 0$	H_{a7}: $\beta_{14} > 0$
Hypothesis 2:	Hypothesis 5:	
H_{02}: $\beta_{21} = 0$	H_{05}: $\gamma_{21} = 0$	
H_{a2}: $\beta_{21} > 0$	H_{a5}: $\gamma_{21} > 0$	
Hypothesis 3:	Hypothesis 6:	
H_{03}: $\gamma_{11} = 0$	H_{06}: $\beta_{23} = 0$	
H_{a3}: $\gamma_{11} > 0$	H_{a6}: $\beta_{23} > 0$	

3.4   Structural model of postgraduates' intention to stay

The proposed structural model of postgraduates' intention to stay is depicted in Figure 3.1, and is a schematic representation of the hypotheses proposed earlier. Operationalisation allowed for the testing of the paths and relationships hypothesised in the model.
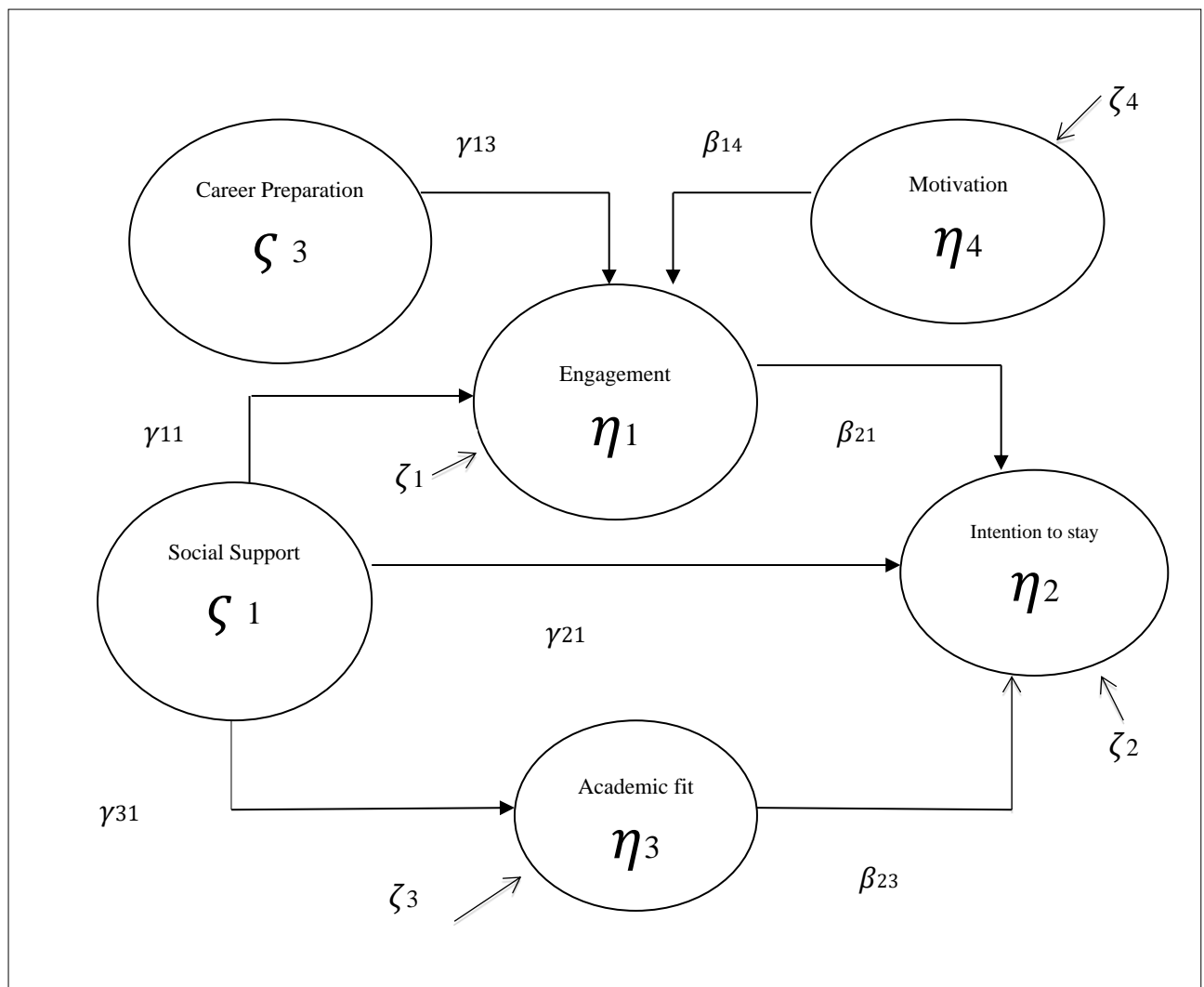
Figure 3.1. Proposed structural model of postgraduates' intention to stay

3.5   Sampling and sample size

Sampling is the process of selecting research participants from a population (Terre Blanche, Durrheim, & Painter, 2006). A sample has to be a representative element of the population under study (Terre Blanche et al., 2006). During sampling, a limited set of events, individuals, or objects are selected, from which the researcher plans to gather information. Valid and reliable conclusions can only be made from the research if the sample accurately represents the population (Strydom & De Vos, 1998; Terre Blanche et al., 2006).

The two overarching sampling techniques in research are probability sampling and non-probability sampling (Terre Blanche et al., 2006). Probability sampling is based on randomisation (Strydom & De Vos, 1998). During probability sampling, each individual in the

recognised population of study has an equal likelihood or probability of being chosen during the sampling process. On the other hand, the chances or likelihood that an individual will be included in a study is unknown in non-probability sampling.

Non-probability sampling can be sub-divided into convenience sampling, quota sampling, dimensional sampling, purposive sampling, and snowball sampling. The present study employed non-probability convenience sampling. In using convenience sampling, the researcher selects anyone who fits the participant description. Convenience sampling can also be referred to as a form of non-probability sampling, where element selection is not determined by statistical principles of randomness (Babbie & Mouton, 2010; Terre Blanche et al., 2006). However, a limitation of convenience sampling is that the results are usually very difficult to generalise (Babbie & Mouton, 2010). The selection of convenience sampling as technique for the present study supported the goals of the study, as the required sample was postgraduate students enrolled in an Honours or Masters degree programme at the University of Stellenbosch.

Sample size: Selecting the appropriate sample size is fundamental, as it should give a correct representation of the population, as well as avoiding the wastage of resources and conducting low-powered studies. If the sample size is not sufficient, the results will not be adequate for use to deliver the desired outcomes. The ideal sample size is influenced by the type of study, practical constraints, and statistical criteria (Durrheim, 2011; Kerlinger & Lee, 2000). There are three aspects that impact sample size: 1) the required level of confidence in the data; 2) the margin of error, and 3) the type of analysis that will be conducted (Saunders, Lewis, & Thornhill, 2009). According to Hair, Black, and Babin (2010), when SEM is used, there are other factors that could also affect the sample size required. These include the availability of resources, complexity of the model, the amount of missing data, the multivariate normality of the data, the estimation technique used, and the amount of error variance among the reflective indicators.

Selecting the appropriate sample size is a complex process that needs careful consideration. Professionals have different perceptions of an appropriate sample size. According to Saunders et al. (2009), in terms of multivariate normality, a ratio of 15 respondents for every parameter estimate in the model can be regarded as acceptable. Stutley (as cited in Saunders et al., 2009) suggests that a sample size of 30 observations is sufficient. However, Hair et al. (2010) argue that a sample of 30 is only adequate when performing simple regression analysis with a single

independent variable. Hair et al. (2010) contend that the size of a sample is reliant on the complexity of the model. It is thus clear that there are differing opinions on how many participants should be included in a sample. The rule of thumb regarding parameter estimates provided by Bentler and Chou (1987) is that a ratio of sample size to freed parameters of between 5:1 and 10:1 can be regarded as sufficient, depending on the complexity of the model. Different techniques can be used to decide on a sample size, but, in principle, the sample should be large enough to yield valid and reliable data.

According to Hair, Black, Babin, Anderson and Tatham (2006), a sample size must exceed 200 in order to obtain reliable SEM estimates. In accordance with the aforementioned considerations, the desired sample size for the present study was set at a minimum of 200 postgraduate students from the University of Stellenbosch. However, the final sample comprised 494 respondents.

3.6   Data collection and demographic information of research participants

Data collection is a very important process and should be handled correctly. If the right process is not followed, the researcher will not obtain results that accurately reflect the phenomenon under investigation. Collecting data from participants can be challenging. Therefore, data gathering should be conducted in such a manner that it is not a burden on the participants. In the present study, data were collected electronically, via an online questionnaire. An e-mail was sent to potential respondents, containing the link that took them to the survey on the university's survey system, *Checkbox*. The e-mail also contained a short description of the research study and the link that directed the student to the questionnaire. Respondents could complete and submit the questionnaire anonymously, at their convenience. Participation was voluntary, and all respondents had a choice whether they wanted to participate. All respondents had to complete a consent letter confirming their agreement to participate in the study before they could continue with the questionnaire.

The respondents consisted of 494 postgraduate students completing an honours or Master's degree. All of the respondents were from Stellenbosch University. The Demographic Information section gathered information on the respondents' demographic characteristics, which included gender, age, ethnicity, home language, and the faculty where respondents were completing their postgraduate studies.

Table 3.2

Demographic Characteristics of Respondents

Item	Category	Percentage	Item	Category	Percentage
Age	20–24	27%	**Race**	White	57%
	25–29	26%		African	25%
	30–34	18%		Coloured	13%
	35–39	18%		Indian	3%
	40 and older	11%		Other	2%
Gender	Male	43%	**Faculty**	Economic and Management Sciences	30%
	Female	57%		Art and Social Sciences	18%
Language	English	40%		Medicine and Health Sciences	14%
	Afrikaans	38%		Engineering	12%
	Xhosa	5%		AgriScience	7%
	Zulu	2%		Education	7%
	Tswana	2%		Science	7%
	Venda	1%		Law	3%
	Ndebele	1%		Theology	2%
	South Sotho	1%		Military Science	1%
	North Sotho	1%			
	Tsonga	1%			
	Swazi	0%			
	Other	8%			

3.7 Measurement instruments

Measurement instruments are utilised to measure latent variables, and provide data as evidence against which the relevant hypotheses can be tested. The measurement instruments selected should have appropriate psychometric properties.

In the present study, a composite questionnaire was used. The questionnaire consisted of scales and questions taken from different existing questionnaires, and was self-administered. Apart from the section on the biographical information of the respondents, the questionnaire utilised the following measures for the constructs:

- *Engagement*: University Student Engagement Inventory (Maroco, Maroco, Campos, & Fredricks, 2016);

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- *Career preparation*: The Career Preparation Questionnaire (Skorikov, 2007b); Career Decision Scale (CDS) developed by Osipow, Carney, and Barak (1976); specifically:
  - *Career planning*: Career Planning Subscale (Skorikov, 2007b); and Career Planning Subscale (Osipow, Carney, & Barak, 1976);
  - *Career indecision*: Career Decision-making Scale of the Career Development Questionnaire (Langley, Du Toit, & Herbst, 1992);
  - *Career confidence*: Career Confidence Subscale (Skorikov, 2007b); Career Confidence Subscale (Osipow et al., 1976);
- *Motivation*: Academic Motivation Scale (Vallerand, Pelletier, Blais, Briere, Senècal, & Vallières, 1993);
- *Social support*: Multidimensional Scale of Perceived Social Support (Zimet, Dahlem, Zimet, & Farley, 1988);
- *Academic* (**course**) *fit*: Academic Fit Scale (Schmitt, Oswald, Friede, Imus, & Merritt, 2008);
- *Intention to stay*: Intention to Stay Scale (Price & Mueller, 1986).

The full instruments are discussed in detail below.

3.7.1   Measurement of engagement

Research indicates that student engagement could be a solution to student burnout, lack of resilience, low academic achievement, dissatisfaction, and dropout (Christenson & Reschly, 2010; Finn & Zimmer, 2012; Wang & Eccles, 2012; Krause & Coates, 2008). According to Fredericks et al. (2004), engagement may be conceptualised as a three-factor construct that consists of the emotional, cognitive, and behavioural dimensions.

The University Student Engagement Inventory (USEI), developed by Maroco et al. (2016), was used in the present study to measure the respondents' level of emotional, cognitive, and behavioural engagement.

The USEI measurement instrument comprises of 31 items rated on a scale ranging from *1* (*Never*) to *5* (*Always*). There are five statements for each dimension: *Behavioural engagement* (e.g., "I pay attention in class"), *Emotional engagement* (e.g., "I don't feel very accomplished

at this university"), and *Cognitive engagement* (e.g., "When I read a book, I question myself to make sure I understand the subject I am reading about").

The USEI has a Cronbach's alpha of α = .88, indicating the measure's reliability. Cronbach's alpha for the scales were also found to be sufficient: Behavioural Engagement: α = .74, Emotional Engagement: α = .88, and Cognitive Engagement: α = .82 (Maroco et al., 2016). The concurrent validity of the USEI and the Utrecht Work Engagement Student Survey (UWES-SS) respectively was evaluated using correlation analysis. A strong positive correlation was obtained (r = .99; *p* < .001) (Maroco et al., 2016).

3.7.2   Measurement of career preparation

Career preparation was assessed by means of the dimensions *Career indecision*, *Career planning*, and *Career confidence*.

Career planning and *career confidence* can be assessed using the Career Preparation Questionnaire developed by Skorikov (2007). The instrument contains two subscales. The Career Planning Subscale measures a student's strategies for securing entry into a desired profession and reaching career-related goals. An example of an item is: "I have a plan for what I want to be in my career ten years from now." The Career Confidence Subscale assesses the student's confidence that he or she will achieve his or her career goal, e.g., "I feel that my occupational plans may be impossible to accomplish." Responses are indicated on a seven-point Likert-type scale ranging from *1* (*Completely agree*) to *7* (*Completely disagree*). The higher the score is, the greater the student's levels of career confidence and planning are. The internal consistency of the Career Planning Scale was reported as α = .85, and as α = .82 for the Career Confidence Scale (Skorikov, 2007). The measure also displays construct validity according to Skorikov, 2007.

The Career Decision Scale (CDS) developed by Osipow et al. (1976) measures all three dimensions of career preparation: *Career indecision, Career planning, and Career confidence*. The scale measures certainty regarding career choices among students. The positively phrased items are reverse-scored to identify uncertainty among students. According to Kelly and Lee (2002), the CDS is unique in the sense that the instrument reflects the identity problems that impede a student's career exploration and decision-making. The CDS is a 16-item measure, and items are rated on a four-point Likert-type scale ranging from *1* (*Not at all*) to *4* (*Exactly like me*), with higher scores portraying greater career indecision. Examples of items included

in the CDS are: "I know I will have to go to work eventually, but none of the careers I know about appeal to me"; "Several careers have equal appeal to me. I'm having a difficult time deciding among them"; and "I have decided on a career and felt comfortable implementing it. I also know how to go about implementing my choice." The test-retest reliability of the CDS ranges between .82 and .90 (Osipow et al., 1976), and its internal consistency is .89 (Patton & Creed, 2001). The CDS has thus been shown to be a valid measure (Marco, Hartung, Newman, & Parr, 2003).

The Career Planning and Career Confidence Subscales of the CDS were used in the present study as this measure was more appropriate. However, the Career Indecision Subscale of the CDS was not used. It was therefore substituted with the Decision-making Scale of the Career Development Questionnaire (CDQ) developed by Langley, Du Toit, and Herbst (1992), which was considered more appropriate.

The Career Decision-making Scale of the CDQ (Langley, et al., 1992) was standardised using a South African population of university students. The questionnaire consists of five main scales: Self-knowledge, Decision-making, Career information, Integration of Self-information and Career Information, and Career Planning (Langley et al., 1992). All 29 items of the Career Decision-making Scale were used in the present research study. The construct validity of the scale has been indicated as .65 (De Bruin & Bernard-Phera, 2002). The measure can also be viewed as reliable, with a Cronbach alpha of .93.

3.7.3   Measurement of motivation

Vallerand et al. (1993) designed the Academic Motivation Scale (AMS) to measure motivation among students. The AMS measures three forms of motivation, namely internal motivation, external motivation, and amotivation. The AMS can be used to measure motivation among high school and university students (Olsen, 2006). The AMS has also been used to measure motivation among postgraduate students (Hegarty, 2010; Hegarty, Brasco, & Lieh Lu, 2012; Smith, Davy, & Rosenberg, 2010).

Intrinsic motivation is measured using three unordered subscales. One subscale measures motivation to gain knowledge, which measures the student's need to perform a specific activity and the joy experienced while learning. Respondents are requested to specify to what extent the items in the test correspond with one of the reasons why they attend university. Students rate their level of correspondence on a Likert scale ranging from *1* (*Does not correspond at*

all) to 7 (*Corresponds exactly*). An example of items included in the AMS (Vallerand et al., 1993) is: "Because I experience pleasure and satisfaction while learning new things" (Vallerand et al., 1993). The second subscale considers intrinsic motivation towards accomplishment, which assess a student's desire to perform a specific activity for the gratification of accomplishment. The third subscale considers internal motivation to experience stimulation, which measures the student's desire to perform a certain activity in an attempt to feel stimulated (Deci & Ryan, 2000).

Extrinsic motivation is measured with three sub-scales. The first subscale identifies regulation, assessing a student's desire to engage in certain activities for the mere purpose of gaining a sense of importance and personal value. The second subscale deals with interjected regulation, assessing the guilt and pleasure experienced by the student. The third subscale measures extrinsic regulation, whether a student participates in certain activities only to achieve reward or to avoid negative consequences.

Lastly, a subscale measures amotivation by assessing the lack of motivation experienced by certain students (Deci & Ryan, 2000). An example of an item is: "Because I think a university education will help me better prepare for the career I have chosen."

The AMS has displayed adequate to good validity and reliability among university students (Vallerand et al., 1993). Cronbach alpha values range between .62 and .90 (Cokley, Barnard, Cunningham, & Motoike, 2001; Fairchild, Horst, Finney, & Barron, 2005; Vallerand et al., 1993).

3.7.4 Measure of social support

The Multidimensional Scale of Perceived Social Support (MSPSS) was developed by Zimet, Dahlem, Zimet, and Farley (1988) to measure a person's perception of social support from three main sources, namely friends, family, and a significant other. There are 12 items in the scale, with four items for each sub-scale (Zimet et al., 1988). The sum of the scores from the 12 items indicates the total for *Social support*. The student experiences higher levels of perceived social support if the score on the measure is high (Basol, 2008). The MSPSS has been used to rapidly, accurately, and clearly measure social support (Basol, 2008).

The MSPSS consists of 12 items, and therefore does not take long to complete. Zimet et al. (1988) found a Cronbach alpha of .88 for the MSPSS. They also reported that the test-retest result for the scale was .85, indicating satisfactory reliability. More recent analyses done by

Canty-Mitchell and Zimet (2000) showed that the Cronbach alpha reliability coefficient for the 12 items in the test was $\alpha = .93$. For the subscales, these were as follows: Family: $\alpha = .92$, Friends: $\alpha = .89$, and Significant Other: $\alpha = .91$, confirming the reliability of the measure.

3.7.5 Measure of academic fit

The Academic Fit Scale developed by Schmitt et al. (2008) was used to measure the fit between the postgraduate psychology students and their academic course, using items such as: "The course available at this university matches my interests." The Academic Fit Scale contained six items. A five-point Likert-type scale is provided for responses to the statements, ranging from *1* (*Strongly disagree*) to *5* (*Strongly agree*). Students indicate to what extent there is congruence between them and their academic course (Edwards, 1991; Kristof-Brown, Zimmerman, & Johnson, 2005; Meglino & Ravlin, 1998). The alpha coefficient for this measure is .75, which is satisfactory (Schmitt et al., 2008).

3.7.6 Measure of intention to stay

Intention to stay at university was assessed using the Intention to Stay Scale designed by Price and Mueller (1986). The four-question measure was designed to measure intention to remain at a higher education institution. Respondents make use of a Likert-type scale to rate their responses, ranging from *1* (*Strongly disagree*) to *5* (*Strongly agree*). Examples of items are: "I plan to leave this university as soon as possible" and "I plan to stay at this university as long as possible." The Cronbach alpha for this test ranges from .85 to .90 (Kim, et al., 1996; Price & Kim, 1993).

3.8 Missing values

Missing values are a worrying possibility when making use of surveys in research. Missing values appear when the respondents do not answer the question, otherwise referred to as 'item non-response'. There are multiple reasons why a respondents choose not to respond to a question, ranging from fatigue, stress, and a lack of knowledge, to sensitivity (Allison, 2001; Graham, 2009). It is vital that the missing values are handled properly, otherwise inaccurate inferences may be drawn from the data (Graham, 2009; Sauro, 2015).

Missing values can be handled in a number of ways. According to Sauro (2015), there are seven techniques for dealing with missing values. First, the researcher can decide to delete all data from respondents whose responses show missing values. However, this can only be considered when the sample is large enough. Second, the researcher can contact the respondents and

request that they complete the questionnaire. Third, the researcher can make use of educated guessing by looking at the respondent's previous answers. However, this is not advised. Fourth, the average values of the total responses from other respondents can be used. Fifth, when using a rating scale, the researcher can use the middle point or even the most commonly selected value. Sixth, multiple regression analysis can be used to estimate the missing value, and, lastly, multiple imputation can also be used.

For the purpose of the present study, all data of respondents with missing values were deleted. In this way, assumptions about what the candidate would have answered were avoided. The original sample size for the present study consisted of a total of 504 students who completed the questionnaire. It was therefore feasible to delete the small number of questionnaires that were not complete. After these questionnaires had been excluded, 496 complete questionnaires remained.

3.9   Data analysis

The data analysis technique appropriate to a study depends on the research questions that the researcher wants to address. The goal of data analysis in the present study was to test the proposed structural model of postgraduates' intention to stay (Figure 3.1). Statistica 13, LISREL 8.80, and SmartPLS 3.2.7 were used to perform the statistical analyses. After the analyses had been completed, item analysis, reliability analysis, confirmatory factor analysis (CFA), SEM, and partial least square structural equation modelling (PLS-SEM) were conducted.

3.9.1   Item analysis

Measurement instruments have the purpose of informing the researcher of a person's standing on a specific latent variable. Therefore, it is important to select the correct items for a measure, as this will provide valuable information. Furthermore, the psychometric properties of the test should be examined to determine if the items included in a test would deliver reliable and valid results (Thompson & Levitov, 1985).

Each variable has to be defined, and the item selected to measure a specific variable should be in accordance with the constructive definition of that variable. However, some items may elicit poor responses. The reason for this could be insensitivity, inconsistency, or weak interpretation of the construct (Theron, 2017). This is where item analysis can be used. Each item included in a test measures something specific, and it is therefore of great importance that each

measurement instrument consists of items that measure what they are supposed to measure. If the items do not measure the latent variable or dimension they are supposed to measure, the results will have little value. Item analysis relies on statistical expertise and judgment in evaluation of the tests, based on the quality of the individual items, the item sets, and the relationships between the items (Thompson & Levitov, 1985). Item analysis indicates the validity and reliability of specific tests.

Item analysis can also identify poor items in a test. Item analysis identifies weak items through item statistics, determined by the analysis of the reliability of the respective scales. According to Little (2013), a reliability of .70 or higher can be regarded as acceptable. If there is a poor item in the test, a decision has to be made whether to delete that item (Theron, 2017). If the item is deleted and the reliability of the instrument increases, that item can be flagged or excluded from the analyses.

3.9.2 Confirmatory factor analysis

Factor analysis has two categories, namely CFA and exploratory factor analysis (EFA). CFA is used to assess whether the indicator variable successfully measures and operationalises the latent construct that was initially set out to be represented. If the latent construct is not operationalised successfully, interpretation of the comprehensive SEM estimated will hold no weight. Williams, Brown, and Onsman (2010) state that CFA provides evidence of the construct validity of self-report measurement instruments.

EFA, usually performed prior to CFA, is, in many cases, used to determine the underlying factor structure of a new measurement instrument. In the present study, individual CFAs were performed for each measurement instrument used. All the measures included in the composite Intention to Stay Questionnaire were existing scales. Kline (2010) argues that CFA can be used to determine whether data can be fitted to the measurement model, and whether this fit can be considered strong or weak. Item analysis can be supplemented by CFA results in order to identify possible weak items and to inspect the validity of the measurement instrument. In one instance in the present study, CFA did not provide acceptable measurement model fit, whereafter EFA was conducted to calculate the factor structure.

CFA and SEM procedures make use of maximum likelihood estimation (MLE) (Beauducel & Herzberg, 2006). However, there are three main requirements that should be met before performing MLE (Babakus, Ferguson, & Joreskog, 1987). First, MLE requires continuous data,

not ordinal data. Second, the indicator variables should follow a multivariate normal distribution; and, third, the sample should be large enough. However, due to the ordinal nature of the responses in the present study, covariance-based SEM was conducted, using diagonally weighted least squares (DWLS), suitable for discrete ordinal responses.

3.9.3   Structural equation modelling (SEM)

SEM was the statistical analysis technique selected for the present research study. SEM can be regarded as a gathering of statistical techniques used to test substantive theory from empirical data (Byrne, 2012). According to Pearl (2012), the main aim of SEM is to assess the hypothesised relationships between one or more dependent and independent variables as these are portrayed in the structural model.

SEM holds multiple benefits. It allows the researcher to determine how well, and to what extent, the chosen measures mirror the intended construct. In addition, it allows the testing of complex path models, as well as testing of certain components of the model that make predictions. SEM is a powerful and flexible method that ensures quality measurements (Kelloway, 1998). In addition, SEM incorporates measurement error in the model, and allows for the estimation of latent variables through indicator variables (Byrne, 2012). Moreover, SEM allows the researcher to test all the hypothesised relationships in multidimensional theoretical models (Weiner, 2003). All the benefits mentioned served as motivators to make use of SEM in the present study.

3.9.3.1   Partial least square structural equation modelling

There are two overarching SEM approaches that are aimed at appraising the relationships in the structural model: covariance-based structural equation modelling (CB-SEM) and PLS-SEM.

CB-SEM can be regarded as an appropriate data analysis method when confirming or rejecting theories by testing hypotheses, especially when the sample is large enough, the model is correctly specified, and the data are normally distributed (Hair, Ringle, & Sarstedt, 2011). However, researchers and practitioners argue that, in many cases, it is rather challenging to find a data set that meets these specifications (Hair et al., 2010). If these requirements are not met, PLS-SEM is a more appropriate technique.

PLS-SEM places more focus on the maximisation of the explained variance in endogenous latent variables, which are attained by an interactive sequence called ordinary least squares (OLS) regression. According to Henseler, Ringle, and Sinkovics (2009), PLS-SEM focuses less on the covariance between indicator variables, and more on predicting endogenous latent variables, and can be seen as an extension of multiple regression (Hair et al., 2017). PLS-SEM is a suitable alternative to CB-SEM when the sample is relatively small, applications have little existing theory, the predictive correctness is paramount, and when the correct model specifications cannot be guaranteed (Bacon, 1999; Wong, 2010). The benefits of using PLS-SEM is that it is more regression-based; therefore, the residual variance of the endogenous construct is minimised. Furthermore, when compared to CB-SEM, PLS-SEM is more robust, with fewer identification issues, and is effective with very small as well as very large samples. PLS-SEM is also applicable to formative and reflective constructs (Hair et al., 2011).

PLS-SEM is reported in two parts: the inner model (structural model) and the outer model (measurement model). The inner model refers to the relationship between the dependent and independent variables, and the outer model specifies the relationship between the latent variable and the observed indicators. Both CB-SEM and PLS-SEM models were fitted on the data in the present study. The CB-SEM did not show acceptable fit indices, but, after some minor changes (using modification indices), it did present fit indices that were close to acceptable. A comparison of the path coefficients between the latter CB-SEM and the PLS-SEM indicated similar path coefficients. However, only the PLS-SEM results are reported in Chapter 4.

The validation of the PLS outer (measurement) and PLS inner (structural) model are briefly explained next.

3.9.3.1.1 Outer (measurement) model

The outer model was validated by examining composite reliability (CR), to determine individual indicator reliability and internal consistency. CR values range between 0 and 1. The closer the value is to 1, the higher the level of reliability is.

Convergent and discriminate validity were also included in the validity analyses. The standardised outer loadings and the average variance extracted (AVE) were considered in examining the convergent validity. Outer loadings were regarded as acceptable if statistically significant ($p < .05$) (Hair et al., 2017). AVE values are acceptable if they are $> .5$. An ideal

value is as close to 1 as possible. Discriminant validity was examined by looking at the heterotrait–monotrait (HTMT) ratio. The HTMT value should not exceed 1.

3.9.3.1.2   Inner (structural) model

The inner model is only fitted and validated after the measurement model's validity and reliability have been confirmed. Examination for multicollinearity among the exogenous latent variables is very important, as this provides information on the level of inter-correlation among the predictor variables (Hair et al., 2017). High levels of multicollinearity cause biased path coefficients. Variance inflated factors (VIFs) are considered after testing for multicollinearity. VIF values should not exceed 5, as this may indicate a multicollinearity problem (Hair et al., 2017).

The next step is to evaluate the estimated path coefficients, to determine the significance and strength of the various hypothesised relationships. If the p-value for the t-test exceeds 5% ($p >$ .05), the relationship between the two variables is not statistically significant (Hair et al., 2017). However, there is research that supports the use of a more moderate significance level of 10% ($p < .10$) (Hair et al., 2017).

This concludes the discussion of the instruments and analyses employed in the present study. The next section discusses the ethical considerations of the present study.

3.10   Ethical considerations

Ethics is of great importance in any research process where participants are involved. Ethics issues might arise from a researcher's contact with a participant in the data-gathering process (Babbie & Mouton, 2014). Ethical consideration extends to protection of the well-being, rights, dignity, interests, privacy, and safety of all participants. All researchers should consult professional codes of ethics to ensure that they conduct research in a respectful and ethical manner, one that is not harmful to the participants. Ethical considerations include participants' informed consent, confidentiality, anonymity, and institutional approval. Each is briefly discussed below.

Participants have to be informed that their responses will be handled with care and kept confidential. Confidentiality is important, as it protects the participant's anonymity and dignity. Armiger (1997) states that all participants should voluntarily and willingly give informed

consent to participate. The participants must receive information regarding the use of the information.

The Ethical Rules of Conduct for Practitioners Registered under the Health Professions Act (Act 56 of 1974), Annexure 12 (Chapter 10), provides clear guidelines on informed consent. The first rule stipulated by the Act is that the psychologist has to use language that is understood by the participant when obtaining the participant's consent to participate. Participants need to be enlightened about the nature of the research, and should be informed of their right to withdraw without any negative consequences. The Act further states that the psychologist is responsible for informing the participant about any significant factors that may influence the participant's willingness to participate. The psychologist must adhere to any matters about which the participant enquires. In addition, when a person is legally incapable of giving informed consent, the psychologist has the responsibility of (a) providing a clear explanation of the research; (b) obtaining the participant's assent, and (c) obtaining appropriate assent from a person who is legally authorised to give the necessary permission.

Confidentiality refers to keeping something private (Parker, 2005). When research is kept confidential, it means that only a few authorised individuals has access to the information. The participants should be informed of who will have access to their information.

Anonymity refers to concealing the identity of participants (including organisations) who participate in a research study. Anonymity is ensured by the data provided by participants not being traceable back to individuals (Parker, 2005), not even by the researcher (Statistics Solutions, 2018).

Annexure 12 of the Rules of Conduct pertains to the profession of psychology under the Health Professions Act No. 56 of 1974, and pertains to research and publication (Chapter 10). The annexure indicates that a psychologist should obtain written consent from a host institution before the research is conducted, and the psychologist should provide the institution with sufficient and accurate information on the intended research study.

In this study, all respondents were provided with a consent form with all relevant information pertaining to the study (see Addendum A). Respondents were informed that participation was voluntary, and they had to indicate their consent before they could complete the questionnaire. The information that was obtained was kept confidential and securely stored. Respondents were informed of the steps taken to protect their confidentiality and secure their data by making

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sure all responses are password protected. Respondents were kept anonymous, as they were not asked to provide identifying personal information such as their name, surname, identity number, or contact details.

The present study can be regarded as a low-risk study, as respondents did not have to provide information that was uncomfortable to share or that may put them in an awkward position. The information collected only pertained to the respondents' motivation to stay at university. Ethical approval and institutional permission were obtained from Stellenbosch University's Ethics Committee to use a sample of postgraduate students from the same university (see Addendum B).

3.11   Conclusion

Chapter 3 explained the research methodology that was used to test the proposed hypotheses. The chapter provided information on the proposed structural model of postgraduates' intention to stay, the statistical hypotheses, the research design, and the measurement instruments that were used to gather relevant data. In addition, the management of missing values, important considerations regarding reliability, validity, and bias, as well as the various data analysis techniques that were used were discussed. Attention was also directed towards ethical considerations. The next chapter reports the results of the statistical analyses that were conducted.

Chapter 4:
Research results

4.1   Introduction

This chapter reports the results that were obtained from the statistical analyses. The psychometric soundness of the measurement instruments are examined by looking into the item analysis that was executed to examine the psychometric integrity of the relevant indicator variables that were used to represent the various latent dimensions. In addition, the fit of the measurement- and structural models are appraised. Lastly, attention is directed to the extent to which the data fulfilled the statistical data assumptions applicable to the specific data analysis techniques that were used.

4.2   Item reliability analysis: Validating the measurement model fit

Item analysis was conducted on each latent variable scale that was included in the questionnaire to assess the proposed structural model of postgraduates' intention to stay. Item analysis may be conducted for a number of reasons. First, item analysis gives an indication of the reliability of the indicators of each latent variable. Secondly, item analysis allows one to screen items prior to including them in composite item parcels that represent the latent variables. Thirdly, item analysis makes it possible to investigate homogeneity of the sub-scales. Item analysis also allows one to identify items that are poor and do not contribute to the internal consistency of the measure.

Poor items can be identified by looking at the Cronbach's alpha if items are deleted, inter-item correlation, and squared multiple correlation. The closer to 1 the alpha is, the higher the inter correlation is. The more items in a measure, the higher the Cronbach alpha will be, and vice versa (Nunnally, 1978; Nunnally & Bernstein, 1994). The item analysis results and the results from the particular individual instrument CFAs were considered, to determine whether problematic items should be deleted from the measure. A Cronbach alpha of .70 is considered acceptable (Nunnally & Bernstein, 1994). However, Nunnally (1978) also stated that, "what a satisfactory level of reliability is depends on how a measure is being used." For this reason, some researchers have indicated that a Cronbach alpha of .60 is also acceptable (Hair et al., 2006).

4.3   Item reliability analysis

Item reliability analysis provides an indication of the integrity of the measurement instrument used to operationalise the latent variables in the proposed structural model of postgraduates' intention to stay. Table 4.1 provides a summary of the item analysis results that were obtained for the scales of each of the six latent variables: *Career preparation*, *Social support*, *Engagement*, *Academic fit*, *Motivation*, and *Intention to stay*.

Table 4.1

Reliability Scores of the Measurement Models

Latent Variable	Subscale	Number of Items	Mean	*SD*	α
Engagement	Behavioural Engagement	5	20.78	3.04	.70
	Emotional Engagement	5	20.18	3.53	.79
	Cognitive Engagement	5	21.34	2.84	.73
Academic fit		6	24.98	3.89	.79
Career preparation	Career Decision-making	20	79.84	12.55	.91
	Career Confidence	4	15.02	3.99	.84
	Career Preparation	4	14.99	3.34	.75
Motivation	AM_IMse	4	14.65	3.86	.82
	AM_IMa	4	17.03	2.93	.86
	AM_IMk	4	16.88	2.66	.73
	AM_EMidr	4	13.97	3.89	.86
	AM_EMint	4	17.85	3.05	.83
	AM_Emer	4	15.19	3.41	.83
	AM_A	4	14.58	3.83	.82
Social support	Social Support from Significant Other	4	16.19	4.32	.93
	Social Support from Family	4	16.18	3.80	.90
	Social Support from Friends	4	15.60	3.69	.91
Intention to stay (ITS)	Intention to Stay – Negative	3	11.50	2.72	.62
	Intention to Stay – Positive	3	13.43	2.43	.74

Notes. A = Amotivation; Emer = Extrinsic motivation – External regulation; EMidr = Extrinsic motivation – Identified regulation; EMintr = Extrinsic motivation – Introjected regulation; Ima = Intrinsic motivation

orientated towards achievement; IMk = Intrinsic motivation orientated towards knowledge; IMse = Intrinsic motivation orientated towards stimulating experience

The results showed that, with the exception of the subscale Intention to Stay — Negative (ITS Negative) of the Intention to Stay Scale (α = .62), all the subscales met the criteria for good internal consistency, as all yielded a Cronbach α > .70. In addition, the item total correlations for all the subscales were above .30, except for Item 1 of the ITS Negative measure, which was .25. A possible reason for this could be that the ITS Negative subscale only had 3 questions. As mentioned, Cronbach's alpha has a positive relationship with the number of items in a scale. Therefore, if the number of items in a scale is increased, then the reliability will most probably increase. Furthermore, deleting an item in order to increase the Cronbach alpha poses the risk of losing content validity. Therefore, it was decided not to delete Item ITS1, despite its low correlation.

4.4   Confirmatory factor analysis (CFA)

The next step was to validate the measurement model. This was done by assessing the psychometric properties, namely construct validity, of the measurement instrument. Lisrel 8.80 (Jöreskog & Sörbom, 2002) was used for this process. Due to the fact that there was a large number of model parameters, it was decided to fit six separate measurement models. Separate CFAs were conducted for all the instruments that had subscales. Two instruments, Intention to Stay and Academic Fit, that did not have subscales were tested in a combined CFA model. Acceptable fit criteria were used to evaluate the measurement models.

The construct validity for each of the measures was determined by considering various goodness-of-fit statistics, such as the root mean square error of approximation (RMSEA), the comparative fit index (CFI), the goodness-of-fit index (GFI) and the adjusted goodness of fit index (AGFI). When considering goodness of fit, there are some values and cut-off scores that can be used as guidelines. According to Bentler and Bonett (1980), CFI values should exceed .90 in order to obtain good model fit. Furthermore, values of .90 or greater for GFI and AGFI indicate good model fit (Miles & Shevlin, 1998). Some researchers are of the opinion that, when sample size and factor loadings are low, a higher cut-off value of .95 is more fitting (Miles & Shevlin, 1998). The cut-off values for CFI, GFI, and AGFI were all .95 or greater

In addition, the data also provided information on convergent validity, which was determined by examining the factor loadings, average variance extracted (AVE), and construct reliability. In the following section, each measure is reported and interpreted separately.

The procedure followed for confirmatory factory analysis was to do separate CFA's for all the instruments that had subscales. The two instruments namely, intention to stay and academic fit, which did not have subscales, were tested in an combined CFA model.

4.4.1   Engagement measurement model

As mentioned in Section 2.4, *Behavioural engagement*, *Emotional engagement*, and *Cognitive engagement* loaded onto *Engagement*. The goodness-of-fit statistics provided in Table 4.2 indicate an RMSEA value of .044, which reflected good model fit. Furthermore, the CFI, GFI, and AGFI were all above the recommended cut-off value.

Table 4.2

Goodness-of-fit Statistics of the Engagement Measurement Model

	Degrees of Freedom	Chi-square	*p*-value	RMSEA	CFI	GFI	AGFI
Engagement	87	168.99	.00	.044	.99	.99	.99

Notes. RMSEA = root mean square error of approximation; CFI = comparative fit index; GFI = goodness-of-fit index; AGFI = adjusted goodness-of-fit index

Table 4.3 provides the factor loadings (lambda) obtained for the indicator variables. A critical value of 1.96 is assumed with a 5% significance level. It is evident that all the items of the three subscales were statistically significant at $p \leq .05$, as the t-values exceeded the 1.96 critical value. The paths between the indicators and latent variables were also statistically significant ($Z \geq 1.96$).

Table 4.3

Factor Loadings of the Engagement Measurement Model

Latent Variable	Item	Factor Loading	Std. Error	t-stat
Behavioural engagement	BE1	.71	.04	18.23
	BE2	.66	.05	13.22
	BE3	.48	.05	9.47
	BE4	.61	.04	14.76
	BE5	.65	.05	14.36
Cognitive engagement	CE1	.63	.04	16.12
	CE2	.61	.04	14.86
	CE3	.68	.05	13.67
	CE4	.82	.03	24.07
	CE5	.68	.05	14.59
Emotional engagement	EE1_r	.41	.06	7.45
	EE2	.86	.03	33.04
	EE3	.71	.04	19.83
	EE4	.90	.02	41.35
	EE5	.78	.03	24.22

Table 4.4 lists the AVE for the Engagement subscales. AVE values can only be considered acceptable if they exceed .50 (Hair, Black, Babin, Anderson, & Tatham, 2006). The values of the subscales Behavioural Engagement and Cognitive Engagement fell below the recommended > .50. This may have been due to respondents paying inadequate attention while completing the questionnaire, or not understanding the item (Fornell & Larcker, 1981; Hair, Black, Babin, & Anderson, 2010).

Table 4.4

AVE and Construct Reliability Scores of Engagement Subscales

	AVE	Construct reliability
Behavioural Engagement	.39	.76
Cognitive Engagement	.48	.82
Emotional Engagement	.56	.86

4.4.2 Career preparation measurement model

Career confidence, *Career decision-making*, and *Career planning* loaded onto *Career preparation*. The goodness-of-fit statistics provided in Table 4.5 indicate an RMSEA value of .077, which reflects good model fit. Furthermore, the CFI, GFI, and AGFI met the recommended cut-off value of .97.

Table 4.5

Goodness-of-fit of the Career Preparation Measurement Model

	Degrees of Freedom	Chi-square	*p-value*	RMSEA	CFI	GFI	AGFI
Career preparation	347	1359.06	.00	.077	.97	.98	.98

Notes. RMSEA = root mean square error of approximation; CFI = comparative fit index; GFI = goodness-of-fit index; AGFI = adjusted goodness-of-fit index

Table 4.6 provides the factor loadings (lambda) that were obtained for the indicator variables. The results demonstrate that all the items of the three subscales were statistically significant at .05, as the t-values exceeded the 1.96 critical value. The paths between the indicators and latent variables were also statistically significant ($Z \geq 1.96$).

Table 4.6

Factor Loadings of the Career Preparation Measurement Model

Latent variable	Item	Loading	Std. Error	t-statistic
Career confidence	CC1_r	.72	.04	19.24
	CC2_r	.76	.03	24.47
	CC3_r	.91	.02	45.47
	CC4_r	.84	.03	28.61
Career decision-making	CD1	.78	.02	31.90
	CD2	.78	.02	32.97
	CD3	.58	.04	15.54
	CD4	.59	.04	15.01
	CD5	.65	.04	18.37
	CD6	.71	.03	22.73
	CD7	.80	.02	33.51
	CD8	.57	.04	13.07
	CD9_r	.64	.04	15.14
	CD10_r	.72	.03	23.48
	CD11_r	.7	.03	20.61
	CD12_r	.76	.03	30.00
	CD13_r	.88	.02	55.88
	CD14_r	.83	.02	40.89
	CD15_r	.63	.05	13.12
	CD16_r	.45	.04	10.05
	CD17_r	.39	.05	8.08
	CD18_r	.65	.03	19.13
	CD19_r	.58	.04	15.84

	CD20_r	.45	.04	10.53
Career planning	CP1	.85	.03	29.4
	CP2	.91	.03	32.1
	CP3	.57	.05	12.54
	CP4	.50	.05	9.50

Table 4.7 contains the AVE results for the Career Preparation subscales. The results once again indicated that the AVE value for the subscale Career Decision-making fell below the cut-off score of .50.

Table 4.7

AVE and Construct Reliability Scores of Career Preparation Measure

Sub-scale	AVE	Construct reliability
Career Confidence	.65	.88
Career Decision-making	.45	.94
Career Planning	.53	.81

4.4.3   Motivation measurement model

Amotivation, External motivation – External regulation, Extrinsic motivation – Introjected regulation, Intrinsic motivation orientated towards achievement, Intrinsic motivation orientated towards knowledge, and Intrinsic motivation orientated towards stimulating experience loaded onto Motivation. The goodness-of-fit statistics (Table 4.8) indicated an RMSEA value of .045, which suggested good model fit. Furthermore, the CFI, GFI, and AGFI were all above the recommended cut-off value of .97.

Table 4.8

Goodness-of-fit Statistics of the Motivation Measurement Model

	Goodness of Fit	Chi-square	*p*-value	RMSEA	CFI	GFI	AGFI
Motivation	329	661.59	.00	.045	.99	.99	.99

Notes. RMSEA = root mean square error of approximation; CFI = comparative fit index; GFI = goodness-of-fit index; AGFI = adjusted goodness-of-fit index

The factor loadings (lambda) of the indicator variables demonstrated that all the items of the three subscales were statistically significant at $p < .05$, as the t-values exceeded the 1.96 critical

value (Table 4.9). The path between the indicators and latent variables was also statistically significant ($Z \geq 1.96$).

Table 4.9

Factor Loadings of the Motivation Measurement Model

Latent Variable	Item	Loading	Std. Error	t-stat
Amotivation	AM7	.75	.03	22.12
	AM14	.73	.04	18.28
	AM21	.77	.03	25.41
	AM28	.88	.03	28.46
Extrinsic motivation – external regulation	AM6	.74	.03	22.04
	AM13	.83	.03	32.74
	AM20	.83	.03	32.60
	AM27	.79	.03	30.02
Extrinsic motivation – Identified regulation	AM4	.66	.04	17.60
	AM11	.86	.02	36.82
	AM18	.90	.02	55.60
	AM25	.88	.02	38.79
Extrinsic motivation – Introjected regulation	AM5_r	.94	.04	25.03
	AM12_r	.78	.04	20.40
	AM19_r	.87	.04	21.75
	AM26_r	.81	.05	16.73
Intrinsic motivation orientated towards achievement	AM2	.74	.03	22.66
	AM9	.85	.02	37.36
	AM16	.89	.02	42.94
	AM23	.87	.02	41.01
Intrinsic motivation orientated towards knowledge	AM3	.68	.05	14.62
	AM10	.77	.04	20.47
	AM17	.73	.04	17.77
	AM24	.71	.04	17.07
Intrinsic motivation orientated towards stimulating experience	AM1	.58	.04	13.93
	AM8	.92	.02	46.54
	AM15	.80	.03	25.70
	AM22	.84	.02	34.13

The AVE for the Academic Motivation subscales are reported in Table 4.10. All the AVE values exceeded the .50 cut-off point.

Table 4.10

AVE and Construct Reliability Scores

	AVE	Construct reliability
A	.62	.86
Emer	.64	.88
EMidr	.69	.90
EMintr	.72	.91
Ima	.70	.90
IMk	.52	.81
IMse	.63	.87

Notes. A = Amotivation; Emer = Extrinsic motivation – External regulation; EMidr = Extrinsic motivation – Identified regulation; EMintr = Extrinsic motivation – Introjected regulation; Ima = Intrinsic motivation orientated towards achievement; IMk = Intrinsic motivation orientated towards knowledge; IMse = Intrinsic motivation orientated towards stimulating experience

4.4.4   Social support measurement model

Social support is made up of social support from family, friends, and a significant other. Table 4.11 reports the goodness-of-fit statistics, indicating an RMSEA value of .078, which reflected good model fit. Furthermore, the CFI, GFI, and AGFI were all above the recommended cut-off value of .97.

Table 4.11

Goodness-of-fit of the Social Support Measurement Model

	Degrees of Freedom	Chi-square	*p*-value	RMSEA	CFI	GFI	AGFI
Social support	51	205.38	.00	.078	.99	1.00	1.00

Notes. RMSEA= root mean square error of approximation; CFI = comparative fit index; GFI = goodness of fit index; AGFI = adjusted goodness of fit index

Table 4.12 shows that the factor loadings (lambda) obtained for the indicator variables provided evidence that all the items of the three subscales were statistically significant at .05, as the t-values exceeded the 1.96 critical value. The paths between the indicators and latent variables were statistically significant ($Z \geq 1.96$).

Table 4.12

Factor Loadings of the Social Support Measurement Model

Latent variable	Item	Loading	se	t-stat
Family	SSUP3	.86	.02	35.93
	SSUP4	.93	.02	58.44
	SSUP8	.87	.02	42.36
	SSUP11	.86	.03	31.99
Friends	SSUP6	.84	.02	35.36
	SSUP7	.89	.02	51.48
	SSUP9	.95	.01	63.96
	SSUP12	.89	.02	42.90
other	SSUP1	.90	.02	51.45
	SSUP2	.92	.01	62.26
	SSUP5	.98	.01	121.07
	SSUP10	.93	.01	70.21

Table 4.13 reports the AVE for the Social Support subscales. The AVE values all exceeded 0.5, and were therefore considered acceptable.

Table 4.13

AVE and Construct Reliability Scores of the Social Support Measure Subscales

	AVE	Construct reliability
Family	.77	.93
Friends	.80	.94
Other	.87	.96

4.4.5   Intention to stay and Academic fit: Combined CFA

When *Intention to stay* (four items) and *Academic fit* (six items) were analysed, the RMSEA of .11 indicated that the CFA model was not supported. The results are reported in Table 4.14. EFA was then conducted, the results of which are reported in Table 4.15.

Table 4.14

Goodness-of-fit of the Academic Fit and Intention to Stay Measurement Model

	Goodness of Fit	Chi-square	*p*-value	RMSEA	CFI	GFI	AGFI
Academic fit and Intention to stay	53	378.82	.00	.11	.94	.97	.96

4.5   EFA

EFA was conducted on the Academic Fit and Intention to Stay measurements, because the CFA did not display goodness of fit. The results are shown in the table below.

Table 4.15

Eigenvalues: Variance Explained by Each of the Two Factors

Value	Eigenvalue	% Total Variance	Cumulative Eigenvalue	Cumulative %
1	2.63	43.75	2.63	43.76
2	1.21	20.15	3.83	63.91

A parallel analysis indicated two sub-factors for *Intention to quit*. As shown by the factor loadings in Table 4.15, the two subscales explained 44% and 64% of the variance respectively.

Table 4.16

Factor Loadings Obtained Through Oblimin Factor Rotation

	Factor 1	Factor 2
ITS1_r	0.13	0.59
ITS2	-0.84	-0.02
ITS3	-0.84	-0.005
ITS4	-0.76	0.04
ITS5_r	-0.08	0.84
ITS6_r	0.02	0.88

Notes. ITS = Intention to stay; ITS_r = Intention to stay reverse

The items that were worded negatively (reversed) were loaded onto ITS_r, and all the items that was worded positively were loaded onto ITS. The goodness-of-fit statistics, provided in Table 4.17, indicated an RMSEA value of .045, which reflected good model fit. Furthermore, the CFI, GFI, and AGFI were all above the recommended cut-off value of .97. All these outputs meet the predetermined requirements.

Table 4.17

Goodness-of-fit of the Academic Fit and Intention to Stay Measurement Model

	Goodness of Fit	Chi-square	*p*- value	RMSEA	CFI	GFI	AGFI
Academic Fit and Intention to Stay	51	101.08	.00	.045	.99	.99	.98

Notes. RMSEA = root mean square error of approximation; CFI = comparative fit index; GFI = goodness-of-fit index; AGFI = adjusted goodness-of-fit index

Table 4.18 provides the factor loadings (lambda) obtained for the indicator variables. It is evident that all the items were statistically significant at $p < .05$, as the t-values exceeded the 1.96 critical value. The path between the indicators and latent variables was statistically significant ($Z \geq 1.96$).

Table 4.18

Factor Loadings of the Academic Fit and Intention to Stay Measurement Model

Latent variable	Item	Loading	Std. Error	t-stat
Academic fit	AFit1	.76	.04	19.73
	AFit2	.56	.05	11.52
	AFit3_r	.65	.04	14.88
	AFit4	.79	.04	21.99
	AFit5	.72	.03	21.31
	AFit6	.75	.04	18.64
Intention to stay – Negative	ITS1_r	.43	.05	7.81
	ITS5_r	.93	.03	28.07
	ITS6_r	.84	.03	25.71
Intention to stay – Positive	ITS2	.84	.04	21.64
	ITS3	.84	.04	19.42
	ITS4	.82	.05	17.73

The AVE of the Academic Fit and Intention to Stay subscales. All exceeded .50. (Table 4.19)

Table 4.19

AVE and Construct Reliability Scores of Academic Fit and Intention to Stay Scales

	AVE	Construct reliability
Academic fit	.50	.86
Intention to Stay (Negative)	.59	.80
Intention to Stay (Positive)	.70	.87

4.6   Structural equation modelling (SEM)

Table 4.20 provides an overview of the standard deviation, Cronbach alpha, and item total correlation for all the variables. structural equation modelling is being used when complex relationships between latent variables are being investigated. With the exception of Engagement ($\alpha = .69$) and Intention to Stay ($\alpha = .51$), all the subscales met the criteria for good internal consistency, as they yielded a score above $\alpha = .70$. In addition, the item total correlations were all above .30.

Notably, the reliability of the Intention to Stay was $\alpha = .521$, but this could be attributed to the fact that it was calculated on a limited number of subscales. The item-total correlation was .34. In the PLS results, which follow, the composite reliability of the Intention to Stay subscale was .80.

Table 4.20

Item Reliability Results of All Scales

	Cronbach's α	Item-total Correlation
Engagement	.69	.44
Academic fit	.79	.41
Career preparation	.82	.65
Motivation	.79	.38
Social support	.72	.47
Intention to stay	.51	.34

4.7 PLS Results

When conducting PLS analysis, a two step process is followed. The outer model is first assessed, and when reliability and validity is confirmed, the inner model is then assessed.

4.7.1 Validating the PLS Measurement (Outer) Model

Outer Model: Composite Reliability and AVE

The outer model should be validated in order to determine the psychometric quality of the measurement instrument that is being used to operationalise the latent variables in the model. When assessing the outer model, composite reliability, AVE, and the heterotrait–monotrait ratio were considered.

From Table 4.21, it is evident that all the measurement instruments displayed acceptable internal consistency, as all the scores were above the recommended > .70. Furthermore, all the measurement instruments displayed convergent validity, as all the AVE values exceeded .50, except for Motivation. Fornell and Larcker (1981) suggested, that if an AVE value is less than the recommended .5, the convergent validity can still be regarded as adequate, as long as the composite reliability is higher than .6. In the present study, the composite reliability of the Academic Motivation Scale did exceed .6.

Table 4.21

Composite Reliability and AVE Scores

Subscale	Composite reliability	AVE
Engagement	.83	.61
Academic Fit	.86	.51
Career Preparation	.91	.76
Academic Motivation	.83	.45
Social Support	.85	.65
Intention to Stay	.80	.67

4.7.2 Discriminant validity

The HTMT ratio was calculated to assess discriminant validity (Henseler, Ringle, & Sarstedt, 2015). The HTMT approach has the purpose of analysing within-scale item correlation and then comparing that to other scales' cross-correlation. In essence, the cross-correlations should be lower than the within-correlations. When considering the 95% upper column, the values should not be close to 1, otherwise the two scales can be considered one entity. Table 4.22 indicates that discriminate validity was achieved for all the measurement instruments.

Table 4.22

HTMT Ratio of Correlation

	From	**To**	**Ratio**	**95% lower**	**95% upper**	**Discrim inant**
Afit -> AM	Afit	AM	.56	.00	.48	Yes
CareerP -> AM	CareerP	AM	.50	.00	.42	Yes
CareerP -> Afit	CareerP	Afit	.56	.00	.48	Yes
Engage -> AM	Engage	AM	.55	.01	.42	Yes
Engage -> Afit	Engage	Afit	.87	.00	.79	Yes
Engage -> CareerP	Engage	CareerP	.55	.00	.43	Yes
ITS -> AM	ITS	AM	.56	.01	.43	Yes
ITS -> Afit	ITS	Afit	.72	.01	.59	Yes
ITS -> CareerP	ITS	CareerP	.40	.00	.26	Yes
ITS -> Engage	ITS	Engage	.55	.01	.40	Yes
mssp -> AM	mssp	AM	.22	.02	.14	Yes
mssp -> Afit	mssp	Afit	.42	.00	.29	Yes
mssp -> CareerP	mssp	CareerP	.29	.00	.19	Yes
mssp -> Engage	mssp	Engage	.44	.00	.29	Yes
mssp -> ITS	mssp	ITS	.30	.01	.18	Yes

Notes. A = Amotivation; Emer = Extrinsic motivation – External regulation; EMidr = Extrinsic motivation – Identified regulation; EMintr = Extrinsic motivation – Introjected regulation; Ima = Intrinsic motivation orientated towards achievement; IMk = Intrinsic motivation orientated towards knowledge; IMse = Intrinsic motivation oriented towards stimulating experience; AM = Academic motivation; Afit = Academic fit; BE = Behavioural engagement; CE = Cognitive engagement; EE = Emotional engagement; ITS = Intention to stay; mssp = Social support

4.7.3   Outer loadings

Table 4.23 provides information on the outer loadings. All the factor loadings were statistically significant ($p < .01$). Furthermore, the outer loading values exceeded the minimum value of .5, except for *Motivation* on *Intrinsic motivation orientated towards stimulating experience* (IMse). However, the item was statistically significant; therefore, it was decided not to remove it.

Table 4.23

PLS-SEM Outer Loadings

	Manifest Variable	**Latent Variable**	**Loading**	**95% lower**	**95% upper**
A <- AM	A	AM	.51**	0.40	0.60
AFit1 <- Afit	AFit1	Afit	.75**	0.69	0.81
AFit2 <- Afit	AFit2	Afit	.59**	0.49	0.68
AFit3_r <- Afit	AFit3_r	Afit	.63**	0.54	0.71
AFit4 <- Afit	AFit4	Afit	.77**	0.71	0.81
AFit5 <- Afit	AFit5	Afit	.73**	0.68	0.78
AFit6 <- Afit	AFit6	Afit	.77**	0.71	0.82
BE <- Engage	BE	Engage	.75**	0.68	0.81
CC <- CareerP	Cc	CareerP	.86**	0.82	0.89
CD <- CareerP	CD	CareerP	.92**	0.91	0.94
CE <- Engage	CE	Engage	.72**	0.64	0.78
CP <- CareerP	CP	CareerP	.83**	0.79	0.86
EE <- Engage	EE	Engage	.87**	0.83	0.89
Emer <- AM	EMer	AM	.85**	0.81	0.88
EMidr <- AM	EMidr	AM	.79**	0.74	0.83
EMintr <- AM	EMintr	AM	.65**	0.57	0.72
Family <- mssp	Family	Mssp	.8**	0.72	0.86
Friends <- mssp	Friends	Mssp	.8**	0.72	0.85
Ima <- AM	IMa	AM	.88**	0.84	0.90
IMk <- AM	IMk	AM	.53**	0.43	0.63
IMse <- AM	IMse	AM	.21**	0.06	0.33
ITS_N <- ITS	ITS_N2	ITS	.87**	0.81	0.91
ITS_P <- ITS	ITS_P	ITS	.76**	0.66	0.83
Other <- mssp	Other	mssp	.82**	0.75	0.87

Notes. A = Amotivation; Emer = Extrinsic motivation – External regulation; EMidr = Extrinsic motivation – Identified regulation; EMintr = Extrinsic motivation – Introjected regulation; Ima = Intrinsic motivation orientated towards achievement; IMk = Intrinsic motivation orientated towards knowledge; IMse = Intrinsic motivation orientated towards stimulating experience; AM = Academic motivation; Afit = Academic fit; BE = Behavioural engagement; CE = Cognitive engagement; EE = Emotional engagement; ITS = Intention to stay; mssp = Social support

** = p < .01

4.7.4   Structural (inner) model

PLS was also used to assess and validate the inner model. The inner model has the purpose of providing an indication of the specific model's ability to predict one or more endogenous

variables. Figure 4.1 provides a graphical representation of the relationship between the latent variables. PLS-SEM was conducted to analyse and assess the quality of the relevant paths between the exogenous and endogenous latent variables.
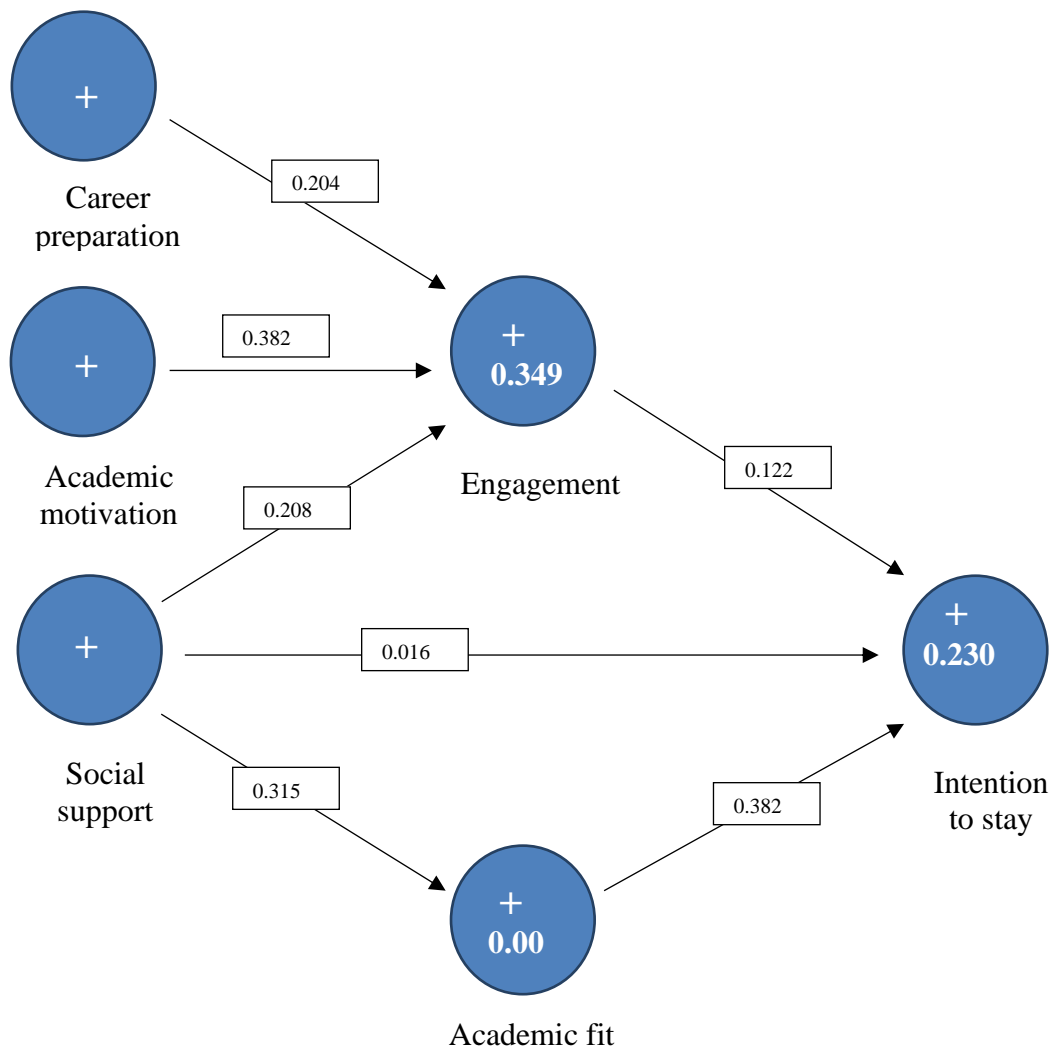

Figure 4.1. Graphical representation of the inner (structural) model.

The magnitude of R^2 values is evaluated as a criterion of predictive accuracy. The R^2 gives an indication of the amount of variance in the endogenous latent variables that is explained by the exogenous latent variables. Table 4.24 provides the R^2 for the endogenous latent variables.

Academic fit had a R^2 value of .1, which suggested that 10% of the variance in *Academic fit* was explained by the exogenous latent variables in the model. *Engagement* displayed an R^2 of .35, which meant that 35% of the variance in *Engagement* was explained by the exogenous

latent variables, and 23% of the variance in *Intention to stay* was explained by the exogenous latent variables.

Table 4.24

R-square Values in the Structural Model

	R-square	R-square Adjusted
Academic fit	.10	.10
Engagement	.35	.35
Intention to stay	.23	.23

4.7.5   Multicollinearity

The variance inflation factors, VIFs, associated with each exogenous latent variable (predictor variable) were evaluated to test for multicollinearity. VIFs indicate the extent to which the variance of the estimated regression path coefficients among the response and predictor variables are inflated because of high intercorrelations amidst the predictor variables in the model.

VIF coefficients should not exceed 5.0. From the information provided in Table 4.25 it is evident that none of the values exceeded 5.0; therefore, it can be concluded that the predictor variables (exogenous latent variables) were not highly correlated with one another. In essence, the variance of the estimated regression path coefficients between the response variable and the predictor variable was not exaggerated because of high intercorrelations between predictor variables (exogenous latent variables).

Table 4.25

Variance Inflation Factors (VIF)

	Engage	ITS
AM	1.295	
Afit		1.943
CareerP	1.333	
Engage		1.942
ITS		
Mssp	1.059	1.133

Notes. AM = Academic motivation; Afit = Academic fit; CareerP = Career preparation; Engage = Engagement; ITS = Intention to stay; mssp = Social support

4.7.6 Evaluation of path coefficients

PLS-SEM has the purpose of explaining hypothesised relationships between the latent variables of interest. After considering and confirming the reliability for each latent variable, the estimated path coefficients were calculated to establish the significance and strength of the different hypothesised relationships. A significance level of 5% ($p < .05$) was used as an indicator. The results are reported in table 4.26.

Table 4.26

Path Coefficients of the Structural Model of Postgraduates' Intention To Stay

	Path coefficient	95% Lower	95% Upper	Significant CI	*p*-value from t-test
AM -> Engage	.38	.30	.46	Yes	.00
Afit -> ITS	.38	.26	.49	Yes	.00
CareerP -> Engage	.20	.12	.28	Yes	.00
Engage -> ITS	.12	-.02	.24	No	.07
mssp -> Afit	.32	.23	.41	Yes	.00
mssp -> Engage	.21	.12	.31	Yes	.00
mssp -> ITS	.02	-.09	.11	No	.77

Notes. Engagement; ITS = Intention to stay; mssp = Social support

In the subsequent section the findings with regard to the various hypotheses are evaluated. Whether each hypothesis was supported is briefly discussed.

Hypothesis 1: Career preparation has a positive impact on postgraduate students' level of engagement at university.

A positive relationship between *Career preparation* and *Engagement* was hypothesised and found to be statistically significant ($p < .05$). The null hypothesis was therefore rejected. These findings are in in agreement with those of other researchers (Rochester, 2017; Olwage, & Mostert, 2014; Skorikov, 2007). Career preparation, which consists of career planning (Rochester, 2017), career decision-making (Second et al., 2014), and career confidence (Skorikov, 2007) has a positive impact on students' level of engagement. Therefore, the more students prepare for their career choice through planning, effective decision-making, and career confidence, the greater the chances are that they will stay at university.

Hypothesis 2: Engagement has a positive impact on postgraduate's intention to stay at university.

The hypothesised positive relationship between *Engagement* and *Intention to stay* was found to be not statistically significant ($p > .05$). This finding is not consistent with the findings of other researchers on the topic (Bonet & Walters, 2016; Sousa, 2015; Viljoen & Deacon, 2013). Nevertheless, it is important to consider the fact that $p < .05$ was used in this current study as a guideline, but a more moderate significant level of 10% ($p < .10$) can also be used (Hair et al., 2017). While the hypothesised relationship between *Engagement* and *Intention to stay* was not statistically significant at $p < .05$, it was significant at $p < .10$. Therefore, it was found that postgraduates' engagement does have an impact on their intention to stay at university and complete their studies, but it is not a strong relationship. The relationship is not strong enough to conclude that engagement has a direct impact on a student's intention to stay.

After careful consideration and adaptations to the structural model of postgraduates' intention to stay, it became clear that if *Academic fit* were deleted, the relationship between *Engagement* and *Intention to stay* became significant. This indicates that both engagement and academic fit have a positive influence on postgraduates' intention to stay at university, but academic fit has a stronger influence than engagement on postgraduate students' intention to stay. Wilcox, Winn and Fyvie-Gauld (2005) argue that academic fit is a requirement for student engagement, and a lack of academic fit will prevent the student from being engaged in his or her studies. This relationship was not tested in the present study, but could be investigated in future research.

Hypothesis 3: Social support has a positive impact on postgraduate students' engagement at university.

The hypothesised positive relationship between *Social support* and *Engagement* was found to be statistically significant ($p < .05$). The null hypothesis was therefore rejected. The conclusion derived from this study is consistent with similar studies on the topic (Hirschi et al., 2011; Palladino et al., 2005; Jayarathna, 2014), that there is indeed a positive relationship between social support and students' engagement.

Hypothesis 4: Social support has a positive impact on postgraduates' academic fit at university.

The hypothesised positive relationship between *Social support* and *Academic fit* was found to be statistically significant ($p < .05$). The null hypothesis was thus rejected. This indicates that there is a positive relationship between postgraduate students' social support and their academic fit, as found by Meikle (2008), Madill, Montgomerie, and Stewin (2000); Madill, Ciccocioppo, Stewin, Armour, and Montgomerie (2004).

Hypothesis 5 Social support has a positive impact on postgraduate students' Intention to stay at university.

The hypothesised positive relationship between *Social support* and *Intention to stay* was found to be not statistically significant ($p > .05$). Therefore, the null hypothesis was not rejected. These findings are contrary to the findings of other studies. Various studies support the impact of social support on intention to stay among undergraduate students (House, 1981; Zajacova et al., 2005; DeBerard, Spielmans, & Julka, 2004; Gloria Castellanos, Lopez, & Rosales, 2005; De la Iglesia et al., 2014; Myers, 2009). The studies that considered the impact of social support on intention to stay among postgraduates are limited, but they also confirm the relationship (Khalifa et al., 2016). Notably, the analysis revealed that *Engagement* mediated the relationship between *Social support* and *Intention to stay*. Therefore, even though social support does not have a direct influence on postgraduate students' intention to stay, evidence suggests that, if students are engaged, they may be more likely to stay at the institution.

Hypothesis 6: Academic fit has a positive impact on postgraduate students' intention to stay at university.

The hypothesised positive relationship between *Academic fit* and *Intention to* stay was found to be statistically significant ($p < .05$). The null hypothesis was therefore rejected. This finding is in line with the those of other researchers who also support the importance of this relationship (Allen & Robbins, 2008; Holland, 1997, Schmitt et al., 2008).

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Hypothesis 7: Motivation has a positive impact on postgraduate students' engagement at university.

The hypothesised positive relationship between *Motivation* and *Engagement* was found to be statistically significant ($p < .05$). The null hypothesis was thus rejected. Research shows that students who experience internal and external motivation experience higher levels of engagement (Newmann, 1992; Saeed & Zyngier, 2012; Xiong et al., 2015). Moreover, motivation is argued to be a pre-requisite for engagement (Saeed & Zyngier, 2012). It has therefore been confirmed that motivation has a positive impact on postgraduate students' engagement in this study.

4.8   Conclusion

The overarching purpose of this chapter was to consider all the results after statistical analyses and to report the findings. The results displayed acceptable reliability and validity for the measurement model and supported the validation of the inner (structural) model. PLS-SEM was conducted to analyse and assess the quality and significance of the relevant paths between the endogenous and exogenous latent variables. Strong support was found for five of the seven hypotheses. In contrast with existing literature, no support was found for a direct relationship between social support and intention to stay at university, and the relationship between engagement and intention to stay. The results, implications, and limitations of the present study are discussed in the following chapter.

Chapter 5:

Discussion, implications, limitations, and suggestions for future research

5.1 Introduction

The NDP and associated goals were developed as an attempt to combat the numerous challenges South Africa is facing, with the express purpose of growing the economy, developing capacity, and building the capabilities of the country. Enhancing education and training in South Africa is one of the eight key objectives of the NDP's vision. One of the primary drivers is addressing the lack of quality education that hampers the country's development and growth.

Education, specifically higher education, is needed to give South Africa a highly skilled workforce that could potentially develop its competitive advantage. However, as mentioned, South Africa is struggling to deliver sufficient postgraduates each year, as a consequence of various individual and environmental factors. The literature on this topic presents various reasons why some students leave university. This study intended to extend research on this topic by employing a positive approach to determine what supports intention to stay, rather than what impacts intention to drop out.

In Chapter 1, the research-initiating question formulated for this purpose thus asked what variables impact students' intention to stay at university and complete their studies. Chapter 2 provided a literature review of the various factors that impact intention to stay. Various research studies were reviewed to identify the variables that impact intention to stay, and, after thorough consideration, engagement, career preparation, motivation, social support, and academic fit were selected to formulate a model of postgraduates' intention to stay.

The review presented a discussion of each variable that underpinned the development of the model, together with arguments for the relationships between the variables. In Chapter 3, the research design, research hypotheses, sampling procedure, data collection process, and measures employed were discussed and justified. Chapter 4 covered the results of the statistical analyses. Chapter 5 provides a discussion of the theoretical and practical implications of the results obtained. The purpose is to convey an understanding of how the selected variables impacting each other, as well as their relative contribution to postgraduate students' intention

to stay, whether directly or indirectly. In addition, the limitations are presented, together with recommendations for future research.

5.2   Discussion of results

The study was guided by the research-initiating question: *What factors predict intention to stay among postgraduate students?* Various studies that previously examined intention to stay were consulted. The majority were directed towards undergraduates, but few considered postgraduates. Commonly included factors that impact intention to stay, according to various researchers, were selected for inclusion in the present study.

From extant research, it is evident that engagement (Demetriou & Schmitz-Sciborski, 2011; McGivney, 2004; Pascarella & Terenzini, 2005; Viljoen, 2012; Xiong et al., 2015), social support (Khalifa et al., 2016; Retief & Mbambo-Thata, 2008), academic fit (Viljoen, 2012; Khalifa et al., 2016), career preparation (Demetriou & Schmitz-Sclborski, 2011; Pascarella & Terenzini, 2005; Khalifa et al., 2016; Retief & Thata, 2008), and motivation (McGivney, 2004; Khalifa et al., 2016; Pascarella & Terenzini, 2005; Xiong Li et al., 2015) have an impact on intention to stay among undergraduates. The present study sought to examine whether these factors also influence postgraduate students' intention to stay.

While the aforementioned factors' impact on intention to stay is strongly supported by literature, only some of these relationships were verified in the current study. The findings of this study indicate that certain variables have a positive impact on students' intention to stay at university and complete their postgraduate studies, and that other variables do not have such impact. Support was found for five of the seven hypothesised relationships, namely between career preparation and engagement, motivation and engagement, academic fit and intention to stay, social support and academic fit, and social support and engagement. The supported pathways provide valuable insight into the factors that impact students' intention to stay at university and complete their postgraduate studies.

One of the objectives of the present study was to investigate whether career preparation has an impact on engagement. The findings indicate a significant relationship between career preparation and engagement. This suggests that students from Stellenbosch University who have done planning on possible career options and are confident in their career decisions are more inclined to experience engagement at university, especially during postgraduate studies. This finding is in accordance with that of other studies that have also examined this

relationship. For example, Perry et al. (2010), Rochester (2017), Olwage and Mostert (2014), and Pezold (2017) explored the relationship between career preparation (career planning, decision-making, and career confidence) and engagement, and found that career preparation has a direct impact on engagement. Other studies also support the relationship between career preparation and engagement, as well as the components of career preparation (Rochester, 2017; Olwage & Mostert, 2014; Pezold, 2017). It can therefore be concluded from the findings, if students put thought and research into their career choice and plan their career path, they are more likely to experience engagement than students who did not (Rochester, 2017). In addition, some postgraduates may be motivated by the value they see in furthering their education.

This value may be derived from holding a higher qualification than fellow applicants when applying for a job, or perceiving that an honours or Master's degree will lead to better job prospects. The findings also confirm that students who make effective career-related decisions and display confidence in their career choice will be more inclined to be engaged in their studies (Olwage & Mostert, 2014; Germeijs & Verchueren, 2007). Thus, universities could play a valuable role in individual career progression by assisting students in their career preparation process in the form of e.g., career assessments, workshops, and career information centres that help students with career planning and decision-making. If students receive assistance from the university, more students might be guided to selecting the appropriate career, based on their interests and skills. This could then ensure that even more students experience engagement.

Another proposition that was explored in this study was the relationship between motivation and engagement. Results indicated a significant relationship between motivation and engagement, a finding similar to that of previous research that confirmed that internal and external motivation are both significant predictors of student engagement (Xiong et al., 2015; Wigfield & Eccles, 2002; Wigfield & Wagner, 2005).

This finding suggests that motivated students are more likely to be engaged in their studies. Motivation guides an individual's interest in learning, and, according to Saeed and Zyngier (2012), motivated individuals learn more effectively. Motivation is defined as that which causes people to act, and can also be regarded as the practices upon which certain outcomes depend (Shaheen & Farooqi, 2014). According to Shaheen and Farooqi (2014), motivated people are more innovative, which, in turn, drives their level of engagement. Therefore, universities might benefit from learning what brings about student motivation; this can be done

through qualitative research and feedback from students. The antecedents of motivation among postgraduate students could also be explored further in future studies.

The present study also examined the relationship between academic fit and intention to stay among postgraduate students. The results showed that the relationship between academic fit and intention to stay is significant. This means that students who study a course that matches their interests, abilities, and preferences are more likely to stay at university and complete their studies. This relationship has also been verified in a number of studies (Schmitt et al., 2008; Allen & Robbins, 2008; Holland, 1997). For example, Schmitt. et al (2008) found that a high level of academic fit supports students' perseverance in completing their studies. Therefore, academic fit is, by implication, associated with a higher retention rate at university (Allen & Robbinson, 2008). The results obtained in the present research study are thus in accordance with previous research.

There is a significant relationship between social support and academic fit (Meikle, 2008). Meikle (2008) found that the more students' family and friends were involved in their process of finding a suitable academic fit, the greater these students' academic fit would be. Madill, Montgomerie, and Stewin (2000) reported that some students felt that their support system, family, friends, and significant others knew them well enough to help with and influence their selection of an academic major in which they would experience the best academic fit. The results of the present study thus correspond with the literature. The present study found that students who have an effective support system are more inclined to select an academic course that fits their interest, abilities, and preferences.

Social support was also found to influence postgraduates' engagement. Thus, one may assume that the more students feel they are being supported by their family, friends, and significant others, the more engaged they will be. Hirschi et al. (2011) found that social support, especially from family, impacts students' level of engagement. Xerri et al. (2018) also confirmed that social support from people other than family can impact engagement. They concluded that the more support and encouragement students received from people like their lecturers, the more inclined these students were to experience high levels of engagement. Therefore, it can be concluded that the level of social support Stellenbosch University postgraduates receive has a direct impact on their level of engagement.

Some relationship paths were not supported by the findings of the present study. For instance, while social support was found to be linked to academic fit and engagement, the relationship with postgraduate students' intention to stay at university was not significant. This is in contrast to various studies that have established the important role social support plays in students' decision to stay at or leave university (House, 1981; Zajacova, Lynch, & Espenshade, 2005; De laIglesia, Stover, & Liporace, 2014; Myers, 2010). These studies found that students who receive social support are less likely to feel overwhelmed by and stressed about their studies, because their support structures help them cope better (DeBerard, Spielmans, & Julka, 2004).

It is important to note that postgraduates and undergraduates have different support needs. Therefore, social support should be provided on the basis of postgraduates' specific needs (Heussi, 2012; Mllinckrodt & Leong, 1992; Humphrey & McCarthy, 1999). One differentiating need is that postgraduates are moving into a new phase of their life. Humphrey and McCarthy (1999) proposed that postgraduate students may have a higher need for assistance and support from faculty members (internal support), because they feel they have earned the right to this support, as they have already successfully completed their undergraduate studies. In addition, research has found that male postgraduates value the support from faculty members, whereas women value curriculum flexibility, relationships with other students, and quality child care (Millinckrodt & Leong, 1992). It seems as though financial support might also be more important to postgraduates, as this group receives fewer bursary opportunities than undergraduates (Phakeng, 2017). The statistics show that postgraduate education is currently under-resourced in South Africa (Phakeng, 2017). West (2012) confirmed that postgraduates have a need for more workshops, coupled with assistance from tutors.

The current study only considered social support from family, friends, and significant others. The fact that a weak direct relationship was found between social support (family, friends, and others) and students' intention to stay in higher education may indicate that the postgraduates in this sample have different needs with regard to support. This is an avenue that future research could explore. An alternative explanation may be that social support influences intention to stay indirectly through other variables, such as academic fit, which also explains the weak direct relationship between social support and intention stay found in the present study.

Another relationship that is not supported by this research is the relationship between engagement and intention to stay. While the present study found some support for this

relationship, it was weak. As indicated in Chapter 4, the relationship was not statistically significant ($p = 0.07$), and therefore not strong enough to conclude that engagement has a direct impact on a student's intention to stay.

The impact of engagement on intention to stay among employees has received substantial support in the literature (Gupta & Shaheen, 2017; Halbesleben & Wheeler, 2008; Van der Westhuizen, 2014). In organisational contexts, research has found that employees who are highly engaged in their work are more likely to stay at their company than employees who are not (Halbesleben & Wheeler, 2008; Shuck & Wollard, 2010; Van der Westhuizen, 2014). This theory has also been supported in studies amongst university students (Bonet & Walters, 2016; Sousa, 2015; Viljoen & Deacon, 2013).

It has also been found that engaged undergraduate students are more inclined to stay at university and complete their studies (Viljoen & Deacon, 2013). The more engaged and invested students are in their field of study, the more likely they are to engage in educationally purposive activities, thereby increasing their chances of completing their course (Sousa, 2015). Yorke (2004) supports this notion by proposing that engaged students are more likely to experience higher academic success, and that this may play a role in their decision to stay at their tertiary institution. Contrary to the immense support for this relationship in the literature, the relationship between engagement and intention to stay among postgraduates in this sample was weaker than expected.

To summarise, the aforementioned section looked at the relationships that were supported after data were gathered from 494 postgraduate students from Stellenbosch University. The present study's results confirm that career preparation impacts postgraduate students' level of engagement. It was also confirmed that the more motivated student are, the more engaged they will be. Furthermore, a significant relationship between academic fit and intention to stay was confirmed. The present study also found that social support has an impact on academic fit and engagement. When considering these findings, it is clear that universities have the responsibility and opportunity to support and influence the resources and interventions focused on career preparation, motivation, academic fit, and social support provided to postgraduates. This, in turn, could impact students' intention to stay and complete their postgraduate studies.

5.2.1   Recommendations for practice

The results obtained from this research study can be used to add value through improvement on the number of postgraduate students delivered each year by universities. This section considers the practical implications the findings have for various stakeholder, and how they could use this information effectively.

First, the findings of this study could inform initiatives by universities to impact postgraduate students' intention to stay at university. As mentioned earlier, South African tertiary education institutions are not delivering sufficient postgraduates into the workforce. In 2013, only 20% of Master's students completed their postgraduate studies (Department of Science and Technology, 2017). The findings of this study highlight the importance of effective career guidance and preparation at every level of education, including the postgraduate level. Universities should focus more on career preparation at undergraduate level, as this might impact students' decision to stay and complete a postgraduate qualification. This can also contribute to academic fit, which was found to influence intention to stay. Academically unsure students should be identified early and assisted to find their academic fit. Interventions such as career counselling, assessment, mentoring, and job shadowing may prove to be effective in this regard. Students who experience academic fit at undergraduate level may be more inclined to stay until they have completed their postgraduate studies.

Universities should also consider the importance of internal and external motivation of students. If universities can identify and influence factors that play an important part in student motivation (e.g., academic bursaries), these could be harnessed to motivate students to complete their postgraduate studies. Universities could thus use incentives to stimulate extrinsic motivation.

The findings of this study are also of interest to the field of industrial psychology, where the progress of postgraduate students influences its practices and growth as a profession. To illustrate, the availability of a highly skilled workforce affords industrial and organisational psychologists the opportunity to recruit from a large, highly skilled pool of prospective employees. Such employees have the potential to impact the success of a company and enable the company to gain a competitive advantage (CHE, 2009; Zewotir et al., 2015).

Another advantage is that postgraduates enjoy the benefits associated with a postgraduate level of qualification. Research has shown that graduates with an honours or Master's degree

experience higher levels of personal development in organisations. They are inclined to earn more than undergraduates, and they enjoy greater professional advancement (Regent, 2018; Top Universities, 2014; Wolverhampton, 2018). Therefore, industrial psychologists could use the findings of the present study to contribute to building a more skilled workforce.

Currently, South Africa is experiencing a shortage of psychologists (SACAP, 2017). Hence, the psychology profession may also benefit from the findings of the current study. All psychologists are required to complete a Master's degree and an internship in order to register as a professional practitioner. As suggested above, universities' Departments of Psychology need to be aware of the factors that impact intention to stay. They could then focus on these factors when motivating students to complete their postgraduate degree in order to register as a psychologist in a specific field. In sum, the findings of the present study could inform the provision of effective support and interventions for retaining postgraduate students across all fields of study, including psychology.

The aforementioned section provided suggestions on how various role players could use the findings of this research study in a proactive manner. The purpose of the study was to add value in the higher education setting by informing lecturers and other related professionals of the variables that drive student retention.

5.3   Limitations of the study

While the current study provides valuable information, it has certain limitations. However, these limitations do not discredit the results obtained. The limitations are discussed below, in an attempt to guide future research endeavours on this topic.

The first limitation is the use of self-report data. Self-reporting is a popular method of data gathering, especially when a large sample size is required in order to represent the population (Sallis & Saelens, 2015). Self-administered questionnaires carry the risk of response bias (Sallis & Saelens, 2015). Response bias occurs when respondents respond to a question in a socially desirable manner, or if they engage in extreme or acquiescent responding (Sallis & Saelens, 2015). In providing socially desirable responses, individuals provide responses that will enhance their image. Extreme responding occurs when respondents select mostly the extreme options of the scale, and acquiescent responding refers to respondents agreeing with every statement without considering what is requested (Paulhul & Vazire, 2007).

As an anonymous self-report survey was used in the present study, there was no way of determining whether the students' responses were tainted by bias. This limitation can be negated to some extent by assuring respondents there are no right or wrong answers, that their responses will be kept anonymous, and by encouraging them to answer truthfully, which was done in this study. However, response bias could be limited by distributing the questionnaire online, as was done in the present study. Interval questioning has also been shown to be effective in reducing response bias, as has providing fewer response options.

Another source of bias associated with self-report questionnaires is common method bias. This occurs when variances in responses are caused by the instrument (Schaller, Patil, & Malhotra, 2015). Schaller et al. (2015) reported that the risk of this bias arise when the same method is used to measure multiple constructs. Common method bias can be managed by eliminating common scale properties and eliminating ambiguity in scale items (Schaller, Patil, & Malhotra, 2015). Future studies should be aware of the aforementioned issues and attempt to minimise their influence, where possible.

The second limitation of the present study is the fact that the data were collected from one sample of postgraduates from Stellenbosch University. No other higher education institutes were included, and the sample can therefore not be considered representative of the South African postgraduate population. For the purpose of this study, the sample of 494 respondents was satisfactory. However, the generalisability of the results is limited, and the findings may not be applicable to postgraduate students at all universities. The study should be replicated with postgraduate populations from other institutions. This may yield different results and conclusions. In addition, a longitudinal study can provide more in-depth data with which to improve understandings of the factors that impact intention to stay.

Thirdly, the present study was limited to quantitative data. The use of a qualitative research approach will enable a more in-depth examination of the phenomenon of intention to stay in higher education and complete a postgraduate degree. A qualitative approach will enable future research to gain insight into other context specific variables that may impact postgraduates' intention to stay that are not addressed in the literature, or that could further explain how and why individuals respond to certain factors in different ways.

Lastly, the length of the questionnaire can also be considered a limitation. The questionnaire had a total of 95 items. This may have caused some respondents to not consider their responses

carefully, which may have impacted the quality of some of the data. This can be improved in future research by making use of other, shorter measurement instruments that are still psychometrically robust and measure the same variables.

5.4   Conclusion

This research study had the purpose of considering why some students stay and complete their Honours or Masters degree. Various studies and resources were considered in order to understand what variables impact students' intention to stay or discontinue their postgraduate studies. This research study was more focused on determining what will make students stay, as this could be used as a proactive approach to addressing dropout.

From the findings, it was concluded that postgraduate's engagement is influenced by career preparation (career planning, career decision-making, and career confidence), motivation, and social support (from family, friends, and significant otherers). Furthermore, social support has an influence on academic fit between students and their academic course, which ultimately impacts their intention to stay.

South Africa is a developing country and is experiencing a number of challenges that the National Development Plan is aimed at addressing. By investing in education, the country will have the opportunity to grow and develop by overcoming some of the skills shortages. While there is a need to understand why learners and students drop out, it is even more important to understand why they stay, and then to enhance these retention factors, where possible. It is of the utmost importance to continue looking for ways to support learners, students, and, especially, postgraduate students in completing their studies. The results obtained in this study could be used to develop effective student retention interventions, and may assist both students and educators in ensuring fit and academic success, thereby enhancing the available skills to support South Africa's development.

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ADDENDUM A: INFORMED CONSENT FORM

STELLENBOSCH UNIVERSITY
CONSENT TO PARTICIPATE IN RESEARCH

Research title: An examination of the factors that influence postgraduate student's intention to stay in higher education

You are asked to participate in a research study conducted by Mrs Adelaide de Villiers, from the Industrial Psychology Department at Stellenbosch University. The results obtained will contribute to the completion of a Master's degree in Industrial Psychology. You were selected as a possible participant in this study because you are a honours or Master's student from the University of Stellenbosch.

1. PURPOSE OF THE STUDY

This study aims to theoretically and empirically investigate the factors that influence postgraduate students to stay in university and complete their higher education. More specifically, the study focuses on the impact of engagement, social support, academic fit, career preparation, and motivation on intention to stay. The researcher therefore seeks to identify the factors that encourage student retention among postgraduate students, particularly Honours and Masters students from the University of Stellenbosch. The proposed outcome of this study will be to propose interventions that motivate student retention based on the evidence gathered from this study.

2. PROCEDURES

If you volunteer to participate in this study, you would be required to do the following:

2.1. QUESTIONNAIRE

You will be asked to complete a questionnaire to determine what factors motivate you to stay in university and complete your higher education qualification. You will be required to rate each question on a Likert scale ranging from 1 to 5. There are no right or wrong responses; we are merely interested in your personal opinions. Your responses will remain anonymous and

your confidentiality will be protected. You will require approximately 15–20 minutes when completing this questionnaire.

3. POTENTIAL RISKS AND DISCOMFORTS

There are no potential risks envisaged in this study. The questionnaire will also require approximately 15–20 minutes of your time to complete.

4. POTENTIAL BENEFITS TO SUBJECTS AND/OR TO SOCIETY

Participation in the study would provide you with an opportunity to reflect on the influential factors (i.e. motivation, academic fit, career preparation, engagement, and social support) that play a role in your intention to stay at this university and complete your degree.

5. PAYMENT FOR PARTICIPATION

No payment will be made to participants for partaking in this study. However, if you volunteer to participate in the study, by completing the online questionnaire, you stand a chance to win one of three cash prizes as an incentive for participating in the study: 1st prize: R2 000, 2nd prize: R1 000, 3rd prize: R500. At the end of the questionnaire, a link will be provided to a second, independent short electronic survey that will only ask for your cell phone number. The response to the second questionnaire will result in an independent data set that cannot be linked to the responses of the first questionnaire. The three winners will be randomly selected and notified via text message. You are free to decide whether you want to provide your cell phone number and participate in the lucky draw, but you are under no obligation to provide your contact details if you do not wish to do so.

6. CONFIDENTIALITY

The questionnaire will be completed online on Stellenbosch University's survey system, Checkbox. You will not be required to provide your name or any other identifying information on the questionnaire. Any information that is obtained in connection with this study and that can be identified with you will remain confidential and will be disclosed only with your permission or as required by law.

The results of this study will be published in the form of a completed dissertation, but confidentiality will be maintained. No names or identifying information will be published.

7. PARTICIPATION AND WITHDRAWAL

You can choose whether to be in this study or not. If you volunteer to be in this study, you may withdraw at any time, without consequences of any kind. Participants may withdraw at any stage of the process by closing the web browser and exciting the survey. You may refuse to

answer any question and still remain in the study. The investigator may withdraw you from this research if circumstances arise which warrant doing so.

8. IDENTIFICATION OF INVESTIGATORS

If you have any questions or concerns about the research, please feel free to contact Adelaide de Villiers (vandenheever.adelaide@gmail.com/ 082 804 2968) or Samantha Adams (adamss@sun.ac.za / 021 808 2599).

9. RIGHTS OF RESEARCH SUBJECTS

You may withdraw your consent at any time and discontinue participation without penalty. You are not waiving any legal claims, rights or remedies because of your participation in this research study. If you have questions regarding your rights as a research subject, contact Ms Maléne Fouché [mfouche@sun.ac.za; 021 808 4622] at the Division for Research Development, Stellenbosch University.

CONSENT OF RESEARCH SUBJECT OR LEGAL REPRESENTATIVE

If you are willing to voluntarily participate in this study, please tick the relevant box:

I hereby consent voluntarily to participate in this study and that the data may be used for future research purposes. ☐

I do not consent to participate in this study. ☐

CONSENT TO PARTICIPATE IN RESEARCH

Dear participant

My name is Adelaide de Villiers, a student from the Department of Industrial Psychology, and I would like to invite you to take part in a survey, the results of which will contribute to a research project in order to complete my Master's in industrial psychology.

Please take some time to read the information presented here, which will explain the details of this project. Your participation is entirely voluntary, and you are free to decline to participate. If you say no, this will not affect you negatively in any way whatsoever. You are also free to withdraw from the study at any point, even if you did agree to take part.

The purpose of this study is to examine the factors that impact postgraduate students' intention to stay in higher education.

The questionnaire will take approximately 15 to 20 minutes to complete, and will contain a combination of questions covering engagement, social support, motivation, career preparation, academic fit, and intention to stay.

If you volunteer to participate in the study, by completing the online questionnaire, you stand a chance to win one of three cash prizes as an incentive for participating in the study: 1_{st} prize: R2 000, 2_{nd} prize: R1 000, 3_{rd} prize: R500. At the end of the questionnaire, a link will be provided to a second, independent short electronic survey that will only ask for your cell phone number. The response to the second questionnaire will result in an independent data set that cannot be linked to the responses of the first questionnaire. The three winners will be randomly selected and notified via text message. You are under no obligation to enter the luck draw or provide your contact details if you do not wish to do so.

RIGHTS OF RESEARCH PARTICIPANTS:
You have the right to decline answering any questions and you can exit the survey at any time without g reason. You are not waiving any legal claims, rights or remedies because of your participation in this res study. If you have questions regarding your rights as a research participant, contact Mrs. Maléne Fouché [mfouche@sun.ac.za; 021 808 4622] at the Division for Research Development at Stellenbosch Universit

Your information and responses to the survey will be protected by not allowing anyone to gain access to the results, except for the researcher and her supervisor. Also, you will not be expected to provide your name, surname, or ID number.

If you have any questions or concerns about the research, please feel free to contact the researcher, Adelaide de Villiers (082 804 2968; 16487125@sun.ac.za), and/or her Supervisor, Miss. Samantha Adams (021 8089542; adamss@sun.ac.za).

To save a copy of this text, you can select the 'Save as' option on your computer and store the document.

	YES	NO
I confirm that I have read and understood the information provided for the current study.	☐	☐
I agree to take part in this survey and agree that the data may be used for future research purposes.	YES	NO
	☐	☐

ADDENDUM B: ETHICAL APPROVAL FROM THE UNIVERSITY

NOTICE OF APPROVAL

REC Humanities New Application Form

9 October 2018

Project number: 7515

Project Title: An examination of the factors that influence postgraduate student's intention to stay in higher education

Dear Mrs Adelaide De Villiers

Your REC Humanities New Application Form submitted on **07 September 2018** was reviewed and approved by the REC: Humanities.

Please note the following for your approved submission:

Ethics approval period:

Protocol approval date (Humanities)	Protocol expiration date (Humanities)
09 October 2018	08 October 2021

Please take note of the General Investigator Responsibilities attached to this letter. You may commence with your research after complying fully with these guidelines.

If the researcher deviates in any way from the proposal approved by the REC: Humanities, the researcher must notify the REC of these changes.

Please use your SU project number **(7515)** on any documents or correspondence with the REC concerning your project.

Please note that the REC has the prerogative and authority to ask further questions, seek additional information, require further modifications, or monitor the conduct of your research and the consent process.

FOR CONTINUATION OF PROJECTS AFTER REC APPROVAL PERIOD

Please note that a progress report should be submitted to the Research Ethics Committee: Humanities before the approval period has expired if a continuation of ethics approval is required. The Committee will then consider the continuation of the project for a further year (if necessary)

Included Documents:

Document Type	File Name	Date	Version
Research Protocol/Proposal	DE VILLIERS_Proposal (June)	08/06/2018	
Proof of permission	Institutional Permission_Standard Agreement_Adelaide de Villiers	31/07/2018	
Data collection tool	Feedback_Questionnaire (new) (2)	06/08/2018	
Default	Institutional Permission_Standard Agreement_Adelaide de Villiers	15/08/2018	
Default	Reponse_05 09_DESC Report A de Villiers (6 Aug)	06/09/2018	
Informed Consent Form	Amended 05 09_A_DE VILLIERS_SU Informed Consent (September)) (1)	06/09/2018	
Default	Amended 05 09_ SU HUMANITIES Consent template_electronic survey (september) GG 31 08 18	06/09/2018	
Default	Amended 05 09_A_DE VILLIERS_SU Informed Consent (September)) (1)	07/09/2018	

If you have any questions or need further help, please contact the REC office at cgraham@sun.ac.za.

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Sincerely,

Clarissa Graham

REC Coordinator: Research Ethics Committee: Human Research (Humanities)

Investigator Responsibilities

Protection of Human Research Participants

Some of the general responsibilities investigators have when conducting research involving human participants are listed below:

1.Conducting the Research. You are responsible for making sure that the research is conducted according to the REC approved research protocol. You are also responsible for the actions of all your co-investigators and research staff involved with this research. You must also ensure that the research is conducted within the standards of your field of research.

2.Participant Enrollment. You may not recruit or enroll participants prior to the REC approval date or after the expiration date of REC approval. All recruitment materials for any form of media must be approved by the REC prior to their use.

3.Informed Consent. You are responsible for obtaining and documenting effective informed consent using **only** the REC-approved consent documents/process, and for ensuring that no human participants are involved in research prior to obtaining their informed consent. Please give all participants copies of the signed informed consent documents. Keep the originals in your secured research files for at least five (5) years.

4.Continuing Review. The REC must review and approve all REC-approved research proposals at intervals appropriate to the degree of risk but not less than once per year. There is **no grace period**. Prior to the date on which the REC approval of the research expires, **it is your responsibility to submit the progress report in a timely fashion to ensure a lapse in REC approval does not occur.** If REC approval of your research lapses, you must stop new participant enrollment, and contact the REC office immediately.

5.Amendments and Changes. If you wish to amend or change any aspect of your research (such as research design, interventions or procedures, participant population, informed consent document, instruments, surveys or recruiting material), you must submit the amendment to the REC for review using the current Amendment Form. You **may not initiate** any amendments or changes to your research without first obtaining written REC review and approval. The **only exception** is when it is necessary to eliminate apparent immediate hazards to participants and the REC should be immediately informed of this necessity.

6.Adverse or Unanticipated Events. Any serious adverse events, participant complaints, and all unanticipated problems that involve risks to participants or others, as well as any research related injuries, occurring at this institution or at other performance sites must be reported to Malene Fouche within **five (5) days** of discovery of the incident. You must also report any instances of serious or continuing problems, or non-compliance with the RECs requirements for protecting human research participants. The only exception to this policy is that the death of a research participant must be reported in accordance with the Stellenbosch University Research Ethics Committee Standard Operating Procedures. All reportable events should be submitted to the REC using the Serious Adverse Event Report Form.

7.Research Record Keeping. You must keep the following research related records, at a minimum, in a secure location for a minimum of five years: the REC approved research proposal and all amendments; all informed consent documents; recruiting materials; continuing review reports; adverse or unanticipated events; and all correspondence from the REC

8.Provision of Counselling or emergency support. When a dedicated counsellor or psychologist provides support to a participant without prior REC review and approval, to the extent permitted by law, such activities will not be recognised as research nor the data used in support of research. Such cases should be indicated in the progress report or final report.

9.Final reports. When you have completed (no further participant enrollment, interactions or interventions) or stopped work on your research, you must submit a Final Report to the REC.

10.On-Site Evaluations, Inspections, or Audits. If you are notified that your research will be reviewed or audited by the sponsor or any other external agency or any internal group, you must inform the REC immediately of the impending audit/evaluation.