

# **The influences of study demands, study resources and personality characteristics on first-year students' engagement**

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for the degree *Magister Commercii* in **Industrial Psychology** at the  
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November 2016

Potchefstroom

It all starts here <sup>™</sup>

## **COMMENTS**

The following remarks are important to note beforehand:

- The editorial style as well as the references that were referred to in this mini-dissertation follow the format prescribed by the Publication Manual (6th edition) of the American Psychological Association (APA). This practice is also in line with the policy of the Programme in Industrial Psychology of the North-West University (Potchefstroom) to use APA style in all scientific documents as from January 1999.
- The mini-dissertation is submitted in the form of a research article. The editorial style specified by the South African Journal of Industrial Psychology (which agrees largely with the APA style) is used, but the APA guidelines were followed in referencing and constructing tables.

## DECLARATION

I, Jeanie Rouchelle Cilliers, hereby declare that this dissertation titled **“The influences of study demands, study resources and personality characteristics on first-year students’ engagement”** is my own work. The views and opinions expressed in the present research study are my own and relevant literature references as shown in the reference list.

Furthermore, I declare that the contents of this study will not be submitted for any other qualification at any other tertiary institution.



Jeanie Rouchelle Cilliers

November 2016

# DECLARATION FROM LANGUAGE EDITOR

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TO WHOM IT MAY CONCERN:

I hereby confirm that the Master's dissertation by Ms Jeanie Cilliers *The influences of study demands, study resources and personality characteristics on first-year students' engagement* was edited and groomed to the best of my ability. This included recommendations to improve the language and logical structure, guide the line of argument as well as to enhance the presentation.

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## ABSTRACT

**Title:** The influences of study demands, study resources and personality characteristics on first-year students' engagement

**Key terms:** Student engagement, student demands, student resources, personality, university, Job Demands-Resources model, first-year university students

The first year of university often can be a watershed period for candidates. It is, therefore, important to investigate possible predictors of student engagement. Information on the influence of study demands, and resources as well as personality characteristics on first-years' engagement could help students and the university to improve engagement levels, thereby impacting students' well-being and success at university. The main purpose of the present study was to 1) determine significant demands and resources associated with student engagement; and 2) establish the incremental contribution that personality make in predicting engagement in a sample of South African first-year students.

A quantitative approach was used with a cross-sectional research design. A stratified sample of first-year students at a tertiary institution was included ( $N = 512$ ). A multiple regression analysis was done to determine significant predictors of engagement. The results showed that Pace and amount of work and Cognitive demands had a significant and negative correlation with engagement, although only Cognitive demands stood out as a significant predictor of engagement in the second and third step of the regression analyses. Cognitive demands became insignificant in the fourth and final step of the regression analyses when personality characteristics were added.

All the analysed resources indicated significant and positive correlations with engagement, but only Support from lecturers and Opportunities for growth and development were significant predictors of engagement. In the fourth and final step of the regression analysis the only significant resource was found to be Opportunities for growth and development. In the proses, all the analysed personality dimensions indicated a significant relationship with engagement. However, in the final step of the multiple regression analysis, only Achievement orientation (a facet of Conscientiousness) was found to be a significant predictor of student engagement. The model where personality characteristics were entered added an additional

11% of the variance explained in engagement, thus indicating the incremental contribution to student engagement. In total, the variables included in the regression analysis explained 38% of the variance in student engagement.

Due to the present study, additional information is available on the influence of job demands, job resources and personality on student engagement. The benefits for students may include: enhanced engagement levels with their studies, finding a meaningful connection with their studies, and insight into resources which may influence their engagement positively. The university can utilise the information of the role that demands, resources and personality play, in devising strategies to improve the engagement levels of their students. This insight can also help universities' managers to develop possible supporting programmes or structures that could help students cope with the unique demands and daily challenges.

The contributions of the present study are firstly, that this research adds important information to the literature on the influences of demands, resources and personality on student's engagement. Secondly, future research on this topic can address the limitations that were pointed out and follow up on recommendations that were made on this topic. Thirdly, the study provides valuable information for both students and institutions of higher education, regarding this crucial entry year.

## OPSOMMING

**Titel:** Die invloed wat studie-eise, studiehulpbronne en persoonlikheidskenmerke uitoefen op eerstejaarstudente se betrokkenheid.

**Sluteltermes:** Studentebetrokkendheid, studente-eise, studiehulpbronne, persoonlikheid, universiteit, Werk-Eise-Bronne-model, eerstejaar universiteitstudente

Die eerste jaar op universiteit kan dikwels 'n waterskeidingstyd vir kandidate wees. Daarom is dit belangrik om moontlike voorspellers van studentebetrokkenheid te ondersoek. Inligting oor die invloed wat studie-eise en -bronne asook persoonlikheidskenmerke uitoefen op eerstejaars se betrokkeheid, kan studente asook die universiteit help om die vlakke van betrokkenheid te verhoog. Sodoende beïnvloed dit ook die studente se welsyn en hulle sukses op universiteit. Die hoofdoel van die huidige studie was: 1) stel vas watter betekenisvolle eise en hulpbronne met studentebetrokkenheid verband hou; en 2) bepaal die inkrementele bydrae wat persoonlikheid lewer tot die voorspelling van betrokkenheid, binne 'n steekproef van Suid-Afrikaanse eerstejaarstudente.

'n Kwantitatiewe benadering is gevolg met 'n dwarsnit-navorsingsontwerp. Hiervoor is 'n gestratifiseerde steekproef ingesluit van eerstejaarstudente aan 'n tersiêre instelling ( $N = 512$ ). 'n Veelvoudige regressie-analise is onderneem om die betekenisvolle voorspellers van betrokkenheid vas te stel. Die resultate het getoon dat Pas en hoeveelheid werk asook Kognitiewe eise 'n betekenisvolle negatiewe korrelasie met betrokkenheid het, al het slegs Kognitiewe eise tydens die tweede en derde stap van die regressie-analise uitgestaan as betekenisvolle voorspeller van betrokkenheid. Gedurende die vierde en laaste stap van die regressie-analise het Kognitiewe eise onbeduidend geraak, toe persoonlikheidskenmerke bygevoeg is.

Al die geanaliseerde bronne het betekenisvolle en positiewe korrelasies getoon met betrokkenheid, maar slegs Ondersteuning van dosente en Geleenthede vir groei en ontwikkeling het geblyk betekenisvolle voorspellers van betrokkenheid te wees. Tydens die vierde en laaste stap van die regressie-analise het die enigste oorblywende betekenisvolle bron geblyk as Geleenthede vir groei en ontwikkeling. In die proses het al die geanaliseerde persoonlikheidskenmerke 'n betekenisvolle verwantskap met betrokkenheid getoon. Nogtans,

het, tydens die laaste stap van die regressie-analise, slegs Prestasiegerigtheid (’n faset van Pligsgetrouheid) uitgestaan as betekenisvolle voorspeller van studentebetrokkenheid. Die model waar die persoonlikheidskenmerke ingesluit is, het ’n bykomende 11% gevoeg by die afwyking wat deur betrokkenheid verduidelik is, wat dus gedui het op ’n inkrementele bydrae tot betrokkenheid. Oor die algemeen het die veranderlikes wat by die regressie-analise ingesluit is, 38% van die afwyking in studentebetrokkenheid verklaar.

Te danke aan die huidige studie is bykomende inligting beskikbaar oor die invloed wat werkeise, werkhulpbronne en persoonlikheid op studentebetrokkenheid uitoefen. Die voordele vir studente kan die volgende behels: verhoogte vlakke van betrokkenheid by hulle studie, betekenisvolle verbintenis met hulle studie en insig in die hulpbronne wat hulle betrokkenheid positief kan beïnvloed. Die universiteit kan die inligting benut oor die rol wat eise, hulpbronne en persoonlikheid speel, om strategieë te ontwerp wat die vlakke van hulle studente se betrokkenheid kan verhoog. Hierdie insig kan ook universiteitsbestuurders help om moontlike ondersteuningsprogramme of -strukture te ontwikkel wat studente kan help om die unieke eise en daaglikse uitdagings te hanteer.

Die huidige studie se bydrae is eerstens dat hierdie navorsing belangrike inligting voeg tot die literatuur rakende die invloed wat eise, hulpbronne en persoonlikheid op ’n student se betrokkenheid uitoefen. Tweedens kan toekomstige navorsing oor hierdie onderwerp die beperkings wat uitgewys is, aanspreek en die aanbevelings opvolg. Derdens verskaf hierdie studie waardevolle inligting vir beide studente en hoërsonderwys-instellings oor hierdie deurslaggewende ingangsjaar.

## **CHAPTER 1**

### **INTRODUCTION**

The main purpose of the present study was to 1) determine significant demands and resources that influence student engagement; and 2) establish the incremental contribution that personality makes in the prediction of student engagement in a sample of South African first-year students.

The following section presents the problem statement, which provides an overview of previous research on student demands and resources, student engagement and the role personality plays in engagement. This chapter also examines and discusses the study's research questions as well as objectives, and posits the hypotheses. This is followed by a discussion of the employed research methodology. Finally, a brief overview is given of the chapter layout.

#### **1.1 PROBLEM STATEMENT**

The relationship between an employee's educational credentials and the return it delivers in the labour market has changed to a large extent (Cai, 2013; Ewert & Kominski, 2014; Ishida, Spilerman & Su, 1997; Shavi & Muller, 1998; Tomlinson, 2008). Academic credentials are considered an important dimension in a person's employability. Therefore, individuals currently realise the value of education, and increasingly see the need to add value to their credentials, which ultimately would help them gain an advantage in the labour market (Tomlinson, 2008).

Evidence indicates that it is important to know how young people, which are going to enter the workforce soon, develop their careers and also have knowledge on how the school-to-work process works (Bridgstock, 2011; Mortimer, Vuolo & Staff, 2014). The link between an individual's high level skills, educational outcomes (like attending university) and the world of work are especially important in the field of Industrial Psychology and Career Psychology (Bridgstock, 2011; Vuolo, Staff & Mortimer, 2012). It is therefore suggested that young people must be encouraged to receive higher education and must be helped to have high educational aspirations (Mortimer, Vuolo & Staff, 2014). Experiences from students who are

soon to enter the workforce might therefore be valuable for Industrial Psychologists and specifically Career Psychologists.

A possible way for individuals to further their education is attending university (Furnham, 2014). University provides an individual with a higher education qualification and will determine the kind of occupations they are qualified to perform (Allen, 2007). Research also indicated that a university degree enhances personal growth and success (Faust, 2010), provides an individual with more job opportunities and that university graduates usually earn more than non-graduates and have an improved quality of life (Allen, 2007).

However, the transition from high school to university can be an enormous adjustment and a daunting experience for a first-year student. As a result, numerous students find their first year of university to be challenging and overwhelming (Asghar, 2014; Eagan, Lozano, Hurtado & Case, 2013; Hall, Chipperfield, Perry, Ruthig, & Goetz, 2006). A number of these students may experience a sense of anxiety, emotional distress (Asghar, 2014), or homesickness (Asghar, 2014; Hall et al., 2006). Research also found that university students are approximately four times more likely to be distressed than other individuals of their age group who do not attend university (Abdulghani, Alkanhal, Mahmood, Ponnampereuma, & Alfaris, 2011; Asghar, 2014).

Reasons for the stressful experiences that first-year students may experience, include adapting to an unfamiliar environment, joining a new community of students, finding a new support system (Alginahi, Ahmed, Tayan, Siddiqi, Sharif, Alharby & Nour, 2009), adapting to new living arrangements, and coping with amplified responsibilities (Hall et al., 2006). However, the main reason may be the greater academic challenges and higher expectations these candidates have to face (Kashdan & Fincham, 2004). University studies entail a high workload (Tosevski, Milovancevic, & Gajic, 2010). It is found that the work is more complex and contains increased information. Students need to process a large volume of reading material, adhere to short deadlines, and require higher attentiveness in class (Alginahi et al., 2009; Yusoff, Rahim & Yaacob, 2010).

A large number of students experience their first year as stressful. However, this entry year at university can also offer students several opportunities of independency, introduce them to new experiences, encourage personal discoveries and offer the chance for development

(Tosevski, Milovancevic, & Gajic, 2010). This process can help young people gain a competitive advantage, adapt successfully in life, and be successful in future careers. However, to achieve these outcomes, certain attributes are required such as personal initiative and proactive behaviour, self-control and engagement (Asghar, 2014; Bresó, Schaufeli, Salanova, 2011; Siu, Bakker & Jiang, 2014). Recent times saw the development of positive psychology, with its main focus areas, the optimal functioning and human strengths. Informed by this approach, emerging research particularly focused on student engagement (Fredricks, Blumenfeld & Paris, 2004; Seligman & Csikszentmihalyi, 2000; Siu, Bakker & Jiang, 2014; Upadaya & Salmela-Aro, 2013).

There is a variety of understandings and numerous definitions for the term ‘engagement’, which all depend on the setting, form or nature of the individual’s occupation (Trowler, 2010). From a psychology perspective, engagement can be explained as an individual’s optimistic, satisfying, fulfilling and work-related state of mind that contributes to performance (Bakker & Demerouti, 2008). Student engagement is based on the concept of work engagement (Schaufeli, Salanova, Gonzalez-Roma & Bakker, 2002; Siu, Bakker & Jiang, 2014). The reason is that the main activities of students at university such as attending their classes, doing assignments, writing tests and studying, can be considered as their ‘work’ (Ouweneel, LeBlanc & Schaufeli, 2011; Siu, Bakker & Jiang, 2014). According to Salanova, Schaufeli, Martinez and Bresó (2010), students also work towards specific goals, similar to employees in the workplace. The difference is that students are working for different goals such as achieving good grades and obtaining their degree. Student engagement can be described as the time, energy and other important resources that both students and their academic institution invest in academically-focused activities, both inside and outside the classroom (Asghar, 2014; Kuh, 2002; Trowler, 2010). The aim is to improve learning, facilitate growth, and enhance academic performance (Asghar, 2014; Kuh, 2002; Trowler, 2010). Newmann, Wehlage and Lamborn (1993) further explain such ‘work’ as students’ mental efforts directed at learning, understanding their work, obtaining new skills and mastering new knowledge.

As is the case with engagement in the work context, student engagement can also be described as a constant, on-going motivational state of success and achievement that an individual possesses. This state may also include vigour, dedication and absorption (Schaufeli & Salanova, 2007; Schaufeli, Salanova, Gonzales & Bakker, 2002). Therefore, engagement

as construct describes an inherent individual quality, denoting concentration as well as efforts and willingness to learn (Asghar, 2014; Newmann, Wehlage & Lamborn, 1993). Engagement consists of three elements: vigour, dedication and absorption (Bakker & Bal, 2010).

**Vigour** is a positive emotional state that enables the individual to build resources, and can expand through further actions (Alarcon, Edwards & Menke, 2011; Louw, 2014). Moreover, such a state is characterised by high levels of energy and mental resilience while working, and the capability and willingness to invest effort and energy to the work or studies (Bakker & Bal, 2010; Louw 2014). These high energy levels that individuals possess could be used in dealing with various challenges in their environment (Louw, 2014; Shirom, 2007).

**Dedication** implies full involvement in individuals' work or studies, where they experience a sense of meaning, inspiration, enthusiasm, pride and challenge (Schaufeli, Martinez, Pinto, Salanova & Bakker, 2002).

**Absorption** entails being fully focussed and happily engrossed in one's work (Bakker & Bal, 2010).

Zecca, Györkös, Becker, Massoudi, de Bruin and Rossier (2015) explain that vigour can be described as the *affective* component of engagement, dedication as the *motivational* component and absorption as the *cognitive* aspect. However, several arguments have been advanced that vigour and dedication are the core dimensions of burnout, while absorption may rather be considered more of a consequence of engagement than a connotative element (Schaufeli 2005; Schaufeli & Bakker 2001; Schaufeli et al., 2002; Zhang, Gan & Cham, 2007). For this reason, it was chosen to measure only vigour and dedication in this study.

Engagement evidently is an essential construct for the present study to investigate. Engagement is thus a multidimensional construct and a key factor in academic achievement and degree completion (Mandernach, Donnelli-Sallee & Dailey-Hebert, 2011; Maroco, Maroco, Campos & Fredricks, 2016). Engagement in the academic setting can be linked to engagement in the work context for the reason that the same intellectual, emotional, evolving, behavioural, social and physical factors play a role in the learning, working and development process (Mandernach, Donnelli-Sallee & Dailey-Hebert, 2011; Maroco, Maroco, Campos & Fredricks, 2016).



Research in the work environment suggests an existing positive relationship between engagement and performance (Bakker, Demerouti & Sanz-Vergel, 2014; Halbesleben & Wheeler, 2008). The reason could be mainly that engaged employees put increased effort into their tasks since they identify and have a meaningful connection with their work (Bakker et al., 2014). Such employees are also more open to new experiences and learning, which increases their creativity (Bakker, Demerouti & Sanz-Vergel, 2014).

Bakker (2009) suggests further that individuals who are engaged in their work, experience improved performance due to the following reasons:

- They tend to experience positive emotions, which can help them build new resources and search for new ideas.
- They are healthier, which ultimately enables them to be more devoted to their work; moreover, engaged individuals are more likely to participate in leisure-time activities that can help them relax and psychologically detach them from work (Bakker et al., 2014; Sonnentag, Mojza, Demerouti, Bakker, 2012, Ten Brummelhuis & Bakker 2012).
- They constantly seek feedback and support to improve their performance (Bakker, 2009).

According to Demerouti and Cropanzano (2010), work engagement (and mainly the vigour aspect of engagement) enables an individual to move from thought to action in order to perform better.

Various studies globally confirmed the importance of student engagement and the positive effect on academic performance and success, especially at university level (Abdulghani et al., 2011; Asghar, 2014; Cross, 2005; Upadyaya & Salmela-Aro, 2013). This implies that students' academic performance can improve by being more engaged in their studies (Lee & Schutte, 2010; Upadyaya & Salmela-Aro, 2013). Schaufeli, Martinez, Pinto, Salanova and Bakker (2002), examined burnout and engagement amongst university students from Spain, Portugal and the Netherlands. Their findings clearly show that students who have high vigour levels are also more likely to perform better academically than those who have low vigour levels.

Educational studies in Europe further underlines the importance of maintaining a high energy level, especially amongst university students. The reason is clear: vigorous students are more likely to succeed in their examinations, than their peers who may feel less energetic (Schaufeli, Martinez, et al., 2002; Upadaya & Salmela-Aro, 2013). A study by Asghar (2014) amongst 492 private university students, also indicates clearly that engaged students tend to experience lower levels of anxiety.

Not only students can benefit from being engaged; the same applies to universities. The reason is that student engagement hold the following gains: it helps reduce dropout rates (Pohl, 2013), can play an important role in quality assurance, provides information on possible improvements and productivity, helps a university determine its students' educational needs, and improves the transfer of knowledge (Coates, 2005; Kuh, 2009). According to the Australian Universities' Community Engagement Alliance (2008), student engagement also provides universities with the foundation for increased research productivity, and therefore the opportunity to develop new funding sources from external knowledge orientated organisations.

However, limited research has been done on student engagement in societies other than Western ones which are described by Freeman (2007) as developed countries and countries from Europe and North America (Asghar, 2014; Kuh, 2002; Roberts & McNeese, 2010; Robins, Roberts & Sarris, 2015; Siu, Bakker & Jiang, 2014). Furthermore, several researchers emphasise the importance and need to explore student engagement (Robins, Roberts & Sarris, 2015; Salanova, Schaufeli, Martinez & Bresó, 2010; Schaufeli et al., 2002). Recently, the Job Demands-Resources (JD-R) model is being used in studies that investigate the influence of demands and resources on student engagement (Llorens, Schaufeli, Bakker & Salanova, 2006; Bakker, Vergel & Kuntze, 2015; Robins, Roberts & Sarris, 2015; Salmela-Aro & Upadaya, 2014; Vasalampi, Salmela-Aro, & Nurmi, 2009; Wilson, Sheetz, Djamasbi, & Webber, 2014; Wolff, Brand, Baumgarten, Lösel & Ziegler, 2014).

The JD-R is a flexible, overarching and exploratory model that was developed to examine the effect of demands and resources in the workplace in order to predict employees' health outcomes, with the ultimate goal to optimise an organisation's performance (Bakker & Demerouti, 2007; Bakker, Van Veldhoven, & Xanthopoulou, 2010; Demerouti & Bakker,

2001). The JD-R model proposes that characteristics and risk factors in the workplace linked to employee well-being and job stress, can be divided into two categories: job demands and job resources (Bakker et al., 2014; Demerouti, Bakker, Nachreiner & Schaufeli, 2001; Van den Broeck, Vansteenkiste, De Witte & Lens, 2008; Xanthopoulou, Bakker, Demerouti & Schaufeli, 2007). These categories are elucidated below.

**Job demands** in the work context can be described as the various aspects of an individual's job such as physical, psychological, social or organisational dimensions that require their constant emotional, physical and cognitive effort (Bakker & Demerouti, 2007; Bakker, Demerouti, & Schaufeli, 2003; Bakker et al., 2010; Bakker et al., 2014). Research showed that job demands are associated with stressors on two levels: physical (e.g., high blood pressure, increased heart rate and increased hormonal activity); and psychological (e.g., psychological need discomfort and fatigue) (Bakker et al., 2014). It was further found that when employees are exposed continuously to high job demands they may become exhausted and psychologically distant from their work (Bakker et al., 2014). This ultimately may result in high levels of burnout (Bakker et al., 2010).

**Job resources** in the work context can be described as the physical, emotional, social and organisational components of a job that help an individual perform, achieve goals, reduce the effect of job demands, as well as enhance learning and development (Bakker & Demerouti 2007; Bakker et al., 2003; Bakker et al., 2010; Bakker et al., 2014). Several studies have confirmed that a positive relationship exists between job resources and work engagement (Bakker, Demerouti & Euwema, 2005; Bakker, Hakanen, Demerouti & Xanthopoulou, 2007; Crawford et al., 2010; Ouwenneel et al., 2011)

A further proposition of the JD-R model is that both job demands and job resources are triggers of two independent processes, namely the health impairment and motivational process (Bakker & Demerouti, 2014; Bakker et al., 2014; Llorens et al., 2006; Xanthopoulou et al., 2007). These two processes are explicated below.

- *Health impairment:* an individual experiences continuous high demands at work without adequate recovery, which eventually leads to burnout and other health-related problems (Bakker & Demerouti, 2014; Bakker et al., 2003; Bakker et al., 2014; Xanthopoulou et al., 2007).

- *Motivational*: focuses on fostering a state of engagement which can lead to success and improved performance (Bakker & Demerouti, 2007; Bakker et al., 2014; Bakker et al., 2015; Salmela-Aro & Upadyaya, 2014; Xanthopoulou et al., 2007).

These two processes suggest that the JD-R model includes both the negative and positive indicators and outcomes regarding the well-being of employees (Bakker & Demerouti, 2014; Xanthopoulou et al., 2007).

The JD-R model was found to be universal, and can be tailored to fit various work environments and settings (Bakker et al., 2014). The reason is that certain job demands and resources, for example, work pressure and independence, can be found in all occupational settings (Bakker et al., 2014). For this reason and the increased interest in student engagement and demands and resources, recent studies began to apply the JD-R model to the academic context as a framework for further studies on engagement (Llorens et al., 2006; Bakker et al., 2015; Salmela-Aro & Upadyaya, 2014). Unfortunately, limited research has been done to determine the influence of demands and resources on students' engagement, especially during their first year of studies at university (Parsons & Taylor, 2011; Upadyaya & Salmela-Aro, 2013). First-year students, especially in the South African context, are presented with various and unique changes and challenges such as various language barriers and new and diverse cultures (Shimmin, 2010). For this reason, it would be necessary and beneficial to investigate the influence of the different demands and resources on student engagement.

Although few researches applied the JD-R model to students, one valuable international study was done by Salanova et al. (2010) amongst undergraduate students of a Spanish university. Instead of using the categories of demands and resources, they replaced it with 'obstacles' and 'facilitators' to suit the academic context better, and to have a clearer understanding of the JD-R model from an educational perspective. The two categories can be explicated as follows:

- *Obstacles*: the characteristics that can hinder students' academic performance. Examples are: work overload, the writing of tests, lack of information on their studies, anxiety, and poor planning (Salanova et al., 2010).

- *Facilitators*: the characteristics that influence study engagement positively and thus enhance productivity and academic performance. Examples are: tutoring, sufficient time to perform tasks and access to technology (Salanova et al., 2010).

The results of their study showed that student engagement was indeed a mediator between the perceived obstacles or facilitators and academic performance (Salanova et al., 2010). Academic facilitators indicated a positive relationship with student engagement, while academic obstacles showed a negative relationship with student engagement (Salanova et al., 2010).

There is a major gap in the literature that apply the JD-R model to investigate student engagement. To date, the incremental contribution of personality (after controlling for demands and resources) has not been investigated in a sample of first-year students or in the South African context. The role of personality is important to investigate since it can affect levels of engagement (Ongore, 2014). Personality can be defined as the unique pattern of an individual's feelings, thoughts and behaviour that continue over a certain period and through various situations (Louw, 2014; Morris & Maisto, 2012). Results of a study done by Woods and Sofat (2013) clearly indicated that certain personality traits are associated with engagement. They found that some of the strongest personality traits that predict engagement are assertiveness and industriousness, with both direct and indirect effects.

Louw (2014), Costa and McCrae (2000), and Goldberg (1990) further describe personality as a dynamic process that influences the way in which individuals behave and function in a social and work context. In this regard, personality entails an individual's specific set of stable, enduring and continuous long-term tendencies of thinking, feeling and behaving in certain ways (Conner & Silvia, 2015; Fleeson, 2001; Oldham & Morris, 2012; Saucier, Thalmayer & Bel-Bahar, 2014). It was also found that an individuals' personalities influence their decision-making and the way they solve problems (Potgieter & Coetzee, 2013).

Extensive research has been undertaken to determine the number of existing personality traits. It was concluded that personality consists of five universal factors (McCrae & Costa, 2004; Rossier, Meyer de Stadelhofen, & Berthoud, 2004), known as the Big Five model. These five factors entail: extraversion, agreeableness, openness, conscientiousness and neuroticism (McCrae & Costa, 2004; Rossier et al., 2012), which are defined below.

- *Extraversion*: the extent to which a person is enthusiastic, active and shows the tendency to experience positive emotions (Costa & McCrae, 1992).
- *Agreeableness*: entails being likeable, in harmony with other individuals and acting pleasant (Graziano and Tobin, 2009).
- *Openness*: consists of creativity, curiosity and a preference for innovation (Conner & Silvia, 2015; DeYoung, 2014; Toegel & Barsoux, 2012).
- *Conscientiousness*: is characterised by features such as perseverance, determination, responsibility (Costa & McCrae, 1992; Sulea, et al., 2015), being dependable, organised and self-disciplined (McCrae & Costa, 2003; Rosander & Bäckström, 2014; Toegel & Barsoux, 2012).
- *Neuroticism*: refers to individuals' degree of emotional stability (Toegel & Barsoux, 2012), regulation of emotions and tendency to experience negative thoughts and feelings (Costa & McCrae, 1992; Woods & Sofat, 2013).

The Big Five model of personality is viewed as the classification of personality most applicable to the work context (Louw, 2014; Costa & McCrae, 2000; Goldberg, 1990). Due to its universality in the work context, this model has been replicated in numerous studies across societies (Gurven, Von Rueden, Massenkoff, Kaplan & Lero Vie, 2013). Research, however, found that most of these studies have been restricted to literature, certain languages and urban populations (Gurven et al., 2013; Saucier, Thalmayer & Bel-Bahar, 2014). This state of affairs imply that the majority of the human population's characteristics are not accounted for (Gurven et al., 2013).

In light of the above, it was suggested that further research should be undertaken on the limitations of the model, especially by focusing on the language differences across the various populations globally (Saucier et al., 2014). As a result, numerous studies currently are exploring these limitations. A study in particular by Saucier et al. (2014) investigated which human-attributes are universal across languages. They made use of 12 isolated languages from various continents, thus representing diverse cultures. Ultimately they found that language groups differ in its description and hence understanding of personality traits (Saucier et al., 2014).

In South Africa, personality tests are one of the most popular and frequent forms of assessing and testing individuals (Foxcroft, Paterson, Le Roux & Herbst, 2004). However, personality is generally measured through instruments of Western origin. Therefore, typically little consideration are given to the different universal concepts and cultures (Fetvadjiev, Meiring, van de Vijver, Nel & Hill, 2015). This created the need to develop a new inventory for South Africa that would take into consideration the country's rich diversity (Fetvadjiev et al., 2015; Foxcroft & Roodt, 2013). This new inventory is better known as the South African Personality Inventory (hereafter abbreviated as SAPI). The main goal of this instrument is to provide a comprehensive coverage of the significant and relevant personality concepts that are assumed relevant across the main cultural groups in South Africa (Fetvadjiev et al., 2015).

The SAPI also takes into account the legal framework provided by South African legislation on the development of psychometric measures (Section 8 of the Employment Equity Act, Act 55 of 1998). This Act requires that all psychometric tests should measure constructs in a fair, ethical and equal manner across the ethnic groups in South Africa. The Act also states that psychometric tests should be in line with language, cultural and ethnic features without introducing bias towards or against any population group (Government Gazette, 1998).

Several studies have been conducted on the dimensions of the SAPI (Fetvadjiev et al., 2015; Hill et al., 2013). The final version of the SAPI consists of six dimensions, namely conscientiousness, extraversion, intellect-openness, neuroticism, social relational (negative) and social relational (positive). These six factors have 18 underlying facets (Fetvadjiev et al., 2015; Nel et al., 2015). However, it was deemed impractical for the present study to measure all six dimensions and their sub-facets. It was, therefore, decided to measure the most relevant constructs (based on literature) for the student context and its relationship with student engagement. In this regard, the researcher decided to include the following five dimensions (defined based on the descriptions of Hill et al., 2013):

- *Extraversion (sociability)*: the tendency to be outgoing and spontaneous, to enjoy having people around and communicating with others.

- *Conscientiousness (achievement orientation)*: an orientation towards certain achievements in life, by working hard and being focused on whatever the individual wants to obtain.
- *Conscientiousness (orderliness)*: the characteristic of individuals being precise and thorough in their actions, functioning tidy, punctual and well-organised.
- *Neuroticism (emotional balance)*: implies striking the correct balance between pleasant and unpleasant feelings.
- *Neuroticism (negative emotionality)*: the antithesis of positive thinking. It entails a propensity toward depression and anxiety, and a tendency to react to stressful situations with unpleasant emotions.

These above-mentioned personality dimensions show an important and significant influence on academic performance and success (Di Fabio & Busoni, 2007; Downey, Lomas, Billings, Hansen & Stough, 2014). Studies indicated that these dimensions have a positive relationship with engagement and academic performance, excluding neuroticism, which has a negative effect on student engagement (Bauer & Liang, 2003; Di Fabio & Busoni, 2007; Downey et al., 2014). Consequently, it can be expected that the chosen personality dimensions will predict student engagement and contribute incrementally to student demands and resources.

Exploring the link between individuals' personality and their work engagement has been occupying research since 2009 (Akhtar, Boustani, Tsivrikos, Chamorro-Premuzic, 2015; Li, & Mao, 2014; Kim, Shin & Swanger, 2009; Rossier et al., 2012). Previous studies showed that certain personality traits actually can predict work engagement due to specific behavioural characteristics (Akhtar et al., 2015; Xanthopoulou, Bakker, Demerouti & Schaufeli, 2009). Research more specifically indicated that individuals tend to be more engaged in their work if they experience high levels of extraversion, agreeableness, openness and conscientiousness, and a low level of neuroticism (Akhtar et al., 2015).

Various studies found that extraversion is related positively to work engagement, most probably since both extraversion and engagement contain energy and activeness (Langelaan, Bakker, Van Doornen & Schaufeli, 2006; Sulea et al., 2015; Zecca et al., 2015). The positive emotions extraverted individuals are more likely to experience may also help them build personal resources, which in turn also leads to engagement (Fredrickson, 1998; Sulea et al.,



2015). Studies found that individuals who tested high on extraversion (sociability) are confident in communication and are able to build important networks of friendships with other people in their field, who ultimately can advance their career (Bezuidenhout, 2011; Potgieter & Coetzee, 2013). These individuals are also actively seeking feedback from others in order to enhance their performance. They also are willing to take risks, which makes them more engaged with their work (Bezuidenhout, 2011; Potgieter & Coetzee, 2013).

Several studies have found that conscientiousness is also associated positively with work engagement (Inceoglu & Warr, 2012; Nilforooshan, & Salimi, 2016; Sulea, Virga, Maricutoiu, Dumitru, & Sava, 2012; Zecca et al., 2015). As confirmation, research by Kim, Shin and Swanger (2009) showed that the strongest positive relationship exists between conscientiousness and work engagement. People who tested high on conscientiousness have the tendency to have heightened aspirations, feel more prepared and be goal oriented (Hochwlder, 2006; McCrae & Costa, 2003; Sulea, et al., 2015). This implies that both engaged individuals and those with a high incidence of conscientiousness are inclined to be ambitious and reach their goals efficiently (Sulea, et al., 2015; Van Beek, Taris, Schaufeli, & Brenninkmeijer, 2014).

Studies have also been conducted on the relationship between neuroticism and engagement. It was found that neuroticism affects work engagement and that individuals who tested high on neuroticism, have decreased levels of work engagement (Nilforooshan & Salimi, 2016). This could mainly be because neuroticism is associated with anxiety, low self-esteem and depression, which all may reduce an individual's confidence and control, ultimately influencing their career engagement negatively (Aluja, Kuhlman, & Zuckerman, 2010; Nilforooshan & Salimi, 2016).

Furthermore, because individuals with high levels of neuroticism tend to be more pessimistic and to entertain negative thoughts, they may not be as concerned about their careers as others and may also be less willing to learn about themselves, and embrace new opportunities and experiences (Nilforooshan & Salimi, 2016). On the other hand, it is important to know that individuals who test low on neuroticism are expected to see and perceive themselves positively, are less bored in their work, would less likely burn out, are more likely to pursue their goals, do not experience their environment as threatening, and are more engaged in their work (Sulea et al., 2015).

Recent educational research has shown that personality does not only impact on engagement in a work context, but also influences student engagement and students' performance within the academic context (Ariani, 2015; Paunonen & Ashton, 2001; Poropat, 2009; Rosander & Bäckström, 2014; Salanova et al., 2010; Uppal & Mishra, 2014). Conscientiousness in particular, can play a crucial role in student engagement and how students perform academically. The reason is that conscientiousness includes aspects such as discipline, motivation, perseverance, achievement, and organisational ability. These elements are applicable to the academic context and can also have a significant impact on students' study habits and engagement with their study (Chamorro-Premuzic & Furnham, 2003; Laidra, Pullman & Allik, 2007; McCrae & Costa, 2003; Poropat, 2009; Rosander & Bäckström, 2014).

Studies also established that extraverted students are more inclined to improved performance in their studies. This is due to their higher energy levels and a stronger inclination to a positive attitude (De Raad & Schouwenburg, 1996; Rosander & Bäckström, 2014). These traits make students more willing to learn, participate and be engaged in their studies (De Raad & Schouwenburg, 1996; Rosander & Bäckström, 2014). On the other hand, it was also found that neuroticism have a negative relationship with student engagement (Poropat, 2009; Rosander & Bäckström, 2014). The reason is clear: neurotic students have the tendency to focus more on their emotional state, which may interfere with their attention levels in class and influence their work (De Raad & Schouwenburg, 1996; Rosander & Bäckström, 2014).

It is therefore important to understand the impact of demands and resources for study as well as personality characteristics on first-year students' engagement. Information like this could help students and their universities to increase engagement levels, which could ultimately influence the students' well-being and their success at university.

## **Research questions**

Based on the problem statement, the following research questions were formulated:

- How are student demands, student resources, personality and student engagement conceptualised, according to the literature?

- Are student demands significant and negative predictors of student engagement?
- Are student resources significant and positive predictors of student engagement?
- Are personality dimensions such as extraversion (sociability), conscientiousness (achievement orientation and orderliness) and neuroticism (emotional balance and negative emotionality) significant predictors of student engagement?
- Do personality dimensions such as extraversion (sociability), conscientiousness (achievement orientation and orderliness) and neuroticism (emotional balance and negative emotionality) make an incremental contribution to student engagement, after controlling student demands and student resources?
- Which conclusions can be drawn and recommendations made for future research and practice?

## **1.2 RESEARCH OBJECTIVES**

The research objectives of the present study can be divided into general and specific objectives.

### **1.2.1 General objective**

The general objective of this research was to determine the influence of study demands and resources, and ascertain whether personality characteristics do make an incremental contribution to student engagement after controlling student demands and resources.

### **1.2.2 Specific objectives**

The specific objectives of this research project are as follows:

- Establish how student demands, student resources, personality and student engagement are conceptualised, according to the literature.
- Ascertain whether student demands are significant and negative predictors of student engagement.
- Ascertain whether student resources are significant and positive predictors of student engagement.

- Determine whether personality dimensions such as extraversion (sociability), conscientiousness (achievement orientation and orderliness) and neuroticism (emotional balance and negative emotionality), are significant predictors of student engagement.
- Determine whether personality dimensions such as extraversion (sociability), conscientiousness (achievement orientation and orderliness) and neuroticism (emotional balance and negative emotionality), make an incremental contribution to student engagement after controlling for student demands and student resources.
- Ascertain which recommendations can be made for future research and practice.

### **1.3 RESEARCH HYPOTHESES**

Based on the literature review, the following hypotheses were tested in the study:

**H 1:** Student demands are significant and negative predictors of student engagement.

**H 2:** Student resources are significant and positive predictors of student engagement.

**H 3:** Extraversion (sociability), conscientiousness (achievement orientation and orderliness) and neuroticism (emotional balance and negative emotionality) are significant predictors of student engagement.

**H 4:** Extraversion (sociability), conscientiousness (achievement orientation and orderliness) and neuroticism (emotional balance and negative emotionality) will make an incremental contribution to student engagement after controlling student demands and student resources.

### **1.4 RESEARCH METHOD**

The research method of the present study consists of a literature review and an empirical study. The results of the research are presented in the form of a research article.

#### **1.4.1 Literature review**

A comprehensive literature review was done to investigate student engagement, job demands, job resources and personality in the work and academic context. Articles and book sources were consulted relevant to the present study and the topic. Most of these references were obtained by computer searches through the following databases PsycArticles, Google Scholar, EbscoHost, Emerald, Science Direct, Business Source Premier, Google Books, Business Source Premier, SAEpublications, Academic Search Premier, ProQuest, Nexus, PsycInfo and SACat.

Due to the topic of interest and its relevance, the following main journals were consulted: *Journal of Occupational and Organizational Psychology*, *Journal of Cross-Cultural Psychology*, *SA Journal of Industrial Psychology*, *SA Journal of Higher Education*, *Perspectives in Education*, *Research in Higher Education*, *Journal of Applied Social Psychology*, *Industrial and Organizational Psychology*, *International Journal of Hospitality Management*, *Journal of Applied Psychology*, *European Psychologist* and *Educational Psychologist*.

#### **1.4.2 Research design**

A quantitative research design was chosen for this study. The quantitative approach can be described as a form of conclusive research involving a large representative sample, and conducted through data collection procedures that are controlled and structured (Struwig & Stead, 2001). To collect the data, a cross-sectional research design was employed since it helps researchers study various individuals at a certain point in time (Du Plooy, 2002; Salkind, 2009). When using a cross-sectional research design, data is generally collected through a questionnaire (Du Plooy, 2002). For this purpose, the present study used an electronic questionnaire, mainly because this approach has been proven to save time and are cost effective.

Furthermore, the study was both confirmatory and exploratory since the research hypotheses were supported by existing literature, theory and practice. However, only limited information was available on the significant demands and resources associated with student engagement

and the incremental contribution of personality in predicting student engagement in the selected sample of South African first-year students.

### 1.4.3 Research participants

The participants to the research entailed a stratified sample of first-year students ( $N = 512$ ) of a tertiary Higher Education Institution. The sample consisted of participants from three different campuses of the University. The majority of participants were found to be female (58.40%) and Black (59.00%). Findings also showed that the two predominant home languages of the participants were Afrikaans (36.70%) and Setswana (28.50%). In total, 259 participants (50.60%) indicated that they were first generation students.

### 1.4.4 Measuring instruments

The following instruments were employed:

**Biographical questionnaire:** Participants were requested to complete a biographical questionnaire. This questionnaire included questions on respondents' gender, age, ethnicity (race), home language, campus, faculty as well as on-campus and off-campus living status.

**Student demands and resources:** The specific demands and resources that the students may experience in the academic context were measured by using adapted items of the questionnaire on the experience and assessment of work (VBBA) (Van Veldhoven, Meijman, Broersen & Fortuin, 1997). These items were adapted for the academic context and were answered according to a four-point Likert scale ranging from 0 (never) to 3 (always). The measurements of the demands and resources were as follows: Pace and amount of work with five items (e.g. 'How often do you have to work very fast?'); Cognitive demands with six items (e.g. 'How often do you feel that you have to concentrate for too long periods?'); Support from family with three items (e.g. 'Can you count on your family when you encounter difficulties in your life?'); Support from lecturers with three items (e.g. 'When I encounter problems with my course, I can ask my lecturers for advice'); Support from friends with four items (e.g. 'If necessary, can you ask your friends for help?'); and Opportunities for growth and development with four items (e.g. 'Do you learn new things in your studies?').

Although this questionnaire was adapted for the academic context, in the organisational context, previous research found that VBBA scales to be valid and reliable (Van Veldhoven, De Jonge, Broersen, Kompier and Meijman, 2002; Van Veldhoven, Taris, De Jonge and Broersen, 2005). The validity and reliability of the adapted scales were examined for the present study.

**Student engagement:** In order to measure students' level of engagement, researchers developed the Utrecht Work Engagement Scale-Student Survey (UWES-S) (Schaufeli, Salanova, González-Romà, & Bakker, 2002). The questions for the present study were answered according to a seven point Likert-type scale ranging from 0 (never) to 6 (every day). The following measurements were done: Vigour with five items (e.g. 'I can continue studying for a very long time'); Dedication levels with six items (e.g. 'I find my studies to be meaningful'). A previous study by Storm and Rothmann (2003) amongst 2 396 members of the South African Police Service found sufficient Cronbach's alpha coefficients for Vigour ( $\alpha = 0.78$ ) and for Dedication ( $\alpha = 0.89$ ). Mostert et al. (2007) report acceptable Cronbach's alphas for Vigour ( $\alpha = 0.70$ ) and Dedication ( $\alpha = 0.78$ ).

**Personality:** The personality of the students was measured by using The South African Personality Inventory (SAPI; Fetvadjiev, Meiring, van de Vijver, Nel & Hill, 2015). The items were answered according to a scale ranging from 1 (Strongly disagree) to 5 (Strongly agree). The themes for personality were measured as follows: Extraversion (sociability) with seven items (e.g. 'I am easy to talk to'); Conscientiousness (achievement orientation) with 11 items (e.g. 'I am a motivated person'); Conscientiousness (orderliness) with 13 items (e.g. 'I am precise in my work'); Neuroticism (emotional balance) with eight items (e.g. 'I am calm in most situations'); Neuroticism (negative emotionality) with ten items (e.g. 'I am afraid of people judging me'). Fetvadjiev et al. (2015) reported acceptable alphas for Extraversion (sociability) ( $\alpha = 0.81$ ), Conscientiousness (achievement orientation) ( $\alpha = 0.80$ ), Conscientiousness (orderliness) ( $\alpha = 0.85$ ), Neuroticism (emotional balance) ( $\alpha = 0.74$ ) and neuroticism (negative emotionality) ( $\alpha = 0.75$ ).

#### **1.4.5 Research procedure**

A certain procedure was followed for the research. After sending a letter explaining the main goals of the study, permission was gained from the Ethics Committee and the Registrars of

the three campuses of the University that participated in the present study. After permission was granted, data collection took place. Data was gathered by e-mails distributed to a randomly selected group of first-year students. The e-mail contained a web-based link that directed students to an electronic website with the questionnaire. This website explained the purpose and objectives of the study, the research procedure, ethical issues and the significance and potential value the information could add to students, their campuses and the university.

Participants were assured about the confidentiality of their answers. It was emphasised that participation in this research project is completely voluntary and that they can complete the questionnaire in their own time. Participants also had to complete an informed consent form electronically. The proposed time-frame for completing the questionnaire was between 25-30 minutes. The link where students could fill in the questionnaire was available for seven weeks (from August to September 2016). As an incentive, at the end of each week and for each campus, two winners were drawn randomly and announced through e-mail, who received a R200-00 voucher. To encourage participation, all students selected to participate in this study received this email. It also served as a reminder for those who did not yet participate. After the data was collected, data analyses took place.

#### **1.4.6 Statistical analysis**

The statistical analysis in the present study was done through the SPSS program (SPSS, 2013) and Mplus 7.2 (Muthén & Muthén, 2014). Descriptive statistics (means and standard deviations) and inferential statistics were used to analyse the data. In assessing the reliability of the constructs, Cronbach's alpha coefficients were calculated (Clark & Watson, 1995). Pearson product-momentum correlation coefficients were employed to determine the relationship between the constructs, (Cohen, 1988). The value for statistical significance was set at a 95% confidence interval level ( $p \leq 0,05$ ). Regarding the practical significance of the correlation coefficients, cut-off points were set at 0.30 (for a medium effect) and 0.50 (for a large effect) (Cohen, 1988). Hierarchical multiple regression analyses helped relate the *dependent* variable (student engagement) to the *independent* variables (student demands, student resources and personality characteristics). This was done by using the Statistical Package for Social Science (SPSS) Version 22 (SPSS Inc., 2013).



Mplus was used to assess the models' goodness of fit. The following fit indices were applied: Comparative Fit Index (CFI), Root Mean Square Error of Approximation (RMSEA), Tucker-Lewis Index (TLI), Akaike Information Criterion (AIC), Bayesian Information Criterion (BIC), and Standardised Root Mean Square Residual (SRMR). An acceptable model fit was obtained when the values of both the CFI and TLI were above the threshold of 0.90 (Byrne, 2001; Hoyle 1995). Regarding the RMSEA, a value under the cut-off threshold of 0.08 indicates a good model fit (Browne & Cudeck, 1993). The present study applied the AIC and BIC to compare the fit between the different models, which implies that the lowest AIC and BIC value indicates the model with the best fit. The cut-off point for the SRMR was set to less than 0.05 (Hu & Bentler 1999).

#### **1.4.7 Ethical considerations**

For research to be conducted in an ethical, professional, appropriate and fair manner, certain ethical considerations must be taken into account (Foxcroft & Roodt, 2009). These considerations involve the researcher, participants of the research, the data-collection process, data analysis and the reporting of the results (Trochim, 2006). The present study adhered to these guidelines. First, the purpose of the study and the research objectives were explained to the individuals who participated in the study. Thereafter, informed consent was obtained (Foxcroft & Roodt, 2009). Other ethical aspects considered in the research process were the assurances of confidentiality, privacy and the protection of individuals from harm (Payne & Panye, 2005). This research study was also approved by the Research Ethic Committee of the North-West University (ethics number N W U - H S - 2 0 1 4 - 0 1 6 5).

### **1.5 OVERVIEW OF CHAPTERS**

The chapters in this dissertation have the following layout:

- *Chapter 2* is in the form of a research article and presents the research problem, literature review, research method and results as well as the discussion of the results of the study.
- *Chapter 3* presents the conclusions and discusses limitations of the study, after which recommendations are made for future research.

## **1.6 CHAPTER SUMMARY**

This chapter presented the problem statement, as well as the questions, objectives and hypotheses surrounding the research study. Thereafter, a brief discussion followed on the research method, the research design, participants, measuring instruments and statistical analyses used in this study. Lastly, a brief overview was given of the chapter layout for the dissertation.

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**CHAPTER 2**  
**RESEARCH ARTICLE**



# THE INFLUENCES OF STUDY DEMANDS, STUDY RESOURCES AND PERSONALITY CHARACTERISTICS ON FIRST-YEAR STUDENTS' ENGAGEMENT

## ABSTRACT

**Orientation:** It is crucial to know how young people, which are soon going to enter the workforce, develop their careers and what factors can influence their career developing process. When they decide to obtain tertiary education, the first year can be a difficult period for students. It is, therefore, crucial to investigate possible predictors of student engagement in this entry year.

**Research purpose:** The main purpose of the present study was to 1) determine significant demands and resources associated with student engagement; and 2) establish the incremental contribution of personality in predicting the engagement from a sample of South African first-year students.

**Motivation for the study:** It is important to understand the impact of demands and resources for study as well as personality characteristics on first-year students' engagement. Such information could help students and their university increase engagement levels, which could influence the students' well-being and success at university.

**Research design, approach and method:** The present study utilised a quantitative approach with a cross-sectional research design. A stratified sample was included of first-year students in a tertiary institution ( $N = 512$ ). Multiple regression analyses were used to determine significant predictors of engagement.

**Main findings:** The results showed that Pace and amount of work, and Cognitive demands had a significant and negative correlation with engagement, although only Cognitive demands was found to be a significant predictor of engagement in the second and third step of the regression analysis. Cognitive demands became insignificant in the fourth and final step of the analysis when personality characteristics were added. All the analysed resources indicated significant and positive correlations with engagement, but only Support from lecturers and Opportunities for growth and development were found significant predictors of engagement. In the fourth and final step of the regression analysis, the only significant resource was Opportunities for growth and development. All the analysed personality dimensions showed a significant relationship with engagement. However, in the final step of

the regression analysis, only Achievement orientation (a facet of Conscientiousness) turned out to be a significant predictor of student engagement. The model in which personality characteristics were entered added an additional 11% of the variance explained in engagement, which indicates the incremental contribution to student engagement.

**Practical implications:** The present study provides further information on the role that job demands, job resources and personality play in student's engagement with their work. The benefits for a student may include increased engagement levels in their studies, finding a meaningful connection with their studies and understanding which resources could influence their engagement. On the other hand, the university has access to information about the role that demands, resources and personality play and how these elements can increase the engagement levels of their students. Such information can also help universities develop possible supporting programmes or structures that could assist students in coping with demands and daily challenges.

**Contribution/value-add:** Firstly, the present study adds to the literature on the influences that demands, resources and personality have on student engagement. Secondly, the limitations and recommendations of this study could aid researchers in future research on this topic. Thirdly, the research provides valuable information for students and universities across South African higher education institutions.

**Keywords:** Student engagement, student demands, student resources, personality, university, Job Demands-Resources model, first-year university students

## INTRODUCTION

Research suggests that it is significant to know how young people, who are going to enter the workplace soon, develop their careers and also have knowledge on how the school-to-work process works (Bridgstock, 2011; Mortimer, Vuolo & Staff, 2014). The link between an individual's high level skills, educational outcomes (like attending university) and the world of work are especially very important in the field of Industrial Psychology and Career Psychology (Bridgstock, 2011; Vuolo, Staff & Mortimer, 2012). It is therefore suggested that young people must be encouraged to receive higher education, like going to university, and must be helped to have high educational aspirations (Mortimer, Vuolo & Staff, 2014).

The first year of university entails new expectations, excitement and independency, and could introduce young people to various new experiences (Tosevski, Milovancevic, & Gajic, 2010). It can also offer unique personal discoveries and opportunities for development. However, these new changes, challenges and responsibilities, require personal initiative, self-control, practise, learning motivation and dedication in order for students to adapt successfully to university and their studies (Asghar, 2015; Bresó, Schaufeli, Salanova, 2011). These forms of positive and proactive behaviour are associated with the concept of study engagement (Asghar, 2014; Ouweneel, LeBlanc & Schaufeli, 2011; Sonnentag, 2003). These proactive behaviours are associated not only with the concept on study engagement but engagement overall (Sonnentag, 2003). The reason for this that when an individual display proactive behaviour in their work, they have an active approach to their work meaning they want to improve certain methods, use personal initiative and take charge (Frese, Kring, Soose, & Zempel, 1996; Parker, 2000). It also include actively searching for opportunities to learn and grow and being engaged in their activities (Sonnentag, 2003).

Originally, scholars defined engagement in general and in the work context as a person's positive and fulfilling state of mind that includes vigour, absorption and dedication (Schaufeli, Martínez, Marqués-Pinto, Salanova & Bakker, 2002). This holds the following outcomes: engaged individuals are cognitively, emotionally and physically committed to their work, are more likely to be energetic, experience a sense of meaning, and show improved performance (Bakker, 2011; Schaufeli, Taris, Le Blanc, Peeters, Bakker & De Jonge, 2001).

Various studies recognise the importance of engagement where students and their study are concerned (Asghar, 2014; Carini, Kuh, & Klein, 2006; Cross, 2005). Such engagement is not only crucial for students in order to complete their studies (Hirschfield & Gasper, 2011). Research also indicated a strong positive relationship between students' study engagement levels and the degree of their academic performance or success (Asghar 2014; Salanova & Schaufeli, 2008; Ugwu, Onyishi, Tyoyima, & Winifred, 2013). This indicates that students' academic performance can be improved by increased engagement in their studies (Lee & Schutte, 2010).

Furthermore, it was found that students who are more engaged are inclined to be motivated intrinsically, invest in their studies, attend classes better and participate in other study activities as well (Salanova, Schaufeli, Martínez & Bresó, 2009). This leads to enjoyed learning, curiosity, passion and students' dedication to their studies, ultimately helping them become more successful in life (Asghar, 2014, Salanova et al., 2009). According to Siu, Bakker and Jiang (2014), it is crucial to motivate university students to be engaged in their studies and to excel academically (i.e., from their entry year at university). The reason is that once these students have completed their studies, they can cope with the challenges of the workplace as well as the volatile and uncertain global economy (Siu, Bakker & Jiang, 2014).

Student engagement was also found to be a key factor for universities aiming to prevent dropout and promote retention of students (Pohl, 2013). Universities can also benefit from student engagement, both regarding its reputation and finances such as fees (Coates, 2005). Data on student engagement can be valuable for quality assurance, determining the productivity of the education and also providing student supporting systems with additional important information for institutional improvement (Coates, 2005; Kuh, 2009). This means that the information gained from research on student engagement ultimately can help universities become more alert to such candidates' educational and learning needs (Coates, 2005).

Since the concept of student engagement were introduced, several studies investigated the role, influences and positive outcomes on a student's success, development and academic performance (Ouweneel, LeBlanc & Schaufeli, 2011; Parsons & Taylor, 2011; Trowler, 2010; Upadaya & Salmela-Aro, 2013). Research on student engagement mainly originated from concerns among educators, policy makers and researchers about disengaged students

(i.e., learners) in schools and the lack of motivation and participation of certain learners in school-related activities (Appleton, Christenson & Furlong, 2008; Fredricks, Blumenfeld, & Paris, 2004; Salmela-Aro & Upadyaya, 2014; Upadyaya & Salmela-Aro, 2013).

In 2002, a study was undertaken on students'/learners' engagement (Schaufeli, Martínez, Pinto, Salanova & Bakker, 2002). Since then, several studies began focussing on student engagement in the university context. There is, however, a typical limitation in most studies on student engagement, namely that these researches generally are conducted within USA and European contexts (Upadyaya & Salmela-Aro, 2013). Therefore, Upadyaya and Salmela-Aro (2013) suggested that more research on this topic is needed globally to explore a variety of educational settings, social contexts, cultures and populations.

Due to the growing interest on this subject, recent studies began employing the Job Demands-Resources (hereafter: JD-R) model as framework to study student engagement (Llorens, Schaufeli, Bakker & Salanova, 2006; Bakker, Vergel & Kuntze, 2015; Salmela-Aro & Upadyaya, 2014). However, limited research has been done to understand students better and determine how demands and resources impact engagement during their first year at university (Parsons & Taylor, 2011; Upadyaya & Salmela-Aro, 2013). In the South African context, first-year students are confronted with several unique and novel challenges and changes at university (e.g., various language barriers and diverse cultures) (Shimmin, 2010). Other unique challenges related to South Africa's higher education include racial transformation, a low pass rate of between 15% and 21% and university fee protests (Louw, 2016). Therefore, it is beneficial and necessary to investigate how these different demands and resources influence students' engagement.

There is a further gap in the literature that utilises the JD-R model to investigate student engagement. This deficiency is that the incremental validity of personality above demands and resources has not yet been investigated amongst a sample of first-year students, specifically within the South African context. Such a focus is relevant since the personality of an individual can also be considered as a decisive variable which affects engagement levels (Ongore, 2014). According to Inceoglu and Warr (2011) the foundation of engagement is within individuals themselves. In other words, two individuals that work in the same environment may have different engagement levels. One of the main reasons for this is due to

a person's personality (Arora & Adhikari, 2013; Ongore, 2014). It is because a person's personality determines their values, behaviour and beliefs (Milfont & Sibley, 2012).

Research also indicates an existing relationship between personality, engagement and academic effort (Strauser, O'Sullivan, Wong, 2012). For this reason it is important to do research on why some individuals are more engaged than others and also discover what the main personality traits are that effect engagement (Milfont & Sibley, 2012). This information can be valuable and used to develop interventions in order to promote engagement (Inceoglu & Warr, 2011; Milfont & Sibley, 2012).

For an extended period in South Africa, psychometric and psychological testing, especially those on an individual's personality, was viewed as unfair and discriminatory (Paterson & Uys, 2005). The main reason was that personality typically was measured using instruments of Western origin, and little attention paid to different global concepts and cultures (Fetvadjiev, Meiring, van de Vijver, Nel & Hill, 2015). Therefore, a reliable and valid inventory was needed in South Africa that would factor in the diverse ethnic groups, 11 official languages, cultures and rich diversity of the country (Fetvadjiev et al., 2015; Foxcroft & Roodt, 2013). In response to this need, an indigenous inventory was developed known as The South African Personality Inventory (hereafter: SAPI) (Nel et al., 2012; Nel, Valchev, Rothmann, Van de Vijver, Meiring, De Bruin, 2012; Valchev, Van de Vijver, Nel, Rothmann, Meiring & De Bruin, 2011). However, to date, the dimensions of the SAPI were not yet applied as predictors of engagement amongst university students. In this regard, the present study aimed to contribute by examining the incremental validity of some of the most relevant dimensions for student engagement amongst first-year students in the South African context, as measured by the SAPI. Incremental validity is a type of validity of a psychological or psychometric instrument / measurement and can be described as the degree to which that measure explain or predict a certain phenomenon of interest comparing to other measures (Barnett, Lentz, & Macmann, 2000; Haynes & Lench, 2003). In this study, it was decided to examine the incremental validity because the researcher wanted to determine whether personality, as measured by the SAPI, will increase the predictive ability beyond that provided by other existing assessment instruments. Research by Haynes and Lench (2003) showed that incremental validation offers researchers and clinicians valuable information that

is useful when the contribution of a new measure is evaluated and also with the selection of a measure from a variety of potential measures.

Based on this discussion, the objectives of the present study were to 1) determine significant demands and resources associated with student engagement; and 2) establish the incremental validity of personality in the prediction of student engagement in a sample of South African first-year students.

## **LITERATURE REVIEW**

### **The Job Demands-Resources model**

The Job Demands-Resources (JD-R) model is a heuristic and overarching instrument developed originally for the workplace to predict employees' burnout and engagement, with the ultimate goal of optimising an organisation's performance (Bakker & Demerouti, 2007; Demerouti & Bakker, 2001; Bakker, Van Veldhoven, & Xanthopoulou, 2010). The JD-R model is based on the assumption that the various aspects and risk factors within occupations associated with job stress or employee wellbeing, can be divided into two general categories: job demands and job resources (Demerouti, Bakker, Nachreiner & Schaufeli, 2001; Van den Broeck, Vansteenkiste, De Witte & Lens, 2008; Xanthopoulou, Bakker, Demerouti & Schaufeli, 2007).

**Job demands** are defined as the physical, psychological, social or organisational aspects of a job that require continuous physical and/or psychological effort from an individual, and hence imply certain psychological and physical costs (Bakker & Demerouti, 2007; Bakker, Demerouti, & Schaufeli, 2003; Bakker et al., 2010).

**Job resources** originally were linked to the work context, as the physical, psychological, social or organisational features of a job that help achieve work goals, decrease the effect of job demands and enhance personal development and learning (Bakker et al., 2003; Bakker et al., 2010). Job resources can either motivate people *intrinsically* by providing opportunities to grow, learn and develop, or *extrinsically* by helping them achieve set goals (Bakker et al., 2010). Research also has clearly established a positive relationship between job resources and work engagement (Ouweneel et al., 2011). In this regard, several studies indicated that job

resources even may buffer the effect that job demands have on individuals' stress reactions (Hakanen, Bakker & Schaufeli, 2006; Li & Mao, 2014; Wolff, Brand, Baumgarten, Lösel & Ziegler, 2014).

A further assumption of the JD-R model is that it depicts two simultaneous underlying processes (Llorens et al., 2006). The first is known as the health impairment process (Bakker & Demerouti, 2014; Xanthopoulou et al., 2007). When employees experience continuous high demands without sufficient recovery, it may ultimately lead to burnout and other health problems (Bakker & Demerouti, 2014; Bakker et al., 2003; Xanthopoulou et al., 2007). Secondly, this model depicts the motivational process (Salmela-Aro & Upadyaya, 2014). This process fosters a state of engagement and, therefore, leads to improved performance and success (Bakker & Demerouti, 2007; Bakker et al., 2015; Salmela-Aro & Upadyaya, 2014; Xanthopoulou et al., 2007). Based on these two processes, the JD-R model incorporates both negative and positive indicators and outcomes of employees' wellbeing (Bakker & Demerouti, 2014; Xanthopoulou et al., 2007).

The reason why the JD-R model will be used in this study is to build on the current research available on this model and also to contribute new data regarding the inclusion of personality in this model, specifically in the South African context.

### **Student engagement and the relationship with demands and resources**

Recently, from a psychological point of view, the concept of student engagement was introduced. One of the main reasons for this concept is the assumption that students' studies can be considered as their work (Ouweneel et al., 2011). As is the case with employees in an organisation, students also are involved in structured, organised and coercive activities (e.g. studying for tests, completing assignments and attending classes). These activities also are directed toward a specific goal (e.g. getting good grades, passing exams, obtaining a degree) (Ouweneel et al., 2011).

Engagement overall can be described as an on-going and positive affective-motivational state accomplished by an individual, which includes vigour, dedication and absorption (Schaufeli



& Salanova, 2007; Schaufeli, Salanova, Gonzales & Bakker, 2002). These elements can be explained as follows:

- Vigour: characterised by high levels of energy and mental resilience while working, and individuals' ability and enthusiasm to invest effort in their work (Bakker & Bal, 2010).
- Dedication: when individuals are involved fully in their work, and experience a sense of meaning, motivation, enthusiasm, pride and challenge (Bakker & Bal, 2010).
- Absorption: the character trait of individuals being fully absorbed and happily engrossed in their work (Bakker & Bal, 2010).

Research found that vigorous individuals are more likely to invest energy into their work and carry on with their tasks in spite of challenges (Zaidi, Wajid, Zaidi, Zaidi & Zaidi, 2013). Other studies found that in the academic context, students who rated high on dedication are inspired by their schoolwork and perceive this learning activity as meaningful. These students also experience a sense of pride, significance and enthusiasm (Salmela-Aro & Upadyaya, 2012; Schaufeli et al., 2002; Upadyaya & Salmela-Aro, 2013). For the purpose of the present study, it was decided to measure only the elements of vigour and dedication. This is mainly because research showed that these two elements are regarded to be the core dimensions of engagement, while absorption plays a less central part in engagement (Schaufeli 2005; Schaufeli & Bakker 2001; Schaufeli et al., 2002; Zhang, Gan & Cham, 2007).

Studies in the work context showed that job demands are linked negatively to engagement and it is assumed that job demands can deplete energy levels (Crawford, LePine & Rich, 2010). The reason is that when individuals have to cope with demands, this leads to strain, which in the long term, can result in dissatisfaction and exhaustion (Crawford et al., 2010). Several empirical studies in various countries confirmed that job demands in turn are associated positively with burnout, which is the direct opposite construct of engagement (Bakker & Demerouti, 2007; Crawford et al., 2010). It can therefore be concluded that there is also a need to investigate what the certain job demands are that influence a person's engagement and those demands that can contribute to burnout.

In contrast, resources are found to have a positive relationship with engagement (Crawford et al., 2010). In the work context, job resources can motivate individual employees, whereby the available resources can satisfy their need for autonomy, as well as foster individual growth, development and learning. These outcomes ultimately make individuals more willing to be dedicated at work (Crawford et al., 2010). Bakker, Demerouti and Euwema (2005) undertook a study among 1012 employees of a large institute for higher professional education in Applied Sciences. Their findings indicated that social support from colleagues, feedback on performance and a sound relationship with their supervisor, can buffer the impact of work overload on exhaustion. In this study employees also reported high levels of exhaustion and disengagement when available job resources were limited (Bakker et al., 2005). A further study investigated 805 Finnish teachers. Results identified job resources which facilitate work engagement, namely resources such as information, appreciation, organisational climate, innovativeness and supervisor support (Bakker, Hakanen, Demerouti & Xanthopoulou, 2007).

Several studies amongst students indicated the presence of both the motivational and health impairment processes when applying the JD-R model within the academic context (Salmela-Aro & Upadyaya, 2014; Mokgele & Rothmann, 2014; Wolff et al., 2014). The relationships explained by job demands and job resources were also found to be in the expected directions, thus both respectively impacting students' engagement (Osedach, 2013; Robins, Roberts & Sarris, 2015; Salmela-Aro & Upadyaya, 2014). One such study was conducted by Bakker, Vergel and Kuntze (2015) amongst first-year psychology students from a tertiary institution in the Netherlands. The findings showed that the motivational process can also exist and be applied in the academic context, even though the JD-R model originally was developed for the work context. These scholars found that both the personal and environmental resources of students can build student engagement (Bakker et al., 2015). The main reason is that students' studies and employees' occupations do show numerous similarities (Ouweneel et al., 2011; Wolff et al., 2014). It can, therefore, be concluded that the JD-R model can be applied usefully to the academic context (Salmela-Aro & Upadyaya, 2014; Wolff et al., 2014).

Based on the above-mentioned research, the following hypotheses were formulated for the present study:

**H1:** Student demands are significant and negative predictors of student engagement.

**H2:** Student resources are significant and positive predictors of student engagement.

### **Personality and student engagement**

Personality can be defined as the unique psychological qualities that contribute to the way an individual feels, thinks and behaves (Louw, 2014; Pervin & Cervone, 2010). Personality influences how individuals interpret their environment and actively search for self-regulatory strategies or approaches to help them adapt successfully to the various demands (Zecca et al., 2015). Personality can also be viewed as a system defined by various personality traits and dynamic processes, which influence how people function socially and in their work environment (Gatewood, Field & Barrick, 2011; Louw, 2014).

Throughout time, researchers attempted to establish the precise number of personality traits. Later it was agreed that personality consists of five universal factors, which are most commonly known as the Big Five (McCrae & Costa, 2004; Rossier, Meyer de Stadelhofen, & Berthoud, 2004). These five personality factors are categorised as Extraversion, Agreeableness, Openness, Conscientiousness and Neuroticism (McCrae & Costa, 2004; Rossier et al., 2012). It is important to understand that the Big Five model is universal and has been replicated across various human societies (Gurven, Von Rueden, Massenkoff, Kaplan & Lero Vie, 2013). It was, however, found that most studies that included the Big Five model have only been restricted to literature, certain languages and urban populations (Gurven et al., 2013; Saucier, Thalmayer & Bel-Bahar, 2014). This implied that research on this topic did not factor in characteristics of the majority of the human population (Gurven et al., 2013) and that further research is necessary to address the limitations of the model, especially regarding language differences across populations (Saucier et al., 2014).

Typically, personality is measured by using instruments of Western origin, which pay limited attention to different universal concepts and cultures (Fetvadjiev, Meiring, van de Vijver, Nel & Hill, 2015). To counter this deficiency, an inventory was developed in South Africa that takes the country's rich diversity into account (Fetvadjiev et al., 2015; Foxcroft & Roodt, 2013). The main aim of this inventory, better known as the South African Personality Inventory (SAPI), is to provide a thorough coverage of the relevant personality concepts that

are considered relevant across the main ethno-cultural groups in South Africa (Fetvadjiev et al., 2015).

In addition, the above-mentioned measuring instrument takes into account the legal framework provided by South African legislation for developing psychometric tests, as stipulated in Section 8 of the Employment Equity Act (Act 55 of 1998). This Act states that all psychometric tests should measure concepts or constructs in a fair and equal manner for the diverse ethnic groups in South Africa, and agree with linguistic, cultural and racial features without introducing bias towards or against any population group (Government Gazette, 1998). The SAPI contains six broad personality clusters, namely Conscientiousness, Extraversion, Intellect-openness, Neuroticism, Social relational (Negative) and Social relational (Positive). These six clusters have 18 underlying facets (Fetvadjiev et al., 2015; Nel et al., 2015) and are measured with 188 items in total (Fetvadjiev et al., 2015; Nel et al., 2015).

Personality dimensions do not only offer information on several subjects such as vocational indecision, career adaptability, job stress, an employee's individual context and burnout (Györkös, Becker, Massoudi, de Bruin, & Rossier, 2012; Rossier, 2005; Rossier, Zecca, Stauffer, Maggiori, & Dauwalder, 2012). Various studies found a strong link especially between personality and work engagement (Li, & Mao, 2014; Kim, Shin & Swanger, 2009; Rossier, Zecca, Stauffer, Maggiori & Dauwalder, 2012). Several studies particularly investigated the role that certain personality attributes have on work engagement and performance. These are neuroticism, extraversion, conscientiousness and intellect-openness (Akhtar et al., 2015; Aluja, Kuhlman & Zuckerman, 2010; Nilforooshan & Salimi, 2016; Ongore, 2014; Rogers, Creed & Glendon, 2008; Woods, 2013). An example is a study by Akhtar et al. (2015) amongst 1 050 working adults, where findings confirmed that personality traits are valid predictors of work engagement. Research by Inceoglu and Warr (2011) under 393 individuals from several countries also established that conscientiousness and extraversion in particular, are strong predictors of work engagement.

Not only was personality found to influence the performance of employees in the workplace; recent educational research also shows that it may impact students' engagement and academic performance (Ariani, 2015; Paunonen & Ashton, 2001; Poropat, 2009; Rosander & Bäckström, 2014; Salanova, Schaufeli, Martínez & Bresó, 2010; Uppal & Mishra, 2014).

Conscientiousness, in particular, has a significant influence on students' academic performance and engagement. The reason is that this personality dimension includes facets relevant to the academic setting, namely discipline, dutifulness and organisational ability (Laidra, Pullman & Allik, 2007; McCrae & Costa, 2003; Poropat, 2009; Rosander & Bäckström, 2014). The other traits of conscientiousness were identified as persistence, achievement, motivation and dutifulness, which all are well-known for its value in a students' study habits and engagement with their studies (Chamorro-Premuzic & Furnham, 2003; McCrae & Costa, 2003; Rosander & Bäckström, 2014).

Furthermore, it was found that students who are rated high on extraversion are more likely to perform better academically due to higher energy levels and a propensity for a positive attitude. These attributes may increase the desire to learn and be more engaged in their studies (De Raad & Schouwenburg, 1996; Rosander & Bäckström, 2014). It was also found that neuroticism reflects negatively on academic performance and student engagement (Poropat, 2009; Rosander & Bäckström, 2014). The reason is that students who experience high levels of neuroticism tend to focus more on their emotional state, which may interfere with their attention levels in class and their academic tasks (De Raad & Schouwenburg, 1996; Rosander & Bäckström, 2014).

For the reasons mention above, and due to the academic context and the relevance of these personality dimensions to the student population, it was decided to include the following personality dimensions with their most important sub facets as measured with the SAPI (definitions are based on Hill et al., 2013): <sup>1</sup>

- Extraversion (Sociability): the tendency to be outgoing and spontaneous, where individuals enjoy having people around them and to communicate with others.
- Conscientiousness (Achievement orientation): an orientation towards achieving things in life, by working hard and being directed towards whatever an individual wants to obtain.

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<sup>1</sup> Instead of consulting all the dictionaries on the 11 official South African languages, Hill et al. (2013) defined and described the facets of the SAPI by using the personality descriptors from the content-representative responses of participants in the qualitative research phase. Hence, they used the transcripts of the words and descriptions collected from their interviews (Hill et al., 2013). For this reason, the descriptions or definitions of the facets used in the present study are the same as those used in the SAPI.

- Conscientiousness (Orderliness): characteristic of individuals being precise and thorough in what they do, acting tidily, punctually and well-organised.
- Neuroticism (Emotional balance): striking the correct balance between pleasant and unpleasant feelings.
- Neuroticism (Negative emotionality): the antithesis of positive thinking. Negative emotionality implies a propensity for depression and anxiety, and a tendency to react with unpleasant emotions to stressful situations.

The chosen personality dimensions showed in various studies globally a significant influence on performance in the academic context and provided crucial information on academic success (Di Fabio & Busoni, 2007; Downey, Lomas, Billings, Hansen & Stough, 2014). Studies using different measuring instruments, have shown that these dimensions are all related positively to academic performance, except for neuroticism, which impacts negatively on academic performance and engagement (Di Fabio & Busoni, 2007; Downey et al., 2014; Bauer & Liang, 2003). It can, therefore, be expected that these mentioned dimensions also predict student engagement and make an incremental contribution in addition to the effects of student demands and resources. Based on the information mentioned above, the following hypotheses were formulated:

**H3:** Extraversion (Sociability), Conscientiousness (Achievement orientation and Orderliness) and Neuroticism (Emotional balance and Negative emotionality) are significant predictors of student engagement.

**H4:** Extraversion (Sociability), Conscientiousness (Achievement orientation and Orderliness) and Neuroticism (Emotional balance and Negative emotionality) will have an incremental contribution to student engagement after controlling for student demands and student resources.

## **RESEARCH DESIGN**

### **Research approach**

For the purpose of the present research, a quantitative approach was used. According to Struwig and Stead (2001), this is a form of conclusive research that involves a large representative sample with organised and structured data-collection procedures. In order to

gather the data and achieve the objectives of the study, a cross-sectional research design was used. The reason is that such a method or design helps a researcher examine numerous individuals at a given point in time (Du Plooy, 2002; Salkind, 2009).

The data for the present study were collected by means of an electronic survey since this method saves time and is cost effective. This study was both confirmatory and exploratory since its hypotheses were supported by current literature and theory. However, limited information was available on the significant demands and resources associated with student engagement and the incremental value that personality adds to the prediction of student engagement. The selected target was a sample of South African first-year students.

### **Research method**

The research method for the present study entailed the following:

#### **Research participants**

For this study, the researcher included a stratified sample of first-year students at a tertiary institution ( $N = 512$ ). The sample was stratified in terms of campuses. The response rate was 14.17%. The characteristics of the participants are presented in Table 1 below.

**Table 1***Characteristics of the participants (N =512)*

<b>Item</b>	<b>Category</b>	<b>Frequency</b>	<b>Percentage (%)</b>
<b>Gender</b>	Female	299	58.40
	Male	202	39.50
	Missing values	11	2.10
<b>Ethnicity</b>	Black	302	59.00
	Coloured	11	2.10
	Indian	4	0.80
	White	192	37.50
	Other	3	0.60
	Afrikaans	188	36.70
	English	28	5.5
<b>Home language</b>	Sepedi	17	3.30
	Sesotho	52	10.20
	Setswana	146	28.50
	siSwati	9	1.80
	Tshivenda	8	1.60
	isiNdebele	2	0.40
	isiXhosa	18	3.50
	isiZulu	30	5.90
	isiTsonga	10	2.00
	Missing values	4	0.80
<b>Campus</b>	Campus1	157	30.70
	Campus2	259	50.60
	Campus3	93	18.20
	Missing values	3	0.60
<b>Residency</b>	Reside on campus and live in a hostel	143	27.90
	Reside on campus, but not in a hostel	18	3.50
	Reside off campus and part of urban residence	124	24.20
	Reside off campus and not part of a urban residence	201	39.30
	None of the above	25	4.90
	Missing values	1	0.20
<b>First Generation</b>	0	259	50.60
	1	253	49.40



As is clear from Table 1 above, the sample consists of 512 participants of whom 299 (58.40%) are female and 202 (39.50%) male. The majority of the sample included Black (59.00%) and White (37.50%) students. The two predominant home languages of the participants were Afrikaans (36.70%) and Setswana (28.50%). The nine remaining languages represented 34.80% of the sample. In terms of residence, most students either reside off campus and is not part of an urban residence (39.30%); reside on campus and live in a hostel (27.90%); or reside off campus and is part of a town residence (24.20%). Finally, 259 participants (50.60%) indicated that they are first-generation students (a first generation student is the first individual of a family that attends university). The measurement took place between August and September 2016.

### **Measuring instruments**

The research made use of various measuring instruments, as expounded below.

**Biographical questionnaire:** Participants were requested to complete a probing questionnaire. It contained questions regarding their gender, age, ethnicity (race), home language, campus, faculty as well as on-campus and off-campus living status.

**Student demands and resources:** The particular demands and resources that the students may experience were measured by changing items of the questionnaire on the experience and assessment of work (VBBA) (Van Veldhoven, Meijman, Broersen & Fortuin, 1997). These items were altered to fit the academic context and were answered in terms of a four-point Likert scale ranging from 0 (never) to 3 (always). The following measurements were done: Pace and amount of work with five items (e.g. 'How often do you have to work extra hard in order to complete something?'); Cognitive demands with six items (e.g. 'How often do you feel that the tasks that you have to complete for your studies are too difficult?'); Support from family with three items (e.g. 'If necessary, can you ask your family for help?'); Support from lecturers with three items (e.g. 'When I encounter problems with my course, I can ask my lecturers for advice'); Support from friends with four items (e.g. 'Do your friends support you?'); and Opportunities for growth and development with four items (e.g. 'Do your studies give you the feeling that you can achieve something with your life?').

The above-mentioned questionnaire was adjusted in the present study to be compatible with the academic context. Nevertheless, in the organisational context, previous research found that the VBBA scales are valid and reliable (Van Veldhoven, De Jonge, Broersen, Kompier & Meijman (2002); Van Veldhoven, Taris, De Jonge & Broersen, 2005). The validity and reliability of the adapted scales in the student context were examined for the present study.

**Student engagement:** To measure students' engagement levels, the following instrument was used: Utrecht Work Engagement Scale-Student Survey (UWES-S) (Schaufeli, Salanova, González-Romà, & Bakker, 2002). The questions were answered according to a seven point Likert-type scale ranging from 0 (never) to 6 (every day). Vigour was measured with five items (e.g. 'Even when studying becomes difficult, I have the mental energy to keep going on'). Dedication levels were measured with six items (e.g. 'I am excited about my studies'). A previous study by Storm and Rothmann (2003) amongst 2 396 members of the South African Police Services found sufficient Cronbach's alpha coefficients for vigour ( $\alpha = 0.78$ ) and for dedication ( $\alpha = 0.89$ ). Mostert et al. (2007) also reported acceptable Cronbach's alphas for vigour ( $\alpha = 0.70$ ) and dedication ( $\alpha = 0.78$ ) within the student context.

**Personality:** Personality characteristics of students were measured by using The South African Personality Inventory (SAPI; Fetvadjiev, Meiring, van de Vijver, Nel & Hill, 2015). The responses were according to a scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). Personality characteristics were measured as follows: Extraversion (Sociability) with seven items (e.g. 'I connect with people easily'); Conscientiousness (Achievement orientation) with 11 items (e.g. 'I am determined in the things I do'); Conscientiousness (Orderliness) with 13 items (e.g. 'I check for errors in work that has been done'); Neuroticism (Emotional balance) with eight items (e.g. 'I can deal with difficulties in my life'); and Neuroticism (Negative emotionality) with ten items (e.g. 'I am afraid that bad things may happen'). Fetvadjiev et al. (2015) found acceptable alphas for Extraversion (Sociability):  $\alpha = 0.81$ ; Conscientiousness (Achievement orientation):  $\alpha = 0.80$ ; Conscientiousness (Orderliness):  $\alpha = 0.85$ ; Neuroticism (Emotional balance):  $\alpha = 0.74$ ; and Neuroticism (Negative emotionality):  $\alpha = 0.75$ .

## **Research procedure**

The following procedure was adhered to for the research. First, permission was obtained from the necessary role-players at the university such as the Ethics Committee and three campuses' Registrars. Thereafter, the data collection for the present study took place. The data was gathered by an email sent to a randomly selected group of first-year students. This email contained a web-based link that directed candidates to an electronic website and the questionnaire. On the website, relevant aspects were explained: the goal and purpose of the study, the research procedure, ethical issues, as well as the importance of the data and possible value it could add to the students and their university. Participants for the study were assured about their confidentiality, voluntary participation, and the possibility to complete the questionnaire in their own free time. Thereafter they were asked to complete an electronic informed-consent form.

The proposed time-frame for the completion of the questionnaire was approximately 25-30 minutes and it was administered for seven weeks running during August and September 2016. At the end of each week, two winners on each campus was drawn randomly and announced through email to all the selected first-year students for the sample. In this email, a reminder was also included for those students who did not complete the survey, which encourage them to do so. This time frame was chosen in order to give the first year students enough time to experience the demands and resources that are associated with the first year at university. This incentive was included to encourage participation in the research project. Winners each received a R200 voucher. After the data were gathered, it were analysed.

## **Statistical analysis**

The statistical analysis of the present study was carried out by means of the SPSS programme (SPSS, 2013) and Mplus 7.2 (Muthén & Muthén, 2014). To analyse the data, the researcher employed descriptive statistics (means and standard deviations). The constructs' reliability was calculated by using Cronbach's alpha coefficients (Clark & Watson, 1995). Pearson's product-momentum correlation coefficients were calculated to determine the relationship between the different constructs (Cohen, 1988). The statistical significance value was set at a 95% confidence interval level ( $p \leq 0,05$ ). Regarding the practical significance of correlation coefficients, cut-off points were set at 0.30 (for a medium effect) and 0.50 (for a large effect)

(Cohen, 1988). A hierarchical multiple regression analysis was used to relate the *dependent* variable (student engagement) to the *independent* variables (student demands, student resources and personality characteristics). This was done by means of the Statistical Package for Social Science (SPSS) Version 22 (SPSS Inc., 2013).

In order to assess the models' goodness of fit, Mplus was used. The fit indices applied in the present study were: Comparative Fit Index (CFI), Root Mean Square Error of Approximation (RMSEA), Tucker-Lewis Index (TLI), Akaike Information Criterion (AIC), Bayesian Information Criterion (BIC), and Standardised Root Mean Square Residual (SRMR). For an acceptable model fit, the values of both the CFI and TLI must be above the threshold of 0.90 (Byrne, 2001; Hoyle 1995). Regarding the RMSEA, a value under the cut-off threshold of 0.08 indicates a good model fit (Browne & Cudeck, 1993).

To compare the fit between the different models in the present study, The AIC and BIC mentioned above were used. This implies that the model with the lowest AIC and BIC value indicates the best fitted model. The cut-off point for the SRMR was set to less than 0.05 (Hu & Bentler 1999).

## **RESULTS**

This section focuses on the reporting of the results for the measurement models. These models measured the aspects discussed above: student demands, student resources and student engagement (similar dimensions as measured by the SAPI). In addition, the results were drawn from the following instruments: descriptive statistics, product-moment correlations, Cronbach's alpha coefficients and the multiple regression analysis. For this analysis engagement were chosen as the dependent variable, and as predictor variables the following: student demands, student resources and personality characteristics. The results are presented in the tables below.

**Table 2***Results of measurement models for engagement*

<b>Model</b>	<b>df</b>	<b>CFI</b>	<b>TLI</b>	<b>RMSEA</b>	<b>SRMR</b>	<b>AIC</b>	<b>BIC</b>
Demands and resources	870	0.91	0.89	0.04	0.05	64424.69	65314.73
Engagement one-factor model	43	0.92	0.90	0.12	0.04	17055.73	17199.83
Engagement two-factor model	42	0.93	0.90	0.11	0.04	17026.21	17174.55
Total measurement model	573	0.90	0.89	0.05	0.05	44294.55	44841.3

Notes: *df* = degrees of freedom; CFI = Comparative fit index; TLI = Tucker-Lewis index; RMSEA = Root mean square error of approximation; AIC = Akaike Information Criterion; BIC = Bayesian Information Criterion

To ensure the factorial validity of measurements for the student demands, student resources and student engagement, different models were tested by using confirmatory factor analysis. To start off, the factorial validity of student demands and resources were tested. These were specified as two factors: student demands (with the items of Pace and amount of work, and Cognitive demands loading on this factor) and student resources (with the items of Family support, Lecturer support, Friend support, and Growth and development loading on this factor). Two competing measurement models were tested for student engagement. Firstly, a two-factor model was tested with vigour and dedication as two distinct factors. Secondly, a one-factor model was tested with items of vigour and dedication loading on the same factor. Finally, the total measurement model was tested, comprising demands, resources and engagement.

The model for student demands and resources showed reasonable good fit. The RMSEA value of 0.04 calculated under the cut-off threshold of 0.08, which indicated a good model fit. The CFI value of 0.91 was above the threshold of 0.90, and the TLI value was close to the threshold of 0.90. Based on these results, it was decided to continue interpreting the model based on the closeness of fit without modelling additional parameters. The reason is that it could hamper the possibility of future studies replicating the findings. Regarding student engagement, both models showed acceptable, but not adequate fit, with CFI and TLI above 0.90, but RMSEA values above 0.08. Furthermore, the correlation between vigour and dedication was very high ( $r = 0.95$ ), indicating a validity problem (Brown, 2015). As a result, it was decided to continue using a one-factor engagement construct.

These two models were included in the final and total measurement model, which also showed good fit. The results of the standardised loadings for the different measurement models are reported in Appendix A.

The descriptive statistics, correlation coefficients and Cronbach's alpha coefficients for the latent variables are presented in the table 3 below.

**Table 3**

*Descriptive statistics, correlation coefficients and Cronbach's alpha coefficients for the latent variables*

	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9	10	11
<b>1 Pace and amount</b>	2.67	0.54	0.72										
<b>2 Cognitive demands</b>	2.35	0.54	0.52**	0.77									
<b>3 Family support</b>	3.24	0.81	-0.17**	-0.13**	0.79								
<b>4 Lecturer support</b>	2.67	0.90	-0.15**	-0.30**	0.21**	0.86							
<b>5 Friend support</b>	3.00	0.76	-0.20**	-0.16**	0.23**	0.22**	0.85						
<b>6 Growth &amp; learning</b>	3.61	0.49	-0.12**	-0.20**	0.12**	0.30**	0.103*	0.76					
<b>7 Extraversion: Sociability</b>	3.56	0.87	0.00	-0.05	0.06	0.18**	0.22**	0.13**	0.89				
<b>8 Achievement orientation</b>	4.23	0.58	-0.11*	-0.22**	0.12**	0.26**	0.12**	0.33**	0.32**	0.91			
<b>9 Orderliness</b>	4.11	0.56	-0.12**	-0.19**	0.14**	0.28**	0.13**	0.30**	0.16**	0.71**	0.90		
<b>10 Emotional balance</b>	4.07	0.64	-0.12**	-0.16**	0.12**	0.13**	0.15**	0.24**	0.32**	0.49**	0.49**	0.87	
<b>11 Negative emotionality</b>	2.89	0.78	0.19**	0.30**	-0.11*	-0.21**	-0.17**	-0.13**	-0.16**	-0.13**	-0.18**	-0.35**	0.85
<b>12 Engagement</b>	4.59	1.14	-0.20**	-0.26**	0.12**	0.28**	0.15**	0.45**	0.17**	0.51**	0.43**	0.35**	-0.22**

\*\* Statistically significant,  $p < 0.05$

Practically significant – medium effect  $\geq 0.30$

Practically significant – large effect  $\geq 0.50$

Cronbach's alpha coefficients shown on the diagonal

From Table 3 above, it is evident that all the Cronbach's alpha coefficients were above the cut-off point of 0.70, which indicate acceptable internal consistency of the scales. In terms of demands, the elements Pace and amount and Cognitive demands indicated a statistically significant and negative relationship with engagement. Regarding resources, Family support, Lecturer support and Friend support had a statistically significant and positive relationship with engagement, while Growth and learning had a practically significant (medium effect) and positive relationship with engagement. For the personality dimensions, Sociability and Negative emotionality indicated a statistically significant relationship with engagement, positive and negative respectively. Orderliness and Emotional balance had a practically significant (medium effect) and positive relationship with engagement, while Achievement orientation indicated a practically significant (large effect) and positive relationship with student engagement.

The results of the multiple regression analysis is reported in Table 4 below.



**Table 4***Hierarchical multiple regression analysis with engagement as the dependent variable*

Model		Unstandardised coefficients		Standardised coefficients	<i>t</i>	<i>p</i>	<i>F</i>	<i>R</i>	<i>R</i> <sup>2</sup>	$\Delta R^2$
		B	SE	BETA						
1	(Constant)	4.68	0.18		25.94	0.00 <sup>*</sup>	4.94	0.20	0.04	0.04
	Gender	-0.26	0.10	-0.11	-2.51	0.01 <sup>*</sup>				
	Ethnicity	0.01	0.04	0.01	0.13	0.90				
	Campus	-0.05	0.08	-0.03	-0.67	0.50				
	First-generation student	0.32	0.11	0.14	3.03	0.00 <sup>*</sup>				
2	(Constant)	6.19	0.32		19.19	0.00 <sup>*</sup>	9.18	0.32	0.10	0.06
	Gender	-0.17	0.10	-0.8	-1.71	0.09				
	Ethnicity	-0.04	0.04	-0.05	-1.17	0.24				
	Campus	-0.03	0.07	-0.02	-0.36	0.72				
	First-generation student	0.28	0.10	0.12	2.74	0.01 <sup>*</sup>				
	Pace and amount of work	-0.19	0.11	-0.09	-1.79	0.08				
	Cognitive demands	-0.42	0.11	-0.20	-3.90	0.00 <sup>*</sup>				
3	(Constant)	1.69	0.53		3.16	0.00 <sup>*</sup>	18.25	0.52	0.27	0.17
	Gender	-0.18	0.09	-0.08	-1.95	0.05 <sup>*</sup>				
	Ethnicity	-0.07	0.03	-0.09	-2.01	0.05 <sup>*</sup>				
	Campus	-0.06	0.07	-0.03	-0.81	0.42				
	First-generation student	0.24	0.09	0.11	2.62	0.01 <sup>*</sup>				
	Pace and amount of work	-0.14	0.10	-0.07	-1.41	0.16				
	Cognitive demands	-0.20	0.10	-0.10	-2.02	0.04 <sup>*</sup>				
	Support from family	0.08	0.06	0.06	1.39	0.17				
	Support from lecturer	0.14	0.06	0.11	2.63	0.01 <sup>*</sup>				
	Support from friends	0.10	0.06	0.07	1.61	0.11				
	Opportunities to grow and develop	0.84	0.10	0.36	8.68	0.00 <sup>*</sup>				

**Table 4 (continued)***Hierarchical multiple regression analysis with engagement as the dependent variable*

Model		Unstandardised coefficients		Standardised coefficients	<i>t</i>	<i>p</i>	<i>F</i>	<i>R</i>	<i>R</i> <sup>2</sup>	$\Delta R^2$
		B	SE	BETA						
4	(Constant)	-0.69	0.61		-1.12	0.26	19.82	0.62	0.38	0.11
	Gender	-0.14	0.9	-0.06	-1.59	0.11				
	Ethnicity	-0.01	0.03	-0.02	-0.43	0.67				
	Campus	-0.05	0.06	-0.03	-0.81	0.42				
	First-generation student	0.23	0.09	0.10	2.69	0.01*				
	Pace and amount of work	-0.15	0.09	-0.07	-1.62	0.11				
	Cognitive demands	-0.09	0.10	-0.04	-0.90	0.37				
	Support from family	0.03	0.05	0.02	0.57	0.57				
	Support from lecturer	0.08	0.05	0.06	1.52	0.13				
	Support from friends	0.06	0.06	0.04	1.0	0.32				
	Opportunities to grow and develop	0.63	0.09	0.27	6.72	0.00*				
	Extraversion: Sociability	-0.02	0.05	-0.02	-0.38	0.70				
	Conscientiousness: Achievement orientation	0.57	0.11	0.27	5.14	0.00*				
	Conscientiousness: Orderliness	0.13	0.11	0.06	1.11	0.27				
	Neuroticism: Emotional balance	0.11	0.08	0.06	1.33	0.18				
	Neuroticism: Negative emotionality	-0.03	0.06	-0.02	-0.51	0.61				

\*Statistically significant  $p \leq 0.05$ 

In a hierarchical multiple regression analysis, the standardised beta coefficients indicate whether the variables included in a model have a positive or negative relationship. A positive beta coefficient represents a positive relationship and a negative beta coefficient represents a negative or inverse relationship. The *t*-value indicates the *t*-test. If the *t*-test associated with the  $\beta$  value is significant, then the predictor contributes significantly to the model (Field, 2005).

Table 4 above summarised the multiple regression analysis. In the first step, control variables were entered, namely Gender, Ethnicity and whether respondents are First-generation students. The entry of the control variables in the first step of the regression analysis produced a statistically significant model ( $F_{4.940} = 4.94$ ;  $p = 0.00$ ), which accounted for approximately 4% of the variance in engagement. More particularly in this step, seemingly the variables Gender ( $\beta = -0.11$ ;  $t = -2.51$ ;  $p \leq 0.05$ ) and the status of First-generation student ( $\beta = 0.14$ ;  $t = 3.03$ ;  $p \leq 0.05$ ) were significant predictors of engagement.

In the second step, Pace and amount of work and Cognitive demands were added in the regression analysis. This produced a statistically significant model ( $F_{17.016} = 9.18$ ;  $p = 0.00$ ), accounting for an additional 6% of the variance in engagement. According to this model, seemingly, together with the status of First-generation student ( $\beta = 0.12$ ;  $t = 2.74$ ;  $p \leq 0.05$ ), Cognitive demands ( $\beta = -0.20$ ;  $t = -3.90$ ;  $p \leq 0.05$ ) were found to predict engagement.

In the third step, student resources were added and produced a statistically significant model ( $F_{28.735} = 18.25$ ;  $p = 0.00$ ), accounting for an additional 17% of the variance in engagement. In this model it seemed that the following variables predict engagement: Gender ( $\beta = -0.08$ ;  $t = -1.95$ ;  $p \leq 0.05$ ); Ethnicity ( $\beta = -0.09$ ;  $t = -2.01$ ;  $p \leq 0.05$ ); the status of First-generation student ( $\beta = 0.11$ ;  $t = 2.62$ ;  $p \leq 0.05$ ); Cognitive demands ( $\beta = -0.10$ ;  $t = -2.02$ ;  $p \leq 0.05$ ); Support from lecturer ( $\beta = 0.11$ ;  $t = 2.63$ ;  $p \leq 0.05$ ); and Opportunities for growth and development ( $\beta = 0.36$ ;  $t = 8.68$ ;  $p \leq 0.05$ ).

In the fourth and final step of the regression analysis, the personality dimensions were added. Although this model was found as not statistically significant ( $F_{16.971} = 19.82$ ;  $p = 0.26$ ), this step explained an additional 11% of the variance in engagement. In this model seemingly engagement in the final step were predicted by the following variables: the status of First-generation student ( $\beta = 0.10$ ;  $t = 2.69$ ;  $p \leq 0.05$ ); Opportunities to learn and grow ( $\beta = 0.27$ ;  $t = 6.72$ ;  $p \leq 0.05$ ); and Conscientiousness (Achievement orientation) ( $\beta = 0.27$ ;  $t = 5.14$ ;  $p \leq 0.05$ ). In total, the final step explained 38% of the variance in engagement.

## DISCUSSION

The main goals of the present study were: 1) determine the significant demands and resources associated with student engagement; and 2) establish the incremental contribution that personality makes in predicting student engagement in a sample of South African first-year students.

Regarding the relationship between demands and student engagement, the results of the product-moment correlations were significant. It indicated that both demands measured in the present study (Pace and amount of work, and Cognitive demands) have a statistical significant (negative) effect with engagement. When these demands were added in the second step of the multiple regression analysis (after controlling for socio-demographic variables in the first step of the regression), it produced a statistically significant model, accounting for an additional 6% of the variance in engagement. However, only Cognitive demands was found to be a significant predictor of engagement in the regression. In the third step, student resources were added. During this step, Cognitive demands was still a significant predictor for engagement, although it became insignificant in the fourth step when personality characteristics were added to the regression. These findings show the importance of Cognitive demands and the negative effect it has on student engagement.

The results are also in line with previous research indicating that Cognitive demands is linked in a negative relationship with engagement (Boswell, Olson-Buchanan & LePine, 2004; Cavanaugh, Boswell, Roehling & Boudreau, 2000; Yusoff, Rahim & Yaacob, 2010). Researchers also describe Cognitive demands as a job challenge, which can deplete individuals' energy (Boswell, Olson-Buchanan & LePine, 2004; Cavanaugh, Boswell, Roehling & Boudreau, 2000).

Furthermore, studies have shown that Cognitive demands has a positive relationship with the health impairment process, as suggested by the JD-R model, which may present certain symptoms such as emotional exhaustion and anxiety (Lepine, LePine, & Jackson, 2004; Podsakoff, LePine & LePine, 2007). Yusoff, Rahim and Yaacob (2010) researched a sample of Malaysian medical students. They found that when a student experiences cognitive demands, for example, difficulty to understand the content of a course, or unable to answer

questions, it may lead to stress and disengagement. In other words, when students struggle to understand their work, they may no longer experience positive emotions/ feelings, which are a crucial part of emotional engagement (Fredricks, 2014). They may then not see the relevance and usefulness of what they are learning anymore, making them more disengaged (Fredricks, 2014). Based on the results above, partial support was found for Hypothesis 1, which posited that student demands will have a significant and negative relationship with student engagement.

Regarding the impact of student resources on student's engagement, the following resources were included in the present study: Support from family, Support from lecturers, Support from friends and Opportunities for growth and development. The results of the product-moment correlations indicated that these resources were all statistically significant and had a positive relationship with engagement. Lecturer support ( $r = 0.28$ ) and in particular Opportunities for growth and development ( $r = 0.45$ ) indicated the strongest correlations with student engagement. When these resources were added in the third step of the regression analysis, it produced a statistically significant model and accounted for an additional 17% of the variance in engagement. This percentage underlines the importance of resources when predicting student engagement. However, only Support from lecturers ( $\beta = 0.11$ ) and Opportunities for growth and development ( $\beta = 0.36$ ) were found to be significant predictors of engagement. In the final step of the analysis, the only resource that was found to be a significant predictor of student engagement was Opportunities for growth and development ( $\beta = 0.27$ ). This resource was found to be predictive in all the stages of the analysis.

These results are in line with previous literature. Not only do several studies show that resources have a positive relationship with engagement (Bakker et al., 2007; Bakker, Demerouti & Euwema, 2005; Crawford et al., 2010), but that they are also the most important and vital predictors of learning, commitment, work motivation and engagement (Bakker et al., 2010). Regarding the relationship between Support from lecturers and student engagement, previous studies showed that performance feedback, and a supportive supervisor, or in the academic context a supportive lecturer, makes it more likely that individuals will attain their goals and be successful (Bakker, Albrecht & Leiter, 2011). The reason is that proper and appropriate feedback can foster learning and develop growth, which ultimately increases individuals' competence to accomplish their work (Bakker & Demerouti, 2008).

Particularly, in the academic context, feedback from a lecturer can help students improve their performance, and ultimately complete their studies successfully (Ouweneel, et al., 2011). A study among 12 359 employees in various organisations indicated that performance feedback, learning possibilities and career opportunities satisfy individuals' need for competence and help them to reach work goals (Bakker, Van Veldhoven & Xanthopoulou, 2010).

Of the mentioned resources, Opportunities for growth and development was the most significant element in predicting student resources. This underlines the importance that students should receive opportunities to grow and develop. When individuals have the opportunity to develop and grow professionally, they are motivated intrinsically to attain their work goals (Bakker and Demerouti, 2007). A possible reason is that such opportunities for growth and development may fulfil individuals intrinsically (Schaufeli & Bakker, 2004), which can enable them to improve performance in their work (Bakker, 2009). Opportunities for growth and development can also be considered a motivator for individuals to put more effort into a task (Gagné & Deci, 2005). It was also found that such growth opportunities are indispensable for a person's competence, curiosity and thoroughness (McCauley, Ruderman, Ohlott, & Morrow, 1994). Within the academic context, the amount of autonomy that students enjoy as well as the opportunity to grow and develop, can influence their wellbeing. It may also generate positive psychological states such as meaningfulness, knowledge and responsibility (Mokgele & Rothmann, 2014). All this can make students more willing to learn, invest in their education and ultimately be more engaged (Johnson, 2012).

Noticeably, Support from family and Support from friends were found not significant predictors in the regression analysis. This result is in contrast with previous findings and the literature regarding these constructs' relationship with engagement. Previous studies clearly indicated that the supporting structure of students' family and friends have a significant impact on their academic performance and academic engagement (Christenson & Thurlow, 2004; Yang, 2008). A study by Yang (2008) on the academic achievement of school learners showed that peer or friend support impact strongly on individuals' academic achievement and engagement because such support influences their daily performance as well as behaviour at school. According to the mentioned researcher, it has also been proven that when parents are

involved in their children's lives, it may contribute to higher academic achievement. The relationship of these two forms of support needs to be investigated further in future studies. Based on these findings, partial support was found for Hypothesis 2, which stated that student resources have a significant positive relationship with student engagement.

Furthermore, the relationship of personality with student engagement was tested. The product-moment correlations showed that all the personality dimensions have a significant relationship with engagement, especially three dimensions: Achievement orientation ( $r = 0.51$ ), Orderliness ( $r = 0.43$ ) and Emotional balance ( $r = 0.35$ ). Thereafter followed the fourth and final step of the multiple regression analysis (after controlling for socio-demographic variables, student demands and student resources). In this step, only one personality characteristic was shown to be a significant predictor of student engagement – Achievement orientation (a facet of conscientiousness). This finding emphasises the important role of conscientiousness in general and is in line with previous findings.

Achievement orientation plays a valuable role in students' study habits and engagement (Chamorro-Premuzic & Furnham, 2003; McCrae & Costa, 2003; Rosander & Bäckström, 2014). Achievement orientation was also found to be the strongest predictor of engagement in other research studies (Inceoglu & Warr, 2011). When individuals need to achieve, or are achievement oriented, they have the aspiration to accomplish challenging tasks and the willingness to put effort in their work (McClelland, 1985). According to Maurice Kerrigan Africa (2013), an individual who is achievement oriented knows and understands the importance of continuous learning, development and improvement. It is accepted that when students are achievement oriented, it will also improve their academic achievement (Abolmaali, Rashedi & Ajilchi, 2014). A study by Moneta (2011) amongst 226 undergraduate students of a university in London found that the need to achieve is also negatively related to burnout.

Studies indicated that personality can motivate learning and as well as influence students' academic performance (Abolmaali, Rashedi & Ajilchi, 2014). In the present study, extraversion and neuroticism were not found to be significant predictors of engagement. This is, however, contrary to the results of previous studies. Several studies found that extraversion has a positive relationship with engagement, mainly since both these elements contain dimensions of energy and dynamic behaviour (Langelaan, Bakker, Van Doornen &

Schaufeli, 2006; Sulea et al., 2015; Zecca et al., 2015). Extraverted individuals are more likely to experience positive emotions, which may help them build personal resources that can contribute to engagement (Fredrickson, 1998; Sulea et al., 2015). People who rate high on the sociability dimension of extraversion, communicate confidently with others and are able to build important connections and networks in their work, which in turn can help them advance their careers (Bezuidenhout, 2011; Potgieter & Coetzee, 2013). These people are also more likely to seek feedback that help them improve their performance and reach their goals (Bezuidenhout, 2011; Potgieter & Coetzee, 2013).

Regarding neuroticism, research found that this personality dimension affects individuals' work engagement negatively. Hence persons who rate high on neuroticism show reduced levels of work engagement (Nilforooshan & Salimi, 2016). A possible explanation may be that this negative trait is related strongly to anxiety, depression, negative thoughts, pessimism and low self-esteem, which may reduce self-confidence and thus lower work engagement (Aluja, Kuhlman, & Zuckerman, 2010; Nilforooshan & Salimi, 2016). Neurotic individuals may also be less willing to embrace new experiences or see the need for growth and development (Nilforooshan & Salimi, 2016). Based on these findings, only partial support was found for Hypothesis 3, which stated that extraversion (sociability), conscientiousness (achievement orientation and orderliness) and neuroticism (emotional balance and negative emotionality) are significant predictors of student engagement.

The final objective was to determine whether personality characteristics contribute incrementally to student engagement after controlling for demands and resources. As was discussed, the results showed that this step explained an additional 11% of the variance in engagement. Therefore, it seems that personality characteristics do add an incremental value to student engagement, thus providing support for Hypothesis 4, which posited extraversion (sociability), conscientiousness (achievement orientation and orderliness) and neuroticism (emotional balance and negative emotionality) will make an incremental contribution to student engagement after controlling student demands and student resources.

## **Conclusions**

The main purpose of the present study was firstly, to determine significant demands and resources associated with student engagement, and secondly, establish the incremental



contribution that personality makes predicting student engagement among South African first-year students. The results highlighted the importance of cognitive demands and its negative effect on student engagement. Furthermore, the findings emphasised the importance of resources, particularly Support from lecturers and Opportunities for growth and development (which was found to be the only significant resource in the final step of the regression). This clearly indicates the importance and need for students to receive opportunities for growth and development in their studies.

Finally, the relationship with the personality characteristics included in the present study with relationship seems to be more complex. Although all the tested personality characteristics had significant correlations with student engagement and explained an additional 11% of the variance in student engagement, only Achievement orientation (a facet of Conscientiousness) was identified as a significant predictor of student engagement. This in turn emphasises the important role conscientiousness (diligence and willingness to work hard) plays in student engagement.

In total, the variables included in the regression analysis explained 38% of the variance in student engagement. This indicates that it is indeed worthwhile to study the impact of demands, resources and personality on students' engagement with their studies, and especially with regard to first-year candidates.

### **Limitations and recommendations**

The present study makes a valuable contribution to the field of Industrial and Organisational Psychology in general, and to student engagement research in particular. Nevertheless, certain limitations still need to be factored in.

Firstly, the current research followed a cross-sectional design. In other words, data were gathered only at a specific point in time, which implies that behaviour could not be measured over an extended period. The present study thus was restricted in determining cause and effect over a longer period. Therefore, a longitudinal design can be recommended for future studies and research in which data is gathered repeatedly on the same individuals over an extended period (Govindji & Linley, 2007).

Secondly, the characteristics of the student sample (i.e., first-year students) prevented the results from being generalised to other groups of students. To validate the results of this study further, it would benefit future studies to include in their sample students from different academic years.

Thirdly, this study only focused on students from a single university in the research sample. Forthcoming studies can include students across universities in order for the conclusions and findings to be generalised to other groups of university students.

Fourthly, the study utilised self-reported measures. The shortcoming is that participants' understanding and interpretation of the questions and rating scales may differ. Furthermore, the questionnaire is to be completed without support or supervision (Kamakura, 2011; Hoskin, 2012).

Fifthly, it can be assumed that only the engaged students participated in the present research, which may influence the results of the study.

Finally, the political situation of activism regarding free education, which the country and universities experienced, caused campuses to be closed during the data collection period. This may also have impacted the response rate of the research.

It is, furthermore, recommended that future studies include a wider variety of demands and resources in their research. The results of the present study also raised valid questions about the role personality plays in engagement. Following the results of the regression analysis, it must be pointed out that, although the final step explained an additional 11% of the variance in student engagement, the model in this step was not statistically significant. This may be due to several reasons, including possible multicollinearity (high correlations) between the personality dimensions, small sample size, and the fact that the individual *t*-test statistics and the overall *F*-statistic answer different questions. It is, therefore, recommended that future studies examine these issues to shed more light on the influence of the personality characteristics on student engagement.

## **Practical implications**

The results of the present study make an important contribution to the literature and the field of student engagement. Additional information has been made available on the impact that job demands, job resources and personality has on student engagement. These findings can benefit both the students and the university. The benefits for students may include higher engagement with their studies, finding a meaningful connection with their studies, learning to cope better with certain demands they may face, and improving academic performance.

On the other side of the coin, universities have a clearer understanding of the role that demands, resources and personality play and how supporting structures can improve the engagement levels of their students. The findings can also help universities develop possible supporting programmes or structures that could assist students in coping with various demands and daily challenges. More specifically, to reduce the effect of cognitive demands on students, the universities can implement interventions that could help students handle such demands successfully. This may ultimately improve students' performance and engagement. Universities can collaborate with lecturers to identify gaps and then provide students with more opportunities for growth and development in their work and studies. Finally, it is important that universities consider the significance of conscientiousness since this personality characteristic is clearly an important predictor of student engagement, particularly for first-year entries.

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## CHAPTER 3

### CONCLUSION, LIMITATIONS AND RECOMMENDATIONS

This final chapter provides the conclusions of the present study's general and specific objectives as presented in Chapter 1. Thereafter, the limitations are pointed out and recommendations made for the individual, university and future research.

#### 3.1 CONCLUSIONS

The conclusions to the present study focuses on the research objectives as set out in Chapter 1. The general objective of this research was to determine the influence of study demands and resources, and ascertain whether personality characteristics do make an incremental contribution to student engagement after controlling student demands and resources. Hereby the specific objectives of the study:

##### **First research objective**

The first objective of the present study was to determine how demands, resources, personality and engagement regarding students are conceptualised according to the literature. To understand demands and resources in this study, definitions were used from the work context and according to the Job Demands-Resources (JD-R) model.

**Job demands** was described as the characteristics of individuals' job, namely the physical, mental, social or organisational aspects that require their continuous emotional, physical and intellectual energy and effort (Bakker & Demerouti, 2007; Bakker, Demerouti, & Schaufeli, 2003; Bakker, van Veldhoven & Xanthopoulou, 2010; Bakker, Demerouti & Sanz-Vergel, 2014).

**Job resources** was defined as the physical, emotional, social and organisational aspects of a job that help individuals perform, and achieve their goals, as well as reduce the effects of job demands and increase learning and development (Bakker & Demerouti 2007; Bakker, Demerouti & Schaufeli, 2003; Bakker et al., 2010; Bakker et al., 2014).

**Student engagement** was conceptualised as a continual, enduring motivational state of success and accomplishment that a student possesses, which also contains vigour, dedication and absorption (Schaufeli & Salanova, 2007; Schaufeli, Salanova, Gonzales & Bakker, 2002). Engagement, in general, can thus be considered as a construct describing an intrinsic quality of an individual that implies effort, concentration and the readiness and willingness to learn (Asghar, 2014; Newmann, Wehlage & Lamborn, 1993).

**Personality** was defined as the unique pattern of an individual's feelings, thoughts and behaviour that continue over a period and through various situations (Louw, 2014; Morris & Maisto, 2012). Researchers further describe personality as a dynamic process that influences individuals' behaviour patterns and functions in a social and work context (Louw, 2014; Costa & McCrae, 2000; Goldberg, 1990). In this sense, personality entails an individual's specific set of stable, enduring and continuous long-term tendencies of thinking, feeling and behaving in certain ways (Conner & Silvia, 2015; Fleeson, 2001; Oldham & Morris, 2012; Saucier, Thalmayer & Bel-Bahar, 2014). It was also found that individuals' personality influences their decision-making and the way they solve problems (Potgieter & Coetzee, 2013).

## **Second research objective**

The second objective was to determine whether student demands are significant and negative predictors of student engagement. Regarding the relationship between student demands and student engagement, the results of the study were produced by the multiple regression analysis.

- Step 1: The product-moment correlations pointed out that both the demands measured in the present study (Pace and amount of work and Cognitive demands) had a statistical significant negative effect with engagement.
- Step 2: These demands were added in the following step of the regression analysis (after controlling for socio-demographic variables in the first step of the regression). The results showed that the mentioned demands produced a statistically significant model, accounting for an additional 6% of the variance in engagement. It was,

however, found that only one demand (Cognitive demands) was a significant predictor of engagement in the regression analysis.

- Step 3: Cognitive demands still remained a significant predictor for engagement in the third step of the regression, after student resources were added.
- Step 4: These form of demands, however, became insignificant as a predictor of engagement in the final step of the regression analysis, after personality characteristics were added.

The above-mentioned results underlined the importance of strenuous cognitive demands and its negative effect on student engagement. The results of the study are also in line with previous research and the literature, which indicated that Cognitive demands are associated in a negative relationship with engagement (Boswell, Olson-Buchanan & LePine, 2004; Cavanaugh, Boswell, Roehling & Boudreau, 2000; Yusoff, Rahim & Yaacob, 2010). Cognitive demands can also be seen as a job or work challenge, which can deplete a person's energy (Boswell, Olson-Buchanan & LePine, 2004; Cavanaugh, Boswell, Roehling & Boudreau, 2000).

Furthermore, research indicated that Cognitive demands has a positive relationship with the health impairment process, as proposed by the JD-R model, which suggests that it may lead to certain health symptoms such as emotional exhaustion and anxiety (Lepine, LePine, & Jackson, 2004; Podsakoff, LePine & LePine, 2007). In a study conducted on a sample of Malaysian medical students, the researchers found that when students experience difficulty to understand the content of their work, and are unable to answer questions in class, it can also be considered as cognitive demands and these difficulties may lead to anxiety and disengagement (Yusoff, Rahim and Yaacob, 2010). According to the results for student demands and engagement, it can be concluded that study demands only have a partially negative effect on student engagement.

### **Third research objective**

The third objective was to determine whether student resources are significant and positive predictors of student engagement. The results of the product-moment correlations showed that all the resources included in the present study (Support from family, Support from

lecturers, Support from friends, and Opportunities for growth and development) were statistically significant and all related significantly and positively to engagement. The results indicated that Lecturer support ( $r = 0.28$ ) and especially Opportunities for growth and development ( $r = 0.45$ ) had the strongest correlations with student engagement. In the third step of the regression analysis, these resources were added. With the addition of resources, it produced a statistically significant model and accounted for an extra 17% of the variance in engagement. This underlines the importance of resources in the prediction of student engagement (considering that only four resources were included).

However, the only significant resources of engagement in the regression analysis were Support from lecturers ( $\beta = 0.11$ ) and Opportunities for growth and development ( $\beta = 0.36$ ). In the fourth and final step of the regression analysis, Opportunities for growth and development ( $\beta = 0.27$ ) was found to be the only resource to be a significant predictor of student engagement. In all the stages of the analysis, Opportunities for growth and development was found to be a significant predictor of student engagement.

These results are in line with previous studies and in accordance with the literature. Studies conducted within the work context showed that resources and employee engagement are related positively (Bakker, Hakanen, Demerouti & Xanthopoulou, 2007; Bakker, Demerouti & Euwema, 2005; Crawford, LePine & Rich, 2010). Furthermore, it was also found that resources function as the most important predictor of learning, commitment, work enthusiasm and engagement (Bakker et al., 2010). Previous studies had significant findings on the relationship between Support from lecturers and student engagement. If a person receives performance feedback and also has a supportive supervisor, or in the academic context a helpful lecturer, this may increase the possibility that goals would be achieved and improve chances of success (Bakker, Albrecht & Leiter, 2011). The reason may be that proper feedback can foster learning and growth (Bakker & Demerouti, 2008). This can ultimately increase people's capability to do their work (Bakker & Demerouti, 2008).

Particularly in the academic context, it was found that students are able to complete their studies successfully due to proper feedback from a lecturer (Ouweneel, LeBlanc & Schaufeli, 2011). A study amongst 12 359 employees across various organisations (Bakker, Van Veldhoven & Xanthopoulou, 2010) clearly indicated that when individuals receive good

feedback on their performance and are provided learning possibilities and career opportunities, it can satisfy their need for competence and help them achieve work goals.

Of the resources included in the present study, the results indicated that Opportunities for growth and development played the most significant role in predicting student resources. This emphasises the importance of opportunities for growth and development for students. Research indicated that when people are afforded the opportunity to develop and grow professionally, they are intrinsically more motivated to achieve their goals (Bakker and Demerouti, 2007). This may be because opportunities for growth and development can fulfil individuals intrinsically (Schaufeli & Bakker, 2004), and thereby improve performance in their job (Bakker, 2009). This resource can also be described as a motivator for individuals to put more effort into their work (Gagné & Deci, 2005). Opportunities for growth and development was also found to enhance individuals' abilities, curiosity and thoroughness (McCauley, Ruderman, Ohlott, & Morrow, 1994). In the academic context, the extent of autonomy that students have in their studies as well as the opportunity for growth and development, can influence their wellbeing and other psychological states such as meaningfulness, knowledge and responsibility (Mokgele & Rothmann, 2014).

Support from family and Support from friends were found to be not as significant predictors in the regression analysis. This finding, however, is contrary to previous research and the literature on the relationship of these resources with engagement. Previous studies indicated that the support which students receive from their family and friends have an important influence on performance during their studies and on their academic engagement (Christenson & Thurlow, 2004; Yang, 2008).

Yang (2008) conducted a study on the academic achievement of school learners. The results clearly showed that the support from friends impacts students' academic achievement and engagement significantly. The reason is that such support influences their daily performance and the behaviour they display at school. It has also been found that when students' parents are actively involved in their lives, it may lead to better academic achievement (Yang, 2008). According to the results of the study in terms of the objective, it can be concluded that student resources only have a partially positive relationship with student engagement.

#### **Fourth research objective**

The present research's fourth objective was to determine whether personality dimensions are significant predictors of student engagement. These dimensions include: Extraversion (Sociability), Conscientiousness (Achievement orientation and Orderliness) as well as Neuroticism (Emotional balance and Negative emotionality). The product-moment correlations of the study indicated that all the personality dimensions that were included did in fact have a significant relationship with engagement. Achievement orientation ( $r = 0.51$ ), Orderliness ( $r = 0.43$ ), and Emotional balance ( $r = 0.35$ ) in particular, had a strong relationship with engagement. After controlling for the socio-demographic variables of student demands and student resources (in the fourth and final step of the regression analysis), only one personality characteristic was found to be a significant predictor of student engagement. The characteristic was Achievement orientation (a facet of Conscientiousness). This result corresponds with those of previous studies and the literature, and it indicates the importance of conscientiousness with regard to engagement.

Achievement orientation plays a valuable role in students' study habits and engagement (Chamorro-Premuzic & Furnham, 2003; McCrae & Costa, 2003; Rosander & Bäckström, 2014). This characteristic was also found to be the strongest predictor of engagement in other studies as well (Inceoglu & Warr, 2011). When individuals show the need to achieve, or are achievement oriented, they have the aspiration to accomplish challenging tasks and the willingness to put effort into their work (McClelland, 1985). According to Maurice Kerrigan Africa (2013), someone who is achievement oriented knows and understands the importance of continuous learning, development and improvement. It is assumed that when students are achievement oriented, it will also influence their academic achievement (Abolmaali, Rashedi & Ajilchi, 2014). Interestingly, a study by Moneta (2011) amongst 226 undergraduate students of a university in London, found that the need to achieve is also negatively related to burnout.

Previous research indicated that personality can motivate learning and impact students' academic performance (Abolmaali, Rashedi & Ajilchi, 2014). In the present study, the characteristics of Extraversion and Neuroticism were, however, not found to be significant predictors of engagement. This finding is contrary to previous research on these topics. Researchers found that both engagement and Extraversion contain dimensions of energy and

activity. Therefore, it can be assumed that Extraversion and engagement are related positively (Langelaan, Bakker, Van Doornen & Schaufeli, 2006; Sulea, Van Beek, Sarbescu, Virga & Schaufeli, 2015; Zecca, Györkös, Becker, Massoudi, de Bruin & Rossier 2015). People who rate high on Extraversion are more inclined to experience positive emotions. This can help them build personal resources, which ultimately can contribute to their engagement (Fredrickson, 1998; Sulea et al., 2015). Those individuals who rate high on the sociability dimension of Extraversion are characterised as being confident to connect and communicate with others. They are also able to build important connections and networks in their working environment, which in turn can help them advance in their careers (Bezuidenhout, 2011; Potgieter & Coetzee, 2013). Individuals with these characteristics are also more inclined to seek feedback in order to reach their goals and perform better (Bezuidenhout, 2011; Potgieter & Coetzee, 2013).

Regarding the personality characteristic of Neuroticism, research found that neurotic individuals have a reduced level of work engagement (Nilforooshan & Salimi, 2016). A possible explanation is that this negative characteristic can reduce people's self-confidence and thereby influence their work engagement negatively. This is because this characteristic was found to be associated strongly with low self-confidence, anxiety, stress, depression, pessimism and negative thoughts and feelings (Aluja, Kuhlman, & Zuckerman, 2010; Nilforooshan & Salimi, 2016). Individuals who rate high on Neuroticism may also be less enthusiastic to embrace new opportunities and fail to see the need to grow and develop (Nilforooshan & Salimi, 2016).

In conclusion, the present study, however, only found limited support that Extraversion (Sociability), Conscientiousness (Achievement orientation and Orderliness) and Neuroticism (Emotional balance and Negative emotionality) are significant predictors of student engagement.

### **Fifth research objective**

The fifth objective of the study was to determine whether personality dimensions contribute incrementally to student engagement, after controlling for student demands and student resources. These personality dimensions are: Extraversion (Sociability), Conscientiousness (Achievement orientation and Orderliness), and Neuroticism (Emotional balance and

Negative emotionality). Based on the results in the fourth and final step of the regression analysis, after controlling for demands and resources, this step explained an additional 11% of the variance in engagement. Therefore, from the results it is evident that the personality characteristics used in the present study do make an incremental contribution to student engagement.

### **Sixth research objective**

The sixth and final objective of the present study was to determine which recommendations could be made for future research and practice. This objective is discussed in the following section.

## **3.2 LIMITATIONS OF THE RESEARCH**

The results of the study make a valuable contribution to the field of Industrial and Organisational Psychology in general, and to research on student engagement in particular. Nevertheless, the following limitations should be taken into consideration.

Firstly, the present research was cross-sectional in nature. This means that data gathering only occurred at a specific point in time and that the behaviour of participants could not be measured over an extended period. The present study is thus restricted in determining any cause and effect, and only relies on the assumption of association (Friedman, 2014). For these reasons a longitudinal design can be recommended for future studies (Friedman, 2014; Govindji & Linley, 2007).

Secondly, the sample of the study only consists of first-year students. This prevents researchers to generalise the results to other groups of students. It is, therefore, suggested for further validation of the results, that future studies include students from different academic years.

Thirdly, the present study only targeted students from a single university in the research sample. Future studies should consider including participants from other universities. In this sense, the conclusions and results can be generalised to other groups of university students.



Fourthly, this study may have been influenced by common method bias (Friedman, 2014). According to Kamakura (2011), this bias is a well-documented phenomenon that is observed in research based on self-reported measures. The present study did utilise self-reported measures to collect data. The deficiency of using self-reported measures is that participants' understanding and interpretation of the questions and rating scales may differ (Kamakura, 2011; Hoskin, 2012). Furthermore, participants may have the desire to answer consistently when given a self-reported measure (Podsakoff, MacKenzie, Lee & Podsakoff, 2003). Students' response styles may also differ and the need for social desirability could also have influenced the results (Kamakura, 2011).

Fifthly, it was assumed that only the engaged students participated in this study. The reason for this assumption is that engaged students are usually those who are willing to put in the extra effort, participate in activities, be more involved and have a positive attitude towards learning and growth (Trowler, 2010). Such an assumption may also have influenced the results of the study.

Sixthly, the political activism demanding free education which the country and universities experienced during 2016, resulted in violent protests. As a result, several campuses were closed during the last week of the data-collection period. This could also have impacted the response rate of the study. During that time, students may have had limited access to computers in order to participate (seeing that the study was conducted electronically), or they may have been part of the protest actions. Furthermore, during these times students may have experienced low morale and felt disengaged, which discouraged them to participate in this research.

Finally, there is a limitation related to the results of the multiple regression analysis. Although the final step explained an additional 11% of the variance in student engagement, the model in this last step was not statistically significant. This may be due to several reasons, including possible multicollinearity (high correlations) between the personality dimensions, a small sample size, and the fact that the individual *t*-test statistics and the overall *F*-statistic answered different questions. It is, therefore, recommended that future studies address these issues in order to shed more light on the influence of the personality characteristics on engagement (and in particular, that of students).

### **3.3 RECOMMENDATIONS**

Despite the limitations mentioned above, this study also offers valuable recommendations for the individual (students), universities and for future research.

#### **3.3.1 Recommendations for the individual (students)**

It is clear that demands, resources and personality characteristics of individuals can influence their study engagement. Thus, it is recommended that students must be made aware of this factor, as well as the demands, resources and personality characteristics that may impact their own study engagement. Such an awareness can help students find ways to deal and cope with certain strenuous demands they encounter during their first year of studies.

#### **3.3.2 Recommendations for universities**

In delivering opportunities for growth and development, universities can ensure lecturers provide students with insightful work, create a comfortable atmosphere and study environment, and include challenging tasks in their studies (Isaksson, 2006; Isaksson, Bernhard, Claes, De Witte, Guest, Krausz, Mohr, Peiró & Schalk, 2003; Van der Vaart, 2012). It is also suggested that students be given the freedom of choice regarding their learning methods, plans and goals (Wolfensberger & Offringa, 2012). Concerning feedback from lecturers on assignments and tests, a suggestion could be that both the students and lecturers should agree mutually on a marking or assessment deadline. This can reduce anxiousness amongst students (particularly those in their first year). Lecturers must also be available and willing to assist their students with possible questions or difficulties which they may encounter during the semester and in their courses.

Interventions could also be made to help students deal with the various demands. This could be done with the ultimate goal to help students reduce the possible negative effect of demands on their engagement, and thereby increase academic achievements. Possible demands that students may experience and face during their first year of studies, should, therefore, first be identified, after which applicable interventions should be designed, developed and implemented accordingly. This can be done by conducting surveys or interviews. Supporting systems such as counselling services should also be made available to

students. These may include psychometric and personality testing, which may facilitate better self-understanding for students. Through guidance together with a professional, students can find and explore ways to adapt successfully to their first year of studies.

### **3.3.3 Recommendations for the field of Industrial Psychology**

This study and the results thereof can also be of value to the field of Industrial Psychology, especially Career Psychology. Research shows that a direct link exists between career guidance services and career development (which forms part of Industrial Psychology) and ultimately an individual's job satisfaction (Vuolo, Staff & Mortimer, 2012). Career development emphasises the importance that a good fit must be found between a person's needs, abilities, experiences and rewards that can be found in certain occupations. In order to find this fit, and because career choice and development is a crucial and life long process, career development suggests vocational assessment and if so found, a person can then further their education at a variety of tertiary institutions, including university (Vuolo, Staff & Mortimer, 2012). Vocational assessment is very important, especially at university level, to ensure that they are indeed in the correct study field.

The results of this study can be used by Industrial Psychologist and Career Psychologists to understand how a student's personality, demands and resources influence their engagement, because these students will soon enter the workforce and are thus prospective employees (Bridgstock, 2011). Industrial Psychologists and Career Psychologist can work together with universities in order to propose techniques to help students cope with their demands in the academic context and thus help them to deal better with it once they enter the workplace. This may include for example transition programs and other student-centred activities. This can therefore also form part of career counselling.

### **3.3.4 Recommendations for future research**

Future research on the topic can utilise a longitudinal design. Such a design collects data over an extended period. Therefore, it will be possible to learn more about the cause and effect of relationships (Badmus, Okonkwo & Okoh, 2012; Farrington, 1991; Govindji & Linley, 2007). Further advantages of a longitudinal design are that this type of studies is flexible, usually high in validity and can observe changes accurately (Farrington, 1991). In addition,

future researchers can employ of a mixed-method design. This is recommended since this method combines qualitative and quantitative research techniques and approaches, which can produce richer data, results and interpretations (Johnson & Onwuegbuzie, 2004).

The results of the present study also suggest that the relationship between the two types of support (from family and from friends) also need to be investigated further in future studies. It can, therefore, be valuable to include more demands, resources and personality characteristics in a research. Further research can also be conducted on personality characteristics and its role in engagement.

Finally, it can be recommended that this study be replicated across other universities, year groups and countries. Results will then be richer and could be generalised to other contexts and applied globally to develop a possible standardised instrument.

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## Appendix A

### Results of standardise loadings of the measurement models

**Table 5**

*Results of Standardised loadings for engagement as a one-factor model*

Factor	Item	Loading	S.E.	<i>p</i>
<b>Engagement</b>	Dedication1_R	0.66	0.03	0.001
	Dedication3_R	0.81	0.02	0.001
	Dedication4A_R	0.85	0.01	0.001
	Dedication5B_R	0.83	0.02	0.001
	Dedication6_N	0.60	0.03	0.001
	Dedication7_N	0.63	0.03	0.001
	Vigour2_R	0.68	0.03	0.001
	Vigour2A_N	0.73	0.02	0.001
	Vigour3C_N	0.86	0.01	0.001
	Vigour4_R	0.77	0.02	0.001
	Vigour5B_R	0.70	0.02	0.001

Notes: S.E. = Standard error; All *p*-values <0.001

The results in table 1 indicate that all of the items loaded significantly on to engagement ( $p < 0.001$ ). Specifically, the highest factor loading was shown to be for the item Vigour3C\_N (0.86; ‘I feel energized by my studies’). The lowest factor loading was for the item Dedication7\_N (0.63; ‘I am a dedicated student’). In addition to these results, all the standard errors are small which indicate accurate estimations.

**Table 6**

*Results of Standardised loadings for engagement as a two-factor model*

Factor	Item	Loading	S.E.	<i>p</i>
<b>Dedication</b>	Dedication1_R	0.63	0.03	0.001
	Dedication3_R	0.82	0.02	0.001
	Dedication4A_R	0.87	0.01	0.001
	Dedication5B_R	0.83	0.02	0.001
	Dedication6_N	0.62	0.03	0.001
	Dedication7_N	0.62	0.03	0.001
<b>Vigour</b>	Vigour2_R	0.66	0.03	0.001
	Vigour2A_N	0.73	0.02	0.001
	Vigour3C_N	0.88	0.01	0.001
	Vigour4_R	0.80	0.02	0.001
	Vigour5B_R	0.71	0.02	0.001

Notes: S.E. = Standard error; All *p*-values <0.001

As can be seen from the results in table 2, all of the items loaded significantly on to engagement ( $p < 0.001$ ). Specifically, the highest factor loading was shown to be again for the item Vigour3C\_N (0.88; ‘I feel energized by my studies’) and if not rounded off to the nearest two decimal, the lowest loading was for item Dedication6\_N (0.615; ‘My studies are

important to me'). Furthermore, all the standard errors in the table are small which indicate accurate estimations.

**Table 7**

*Results of standardise loadings of job demands and resources*

<b>Factor</b>	<b>Item</b>	<b>Loading</b>	<b>S.E.</b>	<b><i>p</i></b>
<b>Engagement</b>	Dedication1_R	0.66	0.04	0.001
	Dedication3_R	0.80	0.03	0.001
	Dedication4A_R	0.85	0.02	0.001
	Dedication5B_R	0.83	0.02	0.001
	Dedication6_N	0.60	0.04	0.001
	Dedication7_N	0.62	0.04	0.001
	Vigour2_R	0.70	0.03	0.001
	Vigour2A_N	0.71	0.03	0.001
	Vigour3C_N	0.87	0.02	0.001
	Vigour4_R	0.77	0.02	0.001
	Vigour5B_R	0.69	0.03	0.001
<b>Pace and Amount</b>	Pace and amount1	0.61	0.04	0.001
	Pace and amount2	0.72	0.03	0.001
	Pace and amount3	0.55	0.04	0.001
	Pace and amount4	0.59	0.04	0.001
	Pace and amount5	0.47	0.05	0.001
<b>Emotional Load</b>	Emotional Load1	0.60	0.05	0.001
	Emotional Load2	0.50	0.05	0.001
	Emotional Load3	0.44	0.05	0.001
	Emotional Load4	0.51	0.04	0.001
<b>Cognitive Demands</b>	Cognitive Demands1	0.74	0.03	0.001
	Cognitive Demands2	0.50	0.04	0.001
	Cognitive Demands3	0.61	0.04	0.001
	Cognitive Demands4	0.42	0.05	0.001
	Cognitive Demands5	0.66	0.03	0.001
	Cognitive Demands6	0.72	0.03	0.001
<b>Social Support: Family</b>	Social Support: Family1	0.79	0.03	0.001
	Social Support: Family2	0.73	0.04	0.001
	Social Support: Family3	0.73	0.03	0.001
<b>Social Support: Lecturer</b>	Social Support: Lecturer1	0.74	0.03	0.001
	Social Support: Lecturer2	0.93	0.02	0.001
	Social Support: Lecturer3	0.81	0.03	0.001
<b>Social Support: Friends</b>	Social Support: Friends2	0.62	0.03	0.001
	Social Support: Friends3	0.77	0.03	0.001
	Social Support: Friends4	0.83	0.02	0.001
	Social Support: Friends5	0.86	0.02	0.001
<b>Opportunities to develop</b>	Opportunities1	0.57	0.06	0.001
	Opportunities2	0.74	0.05	0.001
	Opportunities3	0.76	0.05	0.001
	Opportunities4	0.61	0.06	0.001

Notes: S.E. = Standard error; All *p*-values <0.001

According to Table 5, concerning the results of demands and resources, all of the items loaded significantly on to engagement ( $p < 0.001$ ). The highest factor loading was shown to be for the item Social Support: Lecturer2 (0.93; ‘I receive help from my lecturers when difficulties in my course arise?’). The lowest factor loading however was Cognitive Demands4 (0.42; How often do you feel that it is difficult to keep your concentration in classes?’). All of the standard errors in the table are small which thus indicate accurate estimations.

**Table 8**

*Results of standardise loadings of the total model*

Factor	Item	Loading	S.E.	<i>p</i>
<b>Pace and amount of work</b>	Pace and amount1	0.61	0.04	0.001
	Pace and amount2	0.72	0.03	0.001
	Pace and amount3	0.54	0.04	0.001
	Pace and amount4	0.57	0.04	0.001
	Pace and amount5	0.49	0.04	0.001
<b>Cognitive Demands</b>	Cognitive Demands1	0.74	0.03	0.001
	Cognitive Demands2	0.51	0.04	0.001
	Cognitive Demands3	0.62	0.03	0.001
	Cognitive Demands4	0.41	0.04	0.001
	Cognitive Demands5	0.64	0.03	0.001
	Cognitive Demands6	0.72	0.03	0.001
<b>Support from family</b>	Social Support: Family1	0.79	0.03	0.001
	Social Support: Family2	0.73	0.03	0.001
	Social Support: Family3	0.73	0.03	0.001
<b>Support from lecturer</b>	Social Support: Lecturer1	0.73	0.02	0.001
	Social Support: Lecturer2	0.93	0.02	0.001
	Social Support: Lecturer3	0.81	0.02	0.001
<b>Support from friends</b>	Social Support: Friends2	0.63	0.03	0.001
	Social Support: Friends3	0.77	0.02	0.001
	Social Support: Friends4	0.83	0.02	0.001
	Social Support: Friends5	0.86	0.02	0.001
<b>Opportunities for growth and development</b>	Opportunities1	0.57	0.04	0.001
	Opportunities2	0.74	0.03	0.001
	Opportunities3	0.75	0.03	0.001
	Opportunities4	0.61	0.04	0.001

Notes: S.E. = Standard error; All  $p$ -values  $< 0.001$

The results in Table 7 show that all of the items loaded significantly on to engagement ( $p < 0.001$ ). Specifically the highest factor loading was shown to be for the item Social Support: Lecturer2 (0.93; ‘I receive help from my lecturers when difficulties in my course arise?’) and the lowest factor loading was for the item Cognitive Demands4 (0.41; How often do you feel

that it is difficult to keep your concentration in classes?’). In addition, all of the standard errors are small, which indicate accurate estimations in this study.