STUDY DEMANDS, STUDY RESOURCES AND THE ROLE OF PERSONALITY CHARACTERISTICS IN PREDICTING THE ENGAGEMENT OF FIRST-YEAR UNIVERSITY STUDENTS

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ABSTRACT

The objective of this study was to investigate significant predictors of student engagement, including study demands, study resources and personality characteristics. First-year university students (N = 512) participated in the study. The findings showed significant relationships between pace and amount of work and cognitive demands with student engagement, although only cognitive demands was a significant predictor of student engagement in the regression analysis. Even though all the study resources were significantly related to student engagement, the only significant predictors in the regression analysis were support from lecturers and opportunities for growth and development. When personality dimensions were included in the fourth step of the regression analysis, only opportunities for growth and development and achievement orientation (a facet of conscientiousness) were significant predictors of student engagement. Demands explained 6 per cent of the variance in study engagement, resources 17 per cent and personality characteristics and additional 11 per cent.

Keywords: Student engagement, study demands, study resources, personality characteristics, Job Demands-Resources theory, first-year university students

INTRODUCTION

Student engagement is an important topic for universities. Student engagement is strongly related to academic performance and student success (Asghar 2014; Hirschfield and Gasper 2011; Salanova and Schaufeli 2008). Highly engaged students are intrinsically motivated, are more invested in their academics, have higher rates of class attendance and have healthy lives by also participating in non-academic activities (Salanova et al. 2009). Students who are engaged are usually more successful in life, cope better with the challenges of the new work environment and are more successful in dealing with a volatile and uncertain global economy; they enjoy learning, are passionate about their academics and are curious and dedicated to their studies (Asghar 2014; Salanova et al. 2009; Siu, Bakker and Jiang 2014). Students who are engaged in their studies are an asset to universities and a key factor to prevent dropout and promote retention (Pohl 2013). Information on predictors of student engagement can be valuable for universities in several ways, including enhancing quality education and providing students with the necessary support systems (Coates 2005; Kuh 2009).

Due to the importance and growing interest in the concept of student engagement, more studies draw on organisational studies and theoretical frameworks or theories of work engagement, including the Job Demands-Resources (hereafter: JD-R) theory (Bakker, Vergel and Kuntze 2015; Llorens et al. 2006; Salmela-Aro and Upadyaya 2014). Building on the findings of previous studies (Parsons and Taylor 2011; Upadyaya and Salmela-Aro 2013), the current study aims to examine how study demands and study resources that first-year South African university students experience impact their engagement levels and what the contribution of personality characteristics are.

Including personality of students is important since previous research showed that personality has an effect on engagement and academic effort (Ongore 2014; Strauser, O'Sullivan and Wong 2012). In South Africa, psychometric and psychological testing was for a long time viewed as unfair and discriminatory (Paterson and Uys 2005). This was mainly because questionnaires from Western origin were used without taking into account cultural differences (Fetvadjiev et al. 2015). As a result, there was a need for a valid, reliable and equivalent personality questionnaire for all 11 official language groups in the South African context (Fetvadjiev et al. 2015; Foxcroft and Roodt 2013). As a result, an indigenous inventory was developed known as The South African Personality Inventory (hereafter: SAPI) (Nel et al. 2012; Valchev et al. 2011). However, to date, the dimensions of the SAPI were not yet applied as predictors of engagement amongst university students.

The aim of the present study is to investigate the predictive value of study demands,

study resources and personality characteristics as measured by the SAPI in a sample of first-year university students in a South African university.

LITERATURE REVIEW

Student engagement, study demands and study resources

Work engagement of employees has often been studied in the framework of the JD-R model with the ultimate goal of optimising employee performance (Bakker and Demerouti 2007; Bakker, Van Veldhoven and Xanthopoulou 2010). One of the basic assumptions of the JD-R model is that various work-related aspects and risk factors associated with work can be divided into two general categories: job demands and job resources (Demerouti et al. 2001; Xanthopoulou et al. 2007; Van den Broeck et al. 2008). *Job demands* are defined as those physical, psychological, social or organisational aspects of a job that require continuous physical and/or psychological effort from an individual, and hence imply certain psychological and physical costs (Bakker and Demerouti 2007; Bakker, Demerouti and Schaufeli 2003; Bakker, Van Veldhoven and Xanthopoulou 2010). *Job resources* refer to those physical, psychological, social or organisational features of a job that help achieve work goals, decrease the effect of job demands and enhance personal development and learning (Bakker, Demerouti and Schaufeli 2003; Bakker, Van Veldhoven and Xanthopoulou 2010).

In a similar vein, it can be useful to also classify aspects associated with studying at university as study demands and study resources. This is based on the assumption that students' studies can be considered as their work because, as employees, students are also involved in structured, organised and coercive activities such as studying for tests, completing assignments and attending classes. These activities also are directed toward a specific goal, which may include getting good grades, passing exams, or obtaining a degree (Ouweneel, LeBlanc and Schaufeli 2011).

Student engagement can be described as an on-going and positive affective-motivational state accomplished by an individual, which includes two core components, namely vigour and dedication (Schaufeli 2005; Schaufeli and Salanova 2007; Schaufeli et al. 2002; Zhang, Gan and Cham 2007). *Vigour* is characterised by high levels of energy and mental resilience while working, and an individuals' ability and enthusiasm to invest effort in their work or studies. *Dedication* refers to being fully involved in work or studies, and experience a sense of meaning, motivation, enthusiasm, pride and challenge (Bakker

and Bal 2010).

In the organisational context, studies showed that job demands and job resources are related differently to work engagement. Job resources have a very strong and positive relationship with work engagement, while job demands have a weaker and negative relationship with engagement (Bakker, Demerouti and Euwema 2005; Crawford, LePine and Rich 2010). Job demands can deplete energy levels and is therefore associated with higher levels of burnout, the opposite of work engagement (Bakker and Demerouti 2007; Crawford, LePine and Rich 2010). On the other hand, job resources, including resources such as information, appreciation, organisational climate, innovativeness and supervisor support, facilitate work engagement (Bakker et al. 2007).

The findings of these work-related studies were largely confirmed in the academic context (Mokgele and Rothmann 2014; Salmela-Aro and Upadyaya 2014; Wolff et al. 2014). For example, in a study amongst first-year psychology students from a tertiary institution in the Netherlands, Bakker, Vergel and Kuntze (2015) showed that the motivational process also exist and can be applied in the academic context. More specifically, they found that both the personal and environmental resources of students can influence student engagement. It therefore seems that student demands are negatively related to student engagement (*Hypothesis 1*) and student resources are positively related to student engagement (*Hypothesis 2*).

Engagement and personality characteristics

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

There is a strong link between personality and work engagement (Li and Mao 2014; Kim, Shin and Swanger 2009; Rossier et al. 2012). Although all personality characteristics are important, it seems that specific personality characteristics have a stronger relationship with work engagement and performance, including neuroticism, extraversion, conscientiousness and intellect-openness (Akhtar et al. 2015; Aluja, Kuhlman and Zuckerman 2010; Nilforooshan and Salimi 2016; Ongore 2014; Rogers, Creed and

Glendon 2008; Woods and Sofat 2013). In a study amongst 1 050 working adults, Akhtar et al. (2015) found that personality traits are valid predictors of work engagement. Similarly, Inceoglu and Warr (2012) found in a sample of 393 individuals from several countries that particularly conscientiousness and extraversion are strong predictors of work engagement. With regards to student's engagement and academic performance, it was also established that personality play a significant role (Ariani 2015; Paunonen and Ashton 2001; Poropat 2009; Rosander and Bäckström 2014; Salanova et al. 2009; Uppal and Mishra 2014).

For the purposes of this study, the following personality dimensions and sub-facets were regarded as most relevant for student engagement (definitions are based on Hill et al. 2013):

- *Extraversion (sociability):* the tendency to be outgoing and spontaneous, where individuals enjoy having people around them and to communicate with others.
- *Conscientiousness (achievement orientation):* an orientation towards achieving things in life, by working hard and being directed towards whatever an individual wants to obtain.
- *Conscientiousness (orderliness):* characteristic of individuals being precise and thorough in what they do, acting tidily, punctually and well-organised.
- *Neuroticism (emotional balance):* striking the correct balance between pleasant and unpleasant feelings.
- *Neuroticism (negative emotionality):* the antithesis of positive thinking. Negative emotionality implies a propensity for depression and anxiety, and a tendency to react with unpleasant emotions to stressful situations.

Based on previous studies, all these personality dimensions are positively related to academic performance, except for neuroticism, which has a negative relationship with engagement (Bauer and Liang 2003; Di Fabio and Busoni 2007; Downey et al. 2014). It is therefore reasonable to expect that these specific personality dimensions will also predict student engagement, in addition to study demands and study resources. It is therefore hypothesised that sociability (a facet of extraversion), achievement orientation and orderliness (facets of conscientiousness) and emotional balance and negative emotionality (facets of neuroticism) are significant predictors of student engagement (*Hypothesis 3*).

RESEARCH DESIGN

Research design, participants and procedure

A cross-sectional research design was used. A sample of first-year university students were used ($N = 512$). Permission was obtained from the Registrar and Student Deans on different campuses, after ethical clearance was obtained. An email was sent to a randomly selected group of first-year students. This email contained a web-based link that directed students to an electronic website. On the website, the goal and purpose of the study was explained, as well as the research procedure, ethical issues, the importance of the study and the value of their participation to the research and university. Participants were assured of confidentiality, voluntary participation, and the possibility to complete the questionnaire in their own free time. They were also asked to complete an electronic informed-consent form.

The sample was stratified in terms of three campuses of the university. The sample consisted of more female participants (58.40%) than male participants (39.50%). The majority of the sample included Black (59.00%) and White (37.50%) students who spoke Afrikaans (36.70%) and Setwana (28.50%). Most students either stayed in off-campus residences (39.30%); 27.90 per cent reside on campus and live in a hostel; 24.20 per cent reside off-campus and is part of a town residence. Most participants (50.60%) indicated that they are first-entry students.

Measuring instruments

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

Student demands and resources

Study demands and resources were measured by an adapted version of the questionnaire on the experience and assessment of work (VBBA) (Van Veldhoven et al. 1997) to fit the academic context. A four-point Likert scale was used, ranging from 0 (almost never) to 3 (almost always). Study demands included: pace and amount of work in studies (five items, e.g. 'How often do you have to work extra hard in order to complete something?'); and cognitive demands (six items, e.g. 'How often do you feel that the tasks that you have to complete for your studies are too difficult?'). Study resources included: support from family (three items, e.g. 'If necessary, can you ask your family for help?'); support from lecturers (three items, e.g. 'When I encounter problems with my course, I can ask my

lecturers for advice'); support from friends (four items, e.g. 'Do your friends support you?'); and opportunities for growth and development (four items, e.g. 'Do your studies give you the feeling that you can achieve something with your life?'). Studies using the VBBA measuring demands and resources of employees found the scales valid and reliable (Van Veldhoven et al. 2002; Van Veldhoven et al. 2005).

Student engagement

The Utrecht Work Engagement Scale-Student Survey (UWES-S) (Schaufeli et al. 2002) was used to measure student engagement. A seven-point Likert-type scale was used, ranging from 0 (never) to 6 (every day). Five items were used to measure vigour (e.g. 'Even when studying becomes difficult, I have the mental energy to keep going on'), while six items were used to measure dedication levels (e.g. 'I am excited about my studies'). The UWES has been found to valid and reliable in the South African context with Cronbach's alpha coefficients ranging between 0.70 to 0.78 for vigour and 0.78 to 0.89 for dedication (Mostert et al. 2007; Storm and Rothmann 2003).

Personality characteristics

The South African Personality Inventory (SAPI) (Fetvadjiev et al. 2015) was used to measure the following personality characteristics: sociability (a facet of extraversion; seven items, e.g. 'I connect with people easily'); two facets of conscientiousness, achievement orientation (11 items, e.g. 'I am determined in the things I do') and orderliness (13 items, 'I check for errors in work that has been done'); and two facets of neuroticism, emotional balance (eight items, e.g. 'I can deal with difficulties in my life'); and negative emotionality (ten items, e.g. 'I am afraid that bad things may happen'). Fetvadjiev et al. (2015) found acceptable Cronbach's alpha coefficients for extraversion (sociability): $\alpha = 0.81$; conscientiousness (achievement orientation): $\alpha = 0.80$; conscientiousness (orderliness): $\alpha = 0.85$; neuroticism (emotional balance): $\alpha = 0.74$; and neuroticism (negative emotionality): $\alpha = 0.75$. The responses were measured on a five-point Likert scale, ranging from 1 (Strongly Disagree) to 5 (Strongly Agree).

Statistical analysis

The statistical analysis of the present study was carried out by means of the SPSS programme (IBM SPSS 2013) and Mplus 7.2 (Muthén and Muthén 2014). First, confirmatory factor analysis (CFA) was used to determine factorial validity with Mplus.

The fit indices used to assess mode fit were: Comparative Fit Index (CFI), Root Mean Square Error of Approximation (RMSEA), Tucker-Lewis Index (TLI), Akaike Information Criterion (AIC), Bayesian Information Criterion (BIC), and Standardised Root Mean Square Residual (SRMR). For an acceptable model fit, the values of both the CFI and TLI must be above the threshold of 0.90 (Byrne 2001; Hoyle 1995). With regards to the RMSEA, a value under the cut-off threshold of 0.08 indicates good model fit (Browne and Cudeck 1993). The AIC and BIC were used to compare different models – the model with the lowest AIC and BIC value indicates best model fit. The cut-off point for the SRMR is less than 0.05 (Hu and Bentler 1999).

Means, standard deviations, Cronbach's alpha coefficients and Pearson's product-moment correlations coefficients were calculated using SPSS. A hierarchical multiple regression analysis was used to relate the dependent variable (student engagement) to the independent variables (study demands, study resources and personality characteristics).

RESULTS

Before testing the regression model, different measurement models were tested with CFA to ensure factorial validity for study demands, study resources and student engagement. First, a two-factor model for study demands and resources were tested, specifying the items of pace and amount of work and cognitive demands loading on the first factor, labelled 'study demands', while the items of family support, lecturer support, friend support and opportunities for growth and development loaded on the second factor, labelled 'study resources'. With regards to student engagement, two competing measurement models were tested: A two-factor model, with the items of vigour loading on one factor and the items of dedication loading on the second; and a one-factor model, with all the engagement items loading on one 'student engagement' factor. The final measurement model was tested that included study demands, study resources and student engagement. The results of these analysis are presented in Table 1.

Table 1: Results of measurement models for engagement

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

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

The results presented in Table 1 show reasonable good fit for the measurement model of

study demands and resources. Although both measurement models for student engagement showed acceptable fit (CFI and TLI values were above 0.90, but RMSEA values were above 0.08), the correlation of $r = 0.95$ between vigour and dedication was very high (Brown 2015). As a result, it was decided to continue using a one-factor engagement construct. The descriptive statistics, product moment correlation coefficients and Cronbach's alpha coefficients are presented in the Table 2.

As can be seen in Table 2, all the scales showed good internal consistency with Cronbach's alpha coefficients > 0.70. All the study demands and resources showed a statistically significant relationship with student engagement (study demands negative and study resources positive). The relationship between growth and development and student engagement had a positive and practically significant relationship with student engagement, with medium effect. Sociability and negative emotionality had a statistically significant relationship with engagement, positive and negative respectively. Orderliness and emotional balance had a practically significant (medium effect) and positive relationship with engagement, while achievement orientation indicated a practically significant (large effect) and positive relationship with student engagement. The results of the multiple regression analysis is reported in Table 3.

In the first step of the regression analysis, gender, ethnicity and whether respondents are first-generation students were entered as control variables. The entry of the control variables in the first step of the regression analysis produced a statistically significant model ($F_{4.940} = 4.94$; $p = 0.00$), which accounted for approximately 4 per cent of the variance in engagement. Gender ($\beta = -0.11$; $t = -2.51$; $p \leq 0.05$) and the status of first-generation student ($\beta = 0.14$; $t = 3.03$; $p \leq 0.05$) were significant predictors of engagement in this step.

Pace and amount of work and cognitive demands were added in the second step. This also produced a statistically significant model ($F_{17.016} = 9.18$; $p = 0.00$), accounting for an additional 6 per cent of the variance in engagement. Significant predictors of student engagement in this step were the status of being a first-generation student ($\beta = 0.12$; $t = 2.74$; $p \leq 0.05$) and cognitive demands ($\beta = -0.20$; $t = -3.90$; $p \leq 0.05$).

Study resources were included in the third step of the model. This was also a statistically significant model ($F_{28.735} = 18.25$; $p = 0.00$), accounting for an additional 17

Table 2: Descriptive statistics, product moment correlation coefficients and Cronbach's alpha coefficients (Cronbach's alpha coefficients showed on the diagonal)

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

* Statistically significant, $p \leq 0.05$
**Statistically significant, $p \leq 0.01$
Practically significant – medium effect ≥ 0.30
Practically significant – large effect ≥ 0.50

Table 3: Multiple regression analysis with engagement as the dependent variable

Model		Unstandardised coefficients		Standardised coefficients	t	p	F	R	R^2	ΔR^2
		B	SE	BETA						
1	(Constant)	4.68	0.18		25.94	0.00*	4.94	0.20	0.04	0.04
	Gender	-0.26	0.10	-0.11	-2.51	0.01*				
	Ethnicity	0.01	0.04	0.01	0.13	0.90				
	Campus	-0.05	0.08	-0.03	-0.67	0.50				
	First-generation student	0.32	0.11	0.14	3.03	0.00*				
2	(Constant)	6.19	0.32		19.19	0.00*	9.18	0.32	0.10	0.06
	Gender	-0.17	0.10	-0.8	-1.71	0.09				
	Ethnicity	-0.04	0.04	-0.05	-1.17	0.24				
	Campus	-0.03	0.07	-0.02	-0.36	0.72				
	First-generation student	0.28	0.10	0.12	2.74	0.01*				
	Pace and amount of work	-0.19	0.11	-0.09	-1.79	0.08				
	Cognitive demands	-0.42	0.11	-0.20	-3.90	0.00*				
3	(Constant)	1.69	0.53		3.16	0.00*	18.25	0.52	0.27	0.17
	Gender	-0.18	0.09	-0.08	-1.95	0.05*				
	Ethnicity	-0.07	0.03	-0.09	-2.01	0.05*				
	Campus	-0.06	0.07	-0.03	-0.81	0.42				
	First-generation student	0.24	0.09	0.11	2.62	0.01*				
	Pace and amount of work	-0.14	0.10	-0.07	-1.41	0.16				
	Cognitive demands	-0.20	0.10	-0.10	-2.02	0.04*				
	Support from family	0.08	0.06	0.06	1.39	0.17				
	Support from lecturer	0.14	0.06	0.11	2.63	0.01*				
	Support from friends	0.10	0.06	0.07	1.61	0.11				
	Opportunities to grow and develop	0.84	0.10	0.36	8.68	0.00*				
4	(Constant)	-0.69	0.61		-1.12	0.26	19.82	0.62	0.38	0.11
	Gender	-0.14	0.9	-0.06	-1.59	0.11				
	Ethnicity	-0.01	0.03	-0.02	-0.43	0.67				
	Campus	-0.05	0.06	-0.03	-0.81	0.42				
	First-generation student	0.23	0.09	0.10	2.69	0.01*				
	Pace and amount of work	-0.15	0.09	-0.07	-1.62	0.11				
	Cognitive demands	-0.09	0.10	-0.04	-0.90	0.37				
	Support from family	0.03	0.05	0.02	0.57	0.57				
	Support from lecturer	0.08	0.05	0.06	1.52	0.13				
	Support from friends	0.06	0.06	0.04	1.0	0.32				
	Opportunities to grow and develop	0.63	0.09	0.27	6.72	0.00*				
	Extraversion: Sociability	-0.02	0.05	-0.02	-0.38	0.70				
	Conscientiousness: Achievement orientation	0.57	0.11	0.27	5.14	0.00*				
	Conscientiousness: Orderliness	0.13	0.11	0.06	1.11	0.27				
	Neuroticism: Emotional balance	0.11	0.08	0.06	1.33	0.18				
	Neuroticism: Negative emotionality	-0.03	0.06	-0.02	-0.51	0.61				

*Statistically significant $p \leq 0.05$

per cent of the variance in student engagement. In this model, significant predictors of student engagement were: gender (β = -0.08; t = -1.95; $p \leq 0.05$); ethnicity (β = -0.09; t = -2.01; $p \leq 0.05$); the status of first-generation student (β = 0.11; t = 2.62; $p \leq 0.05$); cognitive demands (β = -0.10; t = -2.02; $p \leq 0.05$); support from lecturers (β = 0.11; t = 2.63; $p \leq 0.05$); and opportunities for growth and development (β = 0.36; t = 8.68; $p \leq 0.05$).

Personality characteristics were added in the final step of the regression analysis. This step explained an additional 11 per cent of the variance in student engagement. The following variables were significant predictors of student engagement: the status of first-generation student (β = 0.10; t = 2.69; $p \leq 0.05$); opportunities to learn and grow (β = 0.27; t= 6.72; $p \leq 0.05$); and conscientiousness (achievement orientation) (β = 0.27; t = 5.14; $p \leq 0.05$). In total, the final step explained 38 per cent of the variance in student engagement.

DISCUSSION

The main objective of this study was to investigate significant predictors of student engagement, including study demands, study resources and personality characteristics (as measured by the South African Personality Inventory) in a sample of 512 South African first-year university students.

The results of the product-moment correlations showed that study demands and student engagement were significantly related. Both demands – pace and amount of work and cognitive demands – had a statistical significant (negative) relationship with student engagement. After controlling for certain socio-demographic characteristics, these two study demands accounted for 6 per cent of the variance in student engagement, although cognitive demands seemed to be the only study demand that significantly predicted student engagement in the regression analysis (although it became insignificant in the fourth step when personality characteristics were added). It therefore appears that cognitive demands is an important demand to consider when studying student engagement. When students have to remember many things simultaneously, have to concentrate for very long periods at a time, and feel that their academics are very challenging and too difficult to handle, they will most probably also experience lower levels of energy and dedication to their studies. This is in line with previous studies that showed how high cognitive demands can deplete energy levels (Boswell, Olson-Buchanan and LePine 2004; Cavanaugh et al. 2000). Based on these results, partial support was found for Hypothesis 1, which stated that study demands have a significant and negative relationship with student engagement.

With regards to the relationship between study resources and student engagement, the

product-moment correlations showed that all study resources were significantly and positively related to student engagement, specifically opportunities for growth and development. Study resources accounted for an additional 17 per cent of the variance, emphasising the importance of resources in predicting student engagement. However, only opportunities for growth and development ($\beta = 0.36$) and support from lecturers ($\beta = 0.11$) were significant predictors of student engagement in the third step of the regression analysis, while opportunities for growth and development was the only significant study resource predicting student engagement in the final step when personality characteristics were included ($\beta = 0.27$).

These findings are in line with previous studies. Several studies showed that resources are positively related to engagement and are the most important predictors of learning, commitment, work motivation and engagement (Bakker et al. 2007; Bakker et al. 2010; Bakker, Demerouti and Euwema 2005; Crawford et al. 2010). With regards to the relationship between support from lecturers and student engagement, previous studies showed that performance feedback, and a supportive supervisor, or in the academic context a supportive lecturer, makes it more likely that individuals will attain their goals and be successful (Bakker, Albrecht and Leiter 2011). This is mainly because proper and appropriate feedback foster growth and learning, which ultimately increases individuals' believe in themselves to accomplish work-related goals (Bakker and Demerouti 2008). Particularly, in the academic context, feedback from a lecturer can help students improve their performance and assist them to complete their studies successfully (Ouweneel et al. 2011). Furthermore, in a sample of 12 359 employees in various organisations, a previous study showed how performance feedback, learning possibilities and career opportunities promote the need for competence, which in return help achieving work-related goals (Bakker, Van Veldhoven and Xanthopoulou 2010).

Of the study resources included in this study, opportunities for growth and development had the strongest relationship with student engagement. It was also the only resource that was a significant predictor in the final step of the regression analysis. This relates to previous studies that showed how people, when they have sufficient opportunities for professional growth and development, are more intrinsically motivated to reach their goals and improve performance (Bakker 2009; Bakker and Demerouti 2007; Schaufeli and Bakker 2004). It is also associated with putting more effort into a task (Gagné and Deci 2005) and is essential for competence, curiosity and thoroughness (McCauley, Ruderman, Ohlott and Morrow 1994). Within the academic context, opportunities to grow and develop

may also create positive psychological states such as meaningfulness, knowledge and responsibility (Mokgele and Rothmann 2014).

In this study, support from family and friends were not significant predictors of student engagement. This finding is in contrast with previous findings that clearly showed how support from students' family and friends have a significant impact on their academic performance and academic engagement (Christenson and Thurlow 2004; Yang 2004). A study by Yang (2004) on the academic achievement of school learners showed that daily performance and behaviour at school are strongly influenced by student's support structures, specifically when parents are involved in their children's lives. These findings showed partial support for Hypothesis 2, which stated that student resources have a significant positive relationship with student engagement.

In this study, personality characteristics and student engagement had a strong relationship, specifically three dimensions (according to the product-moment correlations): achievement orientation ($r = 0.51$), orderliness ($r = 0.43$) and emotional balance ($r = 0.35$). However, in the final step of the multiple regression analysis, only one facet of conscientiousness, achievement orientation, was a significant predictor of student engagement. This is in line with previous studies that showed achievement orientation plays a valuable role in students' study habits and engagement (Chamorro-Premuzic and Furnham 2003; McCrae and Costa 2003; Rosander and Bäckström 2014). Achievement orientation was also the strongest predictor of engagement in other research studies (Inceoglu and Warr 2012). When individuals are achievement oriented, they have the aspiration to accomplish challenging tasks and the willingness to put effort in their work (McClelland 1985). An individual who is achievement oriented also knows and understands the importance of continuous learning, development and improvement, all aspects associated with engagement (Maurice Kerrigan Africa 2013).

Previous research showed that personality can motivate learning and as well as influence students' academic performance (Abolmaali, Rashedi and Ajilchi 2014). Although significant correlations were reported between extraversion and neuroticism with student engagement, these personality characteristics were not significant predictors of student engagement in this study. This is, however, contrary to the previous studies. Several studies found that extraversion has a positive relationship with engagement, mainly since both these elements contain dimensions of energy and dynamic behaviour (Langelaan et al. 2006; Sulea et al. 2015; Zecca et al. 2015). Extraverted individuals are more likely to experience positive emotions, which may help them build personal resources that can

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

With regards to neuroticism, previous studies showed that it is negatively related to work engagement (Nilforooshan and Salimi 2016). Explanations offered for this negative relationship include that neuroticism is related strongly to anxiety, depression, negative thoughts, pessimism and low self-esteem, which all can negatively influence work engagement (Aluja, Kuhlman and Zuckerman 2010; Nilforooshan and Salimi 2016). Individuals who score high on neuroticism may also be less willing to embrace new experiences or see the need for growth and development (Nilforooshan and Salimi 2016). Based on these findings, only partial support was found for Hypothesis 3, which stated that extraversion (sociability), conscientiousness (achievement orientation and orderliness) and neuroticism (emotional balance and negative emotionality) are significant predictors of student engagement.

CONCLUSIONS

The results of this study highlights the importance of support from lecturers and especially opportunities for growth and development for student engagement. Also, specifically achievement orientation (a facet of conscientiousness) is important to consider in predicting student engagement. This emphasises the important role conscientiousness (diligence and willingness to work hard) plays in student engagement. In total, the variables included in the regression analysis explained 38 per cent of the variance in student engagement, indicating that it is indeed worthwhile to study the role of study demands, study resources and personality characteristics on students' engagement.

Limitations and recommendations

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

(Govindji and Linley 2007). The characteristics of the sample (i.e., first-year students at a specific university) is very specific, limiting generalisability of the results to other year groups and educational settings. Future studies could include first-year students from other tertiary institutions and also senior students. The study also utilised self-reported measures, therefore participants' understanding and interpretation of the questions and rating scales may differ.

It is recommended that future researchers include additional demands and resources in their studies. Pertaining to cognitive demands, it is suggested that further research investigate the elements that influence cognitive demands. The degree of cognitive demands may differ between students. More research is needed to understand the relationship between cognitive demands and student engagement. It is also important to keep in mind that the transition from secondary to tertiary education is a significant adjustment and challenging experience for first-year students (Asghar 2014; Eagan, Lozano, Hurtado and Case 2013). It is therefore important for universities and students to work together to manage the cognitive (and other) demands that first-year students experience. Although the role of the University is imperative, students should also realise that they should be proactive in dealing with this challenge and use available resources to assist them with their demands and realise their own responsibility in facilitating their engagement and success in their studies.

The results of the present study also raised valid questions about the role of personality characteristics in student engagement. Following the results of the regression analysis, it must be pointed out that, although the final step explained an additional 11 per cent of the variance in student engagement, the model in this step was not statistically significant. This may be due to several reasons, including possible multicollinearity (high correlations) between the personality dimensions and the fact that the individual t-test statistics and the overall F-statistic answer different questions. It is recommended that future studies examine these issues to shed more light on the influence of the personality characteristics on student engagement and the role that the student him or herself should play in engaging in his or her studies. The optimal result would therefore be for the University to be aware of the effect of demands on student engagement and provide the necessary institutional resources for students in order for them to deal with demands. However, it is also clear that personality plays a significant role in predicting student engagement. Therefore, students should also take responsibility themselves and proactively utilise the resources that are provided to them and seek out opportunities that will facilitate their engagement in their

studies.

The results of the present study make an important contribution to the literature and the field of student engagement. Additional information has been made available on the impact that study demands, study resources and personality characteristics have on student engagement. These findings can benefit both the students and the university. The benefits for students may include higher engagement with their studies, finding a meaningful connection with their studies, learning to cope better with certain demands they may face, and improving academic performance. On the other side of the coin, universities have a clearer understanding of the role that demands, resources and personality play and how supporting structures can improve the engagement levels of their students. The findings can also help universities develop possible supporting programmes or structures that could assist students in coping with various demands and daily challenges. More specifically, to reduce the effect of cognitive demands on students, the universities can implement interventions that could help students handle such demands successfully. This may ultimately improve students' performance and engagement. Universities can collaborate with lecturers to identify gaps and then provide students with more opportunities for growth and development in their work and studies. Finally, it is important that universities consider the significance of conscientiousness since this personality characteristic is clearly an important predictor of student engagement, particularly for first-year entries.

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