Testing a structural model for demands, resources, engagement and well-being of first-year university students

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COMMENTS

The following remarks are important to note:

- The editorial style as well as the references used in this mini-dissertation follow the format prescribed by the Publication Manual (6th ed.) of the American Psychological Association (APA). This practice is in line with the policy of the Programme in Industrial Psychology of the North-West University (Potchefstroom Campus) 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 is used as specified by the South African Journal of Industrial Psychology (which agrees largely with the APA style), whereas the APA guidelines were followed in referencing and constructing the tables.

DECLARATION

I, Khumbudzo Luruli, hereby declare that this dissertation titled **"Testing a structural model for demands, resources, engagement and well-being of first-year university students"** is my own work. Furthermore, the views and opinions expressed in this research study are my own and relevant literature references are indicated clearly as shown in the reference list.

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

Khumbudzo Luruli September 2019

WELLINGTON
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22 August 2019

TO WHOM IT MAY CONCERN:

I hereby confirm that the MA dissertation, *Testing a structural model for demands, resources, engagement and well-being of first-year university students,* by Ms K Luruli (student no: 25799940) was edited and groomed to the best of my ability. The processing included recommendations to improve the language and logical structure, guide the line of argument as well as to enhance the presentation. I am satisfied that, provided my changes to the text and my recommendations are implemented, the language would be of a standard fit for publication.

Rev Claude Vosloo
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LIST OF TABLES

ABSTRACT

Title: Testing a structural model for demands, resources, engagement and well-being of first-year university students

Key terms: study demands, study resources, study engagement, well-being, first-year university students

The constructs of *job demands*, *job resources* as well as *engagement* and *well-being* are conceptualised well in literature. Extensive research is available on these constructs in the broader sense of the working environment. However, research is limited regarding first-year students, more especially within the South African context. The present research focused specifically on first-year students at a South African university, testing the following constructs: *study demands*, *study resources* as well as *student engagement* and *well-being*. The first year at university can often be a difficult phase where students make the transition from a secondary educational institution to the university environment. Therefore, it is vital to investigate the probable predictors of student engagement and success. Information gathered on the influence which study demands and resources have on the engagement and well-being of first-years, could help students and the university improve engagement levels, thus increasing these students' well-being and success.

The objective of this research was to determine significant demands and resources linked to fist-year students' engagement and well-being. The research investigated how first-year students' well-being is affected by variations of demands and resources, also when engagement is a mediating factor. Further investigations determined the strength and nature of the relationships between these constructs. The aim of this study was thus to gain a better understanding of the role these constructs play in the life of first-year students in South Africa, as well as the influence of the university environment on student engagement and well-being.

A quantitative research approach was followed by using a stratified random sample design, which comprised first-year students at a tertiary institution (N = 773). Product-moment correlations were used to determine the relationships between the constructs. Structural equation modelling was used to analyse the data and test a structural model. The results indicated that *study demands* have a negative relationship with student engagement, although

only academic results confirmed this relationship in the structural model. The findings indicated further that *study resources* have a positive relationship with student engagement. Through regression analysis, only lecture support and autonomy confirmed the mentioned positive relationship. Personal relationship problems with social and psychological well-being confirmed a negative relationship between study demands and well-being. A positive relationship was confirmed between study resources and well-being by friend support with the various types of well-being; family support with emotional well-being; and autonomy with psychological well-being. In the final phase, engagement was found to mediate the relationship between study demands and well-being negatively, and the relationship between study resources and well-being in a positive sense.

Finally, conclusions were drawn from the findings, limitations were discussed and recommendations made for future research and practice.

OPSOMMING

Titel: Toetsing van ’n strukturele model vir studie-eise, -hulpbronne asook betrokkenheid en welsyn van eerstejaar-universiteitstudente

Sleutelbegrippe: studie-eise, studiehulpbronne, studiebetrokkenheid, welsyn, eerstejaar-universiteitstudente

Die konstrukte, *werkeise*, *werkhulpbronne* asook *betrokkenheid* en *welsyn* word deeglik in die literatuur uiteengesit. Uitvoerige navorsing is beskikbaar oor hierdie konstrukte in ’n breër sin binne die werkomgewing. Tog is slegs beperkte studie oor eerstejaarstudente onderneem, in die besonder binne ’n Suid-Afrikaanse konteks. Die huidige navorsing was veral gerig op eerstejaarstudente aan ’n Suid-Afrikaanse universiteit waar die volgende konstrukte getoets word: studie-eise, -hulpbronne asook studente se betrokkenheid en welsyn. Die eerste jaar op universiteit kan dikwels ’n moeilike fase wees, aangesien studente die oorgang van ’n sekondêre onderwysinstelling na ’n universiteitsomgewing moet maak. Gevolglik is dit noodsaaklik om moontlike voorspellers van studentebetrokkenheid en -sukses te ondersoek. Verkrygde inligting oor die invloed wat studie-eise, en -hulpbronne uitoefen op eerstejaars se betrokkenheid en welsyn, kan hierdie studente asook die universiteit help om vlakke van betrokkenheid te verhoog en sodoende dié studente se welsyn en sukses te verbeter.
Die doel van hierdie navorsing was om vas te stel of betekenisvolle eise en hulpbronne aan eerstejaarstudente se betrokkenheid en welsyn gekoppel kan word. Die navorsing het ondersoek hoe eerstejaarstudente verskeie soorte eise of hulpbronne teëkom en hoe dit hulle welsyn raak, ook wanneer betrokkenheid as bemiddelende faktor geld. Verdere ondersoeke het die sterkte en aard van die verbande tussen die genoemde konstrukte vasgestel. Hierdie studie se doel was dus om beter begrip te vorm van die rol wat hierdie konstrukte binne die lewe van eerstejaarstudente binne Suid-Afrika speel en hoe die universiteitsomgewing ook hierop inspeel.

’n Kwantitatiewe navorsingsbenadering is gevolg deur ’n gestratifiseerde, ewekansige steekproef te neem uit eerstejaarstudente aan ’n tersiêre instelling *(N = 773)*. ’n Strukturele vergelykende model is gebruik om die data te ontleed en produkmoment-korrelasies toegepas om die verhouding tussen die konstrukte vas te stel. Die resultate dui daarop dat studie-eise ’n negatiewe verhouding met studentebetrokkenheid toon, hoewel slegs akademiese resultate

hierdie verhouding bevestig het. Voorts is bevind dat studiehulpbronne ’n positiewe verhouding met studentebetrokkenheid toon. ’n Regressie-analise het aangetoon dat slegs dosente-ondersteuning en selfstandigheid die genoemde positiewe verhouding bevestig. Daarby het persoonlike verhoudingsprobleme saam met sosiale en sielkundige welsyn ’n negatiewe verhouding tussen studie-eise en welsyn bevestig. Daar is ’n positiewe verhouding uitgewys tussen studiehulpbronne en welsyn deur vriende-ondersteuning met verskeie vorme van welsyn te koppel; familie-ondersteuning met emosionele welsyn; en selfstandigheid met sielkundige welsyn. In die finale fase is gevind dat betrokkenheid die verhouding tussen studie-eise en welsyn negatief, en dié tussen studiehulpbronne en welsyn positief bemiddel.

Laastens is slotsomme uit die bevindings gemaak, beperkings bespreek en aanbevelings vir toekomstige navorsing en die praktyk gemaak.

CHAPTER 1

INTRODUCTION

The purpose of this mini-dissertation was to investigate the relationships between study demands, study resources, engagement and well-being of first-year students at a higher education institution, by testing a structural model. In this regard, the present study focused on factors that may influence students' first-year experiences at university.

Chapter 1 frames the problem statement, which describes the background of the study, followed by the prominent literature on first-year students' experiences at a higher education institution, especially regarding their study demands, study resources, engagement, and well-being. Additionally, this chapter outlines the theoretical framework utilised in this study, namely the Job Demands-Resources model. Based on the problem statement, the research questions are formulated as well as the research objectives, which can be divided into general and specific objectives. Thereafter, the research design and research method is described and discussed; and finally, an overview given of the chapters that structure this mini-dissertation.

1.1. PROBLEM STATEMENT

Prior to presenting and discussing the problem statement, an overview is given of the background of developments in the research field that prompted the present study.

1.1.1. Background to the study

In the current fast-paced and rapidly changing work environment, employees in organisations experience exhausting job demands. Therefore, they need job resources to help them keep abreast with the demands that confronts them (Lee, 2012). As a result, the outcomes of employees' well-being and engagement practices have attracted extensive attention in research (Bakker & Demerouti, 2018; 2017; Robotham & Julian, 2006). With reference to developing future employees for the workforce, similar influences apply to students entering higher

education institutions (Wisse, Van Eijergen, Rietzchel, & Scheibe, 2018). According to Pascarella, Pierson, Wolniak, and Terenzini (2004), first-year students who are in transit from secondary institutions to tertiary institutions appear to experience noticeable difficulties with basic knowledge about their challenges in the new demanding environment. This implies the context where a new chapter of their lives is set to begin. Additionally, Kuh (2001) points out that for first-years leaving home for the first time, the first few months of the new tertiary environment can be likened to being in a foreign land.

Previous research has suggested that South African Higher Education Institutions (HEIs) should dedicate effort and suitable resources to first-year students (Leibowitz, Van der Merwe, & Van Schalkwyk, 2009). After the student protests in 2015 and 2016, Nyamupangedengu (2017) remarked that HEIs need to dedicate pertinent resources to various issues that impact first-year students' success. This entail issues such as lack of transformation, relevance of the curriculum, as well as the routine through which lecturers convey their curricular. In addition, first-year students encounter various other challenges such as language barriers, social adaptation, inefficient study skills, adaptation to lecturing pace, and the academic writing required of them (Awino & Agolla, 2008; Ongori, 2007).

Extensive research has been done on the transition from an institution of secondary to tertiary education (e.g. Bowles, Dobson, Fisher & McPhail, 2011; Briggs, Clark & Hall, 2012; Jacobs & Jacobs, 2013; Kift, 2009). Therefore, research has highlighted crucial challenges to first-year students. The more prevalent issues are language barriers and social adaptation. The reason is that most students may lack self-confidence to engage fluently in English, which is portrayed as the language universal communication (Anderson, 2013). Additionally, due to these overwhelming demands, there may be unfavourable outcomes for first-year students. Such outcomes may entail stress, burnout, deficient academic performance, disengagement, ill-being as well as the intention to and actual drop out of university (Ahern & Norris, 2011; Pillay & Ngcobo, 2010).

HEIs play a significant role in developing future-generation leaders and employees who will contribute to the world of work and maintain the country's economic health. It is therefore vital to take care of students' well-being as a crucial factor in predicting student success (Lopez &

Louis, 2009) and career success as future employees (Agolla & Ongori, 2009; Fredrickson & Losada, 2005). Additional studies have shown that students' well-being at HEIs does impact their well-being in a future workplace.

The context of organisations is vibrant, constantly changing, and driven by competitiveness. In such a setting, students, at this phase in their lives viewed as young graduates, are expected to be more proactive, innovative and creative. They must show initiative for their own professional development, whilst continuously learning and updating their set of knowledge and skills (Mostert & Els, 2012). Habitually, as these graduates enter the world of work, they experience a sense of being overpowered by intense job demands, which they struggle to balance with their personal lives. As a result, these new entrants are at high risk of burnout, disengagement, poor physical health and potentially psychological ill-health. Therefore, it is essential to focus on first-year students' well-being from the onset. Such an approach will help ensure their health is nurtured and well-being enhanced throughout their university period before entering the world of work (Mostert & Els, 2012).

In recent decades, wide-spread research has been done on well-being (e.g. Keyes, Schmotkin, & Ryff, 2002; Seligman, 2011; Stratham & Chase, 2010). To comprehend this construct, it is essential to recognise its historical background. Odge, Daly, Huyton and Sanders (2012) distinguish two approaches that have emerged in research on well-being:

- *Hedonic*: accentuates concepts such as happiness, positive affect, low negative affect as well as satisfaction with life (Bradburn, 1969; Diener, 1984).
- *Eudaimonic:* emphasising positive psychological functioning and human development (Rogers, 1961; Ryff, 1989).

In general, mental health can be understood as an evolving condition based on the concept of a syndrome. A state of health such as illness occurs when a set of symptoms (or factors) at a particular level are present for a specific period, and these factors correspond with an individual's distinctive cognitive and social functioning (Keyes, 2014; Keyes 2001; Mechanic, 1999). In the past 40 years, researchers have conceptualised, assessed and studied the measurement structure of mental health by investigating subjective well-being (Headley, Kelley, & Wearing, 1993; Keyes, Shmotkin, & Ryff, 2002).

Subjective well-being can be viewed as individuals' insights and evaluations of their own lives by focusing on their affective condition as well as psychological and social functioning (Keyes & Waterman, 2003). Furthermore, subjective well-being measures the presence of positive, and the absence of negative functioning in life (Keyes, 2002). In other words, it entails individuals' assessment of their life's positive quality based on aspects such as their experiences, accomplishments and interactions, and other pertinent means of functioning in life (Ryff, 1989). In line with this conceptualisation, positive functioning consists of six dimensions of psychological well-being, namely self-acceptance, positive relations with others, personal growth, purpose in life, environmental mastery, and autonomy (Keyes & Ryff, 1999 review).

Since Ryff's (1989) operationalisation of positive functioning, the study field has shifted towards a more specific conceptualisation of subjective well-being. Keyes (2002) has done significant research to identify the characteristics of subjective well-being. It was pointed out that well-being follows two well-matched traditions: one focuses on feelings towards fulfilled life (*hedonic*) and the other emphasises functioning in life (*eudaimonic*) (Keyes, Shmotkin, & Ryff, 2002). Hedonic well-being links mental health to granted happiness in life and the experience of positive emotions. The hedonic approach exemplifies making the most of the amount or duration of positive, pleasant feelings, whilst reducing the negative, unpleasant feelings in the process (Keyes, Wissing, Potgieter, Temane, Kruger, & Van Rooy, 2008). On the other hand, eudaimonic well-being associates mental health with human potential that, when realised, creates an outcome of positive functioning in life. Such an approach exemplifies the long-standing anxieties of developing promising abilities and capabilities to become a more fully functioning individual (Keyes et al., 2008).

In line with the reasoning above, Keyes (2002; 2005; 2007) developed a taxonomy that approaches the constructs of psychopathology and psychological well-being as two dissimilar, negatively correlated dimensions on a continuum of human functioning, which he terms the mental health continuum (MHC). Positive health and well-being consist of three core components, namely emotional, social, and psychological well-being (Keyes, 2014; Keyes & Haidt, 2003; Wissing, 2014). In essence, psychological and social dimensions of well-being

signify a functioning-well factor as observed from a eudaimonic perspective. Conversely, emotional well-being embodies feeling good – a more hedonic perspective of well-being (Keyes, 2014; Keyes & Haidt, 2003; Wissing, 2014).

Emotional well-being can be seen as a collection of factors that reflect the presence or absence of positive feelings regarding life. Characteristics of emotional well-being are determined from an individual's responses to structured scales that measure the presence of positive affect (e.g. individuals in good spirits), the absence of negative affect (e.g. individuals who are not hopeless), as well as perceived satisfaction with life (Keyes, 2002). Keyes (2014) thus conceptualises emotional well-being in terms of individuals who demonstrate positive emotions, show interest in life, and are satisfied with their daily existence.

Social well-being complies with the more public and social standards according to which individuals assess their functioning in life. Social aspects are: coherence, actualisation, integration, acceptance, and contribution (Keyes, 2002). In this view, individuals are functioning well when they view society as meaningful and understandable, or with potential for growth. Social well-being thus implies that individuals feel they fit in and are acknowledged by their communities. Furthermore, this form of well-being means individuals accept most fragments of their society and view themselves as contributing to this broader setup (Keyes, 2002).

From their side, individuals are functioning well when they appreciate most parts of themselves, have warm and trusting relationships and consider themselves as developing into better individuals. This means they have a direction in life, are capable of shaping their environments to satisfy their needs, and show a degree of self-determination (Keyes, 2002). Keyes (2014) therefore understands social well-being in terms of an individual who is functioning well within the broader structure of social interaction and integration.

Psychological well-being follows more private and personal standards applied to evaluate an individual's functioning. For Keyes (2014) psychological well-being incorporates characteristics of people functioning well on an individual level. These characteristics include

self-acceptance, autonomy, personal growth, positive relations, environmental mastery, and having a purpose in life. Furthermore, Robertson and Cooper (2011) view psychological well-being as essential for individuals in various ways. In this regard, increased psychological well-being can be correlated with positive outcomes such as life success, improved health, career success, and sounder relationships with others.

1.1.2. Stating the research problem

Various international studies have established the importance of well-being in general, but also specifically within the student context (Cooke, Melchert, & Connor, 2016; Soutter, O'Steen & Gilmore, 2014). Research proposes that students who experience a deeper sense of well-being are more able to acquire, absorb, and integrate information effectively. Such students are also more likely to show healthy and gratifying societal behaviours. Due to positive experiences, these students invest effort in their own and others' well-being. This effort influences their well-being as future adults where they fulfil their social, professional and leadership roles in the world of work (Awartani, Whitman, & Gordon, 2008).

Although student well-being was researched widely in recent years, limited studies could be found that apply Keyes's taxonomy, especially within the South African context. Therefore, the present study utilised Keyes's well-being taxonomy to determine the relationships between first-years' study demands, study resources, study engagement and well-being. To date, no other study could be found that examined these relationships in a sample of university first-year students.

Numerous models or theories can be used to explain factors associated with subjective well-being. One of the most well-known models in organisational psychology is the Job Demands-resources (JD-R) model. This model aims to explain the well-being of employees, as well as the correlated antecedents and consequences (Bakker & Demerouti, 2018; 2017; 2014). The JD-R model works from the assumption that, in spite of the sort of job, the psychosocial work characteristics of individual employees can be classified into two groups (Bakker & Demerouti, 2018; 2017; 2014):

- *Job demands:* those features of a job that entail sustained physical and/or psychological effort and thus are connected with corresponding physio-psychological costs.
- *Job resources:* the physical, psychological, social and organisational features of a job that may have the following effects: (a) decrease job demands along with the related physiological and psychological costs; (b) help achieve work goals; and (c) motivate personal growth, learning, and development within the organisation.

From the exposition above, it is apparent that job resources may provide *extrinsic* motivation in the work environment. The reason is that these resources are essential for employees to deal with job demands and to attain work goals. Additionally, by nourishing the fundamental psychological needs of autonomy, belongingness and competence, the job resources may also provide *intrinsic* motivation for employees.

Another basic presupposition of the JD-R model is that demands and resources initiate two further underlying processes, namely health-impairment and motivation. According to Bakker and Demerouti (2014), research has indicated that demands are distinctive indicators of negative outcomes such as exhaustion and health complaints; whereas resources are distinctive predictors of positive outcomes such as work enjoyment, motivation, and engagement. The motives for these distinctive effects can be inferred from the premise that job demands fundamentally require effort and consume energy resources, whereas job resources fulfil basic psychological needs such as autonomy, relatedness, and competence (Bakker & Demerouti, 2017; 2014; Mokgele & Rothmann, 2014; Salmela-Aro & Upadyaya, 2014).

In light of the discussion above, the current study focused primarily on the motivational process presented by the JD-R model, as applied to the student context. Thus, the study investigated the role of study engagement in the relationship between study demands, study resources and subjective well-being (including emotional well-being).

The emergence of positive psychology introduced the concept of work engagement in academic research. Prior, positive psychology focused on human malfunctioning with the corrective of human strengths and optimal functioning (Seligman & Csikszentmihalyi, 2000).

As corrective, work engagement was conceptualised as a positive, fulfilling, and work-related state of mind characterised by two core dimensions, namely vigour and dedication (Schaufeli & Bakker, 2004; Schaufeli, Martinez, Pinto, Salanova, & Bakker, 2002).

Vigour: typified by elevated levels of energy and persistence as well as mental resilience while working. This implies employees are willing to invest effort in the work they are involved in, and persist even in the face of difficulties (Schaufeli & Bakker, 2004; Schaufeli, Salanova, Gonzalez-Roma, & Bakker, 2002).

Dedication: typified by individuals' feeling of effective engagement with a sense of pride in their work. This includes a sense of significance, enthusiasm, inspiration, and challenge. Such a feeling is associated with individual employees' exceptionally strong psychological identification with their work (Schaufeli & Bakker, 2004; Schaufeli et al., 2002).

The concept of study engagement (or in certain cases, *student* engagement) was introduced in recent years and builds on aspects such as student involvement, time spent on a task, quality of effort given, social and academic incorporation, and good practices in undergraduate education. In this regard, scholars maintain that from a psychological perspective, students' core activities can be regarded as 'work' (Salanova, Schaufeli, Martínez, & Bresó, 2010). This means that like employees, students are engaged in structured and directive activities. These activities include doing assignments and attending classes, and are directed towards attaining a specific goal such as passing exams and obtaining a degree (Ouweneel, Le Blanc, & Schaufeli, 2011). Therefore, similar to work engagement, study engagement reflects positive outcomes, for example, feeling vigorous, dedicated to one's studies, and being absorbed in study-related activities (Schaufeli et al., 2002).

Study engagement in HEIs has become an important topic and has been researched widely recently, due to its strong relationship with positive outcomes of student learning such as academic performance, excellence, and student success (Cilliers et al., 2018; Gellin, 2003; Kuh, 1995; Pascarella & Terenzini, 2005; Salanova & Schaufeli, 2008; Shulman, 2002; Trowler & Trowler, 2010; Zhang, Hu, & Mcnamara, 2015). Conversely, although certain studies conceptualised and investigated study engagement in schools (Cothran & Ennis, 2000; Jonasson, 2012), limited research was conducted within the HEI setting, particularly the South

African context and specifically on first-year students (Zhang et al., 2015). The study of engagement in the student context is imperative since insufficient engagement translates into poor performance for students as well as the university (Robertson & Cooper, 2011).

International studies on study engagement point out that students' academic performance can improve when they are more engaged in their studies (Upadyaya & Salmela-Aro, 2013). In particular, various researchers have confirmed that individuals – either from a higher education or workplace setting – who show higher engagement levels are more inclined to perform better than those indicating lower engagement levels (Schaufeli, Bakker, & Van Rhenen, 2009; Schaufeli, Martinez, Pinto, Salanova, & Bakker, 2002; Schaufeli, Salanova, Gonzalez-Roma, & Bakker, 2002). Thus, it is crucial for students to maintain high energy levels since vigorous students are inclined to succeed during their university tenure, compared to students who show low energy levels (Schaufeli et al., 2009; 2002). In this regard, HEIs also have a clear advantage and benefit from engaged students, since high study engagement is associated with reduced dropout rates and increased student productivity (Coates, 2005; Kuh, 2009; Pohl, 2013).

The literature reports numerous factors that create conditions conducive to successful student engagement. Various researchers focus specifically on HEIs' role in providing first-year students with suitable resources and opportunities that may enhance their student experience and help them achieve success (Coates, 2005; Kuh, 2007; Pike & Kuh, 2005). Cilliers et al. (2018) argue that highly-engaged students who are intrinsically motivated, are thus more devoted to their academic studies, show higher rates of class attendance, and also lead healthy lives by participating in extra-curricular activities. Such students who are intrinsically engaged are typically more successful in life. Therefore, in future they cope better with challenges of the new work environments, and deal more successfully with a volatile and uncertain global economy (Cilliers et al., 2018). Furthermore, such students enjoy learning, are dedicated and passionate about their academic success and more likely to be an asset to the institution (Cilliers et al., 2018).

Due to the importance of and growing attention for the concept of study engagement, more studies have focused on the organisation and have constructed theoretical frameworks of work engagement, including the JD-R model (Cilliers et al., 2018; Mokgele & Rothmann, 2014;

Robins, Roberts & Sarris, 2015; Salmela-Aro & Upadyaya, 2014). The JD-R model has been found to be universally applicable, thus, it can be personalised to suit diverse environments and settings (Bakker & Demerouti, 2018). A number of studies have utilised the JD-R model in the student context (e.g. Cilliers et al., 2018; Mokgele & Rothmann, 2014; Osedach, 2013; Salanova, Schaufeli, Martinez, & Breso, 2010; Wilson & Sheetz, 2010). However, to date, limited research has been conducted to determine the influence of study demands and resources on study engagement and student well-being, as linked to Keyes conceptualisation (2002; 2005; 2007). To address the gap, the present study focused on the influence that study demands, resources and engagement have on the emotional, social, and psychological well-being of first-year students. Keyes' model was applied to test whether study engagement mediates the relationship between demands and resources on the one hand, and student well-being on the other. The outline of the research problem and its investigation are depicted in Figure 1 below.

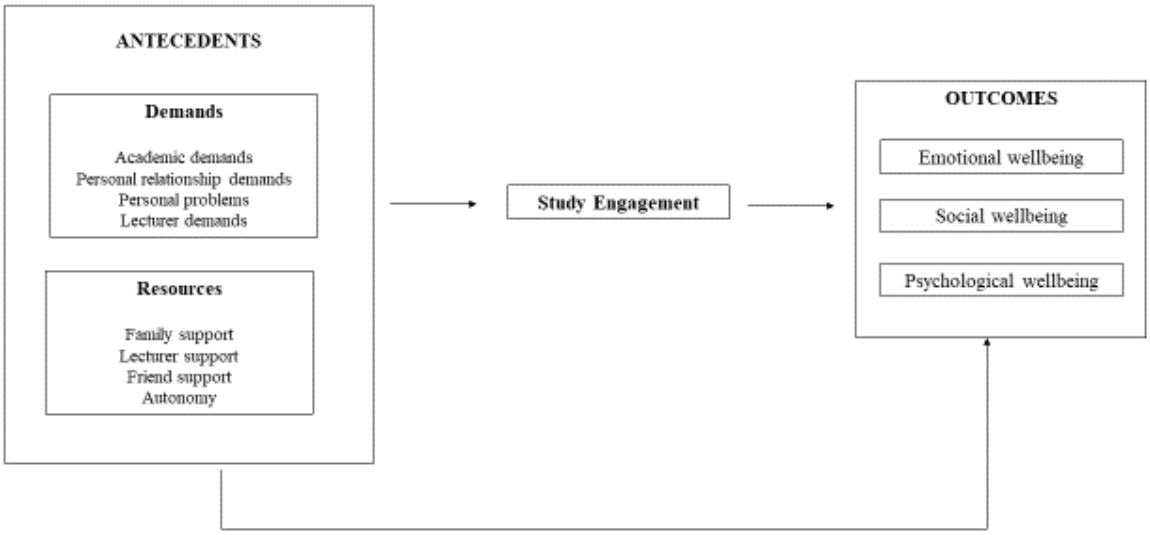

Figure 1. A structural model of study demands and resources, study engagement and well-being ($N = 773$)

1.2. RESEARCH QUESTIONS

Based on the aforementioned stating of the research problem, the following research questions were formulated:

1. How are first-year student's study demands, study resources, study engagement and well-being conceptualised in the literature?

2. What is the relationship between study demands, study resources, study engagement and well-being among first-year students, as tested in a structural model?
3. Does first-year students' study engagement mediate between study demands and resources on the one hand, and student well-being on the other hand?
4. What recommendations can be made for future research and practice?

1.3. EXPECTED CONTRIBUTION OF THE STUDY

This research aims to provide the following theoretical and practical contributions for students, the institution and the field of Industrial/Organisational Psychology.

1.3.1. Contribution to the individual

The research could help first-year students explore and understand the various demands and resources they face during their first year of study at a tertiary institution. Furthermore, the study could provide innovative insights amongst first-year students to establish a positive lifestyle and thereby, implement decisions that will lead to successful study behaviours and useful coping mechanisms. Early detection of high study demands can help prevent negative outcomes of exhaustion, burnout and ill-health at an early stage in life. Additionally, the study can contribute by empowering the individual student to become a well-prepared, well-balanced potential employee for the workplace.

1.3.2. Contribution to the institution

Tertiary institutions can benefit through the present study in various ways. The study can help these institutions understand the effects of high study demands on students and the remedy that increased study resources can offer to the individual and group of students. This study could also contribute to tertiary institutions' success and pass rate as it may help reduce the dropout rate (Murray, 2014). On the flipside, the research may increase student well-being for first-year students due to the knowledge gained from the results. Furthermore, the institution may be in a better position to execute and implement change programmes that could help increase student

engagement, enhance student well-being and thereby improve academic performance. The results could also identify coping mechanisms that could help first-year students deal with the vast amount of demands they experience at such a tertiary institute.

1.3.3. Contribution to the field of Industrial/Organisational Psychology

The findings of the present study could benefit the discipline of Industrial and Organisational Psychology, by expanding on previous theories of first-years study experiences. In particular, the study may contribute to research on first-year students, by focusing on their well-being, as well as study engagement, demands, and resources. The JD-R model has been utilised extensively in the work context; for the purpose of this research it is applied to the student context, thus paving way for further studies in HEIs by using the JD-R model. In this way, the study expands the model's theory and development, and add to literature in the field of Industrial/Organisational Psychology.

1.4. RESEARCH OBJECTIVES

The research objectives were divided into a general objective and specific objectives.

1.4.1. General objective

The main aim of the present research was to test a structural model of study demands, study resources, study engagement and student well-being in a sample of first-year university students. In addition, the mediating effect of study engagement was tested.

1.4.2. Specific objectives

The specific objectives flowing from the general one were:

1. Conceptualise study demands, study resources, study engagement and student well-being, according to the literature.
2. Test a structural model of study demands, study resources, study engagement and well-being among first-year students.
3. Assess the mediating effect of first-year students' study engagement between study demands and study resources on the one hand, and student well-being on the other hand.
4. Make recommendations for future research and practice.

1.5. RESEARCH DESIGN

1.5.1. Research approach

For the present study, a quantitative research approach was followed. A quantitative design entails a method of conclusive research in which specified hypotheses are tested that express the causality of relationships in large representative samples (Struwig & Stead, 2010). Furthermore, a quantitative research approach suits the purpose of the present study due to the structured data collection methods, with its typical objective to generalise the results obtained from the study (Struwig & Stead, 2010). In addition, a cross-sectional design was used as method to collect data from the selected sample and attain the research goals. A cross-sectional design has the advantage of being convenient as well as cost-effective (De Vos, Strydom, Fouché & Delport, 2011).

1.5.2. Research method

The method of research for the present study had two phases, namely literature review and empirical study. The results obtained are presented in the form of a research article in chapter 2.

1.5.3. Literature review

A detailed literature review was done to investigate the study demands and study resources that first-year students experienced, as well as their level of study engagement and the consequent well-being. Articles pertinent to the study were acquired by consulting various search engines and databases such as: Google Scholar, Ebscohost, Academic Search Premier, Business Search Premier, PsycInfo, PsycArticles, Google Books, Emerald, JSTOR, Research Gate, SAePublications and Science Direct. The main journals consulted because of their relevance to the topic of interest were: *Student Engagement and Experience Journal, The International Journal of Research and Practice on Student Engagement, The International Journal of the First Year in Higher Education, Journal of Psychology in Africa, Australian Journal of Organisational Psychology, The International Journal of Human Resource Management, South African Journal of Psychology, British Journal of Educational Psychology, An International Journal of Work, Health and Organisations, Journal of Further and Higher Education, The Journal of Higher Education, South African Journal of Education, South African Journal of Psychiatry,* and the *South African Journal of Psychology.* Keywords used to search for relevant topics were: study demands, demands, study resources, resources, study engagement, engagement, student well-being, and well-being.

1.5.4. Research participants

A stratified random sample was used to collect the data. Stratified random sampling represents the entire population under investigation, in this case, a university with three diverse campuses. The advantages of the mentioned sampling method are the reduced bias of sample selection and ensuring certain segments of the population are not more or less represented than others (Siegle, 2017). For the present research, a total sample of 773 first-year students (mean age = 20.24, *SD* = 2.71) was used with each of the three delivery sites included in the study. The sample consisted only of first-year students and represented the gender, ethnic groups and language groups. The inclusion criterion for this study was that each participant should be a full-time first-year student at the particular tertiary institution.

1.5.5. Measuring instruments

The following instruments were utilised in the study to measure the responses:

Study demands: The *Student-stress Questionnaire* of Burge (2009) was utilised to measure study demands. Items were measured on a 5-point Likert scale ranging from 1 (*not at all stressful*) to 5 (*extremely stressful*). The validity and reliability of this scale were determined in this study. The following dimensions were included:

- *Academic demands* (i.e. how stressful students find academic-related activities) was measured with six items (e.g. "With regard to studying at university, how stressful do you find handling the academic workload?").
- *Personal relationship demands* (i.e. how stressful students find it to deal with personal issues) was measured with ten items (e.g. "With regard to studying at university, how stressful do you find dealing with personal issues?").
- *Personal relationship problems* (i.e. how stressful students find it to handle relationships, measured with five items (e.g. "With regard to studying at university, how stressful do you find getting along with fellow students at university?").
- *Lecturer demands* (i.e. how stressful students find it to approach lecturers for help, measured with six items (e.g. "With regard to studying at university, how stressful do you find approaching lecturers for help?").

Study resources: The resources scale for the present study was based on items that have been adapted for the student context from the English version of the *Questionnaire on the Experience and Assessment of Work* (Van Veldhoven, De Jonge, Broersen, Kompier, & Meijman, 2002). Items were measured on a 4-point Likert scale, ranging from 1 (*never*) to 4 (*always*). The validity and reliability of this scale were determined in this study. The following resources were measured:

- *Family support* (i.e. whether students can count on family when they encounter difficulties in their lives) was measured with three items (e.g. "Does your family support you?").
- *Lecture support* (i.e. whether students can approach lecturers for advice) was measured with three items (e.g. "I receive help from my lecturers when difficulties in my course arise").

- *Autonomy* (i.e. whether students have an influence in the planning of their study-related activities) was measured with six items (i.e. “Can you organise your work yourself?”).

Study engagement: The *Utrecht Work Engagement Scale-Survey* (*UWES-S)* was utilised to measure study engagement (Schaufeli, Salanova, González-Romá, & Bakker, 2002). The items on this scale were assessed on a six-point Likert-type scale that ranges from 1 (*a few times*) to 6 (*every day*). Vigour was measured with six items (e.g. “I have energy to study for long hours”), and dedication with six items (e.g. “I find my studies stimulating”). The validation of the UWES-S was done on an international level (Schaufeli et al. 2002), and in South Africa internal consistencies have been found to be Cronbach’s alpha coefficients of 0.70 for vigour and 0.78 for dedication (Mostert, Pienaar, Gauché & Jackson, 2007).

Well-being: The *Mental Health Continuum-short Form (MHC-SF)* (Keyes, 2009) was used to measure three types of well-being, namely emotional (three items; e.g. “I am interested in life”), psychological (six items; e.g. “I have something important to contribute to society”) and social (five items; e.g. “I have warm and trusting relationships with others”). Items were measured on a six-point Likert scale, ranging from 1 (*never*) to 6 (*everyday*). The MHC-SF is validated for use with individuals aged 12 years and older. The internal consistency for each of the three sets of measures exceeded Cronbach’s alpha of 0.80 (Keyes, 2005a), and indicates discriminant validity in adolescents from age 12 to18 and adults in the U.S., Netherlands, and South Africa (Keyes, 2005b, 2006; Keyes, et al., 2008; Lamers et al., 2010; Westerhof & Keys, 2010).

1.5.6. Research procedure

The procedure of the present study commenced with a professional letter that was send to the dean and lecturers of all three campuses. The letter explained the purpose of the study, as well as its objectives and important implications. The letter also ensured confidentiality and anonymity of the participants and the assurance that participation is voluntary. First-year students were given relevant information on the research project and were invited to participate by completing a questionnaire of approximately 30 to 40 minutes. Prior to distributing the questionnaires, informed consent was gained from each participant. Students who participated in this study were provided with a link that they could access to complete an online

questionnaire. The participating group was given four weeks to complete the questionnaire. A reminder was sent every two weeks to participants encouraging them to complete the questionnaire.

1.5.7. Statistical analysis

Structural equation modelling (SEM) was utilised with Mplus 7.2 to analyse the data (Muthén & Muthén, 2014). Furthermore, to establish or determine the relationship between the variables, the product-moment correlation (*r*) was used. This correlation can range from -1 (considered as a negative relationship); 0 (non-relationship) and +1 (a positive relationship) (Beaumont, 2012). The relationships that exist between variables were determined by correlation coefficients where effect sizes were calculated to establish the practical significance of the results (Steyn & Swanepoel, 2008). The cut-off points established for the practical significance of the correlation coefficients were: 0.30 (medium effect) and 0.50 (large effect) (Cohen, 1988). The statistical significance of the variables is usually deliberated by a confidence interval level of 95% ($p \leq 0.05$).

Four latent variables (demands, resources, engagement and well-being) in this structural model were created by utilising the individual items as indicators, instead of parcelling several items (Bandalos & Finney, 2001). The maximum likelihood (ML) estimator was implemented, with the input type of estimation the covariance matrix. The traditional chi-square (χ^2) statistic, the Comparative fit index (CFI), the Tucker-Lewis index (TLI), the Root mean square error of approximation (RMSEA) and the standardised root mean square residual (SRMR) were utilised to test the goodness-of-fit of the model, even if the cut-off values for adequate fit show little agreement (Lance, Butts, & Michels, 2006). The conformist approached was followed, according to which the model fit is considered adequate when the CFI and TLI values are larger than 0.90 (Byrne, 2010). The RMSEA value was utilised to determine the model fit; values below 0.05 indicate a good fit and those from 0.05 and 0.08 indicate a moderately good model fit (Browne & Cudeck, 1993).

The indirect effect was estimated through a mediation analysis (Rucker, Preacher, Tormala, & Petty, 2011). The study explored the effect the independent variables (study demands and study resources) have on the dependent variable (well-being), which was indicated by the mediating

variable (student engagement). This mediation analysis was tested through the bootstrap method, which according to Preacher and Hayes (2008), is defined as a non-parametric resampling method to test the indirect effects of variables. Bootstrapping is also believed to be the most preferred method compared to the traditional methods of Baron and Kenny (Hayes, 2009; MacKinnon, Lockwood, & Williams, 2004). The bootstrap method was set to resample 5 000 draws (Hayes, 2009). For the purpose of the present study, the bootstrap confidence interval level was set at 95%. This meant examining whether the indirect effects would cross zero or not at that level.

1.5.8. Ethical considerations

The present study forms part of an existing project undertaken with the following available ethic number assigned by the particular HEI (NWU-HS-2014-0165). To ensure the success of this research, several fair and ethical practices were adhered to. Firstly, beforehand, information on the purpose and possible implications of the study was provided to the participants. Secondly, the researcher remained honest and respectful towards the respondents involved in this study. Thirdly, throughout the study, participation was voluntary, no invasion of privacy took place, and no deception occurred. Fourthly, participants' informed consent was obtained, and their privacy and confidentiality maintained at all times (Salkind, 2009). Finally, the researcher ensured that the collected data remained private and was kept in a secure and confidential area to which only the research team had access.

1.6. OVERVIEW OF CHAPTERS

The outline of the following chapters can be explained as follows:

Chapter 2: Is delivered in the form of a research article that presents the research problem, literature review, research method and results, as well as the discussion of the study results.

Chapter 3: Draws the conclusions, points out the limitations of the study, and make recommendations for future research and practice.

1.7. CHAPTER SUMMARY

This chapter presented the problem statement, research questions and research objectives. The chapter explained the study design, measuring instruments and statistical analysis that was used, followed by a brief overview given of the following chapters that outline the mini-dissertation.

REFERENCES

Agolla, J. E., & Ongori, H. (2009). Occupational stress among police officers: The case of Botswana Police Service. *Journal of Business Management, 2*(1), 25−35.

Ahern, N. R., & Norris, A. E. (2011). Examining factors that increase and decrease stress in adolescent community college students. *Journal of Paediatric Nursing, 26*, 530−540.

Andrews, F. M. & Withey, S. B. (1976). *Social indicators of well-being: Americans' perception of life quality.* New York, NY: Plenum. doi:10.1007/978-1-4684-2253-5

Awartani, M., Whitman, C., & Gordon, J. (2008). Developing instruments to capture young people's perceptions of how school as a learning environment affects their well-being. *European Journal of Education, 43*(1), 51−70.

Awino, J. O., & Agolla, J. E. (2008). A quest for sustainable quality assurance measurement for universities: Case of study of the University of Botswana. *Educational Research & Review, 3*(6), 213−218.

Bakker, A. B. & Demerouti, E. (2014). Job demands-resources theory. *Work and Wellbeing: Wellbeing: A Complete Reference Guide, 3*, 1−28.

Bakker, A. B. & Demerouti, E. (2017). Job demands-resources theory: Taking stock and looking forward. *Journal of Occupational Health Psychology*. *22*(3), 273−285.

Bakker, A. B., & Demerouti, E. (2018). Multiple levels in job demands-resources theory: Implications for employee well-being and performance. In E. Diener, S. Oishi, & L. Tay (Eds.), *Handbook of wellbeing*. Salt Lake City, UT: DEF. doi:nobascholar.com

Bakker, A. B., Demerouti, E., Taris, T. W., Schaufeli, W. B., & Schreurs, P. (2003). A multi-group analysis of the Job Demands-resources model in four home-care organizations. *International Journal of Stress Management, 10*, 16−38.

Bakker, A. B., Hakanen, J. J., Demerouti, E., & Xanthopoulou, D. (2007). Job resources boost work engagement, particularly when job demands are high. *Journal of Educational Psychology*, *99*, 274−284.

Bakker, A. B., Van Veldhoven, M., & Xanthopoulou, D. (2010). Beyond the demand-control model. Thriving on high job demands and resources. *Journal of Personnel Psychology, 9*(1), 3−16.

Bandalos, D. L., & Finney, S. J. (2001). Item parceling issues in structural equation modelling. In G. A. Marcoulides (Eds.), *New developments and techniques in structural equation modeling* (pp. 269-296). Mahwah, NJ: Lawrence Erlbaum.

Beaumont, R. (2012). *An introduction to statistics correlation.* Retrieved from http://www.robin-beaumont.co.uk/virtualclassroom/stats/course1.html

Bradburn, N. M. (1969). *The structure of psychological well-being.* Chicago, IL: Aldine. Retrieved from: http://www.norc.org/PDFs/publications/BradburnN_Struc_Psych_Well_Being.pdf

Browne, M. W., & Cudeck, R. (1993). Alternative ways of assessing model fit. In K. A. Bollen & J. S. Long (Eds.), *Testing structural equation models* (pp. 136−162). Newbury Park, CA: Sage.

Bryant, F. B., & Veroff, J. (1982). The structure of psychological well-being: A sociohistorical analysis. *Journal of the American Medical Association, 286,* 3098−3105.

Burge, J. (2009). *Coping frequency, coping effectiveness, and personality factors in university students*. (Unpublished honours thesis). University of Canberra, Canberra.

Byrne, B. M. (2010). *Structural equation modelling with AMOS*. New York, NY: Taylor & Francis.

Cilliers, J. R., Mostert, K., & Nel, J. A. (2018). Study demands, study resources and the role of personality characteristics in predicting the engagement of first-year university students. *South African Journal of Higher Education*, *32*(1), 49−70.

Coates, H. (2005). The value of student engagement for higher education quality assurance. *Quality in Higher Education*, *11*(1), 25−36.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences*. Orlando, FL: Academic Press.

Cothran, D. J., & Ennis, C.D. (2000). Building bridges to student engagement: Communicating respect and care for students in urban high schools. *Journal of Research & Development in Education*, *33*(2), 106−117.

De Vos, A. S., Strydom, H., Fouché, C. B., & Delport, C. S. L. (2011*). Research at grass roots: For the social sciences and human service professions.* Pretoria: Van Schaik.

Diener, E. (1984). Subjective well-being. *Psychological Bulletin, 95(3),* 542−575. Retrieved from http://dx.doi.org/10.1037/0033-2909.95.3.542

Diener, E., Sandvik, E., & Pavot, W. (1991). Happiness is the frequency, not the intensity, of positive versus negative affect. In F. Strack, M. Argyle, & N. Schwarz (Eds.) *Subjective well-being: an interdisciplinary perspective*. (pp. 119−139). New York: Pergamon.

Diener, E., Suh, E. M., Lucas, R. E., & Smith, H. L. (1999). Subjective well-being: Three decades of progress. *Psychological Bulletin*, *125*, 276−302.

Dodge, R., Daly, A., Huyton, J., & Sanders, L. (2012). The challenge of defining wellbeing. *International Journal of Wellbeing*, *2*(3), 222−235. doi:10.5502/ijw.v2i3.4

Fredrickson, B. L., & Losada, M. F (2005). Positive affect and the complex dynamic of human flourishing. *American Psychologist, 60,* 678−686.

Gellin, A. (2003). The effect of undergraduate student involvement on critical thinking: A meta-analysis of the literature, 1991 – 2000. *Journal of College Student Development, 44*(6), 746−762.

Hakanen, J. J., Bakker, A. B., & Demerouti, E. (2005). How dentists cope with their job demands and stay engaged: The moderating role of job resources. *European Journal of Oral Sciences, 113*, 479−487.

Hakanen, J. J., Bakker, A. B., & Schaufeli, W. B. (2006). Burnout and work engagement among teachers. *Journal of School Psychology, 43*, 495−513.

Hakanen, J. J., Schaufeli, W. B., & Ahola, K. (2008). The job demands-resources model: A three-year cross-lagged study of burnout, depression, commitment, and work engagement, work and stress: *An International Journal of Work, Health & Organisations, 22*(3), 224−241.

Halbesleben, J. R. B. (2009). A meta-analysis of work engagement: Relationships with burnout, demands, resources and consequences. In A. B. Bakker, & M. P. Leiter (Eds.), *Work engagement: The handbook of essential theory and research*. (pp. 102−117). New York, NY: Psychology Press.

Headley, B. W., & Kelley, J., & Wearing, A. J. (1993). Dimensions of mental health: Life satisfaction, positive affect, anxiety, and depression. *Social Indicators Research, 29*, 63−82.

Hobfoll, S. E. (1989). Conservation of resources: A new attempt at conceptualizing stress. *American Psychologist, 44*, 513−524.

Hobfoll, S. E. (2002). Social and psychological resources and adaptation. *Review of General Psychology, 6*, 307−324.

Howell, A.J. (2009). Flourishing: Achievement-related correlates of students' well-being. *The Journal of Positive Psychology, 4*(1), 1−13.

Jacobs, M., & Pretorius, E. (2014). *Developing skills of entering first year science students: Focused first-year seminar*. Johannesburg: University of Johannesburg, Faculty of Science.

Jahoda, M. (1958). *Current concepts of positive mental health*. New York, NY: Basic Books. Retrieved from http://psycnet.apa.org/doi/10.1037/11258-000

Jonasson, C. (2012). Teachers and students' divergent perceptions of student engagement: Recognition of school or workplace goals. *British Journal of Sociology of Education*, *33*(5), 723−741.

Judge, T. A., & Bono, J. E. (2001). Relationship of core self-evaluation traits – self-esteem, generalized self-efficacy, locus of control, and emotional stability – with job satisfaction and performance: A meta-analysis. *Journal of Applied Psychology, 86,* 80−92.

Keyes, C. L. M. (1998). Social well-being. *Social Psychology Quarterly, 61,* 121−140.

Keyes, C. L. M. (2002). The mental health continuum: From languishing to flourishing in life. *Journal of Health & Social Behavior, 43,* 207−222.

Keyes, C. L. M. (2005a). Mental illness and/or mental health? Investigating axioms of the complete state model of health. *Journal of Consulting & Clinical Psychology, 73,* 539−548.

Keyes, C. L. M. (2005b). The subjective well-being of America's youth: Toward a comprehensive assessment. *Adolescent & Family Health, 4,* 3−11.

Keyes, C. L. M. (2006). Mental health in adolescence: Is America's youth flourishing? *American Journal of Orthopsychiatry, 76,* 395−402.

Keyes, C. L. M. (2014). Mental health as a complete state: How the salutogenic perspective completes the picture. In Bauer G. F. & Hämmig, O. *Bridging occupational, organizational and public health: a transdisciplinary approach.* Springer. doi 10.1007/978-94-007-5640-3_11.

Keyes, C. L. M. & Waterman, M. B. (2003). Dimensions of well-being and mental health in adulthood. *Well-being: Positive development throughout the life course*. Mahwah, NJ: Erlbaum.

Keyes, C. L. M., Shmotkin, D., & Ryff, C.D. (2002). Optimizing well-being: The empirical encounter of two traditions. *Journal of Personality & Social Psychology, 82*, 1007−1022.

Keyes, C. L. M., Wissing, M., Potgieter, J. P., Temane, M., Kruger, A., & Van Rooy, S. (2008). Evaluation of the Mental Health Continuum Short Form (MHC-SF) in Setswana-speaking South Africans. *Clinical Psychology & Psychotherapy, 15*, 181−192.

Kuh, G. D. (1995). The other curriculum: Out-of-class experiences associated with student learning and personal development. *Journal of Higher Education, 66*(2), 123−155.

Kuh, G. D. (2001). Student engagement in the first year of college. *Journal of Higher Education, 79,* 540−563.

Kuh, G. D. (2007). Piecing together the student success puzzle: Research, propositions, and recommendations. *ASHE Higher Education Report, 32*(5), 1−182.

Lamers, S. M. A., Westerhof, G. J., Bohlmeijer, E. T., ten Klooster, P. M., & Keyes, C. L. M. (2010). Evaluating the psychometric properties of the mental health continuum-short form (MHC-SF). *Journal of Clinical Psychology, 67,* 99−110.

Lance, C. E., Butts, M. M., & Michels, L. C. (2006). The sources of four commonly reported cut-off criteria: What did they really say? *Organizational Research Methods, 9*, 202−221. doi:10.1177/1094428105284919

Lee, A. (2012). Workplace transformation and the changing nature of work. *Organisation Solutions: Architects for Growth*. Retrieved from http://www.organisationsolutions.com/Resources/Strategy-Execution/Workplace-Transformation-and-the-Changing-Nature-of-Work

Lopez, S. J., & Louis, M. C. (2009). The principles of strengths-based education. *Journal of College & Character*, *10*(4), 1−8.

Machado, W. L. & Bandeira, D. R. (2015). Positive mental health scale: Validation of the mental health continuum-short form. *Psico*, USF, *Braganca Paulista*, 2(2), 259− 274. doi:10.1590/1413-82712015200207

Mechanic, D. (1999). Mental health and mental illness: Definitions and perspectives, in Scheid, T. L., & Brown, T. N. *A handbook for the study of mental health: social contexts, theories, and systems*. (pp. 12−18). New York: Cambridge University Press.

Mokgele, K. R. F., & Rothmann, S. (2014). A structural model of student well-being. *South African Journal of Psychology*, *44*(4), 514−527.

Mostert, K., & Els, C. (2012). Employee health and well-being: What should young graduates know when they enter the workplace. In M. Coetzee, J. Botha, N. Eccles, H. Nienaber, & N. Holtzhausen (Eds.), *Developing student graduateness and employability: Issues, provocations, theory and practical guidelines* (pp. 419−449). Randburg: South Africa.

Mostert, K., Pienaar, J., Gauché, C., & Jackson, L. T. B. (2007). Burnout and engagement in university students: A psychometric analysis of the MBI-SS and UWES-S. *South African Journal of Higher Education*, *21*(1), 147−162.

Murray, M. (2014). Factors affecting graduation and student dropout rates at the University of KwaZulu Natal. *South African Journal of Science*, *110*(11), 1−6.

Muthén, L. K., & Muthén, B. O. (2014). *Mplus user's guide*. Los Angeles, CA: Muthén & Muthén.

Nyamupangedengu, E. (2017). Investigating factors that impact the success of students in higher education classroom: A case study. *Journal of Education*, *68*, 116-128.

Ongori, H. (2007). A review of the literature on employee turnover. *African Journal of Business Management*, *1*(3), 49−54.

Ouweneel, E., Le Blanc, P. & Schaufeli, W. B. (2011). Flourishing students: A longitudinal study on positive emotions, personal resources, and study engagement. *Journal of Positive Psychology*, 6(2), 142−153.

Pascarella, E. T., & Terenzini, P. T. (2005). *How college affects students: A third decade of research*. San Francisco, CA: Jossey-Bass.

Pascarella, E. T., Pierson, C. T., Wolniak, G. T., & Terenzini, P. T. (2004). First-generation college students: Additional evidence on college experiences and outcomes. *The Journal of Higher Education*, *75*(3), 249−284.

Pienaar, J., & Sieberhagen, C. (2005). Burnout and engagement of student leaders in a higher education institution. *South African Journal of Higher Education, 19*(1), 155−167.

Pike, G. R., & Kuh, G. D. (2005). A typology of student engagement for American colleges and universities. *Research in Higher Education*, *46*(2), 185−209.

Pillay, A. L., & Ngcobo, H. S. B. (2010). Sources of stress and support among rural-based first-year university students: An exploratory study. *South African Journal of Higher Education*, *19*(1), 155−166.

Pohl, A. (2013). *Reflecting on the importance of student engagement*. Retrieved from https://attendengageinvest.wordpress.com/2013/02/06/reflecting-on-the-importance-of-student-engagement/

Robins, T. G., Roberts, R., & Sarris, A. (2015). Burnout and engagement in health profession students: The relationship between study demands, study resources, and personal resources. *Australian Journal of Organisational Psychology*, *8*, 1−13.

Robotham, D. & Julian, C. (2006). Stress and the higher education student: A critical review of the literature. *Journal of Further & Higher Education*, *30*(2), 107−117.

Rocha-Singh, I. A. (1990). *Doctoral students' perceptions of stress and support: implications for the retention of targeted students of colour* (Unpublished doctoral dissertation). University of California, Santa Barbara.

Rogers, C. (1961). *On becoming a person*. (1st ed.). Boston, MA: Houghton Mifflin.

Rucker, D. D., Preacher, K. J., Tormala, Z. L., & Petty, R. E. (2011). Mediation analysis in social psychology: Current practices and recommendations. *Social & Personality Psychology Campus, 5*(6), 359−371.

Ryff, C. D. (1989a). Happiness is everything, or is it? Explorations on the meaning of psychological well-being. *Journal of Personality and Social Psychology*, *57,* 1069−1081. Retrieved from http://dx.doi.org/10.1037/0022-3514.57.6.1069.

Salanova, M. & Schaufeli, W. B. (2008). A cross-national study of work engagement as a mediator between job resources and proactive behaviour. *The International Journal of Human Resource Management*, *19*(1), 116−131.

Salanova, M., Llorens, S., Cifre, E., Martı´nez, I. M., & Schaufeli, W. B. (2003). Perceived collective efficacy, subjective well-being, and task performance among electronic work groups: An experimental study. *Small Group Research, 34*, 43−73.

Salanova, M., Schaufeli, W. B., Martı´nez, I., & Breso´, E. (2010). How obstacles and facilitators predict academic performance: The mediating role of study burnout and engagement. *Anxiety, Stress & Coping, 23*, 53−70.

Salkind, N. J. (2009). *Exploring research*. (9th ed.). Englewood Cliffs, NJ: Pearson Prentice.

Salmela-Aro, K., & Upadyaya, K. (2014). School burnout and engagement in the context of demands-resources model. *British Journal of Educational Psychology*, 84, 137−151.

Schaufeli, W. B., & Bakker, A. B. (2004). Job demands, job resources, and their relationship with burnout and engagement: A multi-sample study. *Journal of Organizational Behavior, 25*, 293−315.

Schaufeli, W. B., Bakker, A. B., & Van Rhenen, W. (2009). How changes in job demands and resources predict burnout, work engagement, and sickness absenteeism. *Journal of Organizational Behaviour, 30*, 893−917.

Schaufeli, W. B., Martı´nez, I. M., Marques Pinto, A., Salanova, M., & Bakker, A. B. (2002). Burnout and engagement in university students: A cross-national study. *Journal of Cross-cultural Psychology, 33*, 464−481.

Schaufeli, W. B., Salanova, M., González-Romá, V., & Bakker, A. B. (2002). The measurement of engagement and burnout: A two-sample confirmatory factor analytic approach. *Journal of Happiness Studies*, *3*(1), 71−92.

Seligman, M. E. P. (2011). *Flourish – a new understanding of happiness and well-being – and how to achieve them.* (3rd ed.). London: Nicholas Brealey.

Seligman, M. E. P., & Csikszentmihalyi, M. (2000). Positive psychology: An introduction. *American Psychologist*, *55*, 5−14.

Shulman, L. S. (2002). Making differences: A table of learning. *Change, 34*(6), 35−44.

Steyn, H. S., & Swanepoel, C. J. (2008). *Praktiese statistiek.* Potchefstroom: Noordwes-Universiteit.

Statham, J., & Chase, E. (2010). *Childhood wellbeing – a brief overview*. Loughborough: Childhood Wellbeing Research Centre.

Struthers, C., Perry, R., & Menec, V. (2000). An examination of the relationship among academic stress, coping, motivation, and performance in college. *Research in Higher Education*, *41*(5), 581−592.

Struwig F. W., & Stead, G. B. (2010). *Planning, designing and reporting research*. (2nd ed.). Cape Town: Pearson Education.

Trowler, V., & Trowler, P. (2010). Student engagement evidence summary. Department of Educational Research. University of Lancester. Retrieved from http://www.heacademy.ac.uk/assets/York/documents/ourwork/studentengagement/StudentEngagementEvidenceSummary.pdf

Upadyaya, K., & Salmela-Aro, K. (2013). Development of school engagement in association with academic success and well-being in varying social contexts. *European Psychologist, 18*(2), 136−147.

Van Veldhoven, M., De Jonge, J., Broersen, S., Kompier, M., & Meijman, T. (2002). Specific relationships between psychosocial job conditions and job-related stress: A three-level analytic approach. *Work & Stress, 16*(3), 207−228. doi:10.1080/02678370210166399

Waston, D. & Tellegen, A. (1985). Toward a consensual structure of mood. *Psychological Bulletin, 98,* 219−315.

Westerhof, G. J., & Keyes, C. L. M. (2010). Mental illness and mental health: The two continua model across the lifespan. *Journal of Adult Development, 17*, 110−119.

Wilson, V., Sheetz, S. D., Djamasbi, S., & Webber, J. (2014). Testing the group task demands-resources model among it professionals. *Twentieth Americas Conference on Information Systems,* 1−12.

Wisse, B., Van Eijergen, R., Rietzchel, E. F., & Schiebe, S. (2018). Catering to the needs of an aging workforce: The role of employee age in the relationship between corporate social responsibility and employee satisfaction. *Journal of Business Ethics, 147,* 875−888.

Wissing, M. (2014). Selected theories on functioning well and feeling good. In Wissing, M., Potgieter, J., Guse, T., Khumalo, T., & Nel, L. (Eds.), *Towards flourishing: Contextualising positive psychology* (pp. 141−167). Pretoria: Van Schaik.

Yorke, M. (2000). Smoothing the transition into higher education: What can be learned from student non-completion. *Journal of Institutional Research, 9*(1), 78−88.

Zhang, Z., Hu, W., & McNamara, O. (2015). Undergraduate student engagement at a Chinese university: A case study. *Educational Assessment, Evaluation & Accountability, 27*(2), 105–127.

CHAPTER 2

RESEARCH ARTICLE

Testing a structural model for demands, resources, engagement and well-being of first-year university students

ABSTRACT

Orientation: The well-being of students has increasingly become a topic of interest over the past decade in higher education institutions. In the current study the focus was specifically on the well-being of first-year university students.

Research purpose: The purpose of this research is to investigate the relationships between demands, resources, engagement and well-being for first-year students through a structural model.

Motivation for the study: To assist individual students and tertiary institutions to gain insight into the effect that demands and resources have on engagement and well-being of first-year students, thus assisting students in their transition from the tertiary context to a work environment.

Research design, approach and method: A quantitative research approach with stratified random sampling was followed to collect data. The sample consisted of (N = 773) first-year students in a higher education institution in South Africa. Structural equation modelling was used to test the proposed model and product-moment correlation was applied to establish the relationship between variables.

Main findings: The results indicated that study demands (academic, personal relationship problems with social and psychological well-being) have a negative relationship with student engagement and well-being respective. The results further indicated that study resources (friend support, family support and autonomy) have a positive relationship with student well-being. A positive relationship between study engagement and student well-being was also found. Lastly it was found that engagement mediated the relationship between demands, resources and well-being.

Practical implications: Evidence suggest that the understanding of student demands and resources can significantly change the relationship and outcomes of student engagement and well-being. Focusing thus on specific positive relationships and elements that can strengthen the outcomes of better student engagement and well-being from an individual and organisational level.

Contribution of the study: The study contributed into deeper insight of how demands and resources can influence the engagement and ultimate well-being of students. Thereby assisting institutions to create an environment in which students could flourish and be successful.

Keywords: study demands, study resources, study engagement, well-being, first-year university students

INTRODUCTION

When young people attend university for the first time, they experience difficulties in the transition process due to encountering various challenges. First-year students must adapt to the new schooling environment, lecturing pace and level of academic writing. Further challenges that impact students' success significantly, are the relevance of the curriculum to their study choices; the perceived lack of transformation, and language barriers (Awino & Agolla, 2008; Knoop, 2013; Ongori, 2007). These challenges are coupled with inadequate resources to assist students in their performance (Agolla & Ongori, 2009; Fredrickson & Losada, 2005).

This is especially the case for first-year students in South African higher education institutions (HEIs). They experience similar challenges, especially language barriers – communicating fluently in English. Furthermore, these students find it difficult adapting to semester structures, suffer lack in self-confidence, and experience problems with social interaction (Nyamupangedengu, 2017). As a result of the mentioned challenges, students may experience stress, burnout, poor performance, disengagement, and intention to drop out. These are all unfavourable outcomes that could have a negative impact on students' well-being (Ahern & Norris, 2011; Agolla & Ongori, 2009).

The notion of student well-being has gained much attention in recent years. Various researchers have argued the importance of studying well-being of first-year students as a significant predictor of student success (Cooke, Melchert & Connor, 2016; Soutter, O'Steen & Gilmore, 2014). Studies indicate that first-year students' well-being influences their academic performance, intention to drop out and actual drop-out rates (Coates, 2005; Pike & Kuh, 2005). Various studies have indicated that first-year students who experience positive well-being are in a better position to integrate academic information effectively, can maintain healthy social behaviours better and make more effort to take care of themselves (Awatani, Whitman, & Gordon, 2008). Furthermore, findings show that these students also experience positive feelings and attitudes towards their studies and may feel more engaged and motivated to accomplish important goals, which positively impacts their success at university (Salanova, Schaufeli, Martinez, & Breso, 2010). The study of first-year student well-being does also benefit HEIs through increased retention, higher performance rates, and decreased student dropout (Coates, 2005; Kuh, 2009; Pohl, 2013).

Various models that have been used to study factors influencing student well-being, however recently the Job Demands-resources (JD-R) model has been applied to the student context (Bakker & Demerouti, 2007; Demerouti & Bakker, 2011; Demerouti, Nachreiner & Schaufeli, 2001). The JD-R model is based on two assumptions. Firstly, the model links two categories, namely demands and resources, and explains how these two categories have unique and multiple effects on job stress and motivation. Secondly, the model has two fundamental processes, health-impairment and motivation, which are activated by various demands and resources (Bakker & Demerouti, 2014). The present study focused on the motivational process to determine the relationship that study demands, study resources and engagement have with student well-being.

Furthermore, numerous models and taxonomies can be applied to well-being. This study used the conceptualisation of Keyes (2002; 2005; 2007), who defines well-being as follows: a state of mental health that is seen when a set of symptoms at a particular level are present for a specific period and these symptoms match distinctive forms of cognitive and social functioning. Keyes (2014) focuses on the concept of subjective well-being, which can be divided into two streams of research: positive feelings or emotions, and positive functioning. Positive *feelings or emotions* associates well-being with happiness or feeling good, while positive *functioning* link well-being to human potential that, when nurtured, helps the individual function well in life (Keyes, 2014). Mental health is broken down further into three constructs of well-being, namely emotional, psychological, and social (Keyes, 2014).

Taking into account the aforementioned, to date no studies on student well-being could be found that tested a structural model of study demands, study resources, engagement and well-being (as conceptualised by Keyes) or the mediating effect of engagement between demands/resources and well-being (Keyes, 2007; 2014). Findings show that certain studies did apply the JD-R model to the student context (e.g. Cilliers et al., 2018; Mokgele & Rothmann, 2014; Osedach, 2013; Salanova, Schaufeli, Martinez, & Breso, 2010; Wilson & Sheetz, 2010). However, limited studies were found that investigate the influence of study demands and study resources on study engagement and student well-being, based on the mentioned conceptualisation of Keyes (2002; 2005; 2007). To address this gap, the present study investigated the impact that study demands, resources and engagement have on emotional, social and psychological well-being of first-year students. In this regard, the study also tested

whether study engagement mediates the relationship between study demands/resources on the one hand, and emotional, social and psychological well-being on the other.

LITERATURE REVIEW

Subjective well-being

Subjective well-being focuses on what is typically described as happiness as it embraces those aspects of life that make individuals' 'feel good' (Guse, 2014). Over the past 50 years, various researchers have made intensive efforts to study subjective well-being empirically (cf. Gilbert, 2006; Oishi, 2010; Seidlitz & Diener, 1993; Scollon, Kim-Petro, & Diener, 2003). The roots of subjective well-being can be traced back to Bradburn (1969), who first indicated that positive affect and negative affect are distinct constructs. Diener (2006) conceptualised subjective well-being as a holistic term for numerous types of appraisals individuals have of their lives, both positive and negative (Durayappah, 2010). These references consider judgements of life satisfaction, engagement and affect.

Current literature has indicated existing but limited taxonomies and theories explaining subjective well-being, although the Mental Health Continuum developed by Keyes (2002) is noteworthy. The Mental Health Continuum proposes a gradient from ill-being to well-being. Keyes describes individuals with complete mental health as 'flourishing' in life with high levels of subjective well-being. On the other hand, individuals with incomplete mental health are 'languishing' in life, showing low-levels of subjective well-being (Keyes, 2014; 2007; 2002).

In recent years, studies on well-being have developed in response to the fundamental hypothesis that mental health is similar to a sheer lack of psychopathology (Ben-Arieh, 2006; Huppert & So, 2013; Keyes, 2002). The World Health Organisation (WHO) defined mental health as a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity (WHO, 1948). Keyes (2014) took this a step further and defines mental health as a state of well-being in which individuals realise their own abilities, are able to cope with normal stresses of life, can work productively and fruitfully, and are able to contribute to their society (Keyes, 2014). He proposed three components for well-being: emotional, social and psychological. Emotional well-being is observed from a *hedonic* perspective, while social

and psychological social well-being is observed from a *eudaimonic* perspective. In other words, a hedonic perspective focuses on happiness, enjoyment, pleasure and satisfaction. A eudaimonic perspective on the other hand, focuses on meaning and purpose.

Emotional well-being is defined as a collection of symptoms that replicate the presence or absence of positive feelings about life (i.e. individuals being in good spirits, interested in life, calm and peaceful, full of life). Social well-being expresses social aspects and focuses on matters such as acceptance, growth, contribution, coherence, and integration. Psychological well-being embodies characteristics of functioning well on an individual level and focuses on self-acceptance, personal growth, purpose in life, environmental mastery, autonomy, and positive relations with others (Keyes, 2002; 2014).

Various researchers suggest that students who experience a deeper sense of well-being, show a higher ability to learn and incorporate information in effective methods or ways. Such students are more willing to engage in healthy and fulfilling social behaviour and are more likely to devote them to their own and others' well-being. Furthermore, these students engage in their social, professional, and leadership roles when they undergo the transition from the university context to the working environment (Awartani, Whiteman & Gordon, 2008).

The Job Demands-resources theory

The Job Demands-resources (JD-R) model was developed for the workplace to predict employees' burnout and engagement, with the primary objective of enhancing organisational performance (Bakker & Demerouti, 2014; 2007; 2001). The JD-R model is based on the assumption that the different characteristics and risk factors within the workplace environment are linked to job stress or employee well-being and can be divided into two categories, namely 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 can be defined as those features of a job that require sustained physical and/or psychological effort and are linked to specific physiological and/or psychological costs (Bakker & Demerouti, 2018; 2017; 2014). Examples of job demands in the context of the work

environment are high work pressure and emotionally demanding interactions with clients or customers (Bakker, 2011; Bakker and Demerouti, 2007; 2017). In the context of the student environment, examples of study demands would be academic pressures as well as emotionally demanding interactions with lecturers, fellow classmates, and individuals on campus (Reyagalaletsa, 2015). Even though study demands are not negative per se, they may turn into hindrance demands when coupled with high effort and insufficient recovery (Bakker & Demerouti, 2014). Study demands can therefore be defined as study circumstances that lead to stress responses when students' personal boundaries are overpowered. These demands are connected to physical and psychological detriments, such as burnout (Salmela-Aro & Upadyaya, 2014).

Job resources are defined as the physical, psychological, social and organisational features of a job that (a) may decrease job demands along with the related physiological and psychological costs; (b) may be seen as useful to achieve work goals; and (c) help motivate personal growth, learning, and development (Bakker & Demerouti, 2018; 2017; 2014). Examples of job resources in the work environment are: autonomy, skill variety, performance feedback, and opportunities for growth (Bakker, 2011; Bakker & Demerouti, 2007; 2017).

Study resources can be referred to as the permitting features that encourage student engagement as well as protect these students against feelings of being exhausted and disengaged, which prevent them to attain their study goals (Mokgele & Rothmann, 2014). The main function of study resources is to maintain health and well-being. Such resources are thus attributes that help students achieve academic-related goals; reduce demands and counter the resultant physical and psychological detriments; while also encouraging personal growth and development (Salmela-Aro & Upadyaya, 2014). Examples of study resources are: the nature and variety of tasks performed by students; amount of autonomy students have; and opportunities for personal growth. Such resources include: feedback on results; meaningfulness of tasks and students' level of responsibility; sound lecturer-student relationship (support and guidance); and social support structures (Hackman & Oldham, 1980; Jacklin & Le Riche, 2009; Kember, 2004; Mokgele & Rothmann, 2014; Ngidi, 2007; Wrzesniewski, 2012).

A further assumption of the JD-R model is the postulation of two underlying processes, namely health impairment and motivation. Health impairment is when employees are exposed to continuous high demands without sufficient resources, and thus experience burnout and other

health-related problems (Bakker & Demerouti, 2014). For motivation it is assumed that when employees are engaged in their work, they are more exposed to improved performance and success (Bakker & Demerouti, 2007; Bakker et al., 2015; Salmela-Aro & Upadyaya, 2014; Xanthopoulou et al., 2007). Based on these assumptions, the JD-R model integrates both negative and positive indicators and outcomes of well-being.

Study engagement

Engagement is seen as a positive, satisfying, work-related state of mind that is driven by vigour and dedication (see Bakker, 2015; Schaufeli et al., 2002; Schaufeli & Bakker, 2004; Schaufeli, Salanova, Gonzalez-Roma, & Bakker, 2002a). *Vigour* is characterised by high levels of energy and mental resilience while working, as well as the willingness to invest effort in one's work and show persistence in the face of difficulties. *Dedication* entails a sense of significance, enthusiasm, inspiration, pride, as well as challenge. Students who are engaged show high levels of energy and are enthusiastic about the academic work required of them. Kahn (1990) notes that individuals who are engaged in their work, invest substantial time and energy in their work or studies. In this regard, first-year students who are engaged draw on their physical, cognitive, as well as emotional resources that help them perform as efficiently as possible (Bakker, 2015).

Relationships between study demands, study resources, engagement and well-being

Research conducted in the work setting showed that job demands are correlated negatively to engagement since job demands diminish energy levels (Crawford, LePine & Rich, 2010). Therefore, when first-year students have to cope with study demands, they may experience strain, which could in the long term result in dissatisfaction and exhaustion (Crawford et al., 2010). Several empirical studies in numerous countries confirm that job demands are correlated positively with burnout, which is the direct opposite construct of engagement (Bakker & Demerouti, 2007; Crawford et al., 2010). *Hypothesis 1a* is therefore formulated as: *Study demands have a significant negative relationship with engagement.*

Several studies have found that the presence of job resources predicts higher levels of work engagement amongst employees through a motivational process (Bakker & Demerouti, 2017; 2018; Bakker, Demerouti, Taris, Schaufeli, & Schreurs, 2003; Hakanen, Bakker, & Schaufeli,

2006; Halbesleben, 2009; Schaufeli & Bakker, 2004; Schaufeli, Bakker, & Van Rhenen, 2009). The same can be argued for the student context: study-related resources will assist students and will be associated with higher levels of study engagement (Schaufeli, Martınez, et al., 2010). *Hypothesis 1b* is therefore formulated as: *Study resources have a significant positive relationship with study engagement.*

Various studies have encouraged the twofold routes to employee and student well-being suggested by the JD-R theory, and has noted the prediction of essential organisational as well as university outcomes (Schaufeli & Taris, 2014). Specifically, Bakker et al. (2003) applied the JD-R model to call centre employees of a Dutch telecom organisation, and investigated its predictive validity for self-reported absenteeism as well as turnover intentions. From this study, results from a sequence of structural equation modelling (SEM) analyses mostly supported the notion of these twofold processes (Bakker & Demerouti, 2014).

In the first instance, the *energy-driven* process, the focus was on job demands such as work pressure, computer glitches, emotional demands, as well as changes in tasks. These demands were found to be the most prevalent predictors of health problems, which, in turn, were connected to absence due to illness. In the second instance, the *motivation-driven* process, the following job resources were investigated: social support, supervisory coaching, performance feedback, as well as time control. Results showed that these resources were the primary predictors of dedication and organisational commitment, which, in turn, were connected to (lower) turnover intentions (Bakker & Demerouti, 2014). Hakanen, Bakker and Schaufeli (2006) found comparable results in their study of Finish teachers. According to their findings, burnout mediated the effect of job demands on ill-health, while work engagement mediated the effect of job resources on organisational commitment.

Bakker, Demerouti and Verbeke (2004) utilised the JD-R model to explore the relationship between job characteristics, burnout, as well as other evaluations of performance. Their study hypothesised and found that job demands such as work pressure and emotional demands, were the most essential antecedents of the exhaustion component of burnout, which, in turn, predicted in-role performance. On the other hand, job resources such as autonomy and social support, were the most prevalent predictors of extra-role performance, due to their relationship with engagement.

The JD-R model indicates that resources may have a positive influence on employees' well-being and performance through the motivational processes (Bakker & Demerouti, 2007). The motivational assumption is that resources may improve individuals' well-being by increasing their intrinsic motivation. The reason is that resources promote learning and development, thereby satisfying basic human needs such as autonomy, belonging and competence (Bakker & Demerouti, 2014). In the student context, individuals who receive feedback, autonomy and social support, are more likely to learn and develop skills. This should improve their studies and help them recognise a higher degree of choice in how they do their work. Such students will gain a sense of belonging amongst classmates and fellow students in the university, and more likely develop a stronger capability to achieve future task goals (Nielsen, Lackmaker, Kansala, Saari, Isaksson, & Nielsen, 2015).

Furthermore, students with *intrinsic* motivation are more likely to experience satisfaction with their work, outside of their work, and suffer less negative effects on their health, such as stress and burnout (Nielsen et al., 2015). Students with *extrinsic* motivation are more likely to improve their well-being performance (Nielsen et al., 2015).

Based on the above mentioned research, *hypothesis 2* can be formulated as follows:
2a: *Study demands have a significant negative relationship with well-being.*
2b: *Study resources have a significant positive relationship with well-being.*

The relationship between study engagement and well-being

Research on employee engagement has increased momentum since the first decade of the 21st century (Albrecht, 2010). Research has provided evidence that engagement is becoming more than a traditional predictor of workplace performance, seeing that it impacts other aspects such as job attitudes and well-being (Shuck & Reio, 2014). In a study by Schuck and Reio (2014), employees who reported higher levels of engagement were more likely to report higher levels of both personal accomplishment and psychological well-being. Individuals, teams and organisations have been reported to work most productively for sustained periods where they experience high levels of engagement and well-being. Where employees face high engagement but low well-being, there is a risk of burnout. *Hypothesis 3* can therefore be formulated as: *Study engagement has a significant positive relationship with well-being.*

The JD-R model demonstrates that demands and resources have an impact on engagement (Salanova & Bakker, 2004) and the latter mediates the relationship between demands, resources, and outcomes such as well-being (Osedach, 2013). In particular, engagement is the result of resources, thus leading to positive outcomes such as satisfaction, commitment, and enhanced performance. Literature on the JD-R model points out a clear limitation: there is extensive focus on the perceptions of the same set of characteristics to measure resources. In addition, the model does not indicate a relationship between demands and engagement; however, certain studies suggest that such a relationship may exist (Osedach, 2013).

Findings by Salanova and Schaufeli (2008) on Spanish and Dutch employees, showed that engagement fully mediates the relationship between resources and well-being. This mediation applies to the impact job resources have on well-being in the workplace, which implies that an increase in job resources is related to increased work engagement, which is in turn related positively to well-being. Additionally, Bernt (2016) also suggests a linkage of job resources and well-being that is mediated by work engagement. Hopkins and Gardner (2012) also investigated the mediating role of work engagement in the relationship between job resources and well-being. They found that the establishing of job resources can strengthen employees' ability to meet basic psychological needs, thus leading to positive well-being.

On the other hand, Hopkins and Gardner (2012) note a negative relationship where engagement mediates between job demands and employee well-being (also see Hallberg & Schaufeli, 2006; Schaufeli, Taris, & Van Rhenen., 2008). They found that job demands show a significant negative relationship with psychological distress (well-being) when mediated by (dis)engagement. Burnout, as a result of job demands, was found related positively to psychological distress and poor health (Melamed, Shirom, Toker, Berliner, & Shapira, 2006; Schaufeli & Bakker, 2004). Additionally, high levels of work engagement were found related to lower levels of psychological distress where research indicated negative relationships between work engagement and mental health problems (Hallberg & Schaufeli, 2006; Schaufeli, Taris, & Van Rhenen., 2008). These findings thus stress the importance of work engagement and its effect on well-being (Hopkins & Gardner, 2012).

Based on the above-mentioned findings, *Hypothesis 4* can be formulated as follows:
4a: *Engagement mediates the relationships between study demands and well-being.*
4b: *Engagement mediates the relationships between study resources and well-being.*

The model the present study tested is depicted in Figure 1 below.

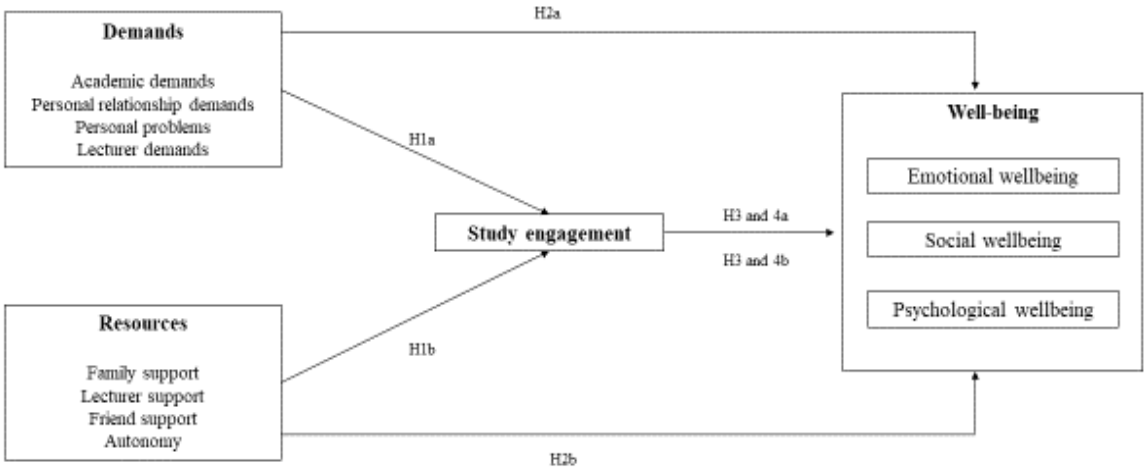

Figure 1. A structural model of study demands, study resources, study engagement and well-being ($N = 773$)

RESEARCH DESIGN

Research approach

The nature of the study was quantitative, by using a stratified random sample to collect data. This form of sampling represents the entire population which a researcher is studying, in this case, a university with three diverse campuses. The advantages of this sampling technique include reduced bias with sample selection as well as ensuring certain segments of the population are not represented more or less than others (Siegle, 2017). Stratified random sampling can be distinguished from random sampling by not selecting sample items or respondents from the whole universe, but only a predetermined number of items from each stratum or section (Struwig & Stead, 2011). The sample for the present study was stratified by dividing the population into subpopulations, where the strata entail three diverse campuses of the participating university.

Research participants

For the purpose of the present study, a sample of first-year students from the participating university and all its delivery sites was used (N = 773; mean age = 20.24, SD = 2.71). The inclusion criterion was that participants should be full-time first-year students at the specific university. Participation in this research was voluntary. The characteristics of the participants are summarised in Table 1 below.

Table 1

Characteristics of the Participants (N = 773)

Item	Category	Frequency	Percentage (%)
Gender	Male	258	33.4
	Female	508	65.7
	Missing	7	0.90
Ethnic group	Asian	2	0.30
	Black	469	60.7
	Coloured	47	6.10
	Indian	11	1.40
	White	243	31.4
	Other	1	0.10
Campus	Delivery site 1	246	31.8
	Delivery site 2	384	49.7
	Delivery site 3	134	17.3
	Missing	9	1.20

As is evident from Table 1 above, the sample consisted of 773 participants of whom 258 (33.4%) were male and 508 (65.7%) female. Most participants were Black (60.7%), followed by Whites (31.4%). The delivery sites were widely represented, with the most participants from delivery site 2 (384, 49.7%) and the least from delivery site 3 (134, 17.3%).

Measuring instruments

The following measuring instruments were used in the study:

Study demands: The *Student-Stress Questionnaire* of Burge (2009) measured these demands. Items were measured on a 5-point Likert scale ranging from 1 (*not at all stressful*) to 5 (*extremely stressful*). The validity and reliability of this scale were determined in this study. The following dimensions were included:

- *Academic demands* (i.e. how stressful students find academic-related activities) were measured with six items (i.e. "With regards to studying at university, how stressful do you find handling the academic workload?").
- *Personal relationship demands* (i.e. how stressful students find it to deal with personal issues) were measured with ten items (i.e. "With regards to studying at university, how stressful do you find dealing with personal issues?").
- *Personal relationship problems* (i.e. how stressful students find it to handle relationships), measured with five items (i.e. "With regards to studying at university, how stressful do you find getting along with fellow students at university?").
- *Lecturers' demands* (i.e. how stressful students find it to approach lecturers for help, measured with six items (i.e. "With regards to studying at university, how stressful do you find approaching lecturers for help?").

Study resources: The resources scale for this study was based on items that have been adapted for the student context from the English version of the *Questionnaire on the Experience and Assessment of Work* (Van Veldhoven, De Jonge, Broersen, Kompier, & Meijman, 2002). Items were measured on a 4-point Likert scale, ranging from 1 (*never*) to 4 (*always*). The validity and reliability of this scale were determined in this study. The following resources were measured:

- *Family support* (i.e. whether students can count on family when they encounter difficulties in their lives) was measured with three items (i.e. "Does your family support you?").
- *Lecture support* (i.e. whether students can approach lecturers for advice) was measured with three items (i.e. "I receive help from my lecturers when difficulties in my course arise").
- *Autonomy* (i.e. whether students have an influence in the planning of their study-related activities) was measured with six items (i.e. "Can you organise your work yourself?").

Study engagement: The *Utrecht Work Engagement Scale-Student survey* (*UWES-S)* was used to measure such engagement (Schaufeli, Salanova, González-Romá, & Bakker, 2002). The

items on this scale were assessed on a 6-point Likert-type scale that ranges from 1 (*a few times*) to 6 (*every day*). Vigour was measured with six items (i.e. "I have energy to study for long hours"), and dedication with six items (i.e. "I find my studies stimulating"). The validation of the UWES-S was done on an international level (Schaufeli et al. 2002). In South Africa, internal consistencies have been found to be 0.70 for vigour and 0.78 for dedication (Mostert, Pienaar, Gauché & Jackson, 2007).

Well-being: The *Mental Health Continuum-Short Form (MHC-SF)* (Keyes, 2009) was used to measure three types of well-being: emotional (three items) (i.e. "I am interested in life"), psychological (six items) (i.e. "I have something important to contribute to society") and social (five items) (i.e. "I have warm and trusting relationships with others"). Items were measured on a 6-point Likert scale, ranging from 1 (*never*) to 6 (*everyday*). The MHC-SF was validated for use with individuals aged 12 years and older. The internal consistency or reliability for each of the three sets of measures exceeded 0.80 (Keyes, 2005a), showing discriminant validity for adolescents from ages 12-18 and adults, in the U.S., Netherlands, and South Africa (Keyes, 2005b, 2006; Keyes, et al., 2008; Lamers et al., 2010; Westerhof & Keys, 2010).

Research procedure and ethical considerations

Once permission was obtained from the participating university's Research Data Gatekeeper Committee and Ethics Committee, formal invitations were e-mailed to all first-year students on the delivery sites. The e-mail contained an explanation of the purpose and objectives of the study and a link to the online questionnaire. Additionally, an informed consent form thoroughly explained confidentiality and voluntary participation, requesting that students confirm their informed consent for completing the questionnaire. The time-frame to complete the online questionnaire was stipulated as between 30-40 minutes. Participants were reminded of voluntary participation every two weeks. Fair and ethical practices were adhered to.

The researcher attempted to be honest and respectful towards the participants involved in this study. The research was not harmful towards participants, and participation remained voluntary. No invasion of privacy or deception occurred during the study (Salkind, 2009). Furthermore, the researcher ensured all collected data remained anonymous and were preserved in a secure location where only the main research team have access.

Statistical analysis

Structural equation modelling (SEM) was utilised with Mplus 7.2 to analyse the gathered data (Muthén & Muthén, 2014). As a means to establish or determine the relationship between the variables, product-moment correlations (*r*) were used, where the relationships between variables can be seen as positive or negative, depending on how they differ (Beaumont, 2012). Effect sizes were measured to establish the practical significance of the results (Steyn & Swanepoel, 2008). In this regard, the cut-off points for the practical significance of the correlation coefficients were established at 0.30 (medium effect) and 0.50 (large effect) (Cohen, 1988). The statistical significance of the variables was deliberated by a confidence interval level of 95% ($p \leq 0.05$).

Four latent variables were created: study demands, study resources, student engagement, and well-being. This was done by using the individual items as indicators; in other words, items were not parcelled in this study (Bandalos & Finney, 2001). The maximum likelihood (ML) estimator was implemented, with the input type covariance matrix. Further methods were applied to test the goodness-of-fit of the model. These methods were: the traditional chi-square ($\chi 2$) statistic, the Comparative Fit Index (CFI), the Tucker-Lewis Index (TLI), the Root Mean Square Error of Approximation (RMSEA) and the standardised root mean square residual (SRMR) The conformist process was used where the model fit was considered adequate when the CFI and TLI values were larger than 0.90 (Byrne, 2010). The RMSEA value was calculated to determine the model fit; values below 0.05 indicated a good fit and those between 0.05 and 0.08 a moderately good model fit (Browne & Cudeck, 1993).

The indirect effect was estimated through a mediation analysis (Rucker, Preacher, Tormala, & Petty, 2011). The study explored the effect of the independent variables (study demands and study resources) on the dependent variable (well-being) as mediated by the mediating variable (student engagement). This mediation analysis was tested through bootstrapping, which according to Preacher and Hayes (2008) entails a non-parametric resampling method to test the indirect effects of variables. Bootstrapping is also believed to be the most preferred method compared to Baron and Kenny's traditional ones (Hayes, 2009; MacKinnon, Lockwood, & Williams, 2004). The bootstrap method was set to resample 5 000 draws (Hayes, 2009). For the present study the interval level for bootstrap confidence was set at 95%, and it was investigated whether the indirect effects would cross zero at that level or not.

RESULTS

Measurement model

The measurement model of this study was tested by creating four latent variables, including study demands, study resources, study engagement, and well-being. This instrument proved to be a good fit where the RMSEA value registered below 0.05, and the CFI and TLI values larger than 0.90. Such values indicated that the model fitted the data well.

Table 2 below presents the standardised factor loadings for the latent factors of this study.

Table 2

Standardised Loadings for the Latent Factors

Item	Item	Loading	S.E	*p*
Academic demands				
	ACDEM1	0.65	0.03	0.001
	ACDEM2	0.68	0.03	0.001
	ACDEM3	0.64	0.03	0.001
	ACDEM4	0.63	0.03	0.001
	ACDEM5	0.75	0.02	0.001
	ACDEM6	0.82	0.02	0.001
	ACDEM7	0.75	0.02	0.001
	ACDEM8	0.81	0.02	0.001
Personal relationship demands				
	SELF1	0.77	0.03	0.001
	SELF2	0.90	0.02	0.001
	SELF3	0.80	0.02	0.001
Personal relationship problems				
	REL1	0.91	0.01	0.001
	REL2	0.88	0.02	0.001
	REL3	0.91	0.01	0.001
Lecture demands				
	LEC1	0.70	0.03	0.001
	LEC2	0.84	0.02	0.001
	LEC3	0.86	0.02	0.001
	LEC4	0.61	0.03	0.001
Family support				
	SSFA1	0.87	0.02	0.001
	SSFA2	0.93	0.02	0.001
	SSFA3	0.82	0.03	0.001
Lecture support				
	SSL1	0.86	0.02	0.001
	SSL2	0.93	0.02	0.001
	SSL3	0.82	0.02	0.001

Table 2 (continued)

Standardised Loadings for the Latent Factors

Item	Item	Loading	S.E	*p*
Friend support				
	SSFR1	0.85	0.02	0.001
	SSFR2	0.85	0.02	0.001
	SSFR3	0.84	0.02	0.001
	SSFR4	0.91	0.01	0.001
	SSFR5	0.92	0.01	0.001
Autonomy				
	AUT1	0.84	0.03	0.001
	AUT2	0.86	0.02	0.001
	AUT3	0.72	0.03	0.001
	AUT4	0.78	0.02	0.001
Engagement				
	ENGAGE1	0.83	0.02	0.001
	ENGAGE2	0.87	0.01	0.001
	ENGAGE3	0.91	0.01	0.001
	ENGAGE4	0.73	0.02	0.001
	ENGAGE5	0.81	0.01	0.001
	ENGAGE6	0.93	0.01	0.001
	ENGAGE7	0.88	0.01	0.001
	ENGAGE8	0.76	0.02	0.001
Emotional well-being				
	HED1	0.80	0.02	0.001
	HED2	0.90	0.01	0.001
	HED3	0.89	0.01	0.001
Social well-being				
	EUDS1	0.85	0.02	0.001
	EUDS2	0.84	0.01	0.001
	EUDS3	0.84	0.01	0.001
	EUDS4	0.76	0.02	0.001
	EUDS5	0.80	0.02	0.001
Psychological well-being				
	EUDP1	0.76	0.02	0.001
	EUDP2	0.79	0.02	0.001
	EUDP3	0.76	0.02	0.001
	EUDP4	0.71	0.02	0.001
	EUDP5	0.78	0.02	0.001
	EUDP6	0.88	0.01	0.001

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

As is evident from Table 2 above, all items loaded significantly on their respective factors. For example, the highest factor loading for personal relationship problems was 0.91 (Item 1: “Trying to make friends on campus”) and 0.91 (Item 3: “Making new friends”), while the lowest factor loading was 0.88 (Item 2: “Getting along with fellow students at university”). The highest factor loading for lecture support was 0.93 (Item 2: “I receive help from my lecturers when difficulties in my course arise”), while the lowest was 0.82 (Item 3: “My lecturers help me when I encounter problems in my studies that I cannot solve by myself”). Furthermore, the highest factor loading for engagement was 0.93 (Item 6: “I feel energised by my studies”) and the lowest was 0.73 (Item 4: “I am a dedicated student”). Finally, the highest factor loading for emotional well-being was 0.90 (Item 2: “Interested in life”), with the lowest 0.80 (Item 1: “I am happy”).

The correlations and reliability coefficients are presented in Table 3 below. The mean scores are not reported since all means registered zero due to the latent variables being standardised.

Table 3

Reliability Coefficients and Correlation Matrix

	A	1	2	3	4	5	6	7	8	9	10	11
1 Academic demands	0.87	1.00										
2 Personal relationship demands	0.79	0.55	1.00									
3 Personal relationship problems	0.89	0.30	0.54	1.00								
4 Lecture demands	0.80	0.60	0.52	0.49	1.00							
5 Family support	0.84	-0.10	-0.29	-0.15	-0.25	1.00						
6 Lecture support	0.80	-0.28	-0.28	-0.23	-0.57	0.26	1.00					
7 Friend support	0.90	-0.13	-0.34	-0.44	-0.24	0.43	0.37	1.00				
8 Autonomy	0.83	-0.48	-0.38	-0.20	-0.35	0.28	0.40	0.24	1.00			
9 Engagement	0.94	-0.37	-0.26	-0.18	-0.26	0.19	0.28	0.17	0.47	1.00		
10 Emotional well-being	0.86	-0.39	-0.53	-0.39	-0.40	0.36	0.36	0.39	0.43	0.51	1.00	
11 Social well-being	0.88	-0.36	-0.34	-0.38	-0.39	0.23	0.35	0.34	0.36	0.51	0.72	1.00
12 Psychological well-being	0.88	-0.41	-0.43	-0.41	-0.37	0.26	0.34	0.38	0.50	0.61	0.80	0.77

Notes: All correlations are statistically significant $p \leq 0.01$

$r \geq 0.30$ is practically significant (medium effect); $r \geq 0.50$ is practically significant (large effect); α = Cronbach's alpha coefficient

Table 3 above indicates that all alpha coefficients of the variables were reliable (Cronbach's alpha ≥ 0.70), which indicates good internal consistency. Furthermore, demands correlated negatively with engagement and well-being. More specifically, academic demands showed a negative correlation and a practically significant relationship with engagement and all well-being variables with a medium effect. Personal relationship demands had a negative correlation and a practically significant relationship with social well-being and psychological well-being (with a medium effect), and emotional well-being (with a large effect). Personal relationship problems showed a negative correlation and practically significant relationship with engagement and all well-being variables with a medium effect, as well as lecture demands with all well-being variables. Furthermore, family support showed a positive correlation with emotional well-being as a practically significant relationship (medium effect). Lecture support and friend support had a positive correlation with all well-being variables, showing a practically significant relationship (medium effect). Autonomy had a positive correlation with engagement, emotional well-being and social well-being at medium effect, and psychological well-being with a large effect. Additionally, engagement had a positive practically significant relationship with all well-being variables, indicating a large effect.

The structural paths and significance levels are indicated in Table 4 below.

Structural model fit and regression results

The regression paths were included in the measurement model and were aligned with the study hypotheses. It was found that the structural model was a good fit to the data (CFI = 0.94; TLI = 0.94.93; RMSEA = 0.04). The results of the regression paths are provided below in Table 4.

Table 4

Regression Results for the Structural Model

Structural paths		β	S.E	*p*	Result
Engagement					
	Academic demands	-0.24	0.05	**0.00***	Significant
	Personal relationship demands	0.04	0.05	0.46	Nonsignificant
	Personal relationship problems	-0.08	0.05	0.13	Nonsignificant
	Lecture demands	0.10	0.06	0.11	Nonsignificant
	Family support	0.08	0.04	0.08	Nonsignificant
	Lecture support	0.12	0.05	**0.02***	Significant
	Friendship support	-0.02	0.04	0.74	Nonsignificant
	Autonomy	0.33	0.04	**0.00***	Significant
Social well-being					
	Academic demands	-0.07	0.05	0.17	Nonsignificant
	Personal relationship demands	0.02	0.05	0.68	Nonsignificant
	Personal relationship problems	-0.18	0.05	**0.00***	Significant
	Lecture demands	-0.08	0.06	0.19	Nonsignificant
	Family support	0.03	0.04	0.54	Nonsignificant
	Lecture support	0.08	0.05	0.11	Nonsignificant
	Friendship support	0.14	0.04	**0.00***	Significant
	Autonomy	0.02	0.04	0.61	Nonsignificant
	Engagement	0.37	0.03	**0.00***	Significant
Emotional well-being					
	Academic demands	-0.03	0.05	0.60	Nonsignificant
	Personal relationship demands	-0.26	0.05	**0.00***	Significant
	Personal relationship problems	-0.09	0.05	0.08	Nonsignificant
	Lecture demands	-0.01	0.06	0.92	Nonsignificant
	Family support	0.13	0.04	**0.00***	Significant
	Lecture support	0.06	0.05	0.17	Nonsignificant
	Friendship support	0.12	0.04	**0.01***	Significant
	Autonomy	0.06	0.04	0.21	Nonsignificant
	Engagement	0.33	0.03	**0.00***	Significant
Psychological well-being					
	Academic demands	-0.05	0.05	0.32	Nonsignificant
	Personal relationship demands	-0.08	0.05	0.08	Nonsignificant
	Personal relationship problems	-0.17	0.04	**0.00***	Significant
	Lecture demands	0.00	0.06	0.97	Nonsignificant
	Family support	0.02	0.04	0.68	Nonsignificant
	Lecture support	0.02	0.05	0.71	Nonsignificant
	Friendship support	0.14	0.04	**0.00***	Significant
	Autonomy	0.17	0.04	**0.00***	Significant
	Engagement	0.43	0.03	**0.00***	Significant

Notes: β = Beta coefficient; S.E. = Standard error; *p* = Two-tailed statistical significance
* Statistically significant $p \leq 0.05$

The regression results in Table 4 above, indicate that academic demands described a significant negative relationship path with engagement (β = -0.24; $p \leq 0.001$), whilst lecture support showed a significant positive relationship path with engagement (β = -0. 0.12; p = 0.015) and autonomy a significant positive relationship with engagement (β = -0.33; $p \leq 0.001$). Furthermore, personal relationship problems indicated a significant negative relationship path with social well-being (β = -0.18; $p \leq 0.001$), and friend support (β = 0.14; $p \leq 0.001$) a significant positive relationship with engagement (β = 0.37; p = 0.001) as well as social well-being. Personal relationship demands indicated a significant negative relationship path with emotional well-being (β = -0.26; $p \leq 0.001$), whilst family support (β = 0.13; p = 0.002), friendship support (β = 0.12; p = 0.005) and engagement (β = 0.33; $p \leq 0.001$) all indicated a significant positive relationship path with emotional well-being. Additionally, personal relationship problems indicated a negative relationship path with psychological well-being (β = -0.17; p = 0.001), and friend support (β = 0.14; $p \leq 0.001$), autonomy (β = 0.17; $p \leq 0.001$) and engagement (β = 0.43; $p \leq 0.001$) a positive relationship with psychological well-being.

Indirect effects and confidence intervals

The results of the indirect effects and confidence intervals of the structural paths are reported in Table 5 below.

Table 5

Indirect effects with confidence intervals at 95%

Effects	**Estimate**	**S.E**	***p***	**Confidence intervals (95%)**	
				Lower	Upper
Academic demands→ Engagement → Emotional well-being	-0.08	0.02	0.00	-0.13	-0.04
Lecture support → Engagement → Emotional well-being	0.04	0.02	0.04	0.01	0.08
Autonomy → Engagement → Emotional well-being	0.11	0.02	0.00	0.07	0.15
Academic demands → Engagement → Social well-being	-0.09	0.03	0.00	-0.15	-0.04
Lecture support → Engagement → Social well-being	0.05	0.02	0.04	0.01	0.09
Autonomy→ Engagement → Social well-being	0.12	0.02	0.00	0.08	0.17
Academic demands → Engagement → Psychological well-being	-0.10	0.03	0.00	-0.17	-0.05
Lecture support → Engagement → Psychological well-being	0.05	0.03	0.04	0.01	0.10
Autonomy → Engagement → Psychological well-being	0.14	0.02	0.00	0.10	0.19

Notes: $p < 0.05$

Table 5 above shows the results in relation to the indirect effects that were statistically significant ($p \leq 0.05$). Engagement mediated between academic demands, lecture support and autonomy, with all three well-being dimensions (emotional, social and psychological).

DISCUSSION

The aim of the current study was to investigate the relationships between study demands, study resources, study engagement and well-being of first-year university students through a structural model. Furthermore, this study investigated engagement as a mediator between study demands, study resources, and three types of well-being (social, emotional and psychological) in a sample of South African first-year university students.

Hypothesis 1a set out to confirm that study demands (academic demands, personal relationship demands, personal problems, and lecture demands) indicate a negative relationship with study engagement. The results indicated that all correlation coefficients were statistically significant between demands and engagement. However, in the structural model, only academic demands had a significant negative relationship with engagement. These results suggest that when students experience high academic demands (e.g. experience difficulty with handling their academic work) this will impact negatively on their vigour and dedication (e.g. being less enthusiastic, less confident and less effective in completing their academic tasks). These results concur with the findings of Schaufeli et al. (2002a) that demands and engagement are moderately and negatively related. In another study, Crawford, LePine and Rich (2010) argued that the relationship between demands and engagement were a function of the nature of the demand. Based on these results, hypothesis 1a was accepted partially.

Hypothesis 1b postulated that study resources (family support, lecturer support, friend support, and autonomy) have a positive relationship with student engagement. All correlation coefficients were found to be significant, although the significant regression coefficients in the structural model were found between lecture support and autonomy with engagement. This indicates that when a positive lecture-student relationship exists (e.g. support and guidance received from their lecturers), the higher their engagement levels. Schaufeli and Bakker (2004) and Bakker and Demerouti, (2017; 2018) deduced that resources may have an intrinsic or extrinsic motivational function. Thus, as an intrinsic motivational function, resources empower

basic human needs such as autonomy (DeCharms, 1968), competence (White, 1959) and relatedness (Baumeister & Leary, 1995); (Klem & Connell, 2009). Based on the mentioned results, hypothesis 1b was accepted partially.

Hypothesis 2a postulated that study demands have a negative relationship with student well-being. Although all correlations coefficients were found to be significant, the results of the structural model showed that only personal relationship problems had a significant negative relationship with social and psychological well-being; and personal relationship demands with emotional well-being. In this study in particular, this means that the more relationship demands students experience (e.g. inability to make new friends and interact with fellow students), the more their social and psychological well-being is impacted negatively, resulting in a feeling that they do not belong.

Baumeister and Leary (1995), found that individuals feel good when they share moments and experiences with others. Thus each individual has an innate desire to foster high-quality relationships. This desire is linked strongly to a psychological instinct: the need to belong. On the other hand, the more personal relationship problems students experience, the more uninterested and unsatisfied with life they can become; thus affecting their emotional well-being. A study by Danna and Griffin (1999) concur and add that when individuals experience work-related stress together with stress from daily life, this can lead to detrimental emotional, psychological and socially unfavourable outcomes. This condition is due to excessive demands on the human body and mind. Based on these results, hypothesis 2a was accepted partially.

Hypothesis 2b proposed that study resources will show a positive relationship with student well-being. The results of the present study indicated that all correlation coefficients were statistically significant with resources and well-being. Nevertheless, it was found that friend support had a positive relationship with all types of well-being; family support with emotional well-being; and autonomy with psychological well-being. Therefore, the more resources individual students have (e.g. friends and family support), the more positive its impact on their well-being. Various researchers have suggested that when individuals feel they have reliable and supportive friends, the following resources are provided: intimacy and closeness (Reis, Clark & Holmes, 2004); surplus of comfort and relief from stress (Collins & Feeney, 2000); as well as accountability partners who help them achieve certain goals (Tay, Tan, Diener, & Gonzalez, 2013; Taylor, 2010).

In particular, social relationships are considered as essential to an individual's happiness and well-being (Argyle, 2001; Myers, 2000). Leach (2016) indicates that social connections have a significant impact on an individual's emotional well-being and the ability to survive major challenges. Deci and Ryan (2014) point out an essential value and motivation for individuals, namely to feel connected and meaningfully related to others. Based on the JD-R model, Bakker (2011) and Demerouti et al., (2001), argue that resources are motivational, thus in their findings, increased student resources enhance student's well-being. Based on the mentioned results, hypothesis 2b can therefore be accepted partially.

Hypothesis 3 postulated that study engagement will show a significantly positive relationship with student well-being. In the current study all correlation and regression constructs were found to be statistically significant with engagement and all three types of well-being, thus hypothesis 3 is accepted fully. This means that the more vigorous students are (e.g. mental energy to study for long hours) and dedicated (viewing studies as meaningful and exciting), the more they will be impacted positively in the various states of well-being: *emotional* (feeling happy, interested and satisfied with life), *social* (meaningful contribution to society) and *psychological* (appreciating most aspects of their personality and managing daily responsibilities effectively).

Diener and Chan (2011) confirm that engagement and emotional well-being relate to improved health and longer life, thus positive impact on happiness and satisfaction with life. In this regard, Keyes (1998); Keyes and Shapiro (2004) found that engaged students have a more positive attitude towards others; uphold certain beliefs in the growth of self and society; and have an understanding of society. According to Ryff and Singer (2002; 2008), students who measure high on psychological well-being have a positive view of themselves (self-acceptance), are self-determined and independent with their thoughts and actions (autonomy) and are able to establish and maintain close relationships with others. Shuck and Reio (2013), found that engaged individuals tend to be more productive and interact positively with those around them. Appropriate feedback from lecturers help foster student's learning, thus increasing their study competence (emotional well-being), whereas freedom of decision and social support satisfy the need for autonomy (psychological well-being) and the need to belong (social well-being) (Schaufeli & Bakker, 2004).

Hypotheses 4a and b: The research model of the study proposed that engagement is a mediator between demands, resources, and three types of well-being (emotional, social and psychological). According to *hypothesis 4a,* engagement mediates the relationship between study demands and well-being; and *hypothesis 4b* postulated further that engagement mediates the relationship between resources and well-being. In other words, when demands are high, students find their studies difficult and less meaningful, which essentially hampers their happiness and satisfaction at the university and in life as a whole. Schaufeli (2013) points out that when individuals are overwhelmed by demands that are not supported by resources, they are more likely to be disengaged in their work; thus impacting their well-being negatively.

Based on the results above, hypothesis 4a can therefore be accepted partially, seeing that engagement showed a mediated effect with only certain study demands and the mentioned three types of well-being. Engagement, according to hypothesis 4b, involves lecture support and autonomy, which as a result, has a positive impact on well-being. A study by Salanova and Schaufeli (2008) in the work context concludes that work engagement fully mediates the impact of job resources on employees' well-being. According to their findings, an increase in job resources related positively to an increase in work engagement, and thus positively impacted employee well-being. Additionally, Torrente, Salanova, Llorens, and Schaufeli (2012) found that resources were related positively to engagement – a psychological state related to an individual's performance. Based on these mentioned results, hypothesis 4b is accepted partially.

Conclusion

The purpose of the present study was to investigate the relationships between study demands, study resources, study engagement and well-being of first-year university students through a structural model. Additionally, this study investigated engagement as a mediating effect between study demands, study resources, and well-being in the mentioned sample. The results highlighted the importance of study demands and its negative impact on study engagement, particularly student well-being. Furthermore, the findings emphasised the importance of study resources and its positive impact on study engagement and student well-being. This condition applies especially to the support students receive from their lecturers and which help provide opportunities for development and growth. The results from the present study have indicated

that it is beneficial to investigate the impact of study demands, study resources, engagement as a mediating effect, as well as on the well-being of first-year students.

Limitations and recommendations

This study makes a valuable contribution to the field of Industrial and Organisational Psychology in general, as well as to research in student engagement and well-being in particular. However, certain limitations were noted within this study.

Firstly, data gathering in this study was limited to a single instrument that was e-mailed to students as a self-report questionnaire. This could have created a basis for students being personally biased (consciously or unconsciously), and required of them to complete the form without support or supervision. *A recommendation for future research is to obtain more information through various other methods of data collection such as semi-structured interviews and appreciative inquiry sessions. This will help researchers determine the appropriate means to investigate first-year students within the university.*

Secondly, the data were gathered over a brief period, which also may produce limited results. *Thus, it is recommended that a longitudinal study be done over the duration of students' progress in their studies (i.e. from first to second year; second to third year, etc.). Such an approach may determine whether the results should be altered or remain the same.*

Thirdly, during the data-gathering period, political instability may have occurred. The political issue coupled with the concept of *@Fees must fall* led to student strikes in various universities across South Africa, protesting for the reduction of perceived high student tuition. This instability could have influenced the number of first-year students who participated in the study since campuses were closed intermittently.

Fourthly, participant characteristics did not equally represent the gender, seeing that female participants were in the majority. Similarly, unequal representation of ethnic groups was noted, therefore the results could not be generalised results for all gender and ethnic groups. Since the study focused on first-year students, the results could also not be generalised for all university students (i.e. from second year onwards). *Thus recommendations are to expand the study to all*

students working towards attaining their degree (first, second and third year students) to ensure more generalised results.

Finally, the study focused on first-year students from a single university site in South Africa. therefore, the results cannot be generalised for first-year students in other universities. *It is recommended that future studies should incorporate first-year students in other education institutions to attain more generalisable results.*

Practical implications

The results from the present study contribute to literature and the field of student engagement and student well-being. Through this research, further information has been made available on the impact and effect that study demands, study resources and study engagement have on students' well-being. The findings from this study could benefit first-year university students as well as higher education institutions.

Students: On this level, the study may have specific benefits. It could provide coping mechanisms for extraneous study demands which may be a challenge to them. Students may be helped to utilise their resources thereby improving their academic performance. They may also become more engaged by finding deeper meaning in their studies and becoming more aware of opportunities for growth.

Higher education institutions: The benefits may entail a clearer understanding of the impact study demands and resources have on first-year students, and how support structures enhance students' engagement and well-being. Furthermore, the findings could help HEIs develop and structure programmes to manage challenging situations that students may face in their studies and personal lives. In this regard, the findings can guide HEIs to create platforms that may improve students' performance, engagement and well-being.

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References

Argyle, M. (2001). *The psychology of happiness*, 2nd ed. New York, NY: Routledge.

Awartani, M., Whitman, C. V., & Gordon, J. (2008). Developing instruments to capture young people's perceptions of how school as a learning environment. *European Journal of Education, 43*(1), 51–70. doi.org/10.1111/j.1465-3435.2007.00337.x

Bakker, A. B. (2011). An evidence-based model of work engagement. *Current Directions in Psychological Science*, *20*, 265–269.

Bakker, A. B. (2015). A Job Demands-resources approach to public service motivation. *The American Society for Public Administration, 75*(5), 723–732.

Bakker, A. B., & Demerouti, E. (2007). The Job Demands-resources model: State of the art. *Journal of Managerial Psychology*, *22*, 309–328.

Bakker, A. B. & Demerouti, E. (2014). Job demands-resources theory. *Work & wellbeing: Wellbeing: A Complete Reference Guide*, 3. doi: 10.1002/9781118539415.wbwell019

Bakker, A. B., & Demerouti, E. (2017). Job demands-resources theory: Taking stock and looking forward. Journal of Occupational Health Psychology, 22(3), 273–285. doi.org/10.1037/ocp0000056

Bakker, A. B., & Demerouti, E. (2018). Multiple levels in job demands-resources theory: Implications for employee well-being and performance. In Diener, E., Oishi, S., & Tay, L. *Handbook of wellbeing*. Salt Lake City, UT: DEF Publishers. doi:nobascholar.com

Bakker, A. B., Demerouti, E., & Euwema, M. C. (2005). Job resources buffer the impact of job demands on burnout. *Journal of Occupational Health Psychology*, *10*, 170–180.

Bakker, A. B., Demerouti, E., & Schaufeli, W. B. (2003b). Dual processes at work in a call centre: An application of the Job Demands-Resources model. *European Journal of Work & Organizational Psychology*, *12*, 393–417.

Bakker, A. B., Demerouti, E., & Verbeke, W. (2004). Using the Job Demands-Resources model to predict burnout and performance. *Human Resource Management, 43*, 83–104.

Bakker, A. B., Demerouti, E., De Boer, E., & Schaufeli, W. B. (2003a). Job demands and job resources as predictors of absence duration and frequency. *Journal of Vocational Behavior*, *62*, 341–356.

Bakker, A. B., Hakanen, J. J., Demerouti, E., & Xanthopoulou, D. (2007). Job resources boost work engagement, particularly when job demands are high. *Journal of Educational Psychology*, *99*, 274–284.

Bakker, A. B., Van Emmerik, H., & Van Riet, P. (2008). How job demands, resources, and burnout predict objective performance: A constructive replication. *Anxiety, Stress, & Coping, 21*, 309–324.

Bakker, A. B., Van Veldhoven, M. J. P. M., & Xanthopoulou, D. (2010). Beyond the Demand-Control model: Thriving on high job demands and resources. *Journal of Personnel Psychology*, *9*, 3–16.

Bandalos, D. L., & Finney, S. J. (2001). Item parceling issues in structural equation modelling. In G. A. Marcoulides (Eds.), *New developments and techniques in structural equation modeling* (pp. 269–296). Mahwah, NJ: Lawrence Erlbaum.

Baumeister, R., & Leary, M. R. (1995). The need to belong: Desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin*, *117*, 497–529.

Behson, S. J., Eddy, E. R., & Lorenzet, S. J. (2000). The importance of the critical psychological states in the job characteristics model: A meta-analytic and structural equations modeling examination. *Current Research in Social Psychology, 5*, 170–189.

Ben-Arieh, A. (2006). Is the study of the "State of Our Children" changing? Revisiting after five years. *Children and Youth Services Review, 28*(7), 799–811.

Bernt, P. E. H. (2016). Work engagement as a mediator in the relationship between HRM-practices and employee performance (Master's thesis) Oslo: University of Oslo. Retrieved from https://www.duo.uio.no/bitstream/handle/10852/50093/Work-engagement-as-a-mediator-in-the-relationship-between-HRM-practices-and-Employee-Performance-.pdf?sequence=1

Browne, M. W., & Cudeck, R. (1993). Alternative ways of assessing model fit. In K. A. Bollen & J. S. Long (Eds.), *Testing structural equation models* (pp. 136–162). Newbury Park, CA: Sage.

Burge, J. (2009). *Coping frequency, coping effectiveness, and personality factors in university students*. (Unpublished honours thesis). University of Canberra, Canberra.

Byrne, B. M. (2010). *Structural equation modelling with AMOS*. (2nd ed.). New York, NY: Taylor & Francis.

Cilliers, J. R., Mostert, K., & Nel, J. A. (2018). Study demands, study resources and the role of personality characteristics in predicting the engagement of first-year university students. *South African Journal of Higher Education*, *32*(1), 49–70. doi.org/10.20853/32-1-1575

Clausen, T., Nielsen, K., Gomes Carneiro, I., & Borg, V. (2012). Job demands, job resources and long-term sickness absence in the Danish eldercare services: A prospective analysis of register-based outcomes. *Journal of Advanced Nursing*, *68*, 127–136.

Coates, H. (2005). The value of student engagement for higher education quality assurance. *Quality in Higher Education*, *11*(1), 25–36. doi.org/10.1080/13538320500074915

Cooke, P. J., Melchert, T. P., & Connor, K. (2016). Measuring well-being: A review of instruments. *The Counseling Psychologist*, *44*(5), 730–757. doi.org/10.1177/0011000016633507

Collins, N. L., & Feeney, B. C. (2000). A safe haven: An attachment theory perspective on support seeking and caregiving in intimate relationships. *Journal of Personality & Social Psychology, 78*, 1053–1073.

Crawford, E. R., LePine, J. A., & Rich, B. L. (2010). Linking job demands and resources to employee engagement and burnout: A theoretical extension and meta-analytic test. *Journal of Applied Psychology, 95(5),* 834–848. doi.org/10.1037/a0019364

Csikszentmihalyi, M. (1990). *Flow: The psychology of optimal experience*. (1st ed.). New York, NY: Harper.

Danna, K. & Griffin, R. W. (1999). Health and well-being in the workplace: A review and synthesis of the literature. *Journal of Management, 25(3),* 357–384. doi: 10.1177/014920639902500305

DeCharms, R. (1968). *Personal causation: the internal affective determinants of behavior.* (1st ed.). New York, NY: Academic Press.

Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behavior*. New York, NY: Plenum.

Deci, E. L., & Ryan, R. M. (2000). The "what" and "why" of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry, 11,* 227–268.

Deci, E. L., & Ryan, R. M. (2014). Autonomy and need satisfaction in close relationships: Relationships motivation theory. In Weinstein, N. *Human motivation and interpersonal relationships: Theory, research, and applications* (pp. 53–73). Dordrecht, Netherlands: Springer.

Diener E., & Chan M.Y. (2011): Happy people live longer: Subjective well-being contributes to health and longevity. *Applied Psychology: Health & Well-being, 3,* 1–43.

De Jonge, J., Bosma, H., Peter, R., & Siegrist, J. (2000). Job strain, effort-reward imbalance and employee well-being: A large-scale cross-sectional study. *Social Science & Medicine*, *50*, 1317–1327.

De Lange, A. H., Taris, T. W., Kompier,M. A. J., Houtman, I. L. D., & Bongers, P. M. (2003). "The *very* best of the millennium": Longitudinal research and the Demand-control-(Support) model. *Journal of Occupational Health Psychology*, *8*, 282–305.

Demerouti, E., & Bakker, A. B. (2011). The Job Demands-Resources model: Challenges for future research. *South African Journal of Industrial Psychology*, *37*, 1–9.

Demerouti, E., Bakker, A. B., Nachreiner, F., & Schaufeli, W. B. (2001). The Job Demands-resources model of burnout. *Journal of Applied Psychology*, *86*(3), 499–512. doi: 10.1037/0021-9010.86.3.499

Durayappah, A. (2010). The 3P Model: A general theory of subjective well-being. *Journal of Happiness Studies*, *12*(4), 681–716.

Fried, Y., & Ferris, G. R. (1987). The validity of the Job Characteristics model: A review and meta-analysis. *Personnel Psychology*, *40*, 287–322.

Grant, A. M., Fried, Y., & Juillerat, T. (2010). Workmatters: Job design in classic and contemporary perspectives. In S. Zedeck (Ed.), *Handbook of personality at work,* (pp. 417–444). Washington, DC: American Psychological Association.

Gray, R. (2014). Employee engagement closely tied to health and well-being. *HR Magazine.* Retrieved from http://www.hrmagazine.co.uk/article-details/employee-engagement-closely-tied-to-health-and-wellbeing

Hackman, J. R., & Lawler, E. E. (1971). Employee reactions to job characteristics. *Journal of Applied Psychology*, *55*, 259-286.

Hackman, J. R., & Oldham, G. R. (1980). Work redesign. *Group & Organisation Management, 7*(1), 121–124. doi.org/10.1177%2F105960118200700110

Hakanen, J., Bakker, A. B., & Schaufeli, W. B. (2006). Burnout and work engagement among teachers. *Journal of School Psychology, 43*, 495–513.

Halbesleben, J. R. B. (2010). A meta-analysis of work engagement: Relationships with burnout, demands, resources and consequences. In A. B. Bakker & M. P. Leiter (Eds.), *Work engagement: A handbook of essential theory and research* (pp. 102–117). New York, NY: Psychology Press.

Hallberg, U. E., & Schaufeli, W. B. (2006). "Same same" but different? Can work engagement be discriminated from job involvement and organizational commitment? *European Psychologist, 11*(2), 119–127. doi.org/10.1027/1016-9040.11.2.119

Hayes, A. F. (2009). Beyond baron and Kenny: Statistical mediation analysis in the new millennium. *Communication Monographs, 76*(4), 408–420. doi.org/10.1080/03637750903310360

Herzberg, F. (1966). *Work and the nature of man*. (3rd ed.). New York, NY: Crowell Company.

Herzberg, F., Mausner, B., & Snyderman, B. B. (2008). (1st ed.). *The motivation to work*. New Brunswick, NJ: Transaction.

Hettler, B. (1984). Wellness: Encouraging a lifetime pursuit of excellence. *US National Library of Medicine, 4*, 13–7.

Hopkins, V. M. & Gardner, D. (2012). *The mediating role of work engagement and burnout in the relationship between job characteristics and psychological distress among lawyers* (Master's thesis). Massey University, Albany.

Huppert, F. A., & So, T. T. C. (2013). Flourishing across Europe: Application of a new conceptual framework for defining well-being. *Social Indicators Research, 110*(3), 837–861.

Jacklin, A., & Le Riche, P. (2009). Reconceptualising student support: From 'support' to 'supportive'. *Studies in Higher Education*, *34*, 735–749.

Kahn, W. A. (1990). Psychological conditions of personal engagement and disengagement at work. *Academy of Management Journal*, *33*(4), 692–724.

Karasek, R. A. (1979). Job demands, decision latitude, and mental strain: Implications for job redesign. *Administrative Science Quarterly*, *24*, 285–308.

Karasek, R. A., & Theorell, T. (1990). *Healthy Work: Stress, Productivity, and the Reconstruction of Working Life.* (Reprint Edition). New York, NY: Basic Books.

Kember, D. (2004). Interpreting student workload and the factors which shape students' perceptions of their workload. *Studies in Higher Education, 29,* 165–184.

Keyes, C. L. M. (1998). Social well-being. *Social Psychology Quarterly*, *61,* 121–140.

Keyes, C. L. M. (2002). The mental health continuum: From languishing to flourishing in life. *Journal of Health & Behavior Research*, *43*, 207–222.

Keyes, C. L. M. (2005). Mental illness and/ or mental health? Investigating axioms of the complete state model of health. *Journal of Consulting and Clinical Psychology*, *73*(3), 539–548. doi.org/10.1037/0022-006X.73.3.539

Keyes, C. L. M. (2005b). The subjective well-being of America's youth: Toward a comprehensive assessment. *Adolescent & Family Health, 4,* 3−11.

Keyes, C. L. M. (2006). Mental health in adolescence: Is America's youth flourishing? *American Journal of Orthopsychiatry, 76,* 395–402.

Keyes, C. L. M. (2007). Promoting and protecting mental health as flourishing: A complementary strategy for improving national mental health. *American Psychologist*, *62*(2), 95–108. doi: 10.1037/0003-066X.62.2.95

Keyes, C. L. M. (2009). Atlanta: *Brief description of the mental health continuum short form (MHC-SF).* Retrieved from http://www.sociology.emory.edu/ckeyes/.

Keyes, C. L. M. (2014). Mental health as a complete state: How the salutogenic perspective completes the picture. In Bauer, G. F., & Hämmig, O. *Bridging Occupational, Organizational, and Public Health: A Transdisciplinary Approach*. Dordrecht: Springer Science + Business Media. doi.org/10.1007/978-94-007-5640-3_11

Keyes, C. L. M. & Shapiro, A. D. (2004). Social well-being in the United States: A descriptive epidemiology. In O. G. Brim, C. D. Ryff, & R. C. Kessler (Eds.), *How healthy are we: A national study of well-being at mildlife*, (pp. 350–373). Chicago: University of Chicago Press.

Keyes, C. L. M., Wissing, M., Potgieter, J. P., Temane, M., Kruger, A., & Van Rooy, S. (2008). Evaluation of the Mental Health Continuum Short Form (MHC-SF) in Setswana-speaking South Africans. *Clinical Psychology & Psychotherapy, 15*, 181–192.

Klem, A. M. & Connell, J. P. (2009). Relationships matter: Linking teacher support to student engagement and achievement. *Journal of School Health, 74*(7),262–273. Retrieved from https://doi.org/10.1111/j.1746-1561.2004.tb08283.x

Knoop, H. H. (2013). Positive psychology in education: The joy of learning as a precondition for academic performance. *The Second South African Positive Social Sciences Symposium*, Optentia Research Focus Area, Vanderbijlpark.

Kuh, G. D. (2009). The national survey of student engagement: Conceptual and empirical foundations. *New Directions for Institutional Research, 141*, 5–20. doi.org/10.1002/ir.283

Lamers, S. M. A., Westerhof, G. J., Bohlmeijer, E. T., ten Klooster, P. M., & Keyes, C. L. M. (2010). Evaluating the psychometric properties of the mental health continuum-short form (MHC-SF). *Journal of Clinical Psychology, 67*, 99–110.

Leach, J. (2016). Why friendships are vital to your well-being. Health, Sports & Psychology. Retrieved from: https://www.open.edu/openlearn/health-sports-psychology/health/health-studies/mental-health/why-friendships-are-vital-your-wellbeing

Lewig, K., Xanthopoulou, D., Bakker, A. B., Dollard, M., & Metzer, J. (2007). Burnout and connectedness among Australian volunteers: A test of the Job Demands-resources model. *Journal of Vocational Behavior*, *71*, 429–445.

Maslach, C., Schaufeli, W. B., & Leiter, M. P. (2001). Job burnout. *Annual Review of Psychology*, *52*, 397–422.

Maslach, C., & Leiter, M. P. (1997). *The truth about burnout: How organizations cause personal stress and what to do about it.* San Francisco, CA: Jossey-Bass. Retrieved from https://trove.nla.gov.au/version/18742411

Melamed, S., Shirom, A., Toker, S., Berliner, S., & Shapira, I. (2006). Burnout and risk of cardiovascular disease: Evidence, possible causal paths and promising research directions. *Psychological Bulletin*, *132*(3), 327–353.

Mokgele, K. R., & Rothmann, S. (2014). A structural model of student well-being. *South African Journal of Psychology*, *44*(4), 514–527. doi.org/10.1177/0081246314541589

Mostert, K., Pienaar, J., Gauché, C., & Jackson, L. T. B. (2007). Burnout and engagement in university students: A psychometric analysis of the MBI-SS and UWES-S. *South African Journal of Higher Education, 21*(1), 147–162. doi.org/10.4314/sajhe.v21i1.25608

Muthén, L. K., & Muthén, B. O. (2014). *Mplus user's guide*. (7th ed.). Los Angeles, CA: Muthén & Muthén.

Myers, D. G. (2000). The funds, friends and faith of happy people. *American Psychologist*, 55, 56–67.

Nahrgang, J. D., Morgeson, F. P., & Hofmann, D. A. (2011). Safety at work: A meta-analytic investigation of the link between job demands, job resources, burnout, engagement, and safety outcomes. *Journal of Applied Psychology*, *96*, 71–94.

Nielsen, K., Lackmaker, J., Kansala, M., Saari, E., Isaksson, K., & Nielsen, M. B. (2015). Workplace resources to improve both employee well-being and performance: A systematic reviews and meta-analysis. *Work and Stress: An International Journal of Work, Health & Organisations*, *31*(2), 101–120.

Ngidi, D. P. (2007). Students' and lecturers' perceptions of some factors influencing students' academic success or failure at a historically black university in South Africa. *South African Journal of Higher Education*, *21*, 717–732.

Parker, S. K., & Wall, T. D. (1998). *Job and work design: Organizing work to promote well-being and effectiveness.* San Francisco, CA: Sage. doi: http://dx.doi.org/10.4135/9781452231518

Parker, S. K., Wall, T. D., & Cordery, J. (2001). Future work design research and practice: Towards an elaborated model of work design. *Journal of Occupational & Organizational Psychology*, *74*, 413–440.

Pike, G. R., & Kuh, G. D. (2005). A typology of student engagement for American colleges and universities. *Research in Higher Education, 46*(2), 185–2019. doi.org/10.1007/s11162-004-1599-0

Pohl, S. (2013). Longitudinal multistage testing. *Journal of Educational Measurement, 50*(4), 447–468. doi.org/10.1111/jedm.12028

Pollard & Davidson. (2001). *Strengthening learning through a focus on well-being. supporting student well-being.* Conference Proceedings, Australian Council for Educational Research, Adelaide. Retrieved from https://research.acer.edu.au/cgi/viewcontent.cgi?article=1000&context=research_conference_2001

Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behaviour Research Methods, 40*(3), 879–891. doi.org/10.3758/BRM.40.3.879

Reis, H. T., Clark, M. S., Holmes, J. G. (2004). Perceived partner responsiveness as an organizing construct in the study of intimacy and closeness. In D. J. Mashek & A. P. Aron (Eds.), *Handbook of closeness and intimacy* (pp. 201–225). Mahwah, NJ: Erlbaum.

Renn, R. W., & Vandenberg, R. J. (1995). The critical psychological states: An underrepresented component in job characteristics model research. *Journal of Management, 21*, 279–303.

Reyagalaletsa, F. T. (2015). Adjustment experiences and coping strategies of first-year students at the University of Limpopo (Turfloop Campus), (Master's dissertation). University of Limpopo, Turfloop. Retrieved from http://ulspace.ul.ac.za/handle/10386/1699

Roberts K. H., & Glick, W. (1981). The job characteristics approach to task design: A critical review. *Journal of Applied Psychology, 66,* 193–217.

Rucker, D. D., Preacher, K. J., Tormala, Z. L., & Petty, R. E. (2011). Mediation analysis in social psychology: Current practices and recommendations. *Social & Personality Psychology Campus, 5*(6), 359–371.

Ryan, R. M., & Frederick, C. (1997). On energy, personality, and health: Subjective vitality as a dynamic reflection of well-being. *Journal of Personality*, *65*, 529–565.

Ryff, C.D., & Singer, B. (2002). Flourishing under fire: Resilience as a prototype of challenged thriving. In C.L.M. Keyes & J. Haidt (Eds.), *Flourishing: Positive psychology and the life well-lived* (pp.15–36). Washington, D.C.: American Psychological Association.

Ryff, C. D. & Singer, B. (2008). Know thyself and become what you are: A eudemonic approach to psychological well-being. *Journal of Happiness Studies 9,* 13–39.

Salanova, M., & Schaufeli, W. B. (2008). A cross-national study of work engagement as a mediator between job resources and proactive behaviour. *International Journal of Human Resource Management, 19*(1), 116–131. doi: 10.1080/09585190701763982

Salanova, M., Schaufeli, W., Martínez, I., & Bresó, E. (2010). How obstacles and facilitators predict academic performance: The mediating role of study burnout and engagement. *Anxiety, Stress & Coping, 23*, 53–70. doi.org/10.1080/10615800802609965

Schaufeli, W.B. (2013). What is engagement? In C. Truss, K. Alfes, R. Delbridge, A. Shantz, & E. Soane (Eds.), *Employee engagement in theory and practice*. London: Routledge.

Schaufeli, W.B. & Bakker, A. B. (2004). Job demands, job resources, and their relationship with burnout and engagement: A multi-sample study. *Journal of Organizational Behaviour, 25, 293-315*.

Schaufeli, W. B., Martı´nez, I. M., Marques Pinto, A., Salanova, M., & Bakker, A. B. (2002). Burnout and engagement in university students: A cross-national study. *Journal of Cross-cultural Psychology, 33*, 464–481.

Schaufeli, W. B., Bakker, A. B., & Van Rhenen, W. (2009). How changes in job demands and resources predict burnout, work engagement, and sickness absenteeism. *Journal of Organizational Behavior, 30*, 893–917.

Schaufeli, W. B., Salanova, M., Gonza´lez-Roma´, V., & Bakker, A. B. (2002). The measurement of engagement and burnout: A confirmative analytic approach. *Journal of Happiness Studies, 3*(1), 71–92. doi.org/10.1023/A:1015630930326

Schafeli, W. B. & Taris, T. W. (2014). Chapter 4: A critical review of the Job Demands-resources model: Implications for improving work and health. In G. F. Bauer, & O. Hamming. *Bridging occupational organizational and public health: A transdisciplinary approach*. New York, NY: Springer. doi 10.10071978-94-007-5640-3_4.

Schaufeli, W. B., Taris, T. W., & van Rhenen, W. (2008). Workaholism, burnout, and work engagement: Three of a kind or three different kinds of employee well-being? *Applied Psychology: An International Review, 57*(2), 173–203. doi.org/10.1111/j.1464-0597.2007.00285.x

Scollon, C.N., Kim-Prieto, C., & Diener, E. (2003). Experience sampling: Promises and pitfalls, strengths and weaknesses. *Journal of Happiness Studies*, *4*(1), 5–34.

Shuck, B., & Reio, T. G. (2013). Emotional labor and performance in the field of child life: Initial model exploration and implications for practice. *Children's Health Care, 42*, 168–190.

Shuck, B., & Reio, T. G. (2014). Employee engagement and well-being: A moderation model and implications for practice. *Journal of Leadership & Organizational Studies*, *21*(1), 43–58. doi.org/10.1177/1548051813494240

Siegle, D. (2017). Stratified random sampling. Educational research basics by Del Siegle. UCONN. University of Connecticut. Retrieved from https://researchbasics.education.uconn.edu/stratified-random-sampling/

Siegrist, J. (1996). Adverse health effects of high effort-low reward conditions. *Journal of Occupational Health Psychology*, *1*, 27–41.

Siegrist, J. (2008). Effort-reward imbalance and health in a globalized economy. *Scandinavian Journal of Work, Environment & Health*, *6*, 163–168.

Soutter, A. K., O'Steen, B., & Gilmore, A. (2014). The student well-being model: A conceptual framework for the development of student well-being indicators. *International Journal of Adolescence and Youth, 19*(4), 496–520. doi.org/10.1080/02673843.2012.754362

Struwig, F. W. & Stead, G. B. (2011). (2nd ed.). *Planning, designing, and reporting research*. Cape Town: Pearson Education South Africa.

Tay, L., Tan, K., Diener, E., & Gonzalez, E. (2013). Social relations, health behaviors, and health outcomes: A survey and synthesis. *Applied Psychology: Health & Well-Being, 5*, 28–78.

Taylor, S. E. (2010). Social support: A review. In H. S. Friedman (Ed.), *Oxford handbook of health psychology*. New York, NY: Oxford University Press.

Torrente, P., Salanova, M., Llorens, S., & Schaufeli, W. B. (2012). Teams make it work: How team work engagement mediates between social resources and performance in teams. *Psicothema, 24*, 106–112.

Tsutsumi, A., & Kawakami, N. (2004). A review of empirical studies on the model of effort-reward imbalance at work: Reducing occupational stress by implementing a new theory. *Social Science & Medicine, 59*, 2335–2359.

Van der Doef, M., & Maes, S. (1999). The Job Demand-control (-support) model and psychological well-being: A review of 20 years of empirical research. *Work & Stress, 13*, 87–114.

Van Veldhoven, M., De Jonge, J., Broersen, S., Kompier, M., & Meijman, T. (2002). Specific relationships between psychosocial job conditions and job-related stress: A three-level analytic approach. *Work & Stress*, *16*(3), 207–228. doi:10.1080/02678370210166399

Walster, E., Walster, G. W., & Berscheid, E. (1978). *Equity: Theory and research* (illustrated ed.). Boston: Allyn & Bacon. Retrieved from https://trove.nla.gov.au/version/13283603

Weisner, T. S. (1998). Human development, child well-being, and the cultural project of development. *New Directions for Child and Adolescent Development, 80*, 69–85.

Westerhof, G. J., & Keyes, C. L. M. (2010). Mental illness and mental health: The two continua model across the lifespan. *Journal of Adult Development, 17*, 110–119.

White, R. W. (1959). Motivation reconsidered: The concept of competence. *Psychological Review, 66,* 297-333.

Wilson, E. V., & Sheetz, S. D. (2010). A demands-resources model of work pressure in IT student task groups. *Computers & Education*, *55*(1), 415–426. doi.org/10.1016/j.compedu.2010.02.006

WHO (1948). Constitution. World Health Organization, Geneva. Retrieved from https://www.who.int/governance/eb/who_constitution_en.pdf

Wrzesniewski, A. (2012). Callings. In K. S. Cameron & G. M. Spreitzer (Eds.), *The Oxford handbook of positive organizational scholarship*. New York, NY: Oxford University Press.

Xanthopoulou, D., Bakker, A. B., Dollard, M. F., Demerouti, E., Schaufeli, W. B., Taris, T. W., & Schreurs, P. J. G. (2007b). When do job demands particularly predict burnout? The moderating role of job resources. *Journal of Managerial Psychology*, *22*, 766–786.

CHAPTER 3

CONCLUSIONS, LIMITATIONS AND RECOMMENDATIONS

This final chapter draws certain conclusions, points out the limitations and makes recommendations based on findings of the present study. The conclusions present the outcomes of the study with reference to the general and specific research objectives outlined in Chapter 1. The limitations of the study provide possible solid factors that may have impacted the study and its results. The recommendations are provided to individuals, universities and to help expand the literature for future research and practice in this field.

3.1. CONCLUSIONS

The main aim of this research was to test the relationships between study demands, study resources, study engagement and student well-being through a structural model. This included testing study engagement as an additional mediating factor.

Objective 1

The first objective of this study was to determine how study demands, study resources, study engagement and student well-being are defined in literature. For a better understanding, demands and resources were defined from within the work context and according to the Job Demands-Resources (JD-R) model, while the constructs were placed within in a student context. Furthermore, engagement and study engagement; well-being and student well-being were also conceptualised in accordance with literature.

Job demands were defined as an individual's job characteristics, which involve sustained physical and/or psychological effort and are thus linked to certain physiological and/or psychological costs (Bakker & Demerouti, 2014; 2017; 2018). Certain instances of job demands in the work context include high work pressure and emotionally demanding interactions with clients or customers (Bakker, 2011; Bakker & Demerouti: 2007; 2017). In the student context, study demands were defined as circumstances that lead to stress responses when students' boundaries have been tested. These demands were also linked to physical and psychological detriments such as burnout (Salmela-Aro & Upadyaya, 2014). Examples of such

study demands were noted as: academic pressures, emotionally demanding interactions with lecturers, fellow classmates and individuals on campus (Reyagalaletsa, 2015).

Job resources were defined as the physical, psychological, social and organisational characteristics of a job that (a) may decrease job demands alongside related physiological and psychological costs; (b) may be seen as useful in achieving work goals; and (c) help motivate personal growth, learning and development (Bakker & Demerouti, 2018; 2017; 2014). Certain cases of job resources within the work context include autonomy, skill variety, feedback on performance, and opportunities for growth (Bakker, 2011; Bakker & Demerouti, 2018; 2017; 2014).

Study resources were conceptualised as the enabling traits that encourage students' engagement and protect them against feelings of exhaustion and disengagement, which often prevent individuals from reaching their study goals (Mokgele & Rothmann, 2014). Study resources also help maintain students' health and well-being. Therefore, these attributes help students achieve their academic-related goals, reduce demands and counter resultant physical and psychological detriments, whilst encouraging personal growth and development (Salmela-Aro & Upadyaya, 2014). Examples of such study resources were noted as the nature of tasks performed and autonomy, which included: feedback on results, task meaningfulness; support and guidance from lecturers as well as social-support structures (Hackman & Oldham, 1980; Jacklin & Le Riche, 2009; Kember, 2004; Mokgele & Rothmann, 2014; Ngidi, 2007; Wrzesniewski, 2012).

Study engagement was described as a positive, satisfying, work-related state of mind driven by vigour and dedication (Bakker, 2015; Schaufeli et al., 2002; Schaufeli & Bakker, 2004; Schufeli, Gonzalez-Roma, & Bakker, 2002a). Vigour was found to entail high levels of energy and mental resilience while working, and the willingness to invest effort into one's work and persist in the face of difficulties. Dedication was fond to be characterised by a sense of significance, enthusiasm, inspiration, pride, and challenge. Bakker (2015) found that students who were engaged in their study, drew on their physical, cognitive, and emotional resources that help them perform as effectively as possible.

Well-being was conceptualised as a state of mental health that emerges when a set of symptoms at a particular level are present for a specific time and matches distinctive cognitive and social functioning (Keyes, 2002; 2005; 2007). Keyes (2014) utilised the concept of subjective well-being, which he divided into two streams of research – positive feelings or emotions, and positive functioning. Positive feelings or emotions link well-being to happiness or feeling good, while positive functioning associate well-being with human potential that, when nurtured, helps individuals function successfully in life (Keyes, 2014). Mental health was broken down further into three constructs of well-being: emotional, psychological, and social (Keyes, 2014).

- *Emotional:* a collection of symptoms that imitate the presence or absence of positive feelings about life.
- *Psychological:* embodies characteristics of functioning well on an individual level and focuses on self-acceptance, personal growth, purpose in life, mastering the environment, autonomy and positive relations with others (Keyes, 2002; 2014).
- *Social:* focusing on themes such as acceptance, growth, contribution, coherence and integration.

Numerous studies on student well-being indicate that students who are said to experience an unfathomable sense of well-being have a higher ability to learn and process information effectively. As a result these students are more willing to engage in vigorous and satisfying social behaviour and are more likely to dedicate efforts to their own and others' well-being. Additionally, it was found that these students are more capable of fulfilling their social, professional and leadership functions (Awartani, Whiteman & Gordon, 2008).

Objective 2

The second research objective was to test a structural model of study demands, study resources, study engagement and student well-being amongst first-year students from a tertiary institution. The findings showed that these constructs have positive as well as negative relationships. The results confirmed the hypotheses either fully or partially.

Hypothesis 1 was confirmed, namely that study demands have a negative relationship with student engagement, although only academic demands showed a significant negative relationship with study engagement. The results indicated that first-year students experience difficulties in their studies when academic demands are high. This has a negative effect on their

confidence, enthusiasm and dedication to their work. The mentioned results for the relationship between study demands and study engagement were also confirmed by Schaufeli, Salanova, Gonzalez-Roma and Bakker (2002) who measure engagement and burnout, a construct resulting from demands. Their findings indicate a negative correlation between exhaustion and vigour, as well as between cynicism and dedication. In a study on a work context by Crawford, LePine and Rich (2010) found that when employees who are strongly disengaged in their work activities (i.e. when experiencing high demands) suppress their physical, cognitive and emotional dedication and vigour, which is evident from the poorer results of their work activities.

On the opposite end of hypothesis 1, the results confirmed a significant positive relationship between study resources (although only lecture support and autonomy) and engagement. These results indicate clearly that when students receive support and guidance from their lecturers, they tend to be more motivated toward, engaged in and dedicated to their work. These results were supported by various studies (Bakker & Demerouti, 2017; 2018; Schaufeli & Bakker, 2004), confirming a clear relationship. When individuals have resources at their disposal, this unlocks the potential of an intrinsic or extrinsic motivational function, which leads to the empowerment of basic human needs.

Where *well-being* was the main construct, the results from the study confirmed a certain level of negative relationship with study demands; and a level of positive relationship with study resources and student engagement. Regarding *study demands*, the results confirmed that the more relationship demands students experience (e.g. inability to make friends or relate with fellow students), the more likely they are to develop negative social and psychological feelings and emotions. Furthermore, the more personal relationship problems (a construct linked to study demands) students encounter, the more feelings of disinterest and dissatisfaction they show, which are negative feelings and emotions that affect their well-being.

Danna and Griffin conducted their study within a work context (1999). They found that individual employees experience work-related stress coupled with daily life stress. This may lead to damaging emotional, psychological and social consequences. Where *study resources* were taken into account, the results confirmed a positive relationship with friend support, family support and autonomy with increased well-being. These results confirm that the more resources students have, the more positive the impact is on their well-being. Reis, Clark &

Holmes (2004) suggest that when individuals experience support from their friends and family, they feel that the resource of intimacy and closeness is provided. Collins and Feeney (2000) note that more comfort and relief from stress are provided as study resources. Taylor (2010) explain a provided resource as the availability of accountability partners to help individuals achieve their goals.

Finally, the positive relationship with *student engagement* and well-being confirmed that the more vigorous and dedicated students are, the more likely their levels of well-being are to increase considerably: emotionally, psychologically and socially. A study confirmed that engagement and emotional well-being relate to improved health and longer life due to increased happiness and heightened satisfaction (Diener & Chan, 2011). In a study within a student context, Keyes and Shapiro (2004) confirm that students who are engaged to their studies show a stronger positive attitude towards themselves and others; they also hold clear beliefs about self-growth and societal growth. Furthermore, it was highlighted that students who measure high on psychological well-being are more self-accepting, autonomous, and have the ability to establish and maintain close relationships with others (Ryff & Singer: 2002; 2008).

Objective 3

The third research objective was to assess the mediating effect of student engagement for first-year students between study demands and study resources on the one hand, and student well-being on the other hand. The results confirmed–the mediating effect that engagement had, positively or negatively, on the relationships between constructs. Where engagement mediated the relationship between study demands and well-being, a negatively mediated relationship was indicated. It was found that when study demands are perceived as high, students experience difficulties in their studies, thus causing a lack of commitment or inability to find meaning in completing their study. Schaufeli (2013) corroborates these findings by confirming that when individuals are overwhelmed by demands that are not balanced by resources, they are at higher risk of disengagement and poor well-being. Where engagement mediates the relationship between resources and well-being, the results indicate a positively mediated relationship wherein the presence of resources impact positively on well-being. These results are also confirmed by Salanova and Schaufeli (2008), who indicate that an increase in job resources relates positively to an increase in work engagement, thus impacting positively on well-being.

The objectives that have been discussed help expand the existing literature about the constructs: study demands, study resources, student engagement well-being. Furthermore, the findings contribute greatly to the limited research available in South Africa, particularly on these constructs and sample. As confirmed, there are strong positive and negative relationships, which relate strongly to student well-being and students' probabilities for success at HEIs. Therefore, this provides a motivation to invest in studies on the well-being of first-year students.

Objective 4

The fourth and final objective of the current study was to outline relevant recommendations for future research and practice. This objective is discussed in the following section.

3.2. LIMITATIONS OF THE RESEARCH

The current study made a valuable contribution to the field of Industrial and Organisational Psychology in general, as well as to research on student engagement and well-being in particular. However, certain limitations were noted, which should be mentioned in this regard.

Firstly, the present research was cross-sectional, meaning that data gathering only transpired at a certain point in time. As a result, participant behaviour could not be measured over an extended period. Due to the mentioned limitation, the study depended on the assumption of association since it was difficult to determine any cause and effect (Friedman, 2014). Therefore, a longitudinal design (data collected over an extended period) is recommended for future studies (Friedman, 2014; Govindji & Linley, 2007).

Secondly, data gathering was restricted to a single document that was e-mailed to students as a self-reporting questionnaire. Such a restriction could have caused common-method bias (Friedman, 2014; Kamakura, 2010). This created a platform for student bias (conscious or unconscious), where the interpretation and understanding of the questionnaire and rating scales may differ for each individual.

Thirdly, the sample of this study consisted only of first-year students. Therefore, the results could not be generalised to all students who attend university. Thus, to obtain further validation of results, future studies should include students enrolled in other academic years as well. In

the same light, this study focused on first-year students from a single university in South Africa, which prevents generalisation for first-year students in other universities. When including participants from other universities, the obtained results can be generalised to other groups of university students.

Finally, during data collection, several campuses across South Africa were closed due to the political instability that led to student strikes. This could have impacted significantly on the study's response rate. Students may have had limited access to campus, specifically to computer laboratories. Due to the strike, participants could also have felt disinterested in completing the online questionnaire. This may have been due to low morale, disengagement and discouragement to participate in this research.

3.3. RECOMMENDATIONS

Notwithstanding the aforementioned limitations, the study makes valuable recommendations for the individual, tertiary institutions, and for future research in the field of Industrial/Organisational Psychology.

3.3.1. Recommendations for the individual

Throughout the current research, it became evident that study demands, study resources, and students' level of engagement play a vital role in these individuals' well-being and essentially influence the completion of their studies. This study provides the mentioned students with a platform to explore various challenging demands and resources they face during their first year of study, as viewed from their individual perspectives. It is thus recommended that the gathered knowledge is shared as this will entrench positive lifestyle and decisions on behaviour that will empower students to deal with the challenging demands. Such knowledge may allow students the leverage to gain from resources. This ensures high levels of engagement, while also highlighting efficient coping mechanisms to deal with stressful demands from university. Furthermore, the results prepare the students for challenging work demands they may encounter after completing their study. Thus, it is recommended that the JD-R model is applied within a student context since it is essential that prospective employees are well-prepared to enter the world of work from the onset. Such preparation would provide early detection and management of taxing work demands, thus reducing exhaustion, burnout and ill-health.

3.3.2. Recommendations for institutions

The current study's findings aim to improve university contexts in order to provide students with opportunities for growth and development. The findings contribute by improving students' understanding of the effect study demands have on the engagement and well-being of first-year students. It is thus recommended that universities build on the findings to make study resources available and promote those aspects which students need the most. Such interventions could also contribute to the university's success and pass rate by reducing dropout rates (Murray, 2014).

Furthermore, universities should execute and put into practice change programmes, which increase students' engagement and academic performance. The focus should be on implementing coping mechanisms to counter the vast demands that first-year students face. These coping mechanisms can be tested and practised at HEIs from first-year level onwards. This will help prepare students for the transition from the university to work environment. The reason is that they will be better equipped to deal with the challenging work demands which they will faced. As a result, organisations will comprise more flourishing, efficient and productive employees notwithstanding the demanding work environment they find themselves in.

3.3.3. Recommendations for the field of Industrial/Organisational Psychology

The findings of the current study will benefit the field of Industrial Psychology by adding value to existing theories concerning first-year students. For future research on similar topics, it can be beneficial to use a longitudinal design as research approach. Such a design allows flexibility, typically has high validity and can also observe changes accurately (Farrington, 1991). Johnson and Onwuegbuzie (2004) also note the use of a mixed-method design. Future researchers can utilise this method since it combines qualitative and quantitative research techniques, thereby producing richer data, improved results and clearer interpretation of the findings.

A final recommendation is that this study should be replicated across other universities in South Africa. Such a research should include other study years. The focus should even be on universities in other countries, Such an expansion would lead to richer results, which can be

generalised and utilised globally. Findings from this study should be applied to help prepare future employees for various organisations. In this way, first-year students will be equipped with the necessary resources to survive in a fast-paced work environment. In several instances, the JD-R model has been used widely in the work context. The present study helped pave the way by using the model within the student context. Thus, it is recommended that further studies is done that apply the JD-R model to a tertiary context. Such studies will add to the model's theories and developments in the literature on Industrial Organisational Psychology.

REFERENCES

Awartani, M., Whitman, C., & Gordon, J. (2008). Developing instruments to capture young people's perceptions of how school as a learning environment affects their well-being. *European Journal of Education, 43*(1), 51−70.

Bakker, A. B. (2011). An evidence-based model of work engagement. *Current Directions in Psychological Science*, *20*, 265−269.

Bakker, A. B. (2015). A Job Demands-resources approach to public service motivation. *The American Society for Public Administration, 75*(5), 723−732.

Bakker, A. B., & Demerouti, E. (2007). The Job Demands-resources model: State of the art. *Journal of Managerial Psychology*, *22*, 309−328.

Bakker, A. B. & Demerouti, E. (2014). Job demands-resources theory. In P. Y. Chen & C. L. Cooper (Eds.), *Work & wellbeing: Wellbeing: A Complete Reference Guide*, 3, (pp. 1-28). New York, NY: John Wiley & Sons. doi: 10.1002/9781118539415.wbwell019

Bakker, A. B. & Demerouti, E. (2017). Job demands-resources theory: Taking stock and looking forward. *Journal of Occupational Health Psychology. 22*(3), 273−285.

Bakker, A. B., & Demerouti, E. (2018). Multiple levels in job demands-resources theory: Implications for employee well-being and performance. In E. Diener, S. Oishi, & L. Tay (Eds.), *Handbook of wellbeing* (pp. 1-22). Salt Lake City, UT: DEF. doi:nobascholar.com

Collins, N. L. & Feeney, B. C. (2004). Working models of attachment shape perceptions of social support: Evidence from experimental and observational studies. *Journal of Personality & Social Psychology*, *87*(3), 363−383. doi: 10.1037/0022-3514.87.3.363

Crawford, E. R., LePine, J. A., & Rich, B. L. (2010). Linking job demands and resources to employee engagement and burnout: A theoretical extension and meta-analytic test. *Journal of Applied Psychology*, *95*, 834−848.

Danna, K. & Griffin, R. W. (1999). Health and well-being in the workplace: A review and synthesis of the literature. *Journal of Management*, *25*(3), 357−384. doi: 10.1177/014920639902500305

Diener E., & Chan M. Y. (2011): Happy people live longer: Subjective well-being contributes to health and longevity. *Applied Psychology: Health & Well-being, 3*, 1−43.

Friedman, G. (2014). *Student stress, burnout and engagement* (Doctoral dissertation). University of the Witwatersrand, Johannesburg.

Govindji, R., & Linley, P. A. (2007). Strengths use, self-concordance and well-being: Implications for strengths coaching and coaching psychologists. *International Coaching Psychology Review, 2*(2), 143−153.

Hackman, J. R., & Oldham, G. R. (1980). Work redesign. *Group & Organisation Management, 7*(1), 121−124. doi.org/10.1177%2F105960118200700110

Jacklin, A., & Le Riche, P. (2009). Reconceptualising student support: From 'support' to 'supportive'. *Studies in Higher Education*, *34*, 735−749.

Johnson, R. B. & Onwuegbuzie, A. J. (2004). Mixed methods research: A research paradigm whose time has come. *Educational Researcher, 33*(7), 14−26.

Kamakura, W. A. (2010). Common methods bias. *Wiley International Encyclopaedia of Marketing*. New Jersey, USA: John Wiley & Sons. doi.org/10.1002/9781444316568.wiem02033

Kember, D. (2004). Interpreting student workload and the factors which shape students' perceptions of their workload. *Studies in Higher Education, 29*, 165−184.

Keyes, C. L. M. (2002). The mental health continuum: From languishing to flourishing in life. *Journal of Health & Social Behavior, 43*, 207−222.

Keyes, C. L. M. (2005a). Mental illness and/or mental health? Investigating axioms of the complete state model of health. *Journal of Consulting & Clinical Psychology, 73*, 539−548.

Keyes, C. L. M. (2005b). The subjective well-being of America's youth: Toward a comprehensive assessment. *Adolescent & Family Health, 4*, 3−11.

Keyes, C. L. M. (2007). Promoting and protecting mental health as flourishing: A complementary strategy for improving national mental health. *American Psychologist, 62*(2), 95−108. doi: 10.1037/0003-066X.62.2.95

Keyes, C. L. M. (2014). Mental health as a complete state: How the salutogenic perspective completes the picture. In G. F. Bauer & O. Hämmig. *Bridging occupational, organizational and public health: A transdisciplinary approach*, (pp. 179-192). Dordrecht: Springer Science & Business Media. doi 10.1007/978-94-007-5640-3_11.

Keyes, C. L. M. & Shapiro, A. D. (2004). Social well-being in the United States: A descriptive epidemiology. In O. G. Brim, C. D. Ryff, & R. C. Kessler (Eds.), *How healthy are we: A national study of well-being at midlife*, (pp. 350-373). Chicago, IL: University of Chicago Press.

Mokgele, K. R. F., & Rothmann, S. (2014). A structural model of student well-being. *South African Journal of Psychology, 44*(4), 514−527.

Murray, M. (2014). Factors affecting graduation and student dropout rates at the University of KwaZulu Natal. *South African Journal of Science, 110*(11), 1−6.

Ngidi, D. P. (2007). Students' and lecturers' perceptions of some factors influencing students' academic success or failure at a historically black university in South Africa. *South African Journal of Higher Education, 21*, 717−732.

Reis, H. T., Clark, M. S., & Holmes, J. G. (2004). Perceived partner responsiveness as an organizing construct in the study of intimacy and closeness. In D. J. Mashek & A. P. Aron (Eds.), *Handbook of closeness and intimacy* (pp. 201-225). Mahwah, NJ: Erlbaum.

Reyagalaletsa, F. T. (2015). Adjustment experiences and coping strategies of first-year students at the University of Limpopo, Turfloop Campus. (Master's dissertation). University of Limpopo, Turfloop. Retrieved from http://ulspace.ul.ac.za/handle/10386/1699

Ryff, C. D. & Singer, B. (2008). Know thyself and become what you are: A eudemonic approach to psychological well-being. *Journal of Happiness Studies 9*, 13−39.

Salanova, M. & Schaufeli, W. B. (2008). A cross-national study of work engagement as a mediator between job resources and proactive behaviour. *The International Journal of Human Resource Management, 19*(1), 116−131.

Salmela-Aro, K., & Upadyaya, K. (2014). School burnout and engagement in the context of demands-resources model. *British Journal of Educational Psychology, 84*, 137−151.

Schaufeli, W.B. (2013). What is engagement? In C. Truss, K. Alfes, R. Delbridge, A. Shantz, & E. Soane (Eds.), *Employee engagement in theory and practice* (pp. 57-81). London: Routledge.

Schaufeli, W. B., & Bakker, A. B. (2004). Job demands, job resources, and their relationship with burnout and engagement: A multi-sample study. *Journal of Organizational Behavior, 25,* 293−315.

Schaufeli, W. B., Martı´nez, I. M., Marques Pinto, A., Salanova, M., & Bakker, A. B. (2002). Burnout and engagement in university students: A cross-national study. *Journal of Cross-cultural Psychology, 33,* 464−481.

Schaufeli, W. B., Salanova, M., González-Romá, V., & Bakker, A. B. (2002). The measurement of engagement and burnout: A two-sample confirmatory factor analytic approach. *Journal of Happiness Studies, 3*(1), 71−92.

Taylor, S. E. (2010). Social support: A review. In H. S. Friedman (Ed.), *Oxford handbook of health psychology* (pp. 249-288). New York, NY: Oxford University Press.

Wrzesniewski, A. (2012). Callings. In K. S. Cameron & G. M. Spreitzer (Eds.), *The Oxford handbook of positive organizational scholarship* (pp. 304-315). New York, NY: Oxford University Press.