



Well-being of first-year students: The role of study characteristics, strengths and deficits



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Orientation: Higher education institutions (HEIs) are crucial in preparing students for the workforce. Practitioners, such as industrial psychologists, can aid HEIs to enhance student development and improve university efficiency.

Research purpose: This study aims to investigate the relationship between student demands and resources, proactive behaviour towards strengths use (PBSU) and proactive behaviour towards deficit improvement (PBDI), and students' well-being (emotional, social and psychological).

Motivation for the study: Two specific types of proactive behaviour, namely PBSU and PBDI, have been identified that may contribute to student success. Investigating the impact of these behaviours on student antecedents and outcomes could offer valuable insights for designing student development initiatives.

Research approach/design and method: This study included 773 South African first-year university students studying at different campuses of a South African university. Structural equation modelling was used to test the structural model and investigate the regression weights.

Main findings: Students' personal problems were found to predict both PBSU and PBDI negatively. Autonomy positively predicted both types of proactive behaviour. Proactive behaviour towards strengths use was strongly related to emotional and psychological well-being, while PBDI was strongly related to social well-being.

Practical/managerial implications: This study highlights the direct impact of PBSU and PBDI on students' well-being. Practitioners in university settings can benefit from the recommendations provided in this article to inform and implement initiatives related to student development and assist students in developing the necessary skills to enhance their work readiness.

Contribution/value-add: This study's findings contribute to the relatively small body of research on implementing strengths-based and deficit improvement initiatives in South African universities.

Keywords: student demands; student resources; proactive behaviour; strengths use; deficit improvement; well-being; higher education; first-year university students.

Introduction

Serious concerns are expressed in the popular and scientific literature about the current state and success of South African higher education institutions (HEIs) (Van Zyl et al., 2020). Although reports indicate increased accessibility of tertiary education to South African students (DHET, 2021), actual graduation rates are concerning (Van Zyl et al., 2020). Research conducted by Tewari and Ilesanmi (2020) found that between 2009 and 2017, the average graduation rate annually was only 16.43%. Recently, concerns over alarming graduation rates have become more prominent, as graduation rates in 2021 decreased by 1.9% compared with 2020 (DHET, 2021). According to Scott (2018), the current state of South Africa's universities is impeding the country's progress towards important economic and social goals by failing to produce the required number of work-ready graduates.

Lombard (2020) argued that one of the most significant factors contributing to these alarming success rates includes insufficient student support for social and academic transitions. Indeed, various student success initiatives are often aimed solely at ensuring academic success (Tanga &

Luggya, 2020). However, Young (2016) emphasised that student success encompasses more than academic achievement. Higher education institutions play a crucial role in facilitating students to develop into fully functioning individuals who are well prepared for the workplace and life's challenges after university (Young, 2016). Abugre (2018) emphasised that HEIs are responsible for providing students with the knowledge, skills and abilities required for success in both academic and professional settings.

However, transitioning from secondary to tertiary education is widely recognised as a demanding and stressful experience (Van Zyl et al., 2020), leaving first-year students particularly vulnerable to becoming part of the alarming statistics surrounding attrition rates in South Africa (Young, 2016). During this transitioning phase, students face numerous social, economic and academic challenges and changes (Jeyagowri & Ilankumaran, 2018). Not only does the stressful nature of the first-year experience negatively impact students' academic performance, attrition rates and overall well-being (Scott, 2018) but also impaired psychological well-being can hinder students' future working capabilities (Rudman and Gustavsson 2012). As a result, it is argued that the first year of studies is a crucial period to equip students with the competencies needed to navigate university life while enhancing their work readiness (Akkermans et al., 2018).

The HEIs have implemented various initiatives to mitigate these challenges to enhance the first-year experience and support students' well-being and success. However, despite the significant investment of resources, some of these initiatives have proven ineffective and costly, failing to produce sustainable outcomes and ensure graduation (Van Zyl et al., 2020). The HEIs may benefit from industrial and organisational psychologists' assistance and professional expertise, among others, to promote individual and corporate wellness (Van Zyl et al., 2016). Given their knowledge in designing evidence-based solutions and strategies (Van Zyl et al., 2016), industrial and organisational psychologists can play an intermediary role in improving students' well-being and success, ultimately contributing to the success of the university, as student success is directly linked to the success of the university (Alyahyan & Düşteğör, 2020).

University strategies, such as behaviour and competency-based training, could include developing and implementing initiatives to improve student functioning, performance and success. Indeed, a recent article by Ayuk and Jacobs (2018) validated the Student Educational Outcomes Effectiveness Questionnaire (SEEQ) to assess institutional effectiveness in the South African context and promote research and management of institutional performance and student success. Moreover, various scholars emphasise the need for HEIs to equip students with the necessary skills to cope with the demands of tertiary education and obtain sustainable employment (Potgieter & Coetzee, 2013; Steurer et al., 2022). Such skills include the development of adaptability, stress management, initiative (Steurer et al., 2022), personal agency,

self-efficacy and proactivity, among others (Potgieter & Coetzee, 2013).

Proactivity, in particular, plays a significant role in employee behaviours and outcomes in the organisational context. Indeed, proactivity has been found to significantly impact employees' work performance, career success and adaptability, among other outcomes (Geertshuis et al., 2014). Similarly, proactivity has been linked to positive outcomes in the student context, which may help students to be successful. Specifically, proactive behaviour has been associated with students' self-directed learning, motivation (Major et al., 2006) and academic performance (Geertshuis et al., 2014).

In literature, scholars emphasise various proactive behaviours that predict significant outcomes in the organisational context. While focusing on strengths was one of the major components of the positive psychology approach's research agenda (Peterson & Seligman, 2004), the movement drew criticism from academics for overemphasising positive experiences and neglecting the impact of negative feelings, experiences and deficits of individual functioning (Wong & Roy, 2018). In response, the positive psychology movement shifted its focus towards the 'second wave' of positive psychology (Lomas et al., 2020), which advocates for a more balanced approach that considers both positive and negative experiences (Wong & Roy, 2018).

In line with the 'second wave' of positive psychology, Van Woerkom et al. (2016) recently introduced two new specific types of proactive behaviours – proactive behaviour towards strengths use (PBSU) and proactive behaviour towards deficit improvement (PBDI). As a result, Van Woerkom et al. (2016) emphasised the equal significance of both strengths use and deficit improvement in their work. Initially, PBSU and PBDI were conceptualised and measured in the organisational context (Van Woerkom et al., 2016). However, recent research has shown their relevance and impact in the student context, with both PBSU and PBDI significantly influencing student success (Smith & Tytherleigh, 2022). With this in mind, this study considers both strengths use and deficit improvement as equally essential proactive behaviours in the students' context.

Only a few studies researched the constructs of PBSU and PBDI in the university context. For example, Stander et al. (2015) found both PBSU and PBDI to be strong predictors of first-year students' feelings of hope and efficacy, which may significantly impact students' perceptions of their ability to succeed academically. However, only PBSU significantly predicted students' life satisfaction, whereas PBDI did not (Stander et al., 2015). Studies also show that improving one's deficits could have a stronger relationship with engagement than simply using one's strengths (Mostert et al., 2017; Van Niekerk et al., 2016). Furthermore, Smith and Tytherleigh (2022) recently showed that when PBSU and PBDI are combined, they negatively predict students' burnout. As a result, improving one's deficits may significantly impact important student outcomes at university, emphasising the importance of a balanced

approach to using one's strengths and enhancing one's deficiencies.

Although existing literature suggests that PBSU and PBDI may impact certain variables that predict student success, the concepts are relatively new. Previous studies have primarily investigated the influence of strengths use and deficit improvement on a limited range of student outcomes, such as burnout, engagement and life satisfaction. Some studies have employed a balanced approach, incorporating both constructs, while others have not. However, none of these studies have examined the effects of strengths use and deficit improvement on students' demands, resources, and well-being (encompassing of emotional, social, and psychological well-being). As a result, the significance and relationships of both PBSU and PBDI with different student demands and resources and students' well-being remain unexplored, particularly among first-year students, as depicted in Figure 1.

This study contributes to the existing literature in the student context and industrial psychology in general. It could provide valuable insights into the relationships between student demands and resources and the potential positive impact of PBSU and PBDI on different dimensions of students' well-being. The findings may be used to inform the development and inclusion of these constructs in student success initiatives, aiming to improve institutional performance and graduate work readiness. Specifically, this study investigates the relationship between PBSU, PBDI, student demands, resources and well-being in the university context.

Literature review

Proactive behaviour towards strengths use and deficit improvement

Proactive behaviour is a form of extra-role behaviour that enables individuals to challenge the status quo and improve their current circumstances (Den Hartog & Belschak, 2012). Proactive individuals take self-initiated, anticipatory action to intentionally impact themselves or their situation (Den Hartog & Belschak, 2012) and persist until their intended initiatives occur (Lin et al., 2014).

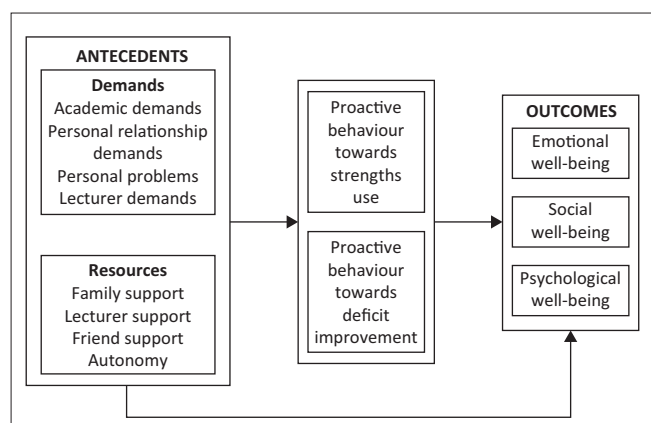


FIGURE 1: Antecedents and outcomes of proactive behaviour towards strengths use and deficit improvement ($N = 773$).

Proactivity has become particularly important in the university context for first-year students as they adjust to university life. Kadiravan and Kumar (2012) asserted that students who engage in proactive behaviour can better tap into their personal and psychological resources to reduce environmental stressors and promote their well-being. Specifically, Van Woerkom et al. (2016) defined PBSU as the self-starting behaviour one uses to utilise one's strengths at work. In comparison, PBDI refers to improving one's deficits at work (Van Woerkom et al., 2016). Strengths are defined as a person's 'natural capacity for behaving, thinking, or feeling in a way that allows optimal functioning and performance in the pursuit of valued outcomes' (Linley & Harrington, 2006, p. 39). In contrast to this, deficits are defined as less enjoyable patterns of behaviour, thoughts and feelings that do not occur naturally for an individual but that can be mastered by individuals when facilitated and developed (Meyers et al., 2015).

Strengths-based development has positively impacted the educational setting, such as lower absenteeism, and improved grades (Hodges & Clifton, 2004). Furthermore, Hodges and Clifton (2004) reported that strengths interventions may elicit hope and confidence in students, which may, in turn, enable students to feel more optimistic about their studies. The active use of one's strengths has also been linked to higher subjective well-being, vitality (Park et al., 2004; Peterson & Seligman, 2004), self-confidence and social interaction (Mostek, 2010). Indeed, Steurer et al. (2022) recently emphasised Forrier et al.'s (2015) definition of employability, arguing that it is 'the presentation of personal strengths that increase employment potential' (p. 2), which is a critical characteristic that HEIs must embody in their students.

While strengths use may enable students to succeed, students with a mastery or goal-oriented mindset may emphasise developing their weaknesses. Indeed, Van Niekerk et al. (2016) showed that students are more engaged when participating in activities to improve their deficits than when using their strengths – supporting the basic assumptions of goal-orientation theory (Ames, 1992). During their first year, mastery or goal-oriented students will take the initiative to learn new skills and improve their competence to address challenges effectively and become self-sufficient (Yeung et al., 2014).

The relationship of proactive behaviour towards strengths use and proactive behaviour towards deficit improvement with student demands and resources

This study employed the Job Demands-Resources (JD-R) model as a theoretical framework to examine the relationships between PBSU, PBDI, student characteristics as antecedents and students' well-being as an outcome. The JD-R model has been widely used to investigate the antecedents and outcomes of work-related performance (Bakker et al., 2023) and has demonstrated its effectiveness in higher education contexts (Cilliers et al., 2018; Lesener

et al., 2020). Therefore, it is an appropriate framework for exploring and explaining the relationships among the variables included in our study.

According to the JD-R model, job-related characteristics can be divided into two broad categories, namely job demands and job resources, which impact employees' work-related well-being and outcomes, such as performance, regardless of their occupational context (Bakker et al., 2023). *Job demands* encompass a job's physical, social, psychological or organisational aspects that require sustained cognitive or physical effort and often de-energising employees (Bakker et al., 2023). Conversely, *job resources* are defined as a job's physical, psychological and organisational aspects that empower individuals to achieve objectives, reduce job demands and promote learning and growth (Bakker et al., 2023). Moreover, job resources seem to trigger a motivational process in employees resulting in favourable outcomes such as work engagement (Bakker et al., 2023). Similarly, characteristics in the student environment can be classified as student demands and student resources.

In the university context, students face many academic demands, including cognitive challenges, pace and amount of work (Cilliers et al., 2018), and pressure to achieve academically (Offstein et al., 2014). However, it can be argued that the demands faced by students are not limited to the academic domain alone. Recent studies by Bakker et al. (2023) suggest that demands faced by individuals are not limited to the workplace but also extend to other life domains. Students, for instance, may encounter various demands that can affect their well-being, such as relationship demands, conflicting roles and deadlines set by lecturers (Offstein et al., 2014). Indeed, student demands have been shown to negatively impact students' well-being and engagement by increasing stress and depleting energy levels (Cilliers et al., 2018; Lesener et al., 2020; Mokgele & Rothmann, 2014).

In contrast, student resources can stimulate the motivational process, leading to improved well-being, life satisfaction and academic success, as evidenced by Mokgele and Rothmann's (2014) study. Access to appropriate student resources is crucial for students to manage their demands effectively. These resources may come from various sources such as family, friends, lecturers, personal development opportunities (Cilliers et al., 2018) and autonomy (Lesener et al., 2020).

Recent research by Bakker et al. (2023) further suggests that employees can optimise their job demands and resources through proactive behaviour, leading to positive outcomes and directly impacting stress-provoking and motivational processes. In addition, job demands can motivate employees to be more proactive, increasing job resources, satisfaction and engagement (Tims et al., 2013). Notably, Botha and Mostert (2014) found a positive correlation between PBSU and PBDI and increased employee engagement, a critical

outcome of the JD-R model's motivational process. Likewise, students can employ PBSU and PBDI to effectively self-regulate and influence stress-provoking and motivational processes, improving well-being and academic success.

While the challenges of studying are inevitable, these demands may provide students with opportunities to develop their strengths and improve their ability to cope with demands more constructively through proactive behaviours. Indeed, Bakker et al. (2023) contended that proactive behaviours can help employees to optimise job demands and resources. The latter can be applied similarly to students regarding student demands and resources. Bowers and Lopez (2010) further contended that utilising individual strengths as a resource can help students navigate university demands effectively. Furthermore, Mostert et al. (2017) found student resources to increase student engagement, potentially promoting their inclination to engage in PBSU and PBDI. Indeed, the findings of Mostert et al. (2017) align with Bakker et al.'s (2023) argument that engaged employees tend to act proactively. Therefore, it is argued that sufficient student resources can enhance students' PBSU and PBDI, even in the face of student demands.

This study investigated student demands and resources as antecedents of PBSU and PBDI. Student demands included *academic demands, personal relationship demands, personal problems and lecturer demands*, whereas student resources included *family support, lecturer support, friend support and autonomy*.

The relationship of proactive behaviour towards strengths use and proactive behaviour towards deficit improvement with well-being

Peterson and Seligman (2004) were the first scholars to highlight the importance of strengths in general well-being. Deliberate use and development positively impact individuals' psychological and subjective well-being (Linley et al., 2010). Developing strengths through intentional use requires personal goal setting, which may influence students' well-being when progress is made or such goals are attained (Linley et al., 2010).

In the student context specifically, strengths use has been shown to positively influence students' well-being (Rust et al., 2009). In turn, increased students' well-being may directly affect student outcomes such as academic aspirations, engagement and dropout (Ratelle et al., 2013). Stander et al. (2015) confirmed this by emphasising that PBSU among students is a strong predictor of feelings of hope and increased efficacy, which may enable them to achieve academic success.

While using one's strengths has been shown to have a consistently positive impact on well-being, developing one's weaknesses has also been shown to enhance students' well-being (Rust et al., 2009). In contrast, when students overfocus on deficit development and ruminate about their weaknesses, it can negatively influence their well-being

(Stander et al., 2015). Nonetheless, PBDI has strongly predicted feelings of hope and efficacy among first-year students (Stander et al., 2015). Therefore, it can be argued that both strengths use and deficit improvement may influence important student outcomes at university. Outcomes related to PBSU and PBDI included in the study were *emotional, social and psychological well-being*.

Research design

Research participants and procedure

This study's population consisted of first-year university students ($N = 773$) across different South African tertiary institution campuses. After obtaining formal permission from the respective university, data collection took place. Two platforms were utilised for data collection: (1) posting web-based survey links on the respective university's electronic information system and (2) emailing web-based survey links to participants. The study's purpose, objectives and potential value to students and university life were presented to participants on both platforms, ensuring informed consent. Participation in the survey was voluntary, with confidentiality and anonymity guaranteed throughout. The survey was estimated to take 25 min to 30 min to complete, and a reminder email was sent to participants two weeks after initial access to the survey link.

The sample consisted of 773 research participants, of which 43 (6%) were 18 years of age, 186 (24%) were 19 years of age, 296 (35%) were 20 years of age and 201 (26%) were between 21 years and 23 years of age. In terms of race, 449 (61%) students were black, 243 (31%) white, 47 (6.1%) mixed race and 11 (1.4%) Indian. Furthermore, the sample accurately reflected the distribution of first-year enrolments across various campuses, including 246 students from campus 1, which had 3104 enrolments at the time; 384 from campus 2, which had 4750 enrolments; and 134 from campus 3, which had 1724 enrolments first-year enrolments. In terms of gender, the majority of participants (66%) were female participants, while 258 (33%) were male participants.

Measuring instruments

Student demands

Student demands were measured using selected items from Burge's (2009) *Student-Stress Questionnaire*. Items were measured using a 5-point Likert scale, with responses ranging from 1 (not at all stressful) to 5 (extremely stressful). The following demands were included:

- *Academic demands*: Items measured how stressful academic-related activities are for students. Eight items were used to measure academic demands (e.g. 'How stressful do you find handling your academic workload?').
- *Personal relationship demands*: Personal relationship demands were measured with three items (e.g. 'How stressful do you find handling your personal relationships?'). In general, items referred to how stressful students find it to deal with demands in their personal relationships.

- *Personal relationship problems*: This dimension relates to students' perceptions of stress when confronted with problematic relationship issues. Three items were used to measure personal problems (e.g. 'How stressful do you find trying to make friends on campus?').
- *Lecturer demands*: Four items were used to measure lecturer demands (e.g. 'How stressful do you find approaching lecturers for help?'). These items explored how stressful it is for students to approach lecturers for help and support.

Student resources

Student resources were measured using scales based on the adapted version of the *questionnaire on the Experience and Assessment of Work* (VBBA) (Van Veldhoven et al., 1997) to fit the student context. The following student resources were included:

- *Family support*: Items explored whether the students could rely on family when facing difficulties in their lives and studies. Three items were used to assess family support (e.g. 'If necessary, can you ask your family for help?').
- *Lecturer support*: Three items were included to assess whether lecturers provide adequate support to students (e.g. 'I receive help from my lecturers when difficulties in my course arise').
- *Friend support*: Items refer to the assistance that students receive from their friends while studying. Five items were used to measure friend support (e.g. 'Do your friends support you?').
- *Autonomy*: Six items were included to measure whether students have the opportunity to influence the planning of their study-related activities (e.g. 'Can you organise your work yourself?').

A 4-point Likert scale was utilised to measure item responses, ranging from 0 (almost never) to 3 (almost always).

Strengths use and deficit improvement

The PBSU and PBDI were measured using the two individual sub-scales of the Strengths Use and Deficit Correction (SUDCO) questionnaire developed by Van Woerkom et al. (2016). Proactive strengths use behaviour was measured with five items (e.g. 'In my studies, I use my strengths proactively'). Similarly, five items were chosen to measure *deficit correction* behaviour (e.g. 'In my studies, I make an effort to improve my areas of development'). Items were measured on a 7-point Likert-type scale and required participants' responses ranging from 0 (never) to 6 (almost always).

Subjective well-being

The *Mental Health Continuum-Short Form* (MHC-SF) (Keyes et al., 2008) was used to measure subjective well-being in the student context. Different domains of well-being were measured through the MHC-SF's three sub-scales. *Emotional well-being* (being happy, satisfied, and interested in life) was measured with three items (e.g. 'I am interested in life'). Five items were used to measure *social well-being*

(e.g. 'How often did you feel like you belonged to a community?'). Six items were used to measure *psychological well-being* (e.g. 'You feel that your life has a sense of direction or meaning to it'). Respondents were required to rate the frequency of every feeling of well-being they experienced in the past month on a 6-point Likert/ranging scale, with response options ranging from 1 (never) to 6 (every day).

Statistical analysis

The statistical modelling program Mplus 8.6 (Muthén & Muthén, 2021) was used to examine the measurement model in this study. With the covariance matrix as input, the maximum likelihood (ML) estimator was used (Muthén & Muthén, 2021). Several fit indices were used to evaluate the model's goodness-of-fit, including 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) (Hu & Bentler, 1999). The model fit was deemed suitable when the CFI and TLI values were more significant than 0.90 (Byrne, 2010) and well-fitting when they were more significant than 0.95 (Hu & Bentler, 1999). Furthermore, RMSEA values of 0.05 or less indicate a close/good fit, whereas values between 0.05 and 0.08 indicate a good model fit (Byrne, 2010). This study's cut-off point for SRMR was set at 0.05. (Hu & Bentler, 1999). However, given the lack of agreement among scholars on the values of good fit, the indicated cut-off points should be regarded as mere guidelines in this study.

Furthermore, the reliability of the variables was determined using Cronbach's alpha coefficients, with values larger than 0.70 indicating satisfactory internal consistency (Bryman, 2012). Pearson's product-moment correlation was used further to examine the strength and directions of relationships between variables. The statistical significance cut-off points were set at the 95% confidence interval ($p \leq 0.05$), at $r \geq 0.30$ (medium effect) and $r \geq 0.50$ (large effect) for the practical significance of correlation coefficients. A structural model was tested, which included the antecedents (student demands and

student resources) and PBSU and PBDI, as well as the student outcomes (see Figure 1).

Ethical considerations

Permission was granted to collect data from first-year students by the Ethics Committee of the Faculty of Economic and Management Sciences (EC-EMS); reference number NWU – HS – 2014 – 0165-A4.

Results

Descriptive statistics and product-moment correlations

For this study, the descriptive statistics, Cronbach's alpha coefficients and correlations between the latent variables are presented in Table 1, while Table 2 reports the regression results of the structural model.

From the results presented in Table 1, it is evident that all antecedents and outcomes were statistically significant and correlated with strengths use and deficit improvement, with the most substantial relationship being between strengths use and autonomy ($r = 0.66$). Moreover, all scales' Cronbach's alpha coefficients were equal to or greater than 0.75, indicating that the measuring instruments were reliable.

Structural equation model

The fit of the structural model was found to be satisfactory (CFI = 0.90; TLI = 0.89; RMSEA = 0.04; SRMR = 0.07). As can be seen in Table 2, there were only a few statistically significant relationships between PBSU and PBDI and antecedents. However, most relationships between PBSU and PBDI and well-being were significant, except for deficit improvement, which did not significantly predict *emotional well-being*. Overall, strengths use was stronger related to *autonomy*, *emotional well-being*, and *psychological well-being*, with the most substantial relationship being between strengths use and *autonomy* ($r = 0.58$). Deficit improvement was stronger related to *personal problems* and *social well-being*.

TABLE 1: Descriptive statistics, Cronbach's alpha coefficients and correlation matrix for the latent variables.

Latent variables	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13
1 Academic demands	3.09	0.80	(0.87)	-	-	-	-	-	-	-	-	-	-	-	-
2 Personal relationship demands	2.39	1.09	0.55	(0.81)	-	-	-	-	-	-	-	-	-	-	-
3 Personal problems	2.02	1.12	0.28	0.50	(0.88)	-	-	-	-	-	-	-	-	-	-
4 Lecturer demands	2.23	0.92	0.59	0.47	0.42	(0.78)	-	-	-	-	-	-	-	-	-
5 Family support	3.30	0.81	-0.11	-0.24	-0.14	-0.25	(0.84)	-	-	-	-	-	-	-	-
6 Lecturer support	2.62	0.87	-0.25	-0.24	-0.20	-0.51	0.24	(0.86)	-	-	-	-	-	-	-
7 Friend support	2.87	0.79	-0.14	-0.34	-0.43	-0.25	0.38	0.35	(0.89)	-	-	-	-	-	-
8 Autonomy	3.00	0.76	-0.48	-0.38	-0.19	-0.36	0.26	0.38	0.25	(0.83)	-	-	-	-	-
9 Strengths use	3.81	0.82	-0.37	-0.31	-0.28	-0.33	0.23	0.36	0.25	0.66	(0.89)	-	-	-	-
10 Deficit improvement	3.80	0.84	-0.39	-0.28	-0.27	-0.31	0.13	0.34	0.17	0.59	0.43	(0.89)	-	-	-
11 Emotional well-being	4.33	1.23	-0.40	-0.49	-0.36	-0.39	0.35	0.33	0.39	0.46	0.49	0.35	(0.87)	-	-
12 Social well-being	3.77	1.35	-0.37	-0.34	-0.36	-0.38	0.23	0.33	0.37	0.42	0.45	0.47	0.69	(0.88)	-
13 Psychological well-being	4.46	1.15	-0.44	-0.44	-0.40	-0.36	0.26	0.33	0.39	0.58	0.63	0.57	0.80	0.75	(0.88)

Note: $p \leq 0.05$ for all values; Cronbach's alpha reliability coefficients in brackets on the diagonal. M, mean; SD, standard deviation.

TABLE 2: Regression results for the structural model.

Regression path	β	SE	<i>p</i>
<i>Relationship between antecedents and outcomes</i>			
Academic demands → Emotional well-being	-0.07	0.06	0.26
Personal relationship demands → Emotional well-being	-0.22*	0.06	0.00
Personal problems → Emotional well-being	-0.04	0.05	0.39
Lecturer demands → Emotional well-being	-0.03	0.07	0.67
Family support → Emotional well-being	0.14*	0.04	0.00
Lecturer support → Emotional well-being	0.03	0.05	0.49
Friend support → Emotional well-being	0.13*	0.05	0.01
Autonomy → Emotional well-being	0.04	0.07	0.53
Academic demands → Social well-being	-0.10	0.07	0.12
Personal relationship demands → Social well-being	0.00	0.06	0.95
Personal problems → Social well-being	-0.09	0.05	0.06
Lecturer demands → Social well-being	-0.08	0.07	0.27
Family support → Social well-being	0.04	0.04	0.38
Lecturer support → Social well-being	0.02	0.05	0.70
Friend support → Social well-being	0.19*	0.05	0.00
Autonomy → Social well-being	-0.02	0.07	0.78
Academic demands → Psychological well-being	-0.09	0.05	0.08
Personal relationship demands → Psychological well-being	-0.09	0.05	0.08
Personal problems → Psychological well-being	-0.09*	0.05	0.05
Lecturer demands → Psychological well-being	0.03	0.06	0.63
Family support → Psychological well-being	-0.02	0.05	0.60
Lecturer support → Psychological well-being	0.16*	0.04	0.00
Friend support → Psychological well-being	0.05	0.06	0.42
Autonomy → Psychological well-being	0.35*	0.06	0.00
<i>Effect of antecedents on strengths use and deficit improvement</i>			
Academic demands → Strengths use	-0.06	0.11	0.59
Academic demands → Deficit improvement	-0.15	0.11	0.19
Personal relationship demands → Strengths use	0.04	0.08	0.61
Personal relationship demands → Deficit improvement	0.07	0.09	0.39
Personal problems → Strengths use	-0.16*	0.07	0.03
Personal problems → Deficit improvement	-0.20*	0.08	0.01
Lecturer demands → Strengths use	0.02	0.12	0.86
Lecturer demands → Deficit improvement	0.07	0.13	0.61
Family support → Strengths use	0.04	0.06	0.47
Family support → Deficit improvement	-0.02	0.06	0.76
Lecturer support → Strengths use	0.11	0.08	0.18
Lecturer support → Deficit improvement	0.15	0.09	0.07
Friend support → Strengths use	-0.01	0.06	0.93
Friend support → Deficit improvement	-0.06	0.06	0.31
Autonomy → Strengths use	0.58*	0.08	0.00
Autonomy → Deficit improvement	0.50*	0.09	0.00
<i>Effect of strengths use and deficit improvement on student outcomes</i>			
Strengths use → Emotional well-being	0.25*	0.06	0.00
Deficit improvement → Emotional well-being	0.06	0.05	0.27
Strengths use → Social well-being	0.20*	0.06	0.00
Deficit improvement → Social well-being	0.26*	0.05	0.00
Strengths use → Psychological well-being	0.35*	0.06	0.00
Deficit improvement → Psychological well-being	0.29	0.05	0.00

Note: $p \leq 0.05$; β , beta coefficient; SE, standard error; p , two-tailed statistical significance.

*, bold values indicate statistical significance of relationship.

Discussion

This study aimed to determine how two types of proactive behaviour –PBSU and PBDI – relate to various student demands, student resources and students' well-being. The study was conducted in a sample of first-year students across

different South African HEI campuses. The key findings of this study indicated that only specific student demands and resources had an effect on students' proclivity to use their strengths and improve their deficits.

Regarding *student demands*, it was found that students' *personal problems* negatively predicted both PBSU and PBDI. However, students' *academic demands*, *personal relationship demands* and *lecturer demands* did not significantly predict PBSU or PBDI. Based on these findings, it can be argued that *personal problems* may inhibit students' proclivity to use their strengths and develop their deficits in their study environment. One possible explanation for the aforementioned finding is that students' personal problems (e.g. relationship status and financial situation) may negatively impact their psychological well-being (Eisenberg et al., 2013). As a result, they may be less motivated to engage in intentional behaviour or activities that promote personal development (Sharma & Rani, 2014).

Regarding *student resources*, the results indicate that only *autonomy* positively affected students' proclivity to use their strengths and improve their deficits. Therefore, when students function autonomously, they are more likely to act proactively and build their student resources to meet demands. Indeed, the literature suggests that resources that can assist students to optimise demands may include autonomy (Lesener et al., 2020), social support, participation in developmental opportunities (Cilliers et al., 2018) and personal resources such as strengths use (Stander & Mostert, 2013). Moreover, Slemp et al. (2015) contend that providing employees with autonomy may facilitate proactive behaviours in the workplace – underscoring the significance of developing these behaviours in students to prepare them for the workforce.

Regarding *well-being*, the results showed both PBSU and PBDI positively affect all three well-being outcomes included in this study. The PBSU predicted students' *emotional*, *social* and *psychological well-being*. These findings align with those of Park et al. (2004) who found that using one's strengths increases one's subjective well-being. Indeed, scholars confirm that students can improve their well-being by leveraging their strengths (Rust et al., 2009), while Smith and Tytherleigh (2022) recently found PBSU to negatively predict burnout (an indicator of well-being; Bakker et al., 2023) in the student context. Furthermore, Mostek (2010) confirmed that utilising strengths improves students' ability to interact socially, thereby increasing their social well-being. Increased levels of well-being may, in turn, enable students to remain optimistic about their studies and persevere in the face of setbacks. Recently, Pang and Ruch (2019) also highlighted the importance of utilising one's strengths within an organisational setting. Their findings indicated that practising mindfulness and actively using one's strengths at work improved employee job satisfaction, performance and overall well-being (Pang & Ruch, 2019).

While there is a scarcity of literature directly linking PBDI to students' social and psychological well-being, the relationship may be understood when considering the various arguments

made in this study. Proactive behaviour towards deficit improvement has positively impacted important student well-being dimensions (e.g. increased engagement and life satisfaction [Mostert et al., 2017] and decreased burnout [Smith & Tytherleigh, 2022]). Also, PBDI has been shown to increase students' self-efficacy and hope (Stander et al., 2015), resulting in positive affect and psychological well-being. Putri and Saleh (2020) recently found that students' goal achievement and mastery orientation are directly related to their level of well-being, which further explains the relationship between PBDI and well-being. Studies indicate that PBDI may allow students to experience a sense of goal attainment or mastery (Ames, 1992), which, in turn, may increase their well-being.

Finally, the examined regression weights showed differences in the strength of relationships between PBSU and PBDI with the other variables included in this study. Specifically, strengths use was strongly related to *autonomy*, *emotional well-being* and *psychological well-being*, while deficit improvement was strongly related to *personal problems* and *social well-being*. The observed differences in the strength of these relationships highlight the importance of adopting a balanced approach while incorporating these constructs into student development initiatives. Both strengths use and deficit improvement are critical because they are directly related to important student demands, resources and outcomes, each to varying degrees. Notably, scholars argue that incorporating both constructs is critical for improving an individual's well-being and functioning (Wong & Roy, 2018), which aligns with the renewed focus on positive psychology that recognises the importance of considering both positive and negative aspects (Lomas et al., 2020).

The findings of this study further highlight the importance of promoting the development of strengths use and deficit improvement in HEIs to enhance students' well-being and academic success. Practitioners, including industrial psychologists, can use these insights to inform the development and inclusion of these constructs in student success initiatives, aiming to improve success rates, institutional performance and work readiness among graduates.

Limitations and recommendations

Considering the persistently low response rates observed among students in higher education research (Chapman & Joines, 2017; Luo, 2020), it is important to acknowledge that the findings of this study may have limited generalisability. This limitation arises from the relatively small sample size and the challenge of low response rates encountered among first-year university students from a single South African public HEI. To address this limitation, future researchers should broaden the scope of the study to include a more diverse range of participants from various tertiary institutions, both nationally and internationally. In addition, the structural model tested in this study only had a limited number of student demands and resources, which may not fully capture the scope and complexity of factors affecting individual

well-being, as Bakker et al. (2023) suggested. Thus, it is recommended that future research expand the range of variables considered to obtain a more comprehensive understanding of the aspects influencing student PBSU and PBDI and other significant outcomes. Furthermore, the study's cross-sectional design precluded establishing causal relationships among antecedents, PBSU, PBDI and student well-being. To address this issue, future researchers may consider utilising a longitudinal research design to understand better the relationship between PBSU, PBDI and other variables. Lastly, the study relied solely on self-report online questionnaires, which may be susceptible to social desirability and response biases. Future studies should consider implementing multiple data collection methods beyond self-report questionnaires to minimise these potential biases.

Practical implications

The practical implications of this study hold significant value for both institutions and practitioners looking to enhance the quality of higher education and prepare graduates for the labour market. The findings related to PBSU and PBDI's impact on important student antecedents and outcomes provide valuable insights that can inform the development of evidence-based strategies aimed at student success. Universities can utilise this knowledge to optimise students' demands and resources and encourage PBSU and deficit improvement, which can improve student well-being and enhance the work readiness of graduates. Indeed, proactivity has become a critical skill for employees and graduates to ensure employability (Tymon & Batistic, 2016), and universities are responsible for fostering such behaviours in students (Abugre, 2018). Therefore, utilising the expertise of practitioners, including industrial psychologists, can help inform practices around developing PBSU and PBDI. Industrial psychologists can guide universities in improving efficiency by designing and implementing training programmes that enhance organisational functioning at individual, group and organisational levels. However, practitioners must fully understand these constructs and their contributions to student success to effectively design initiatives that foster proactive behaviour within the student community. Such initiatives can contribute to student success and the holistic development of graduates well-suited for the demands of the workforce.

Conclusion

In conclusion, this study highlights the significant relevance and practical implications of PBSU and PBDI in the university context. The findings demonstrate significant relationships between PBSU and PBDI and important student demands, resources and well-being. By optimising student demands (e.g. personal problems) and providing adequate resources (e.g. promoting autonomy), HEIs may increase students' motivation, potentially leading to PBSU and PBDI. In turn, PBSU and PBDI may positively affect students' emotional, social and psychological well-being. In addition, the importance of adopting a balanced approach when incorporating these constructs into student development

initiatives is underscored by the observed differences in the strength of relationships between PBSU and PBDI and various variables.

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Competing interests

The authors have declared that no competing interest exists.

Authors' contributions

K.M. conceived of the presented idea and supervised the study. K.M. and C.D.T. verified the analytical methods. C.D.T. wrote the original draft, and K.M. reviewed and edited the manuscript. K.M. assisted with the interpretation of the results, provided necessary resources and acquired the funding for the project. Both authors discussed the results and contributed to the final manuscript.

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Data availability

The data set used and analysed during this study is available from the corresponding author, K.M., upon reasonable request.

Disclaimer

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