

Proactive behaviour towards strengths use and deficit improvement: Validating a scale for first-year university students

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BHons Industrial Psychology

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COMMENTS

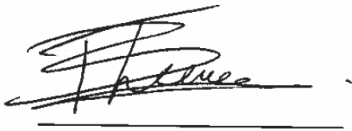
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- The references referred to in this mini-dissertation, follow the format prescribed by the Publication Manual (6th ed.) of the American Psychological Association (APA). This practice is in line with the policy of the Programme in Industrial Psychology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

DECLARATION

I, Bianca Theron, hereby declare that this dissertation titled “**Proactive behaviour towards strengths use and deficit improvement: Validating a scale for first-year university students**” is my own work. The views and opinions expressed in this research study are my own and the relevant literature references are used 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.

A handwritten signature in black ink, appearing to read 'B. Theron', is written over a horizontal line.

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TO WHOM IT MAY CONCERN:

I hereby confirm that the dissertation '*Proactive behaviour towards strengths use and deficit improvement: Validating a scale for first-year university students*' by Ms Bianca Theron was edited and groomed to the best of my ability, including some recommendations to improve the language and logical structure as well as enhance the presentation.

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Don't think outside the box, reinvent the box

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SUMMARY

Title:

Proactive behaviour towards strengths use and deficit improvement: Validating a scale for first-year university students

Keywords:

Proactive behaviour, strengths use, deficit improvement, validation, first-year university students, student burnout, student engagement, student life satisfaction.

Numerous challenges contribute to the high drop-out rate of first-year students. University stressors can also cause a student to experience stress and inadequate coping ability. Certain students may wish to change stressful life events themselves by using proactive behaviour. Recently, two new types of were identified, namely of proactive behaviour towards strengths use (PBSU) as well of proactive behaviour towards deficit improvement (PBDI). Although these new scales were conceptualised in the organisational context, the constructs also appear valuable for first-year students.

The general objective was to validate the PBSU and PBDI scales with specific focus on the following measurements: factorial validity, factorial invariance, reliability as well as convergent, discriminant and predictive validity. A sample of 776 first-year students from a tertiary education institute was included to gather the data by means of a convenience sampling method. Mplus was used to determine the psychometric properties of the adapted questionnaire. A cross-sectional research design was employed in the study.

The results showed that a two-factor structure fitted the data significantly better compared to a one-factor structure. Positive results were found for invariance testing, as the PBSU and PBDI scales were interpreted similarly between the three campuses and across the Germanic and African language groups. Furthermore, the PBSU and PBDI scales indicated favourable reliability scores ($\alpha \geq 0.70$). Convergent validity was found in that PBSU and PBDI were moderately related to proactive behaviour and strengths use. The scales were found unrelated

to gender. Both PBSU and PBDI proved to be significant predictors of student burnout, engagement and life satisfaction.

After conclusions for the study were drawn, recommendations were made to be applied by universities and students, and explored for future research.

OPSOMMING

Titel:

Pro-aktiewe gedrag in die gebruik van sterk punte en die ontwikkeling van tekortkomings:
Validering van 'n skaal vir eerstejaar universiteitstudente

Sleuteltermes:

Proaktiewe gedrag, sterkpunte, tekortkomings, verbetering, validasie, eerstejaar-universiteitstudente, studente-uitbranding, studentebetrokkenheid, studentelewenstevredenheid.

Talle uitdagings dra by tot die hoë druipsyfer onder eerstejaarstudente. Stressors by die universiteit kan ook veroorsaak dat 'n student stres ervaar en ontoereikende hanteringsvermoë ontwikkel. Sekere studente kies om self die stresvolle gebeurtenisse in hulle lewe te verander deur proaktiewe gedrag. Onlangs is twee nuwe vorme van proaktiewe gedrag geïdentifiseer, naamlik proaktiewe gedrag wat sterkpunte gebruik (PBSU) en proaktiewe gedrag deur verbetering van tekortkomings (PBDI). Hoewel hierdie nuwe skale gekonseptualiseer is met die oog op die organisatoriese konteks, blyk dit dat die konstrukte ook waardevol kan wees om eerstejaarstudente te ontleed.

Die algehele doel van die huidige studie was om die PBSU en PBDI skale te valideer vir eerstejaar universiteitstudente, deur spesifiek te fokus op faktorale geldigheid, faktorale invariansie, betroubaarheid asook konvergente-, diskriminante- en voorspellingsgeldigheid. 'n Steekproef van 776 eerstejaarstudente by 'n tersiêre opleidingsinstelling is ingesluit om die data in te samel deur 'n gerieflike steekproefmetode. Die program MPlus is gebruik om die psigometriese eienskappe van die aangepaste vraelys te bepaal. 'n Deursnee-navorsingsontwerp is vir die studie ingespan.

Die resultate het getoon dat 'n twee-faktor struktuur die data aansienlik beter pas in vergelyking met 'n een-faktor struktuur. Positiewe resultate is gevind vir invariansietoetsing, waar die PBSU en PBDI skale soortgelyk geïnterpreteer is tussen die drie kampusse en in die

Germaanse en Afrikaan-taalgroepe. Ook die PBSU en PBDI skale het gunstige betroubaarheid tellings ($\alpha \geq 0.70$) aangedui. Konvergente geldigheid het aangedui dat PBSU en PBDI matig verwant is aan proaktiewe gedrag en om sterktes te gebruik; die skale het nie verband gehou met geslag nie. Beide PBSU en PBDI was beduidende voorspellers van uitbranding, betrokkenheid en lewenstevredenheid onder eerstejaarstudente.

Nadat gevolgtrekkings van die studie afgelei is, is aanbevelings gemaak wat universiteite en studente kan toepas en wat toekomstige navorsing kan ondersoek

CHAPTER 1

INTRODUCTION

The purpose of the present study is to establish the psychometric properties of two scales, proactive behaviour towards strengths use (PBSU) and proactive behaviour towards deficit improvement (PBDI), for first-year university students in the South African context. In order to achieve this, the study set out to determine the factorial validity, factorial invariance, reliability, convergent, discriminant, and predictive validity of these two scales.

This chapter introduces the problem statement and provides an overview of previous research on using strengths and improving deficits, specifically from an individualistic perspective. The research's questions, objectives and hypotheses are provided, followed by a discussion of the research methodology. Thereafter, a brief layout of the chapters is given.

1.1 PROBLEM STATEMENT

As the case is with new recruits and newly appointed employees in organisations, first-year students face challenges to adjust in a new university environment. These challenges can lead to experiences of stress. However, certain students themselves may want to change the stressful life events by the following actions: develop/forged a positive frame of mind (Ford-Gilboe & Cohen, 2000), enhancing personal health initiatives such as exercising and eating healthy, or using relaxation methods (Ingledeu, Hardy, Cooper, & Jemal., 1996). These types of actions are called proactive behaviour.

Proactive behaviour can be defined as anticipatory, future- or change-oriented, active, self-starting, and persistent work behaviours (Parker, 2000). The construct has been studied under different descriptive labels such as proactive behaviour (Parker, 2000), taking charge (Morrison & Phelps, 1999) and personal initiative (Frese & Fay, 2001). Crant (2000, p. 436) defines proactive behaviour as “taking initiative in improving current circumstances and challenging the status quo rather than passively adapting to present conditions”. Actions relevant to proactive behaviour include suggesting ideas for future improvements, self-started

problem-solving, taking charge through initiatives, social network-building, feedback seeking, and selling issues (Grant & Ashford, 2008). Proactive behaviour is closely related to personal initiative, which refers to proactive and persisting behaviour forms initiated by individuals to achieve work goals (Frese & Fay, 2001; Frese, Kring, Soose & Zempel, 1996). In considering the importance of personal initiative for individuals it becomes clear that taking initiative may lead to improved working conditions and more efficient work processes, which will eventually enhance job performance (De Dreu & Nauta, 2009; Frese & Fay, 2001).

In order to cope in the demanding university environment, first-year university students need to develop and apply proactive strategies (Clark, 2005; Terenzini et al., 1994). According to Darling, McWey, Howard and Olmstead (2007), first-year university students' transition to tertiary education can present them with a number of challenges and obstacles, such as a sudden exposure to independent living, emotional vulnerability, newly found academic pressure, the need for social adaption as well as time and financial management. As a result, some or all of these challenges can manifest in stress that first-year students experience (Clark, 2005; Darling et al., 2007; Terenzini et al., 1994). This is significant, since relevant literature on the topic indicates that the prevalence of stress is increasing among students who attend institutes of higher tertiary education (Robotham & Julian, 2006; Stecker, 2004).

It is argued that proactive behaviour and coping skills can help students navigate challenges and difficulties in the university environment. Being proactive will enable students to be self-reliant, solve problems and make informed choices, which in turn can promote their physical and psychological well-being and ultimately reduce stressors (Kadhiravan & Kumar, 2012; Parker, 2000). When they show proactive behaviour, students will be able to deal with the life events, challenges and stressors that confront them in their first-year of university education, without resorting to behaviours that potentially can risk their health (Ford-Gilboe & Cohen, 2000; Ingledew et al., 1996). Students, who are able to apply proactive strategies, and thus cope effectively, are likely to be more successful in their academic as well as in their social life (Vaidya & Jain, 2013). Therefore, being aware of negative or non-proactive behaviour will help individuals focus on issues that might surface (e.g. adjustment and performance among first-year students).

Students tend to employ less desirable coping strategies such as alcohol misuse, dependency on nicotine, and illegal drugs, in an attempt to cope with these newly encountered stressors (Pierceall & Keim, 2007). This is particularly true for first-year students as they can resort to extreme measures to cope with the totally new demanding environment (Kadhiravan & Kumar, 2012). Students however, differ in their evaluation of a specific stressor, the causal attribution, preoccupation and feelings as well as their actions to cope with stressors (Krenke, 2001). Using coping skills, personal initiative and taking charge may promote better health and help students adapt to higher education, especially those in their first-year of study (Megumi & Katsuyuki, 2007). According to Pardini, Lochman and Wells (2004), by regulating negative emotions students will be less vulnerable in reacting to stressors with non-favourable outcomes. These include stressors such as student burnout, lack of engagement in their studies and reduced life satisfaction. Kelly and Louise (2007) indicate that proactive behaviour and coping, however, do influence the likelihood of stress-related growth.

It is important to consider why proactive behaviour and personal initiative is important for students, as this will indicate how students envisage their success, anticipate future problems (Greenglass, 2002) and plan how to deal with these problems. Proactive and positive actions also predict the preventive steps that students will take to avoid drop-out or failure of an academic career. Being aware of how to initiate proactive behaviour, personal initiative and effective coping skills prior to exposure to stressors, may prevent first-year students from experiencing psychological and physical problems (Kadhiravan & Kumar, 2012). Findings further indicate that having and developing personal initiative is effective in reducing strain and increasing proactive behaviour (Searle, 2008).

The literature identifies a variety of proactive-behaviour types. These include the following: seeking feedback (Ashford, Blatt & Van de Walle, 2003), demonstrating initiative (Frese & Fay, 2001), building networks (Ashford & Black, 1996), gathering information (Morrison, 1993), helping others (Organ, 1988), taking charge (Morrison & Phelps, 1999) and redefining one's work (Ashford & Black, 1996; Wrzesniewski & Dutton, 2001). Recently Van Woerkom, Els, Mostert, Rothmann, Bakker and De Beer (under review – 2105) argued that it is important to include two additional forms of proactive behaviour, namely proactive behaviour towards strengths use (hereafter: PBSU) and proactive behaviour towards deficit improvement (hereafter: PBDI). PBSU refers to employees' self-starting behaviour to use

their strengths, potential and virtues in the workplace, whilst PBDI describes employees' self-starting behaviour towards improving areas of deficit or weakness (Van Woerkom et al., under review).

The initiative to include PBSU and PBDI is rooted in the Positive Psychology movement (Ereaut & Whiting, 2008; Seligman & Csikszentmihalyi, 2000; Wood & Tarrier, 2010). In this movement, the study of well-being has shifted to a focus on strengths use, as opposed to the sole focus on deficits (Peterson & Seligman, 2003). Proponents of this paradigm argue that it would be ideal for individuals to flourish at what they do, instead of simply surviving, or even deteriorating (Lewis, 2011). Cameron, Dutton and Quinn (2003) suggest that a focus on human strengths can lead to flourishing. Linley and Harrington (2006) define strengths as the natural capacity for individuals to behave, think or feel in ways that can be considered optimal, and to perform in pursuit of valued outcomes.

Seligman and Csikszentmihalyi (2000) introduced the paradigm of positive psychology, which is built on the argument that a balance between the focus on strengths use *and* improvement of deficits would be ideal for well-being (Rust, Diessner & Reade, 2009; Seligman, et al., 2004). Deficits are defined as individuals' shortcomings, or areas of incompetence that may be beneficial if rectified (Buckingham & Clifton, 2001). A combined focus of proactive behaviour towards strengths use and deficit improvement has been associated with positive outcomes such as reaching goals, obtaining growth, and moving towards a more favourable or desired state of well-being (Linley & Harrington, 2006).

In order to measure PBSU and PBDI, the Strengths Use and Deficit Correction Questionnaire (SUDCO) was developed by Van Woerkom and colleagues (2015, under review). The SUDCO measures four dimensions, namely perceived organisational support for strengths use, perceived organisational support for deficit improvement, proactive behaviour towards strengths use, and proactive behaviour towards deficit improvement. Although the goal of the SUDCO was to focus on the use of strengths and deficits in an organisational context, the concepts of PBSU and PBDI turned out to be particularly relevant and important to assess the well-being of first-year university students. Just as new recruits in organisations display proactive behaviours to use their strengths and deficits in adjustment and socialisation (Clark, 2005; Terenzini et al., 1994), it is important that first-year university students develop diverse proactive strategies to curb and manage the uncertainty of the new environment. Although

numerous studies examine the cognitive and dispositional variables as predictors of university success (Komarraju, Karau & Schmeck, 2009; Poropat, 2009), there is still a need for understanding how these students' PBSU and PBDI can predict certain outcomes. The present study endeavours to fill this gap.

Findings by Greenberg, Domitrovich and Bumbarger (2001) indicate that students exerting both PBSU and PBDI, reported significantly stronger attachment to their studies, improvement in self-reported achievement, and less involvement in misconduct than did groups who did not exert PBSU and PBDI. Students, who recognise their strengths, experience a sense of hope and optimism instead of a sense of hopelessness with regard to their study careers (Vickers & Vogeltanz, 2000). Furthermore, PBSU and PBDI among university students may result in enhanced motivation, improved performance (Epstein et al., 2003), adequate emotional and behavioural skills, and competencies and characteristics that promote a sense of personal accomplishment (Epstein et al., 2003). These positive outcomes is believed to enhance students' ability to deal with adversity and stress (Robotham & Julian, 2006; Stecker, 2004), and to promote personal, social, and academic development (Epstein et al., 2003).

Peterson and Seligman (2004) have linked strengths use and deficit improvement with important outcomes such as reduced burnout (Maslach, 2006; Schaufeli & Peeters, 2000), enhanced engagement (Coates, 2009), as well as sustainable well-being and life satisfaction (Isaacowitz, Vaillant & Seligman, 2003). Kaiser and White (2009) state that a strengths-based approach can be an enabler of optimal human functioning. Wood, Linley, Maltby, Kashdan and Hurling (2011) point out that optimal development is more possible when human potential and strengths are also taken into account. Bouskila-Yam and Kluger (2011) describe a positive relationship between adopting a strengths-based approach and motivation and performance, whilst Sienstra (2010) identifies a positive relationship between following a strengths-based approach and the performance of tasks among individuals.

Based on the discussion above, it is evident that PBSU and PBDI could be valuable predictors of first-year university students' success and well-being. However, the two new scales mentioned above were only validated for employees in organisations (Van Woerkom et al., under review), sport coaches (Stander & Mostert, 2013) and educators (Paver, Mostert, Els, & De Beer, 2014). The primary objective of the present study was, therefore, to validate

the two individual dimensions of the SUDCO (PBSU and PBDI) within a sample of first-year university students. The validity of a measurement instrument is concerned with that which the test measures and how well it does the measuring (Foxcroft & Roodt, 2013). The validity of a measure is of utmost importance, as it influences the precision of how the findings will be applied and interpreted. The present study focuses on factorial validity, factorial invariance, reliability, convergent validity, discriminant validity, and predictive validity.

One manner to determine the validity of a scale is by factorial validity, which is important for establishing the validity of latent constructs. Factorial validity refers to the validity of a test determined by its correlation with a factor, which is determined by factor analysis (Renaud & Murray, 2005). Factor analysis, in turn, denotes a number of different mathematical procedures for analysing the interrelationships among a set of variables. These interrelationships are then explained in terms of a reduced number of variables called factors. A factor can be defined as a hypothetical variable that influences scores on one or more observed variable (Colman, 2008).

Since previous studies have confirmed the factorial validity of the SUDCO, confirmatory factor analysis was used in the present study. This is in accordance with results by previous studies, and who also reported a two-factor solution (in the organisational context). Van Woerkom et al. (under review) compared different models and reported a four-factor structure of the SUDCO questionnaire, consisting of the following dimensions: perceived organisational support for strengths use (POSSU); perceived organisational support for deficit improvement (POSDI), as well as the mentioned PBSU; and PBDI. More follow-up studies include that of Stander and Mostert (2013), who adapted the questionnaire for South African sport coaches, and Paver, Mostert, Els, and De Beer (2014), who adapted it for South African educators.

The measurement invariance of the PBSU and PBDI scales were determined in the present study, focusing in particular on three campuses and the Germanic and African language groups. Measurement invariance can be defined as the extent to which the same construct is measured across all cultural groups involved in the study (Van de Vijver & Leung, 1997). This means that, even though an instrument measures different constructs among diverse cross-cultural groups, a comparison can still be made (Van de Vijver & Leung, 1997). Three levels of invariance can be pointed out: a) the same construct is measured in each cultural

group, although the relationship between the scores of the groups is unknown (structural invariance); b) scores have the same measurement unit across the groups, but have different origins (measurement unit equivalence); and c) scores have the same origins *and* measurement unit in all groups (full scale equivalence). For the purpose of the present study, only measurement invariance was tested.

The reliability as well as convergent and discriminant validity of the two scales were also determined. Finding sufficient Cronbach's alpha coefficients ($\alpha \geq 0.70$) indicated that the scales are internally consistent. Convergent validity is found when each measurement item correlates strongly with its assumed theoretical construct (Gefen & Straub, 2005; Westen & Rosenthal, 2003). A possible correlation between the PBSU and PBDI scales for first-year university students was tested with two relevant constructs, namely proactive behaviour and strengths use, due to the theoretical similarity that is found between PBSU and PBDI with these constructs. Discriminant validity is evident when each measurement item does not relate to constructs from which it is theoretically supposed to differ (Campbell, 1959; Gefen & Straub, 2005). The present study investigated whether discriminant validity can be found for the PBSU and PBDI scales and gender, as there seemingly is no valid reason why the PBSU and PBDI scales would be related to gender. It was, therefore, expected that PBSU and PBDI will be unrelated to gender.

Predictive validity refers to "the accuracy with which a measure can predict the future behaviour or category status of an individual" (Foxcroft & Roodt, 2013, p. 59). The present study thus explored whether the PBSU and PBDI scales did predict burnout, engagement and life satisfaction among first-year students of the sample.

Students' experience of burnout are caused by study demands which can manifest in feelings of exhaustion, having a cynical and detached attitude towards studies, and feelings of incompetence (Schaufeli et al., 2002). Burnout consists of exhaustion, cynicism, and professional efficacy. In recent studies, however, it was suggested that professional efficacy is considered to be a divergent factor (De Beer & Bianchi, 2015; Mészáros, Ádám, Szabó, Szigeti & Urbán, 2014) and cannot be considered a core component of burnout (Schaufeli, et al., 2005). Therefore, the present study focused on exhaustion and cynicism as the components of burnout. Exhaustion refers to physical and emotional depletion caused by vast

personal demands and continuous stress (Maslach & Jackson, 1981; Wright & Cropanzano, 1998). Cynicism describes a distant attitude toward one's work (Schaufeli, et al., 2005).

It has been proven that individuals' use of their strengths is associated with lower stress levels (Buick & Muthu, 1997; Proctor, Maltby & Linley, 2011; Wood, et al., 2011). By making the most of the strengths and improving those features in which individuals excel may decrease the experience of stress. The reason is that these individuals may experience a higher level of perceived competence to perform in their studies. When students are able to use their strengths, they tend to feel more content and good about themselves, and are, therefore, motivated to fulfil their potential (Linley & Harrington, 2006; Seligman et al., 2005).

In addition, when individuals improve and develop their perceived deficits it may create a sense of mastery or accomplishment. Performing tasks that fall within one's area of deficits and improving these deficits can have a positive effect on goal achievement, which, in turn, increases personal accomplishment and feelings of competence. Such a perceived condition can reduce the effects of burnout (Maslach, 2006; Schaufeli & Peeters, 2000). The positive emotions that are produced by employing one's strengths and improving one's deficits may increase one's enthusiasm and energy (Langelaan, Bakker, Schaufeli & Van Doornen, 2006; Schaufeli & Salanova, 2007). This may also produce positive feelings that can reduce feelings of burnout (Erickson & Grove, 2007).

Engagement can be defined as a positive, fulfilling, work-related state of mind characterised by vigour, dedication, and absorption (Schaufeli, Salanova, González-Romá & Bakker, 2002). The basic aspects of work engagement are identified as vigour and dedication, seeing that engagement is measured as a one-factor model (De Bruin & Henn, 2013; De Bruin, Hill, Henn, & Muller, 2013). Absorption was excluded as a component of engagement, since it is pointed out only as a consequence of vigour and dedication (Demerouti, Mostert, & Bakker, 2010; González-Romá, Schaufeli, Bakker, & Lloret, 2006). Vigour can be defined as the experience that befalls individuals who consistently show high levels of energy and mental resilience while working or studying (Schaufeli, Salanova, González-Romá & Bakker, 2002). Dedication refers to employees' strong involvement in their work, while experiencing feelings of significance, enthusiasm, and challenge. Absorption is experienced by individuals who can concentrate fully and are happily captivated by their work. As absorption can be

viewed rather as a consequence of engagement (Schaufeli & Bakker, 2004), only the ‘core’ concepts of vigour and dedication are used in the present study.

The literature has confirmed the relationship between a strengths- and deficit-improvement approach delivering outcomes such as engagement (Linley et al., 2010; Van Woerkom et al., under review; Wood et al., 2010). Preceding studies have shown that employees’ engagement is directly related to the use of their strengths (Lopez, Hodges & Harter, 2005). A study undertaken by Gallup-Purdue (2014) supported this postulate by confirming that more than 50% of employees who focus on their strengths are shown to be engaged in the workplace.

For students, becoming engaged in studies may lead to enthusiasm and dedication, as well as feelings of motivation (linking to vigour; Schaufeli et al., 2002). According to the literature, by using one’s strengths, one will experience heightened engagement and reduced levels of stress and depression (Peterson, Stephens, Park, Lee & Seligman, 2009; Wood, Linley, Maltby, Kashdan & Hurling, 2011). On the other hand, Xanthopoulou et al. (2009) states that, when individuals improve on their deficits, they may stimulate growth and development (which is associated with engagement).

Life satisfaction is described as a psychological state that is often associated with psychological well-being (Hamarat & Steele, 2002; Neugarten, Havighurst & Tobin, 1961). This also entails a subjective self-assessment of the individual’s quality of life. This condition is also referred to as a global feeling of contentment, fulfilment, or happiness with life in general (Diener, Emmons, Larsen & Griffin, 1985; Hamarat & Steele, 2002). According to Govindji and Linley (2007) and Proctor, Maltby and Linley (2011), the use of strengths are positively linked to subjective well-being, which is perceived as a combination of positive affect, negative affect, and life satisfaction of students. Isaacowitz, Vaillant and Seligman (2003) concurs with this finding by pointing out that higher levels of strengths correlated positively with increased life satisfaction. Rust, Diessner and Reade (2009) indicate similar findings; the focus on character strengths enhances life satisfaction. Diessner and Reade’s (2009) also find that, focusing on improving relative character weaknesses, helped increase individuals’ life satisfaction. Therefore, Rust et al. conclude that working on one’s weaknesses in context may enhance and not detract from improving one’s subjective well-being.

Research questions

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

- How are students' proactive behaviour towards strengths use (PBSU) and their proactive behaviour towards deficit improvement (PBDI) conceptualised, according to the literature?
- Are the PBSU and PBDI scales valid and reliable for use in a sample of first-year students? More specifically, can the following aspects be determined?
 - factorial validity;
 - factorial invariance;
 - sufficient scale reliability (Cronbach's alpha coefficient ≥ 0.70);
 - convergent validity (relationship with other theoretically similar constructs, i.e. strengths use, and proactive behaviour);
 - discriminant validity (relationship with those constructs from which it is supposed to differ, i.e. gender, university, faculty);
 - predictive validity (predictive power to employ outcome constructs such as student burnout, student engagement and life satisfaction).
- What recommendations can be made for future study?

1.2 RESEARCH OBJECTIVES

The research objectives are divided into general and specific objectives.

1.2.1 General objective

The general objective of this study is to validate the PBSU and PBDI scales in a sample of first-year university students.

1.2.2 Specific objectives

The specific objectives of this research project entail the following:

- Conceptualise students' proactive behaviour towards strengths use (PBSU) and their proactive behaviour towards deficit improvement (PBDI), according to the literature.
- Determine the validity and reliability for the PBSU and PBDI scales in a sample of first-year university students, particularly by determining the following:
 - factorial validity;
 - factorial invariance;
 - scale reliability (Cronbach's alpha coefficient ≥ 0.70);
 - convergent validity (relationship with other theoretically similar constructs, i.e. strengths use, and proactive behaviour);
 - discriminant validity (relationship with those constructs with which it is supposed to differ, i.e. gender);
 - predictive validity (predictive power to employ outcome constructs such as student burnout, student engagement and life satisfaction).
- Make recommendations for future study.

1.3 RESEARCH HYPOTHESES

The following hypotheses were tested in the study.

- H1: A two-factor structure will fit the data significantly better as compared to a one-factor structure.
- H2: The two-factor structure of strengths use and deficit improvement will be invariant across campuses and language groups.
- H3: The strengths use and deficit improvement scales will be reliable ($\alpha \geq 0.70$).
- H4: PBSU and PBDI will be moderately related to theoretically similar constructs, including proactive behaviour and strengths use.
- H5: PBSU and PBDI will be unrelated to gender.
- H6: PBSU and PBDI will negatively predict student burnout.
- H7: PBSU and PBDI will positively predict student engagement.
- H8: PBSU and PBDI will positively predict life satisfaction.

1.4 RESEARCH METHOD

The research method consists of a literature review and an empirical study. The results are presented in the form of a research article. The following sub-section focuses on the literature relevant to the empirical study.

1.4.1 Literature review

The first part of the study consists of a review of the strengths use and improvement of deficits. Articles from main journals published between 2000 and 2014, which are relevant to the study was consulted; older relevant article and book sources to the constructs and topic was used as well. Literature was found by computer searches through databases such as Academic Search Premier; Business Source Premier; PsycInfo; EbscoHost; Google Scholar; Google Books; Emerald; ProQuest; SACat; SAEpublications and Science Direct.

1.4.2 Research design

The design chosen for the present study is quantitative research. Struwig and Stead (2001) describes quantitative study as a form of conclusive research involving large representative samples and data-collection procedures that are structured. A cross-sectional research design was used to collect the data and to attain the research objectives. With a cross-sectional research design, researchers gather data by means of a survey, studying participants at an exact point in time (Du Plooy, 2002). This approach proved economical, cost-effective and time effective for the present study, as the survey was completed online. The study was both exploratory and confirmatory, since the hypotheses are supported by existing theory, however little is known about the field of individual strengths use and deficit improvement among students.

1.4.3 Research participants

First-year students ($N = 776$) of a tertiary institution were targeted for the present study. A convenience sample was used. The sample was compiled based on gender, age, ethnicity

(race), home language, academic and historical year, as well as on-campus and off-campus living.

1.4.4 Measuring instruments

Biographical questionnaire: A biographical questionnaire was distributed to determine the biographical characteristics of the participants. The questionnaire measured respondents' characteristics such as age, gender, race, language, campus, faculty and degree.

Student's proactive behaviour towards strengths use (PBSU) and their proactive behaviour towards deficit improvement (PBDI): The two individual sub-scales of the Strengths Use and Deficit Correction Questionnaire (SUDCO), developed by Van Woerkom et al. (under review) were used to measure the perceptions of students concerning their strengths use and deficit improvement. Initially, the PBSU scale consisted of nine items, while the PBDI scale consisted of eight items. However, for the purpose of the present study ten items were selected. The first five items (e.g. "In my studies I focus on the things I do well") were used to measure PBSU ($\alpha = 0.91$; Van Woerkom et al, under review) and the other five items (e.g. "In my studies I reflect on how I can improve the things in my life that I am not good at") were used to measure PBDI ($\alpha = 0.92$; Van Woerkom et al, under review). These 10 items were selected according to the results of the article of Van Woerkom et al. The scale were scored on a seven-point frequency scale (1 = never, 7 = almost always; $\alpha = 0.92$). The two scales proved to be reliable by reporting good Cronbach's alphas: PBSU: $\alpha = 0.92$; and PBDI: $\alpha = 0.95$ (Van Woerkom et al., under review). Stander and Mostert's (2013) reported the following: PBSU, $\alpha = 0.93$; and PBDI, $\alpha = 0.94$. Paver, Mostert, Els, & De Beer (2014) delivered similar results with a validation study among South African educators: PBSU, $\alpha = 0.9$; and PBDI, $\alpha = 0.95$.

Strengths use: was assessed with the Strengths Use Scale (Govindji & Linley, 2007). Fourteen items enquired about the extent to which individuals use their strengths, which were then rated on a scale of 1 ('Strongly disagree') to 7 ('Strongly agree'). Items were developed from a review of the literature on positive psychology (Wood, Linley, Maltby, Kashdan, & Hurling, 2011). The Strength Use Scale indicated good psychometric properties including a clear one-factor structure, test-retest reliability of $r = 0.84$, as well as criterion and predictive validity with various indices of well-being and constructs from positive psychology (Govindji

& Linley, 2007; Wood, Linley, Maltby, Kashdan, & Hurling, 2011). The scale was the only available one to assess strength use rather than strength prevalence.

Proactive behaviour: Belschak and Den Hartog (2010) developed a scale by means of adapting the Personal Initiative Scale (Frese, Fay, Hilburger, Leng, & Tag, 1997), and the Proactive Personality Scale (Crant, 2000); this adapted scale was used to determine proactive behaviour. This scale consist of eleven items on a seven-point scale (1 = ‘Completely disagree’ to 7 = ‘Completely agree’). The first seven items referred to students’ behaviour within a study group. An example item is, “When working in a study group, *you personally take the initiative to help orientate new group members*”. The second set consisting of four items referred to students’ personal preference to studying and career improvement (e.g. “On a personal level, when you study you find new approaches to execute your tasks so that you can be more successful”). The alpha coefficient for the scale reported a reliability of 0.80 (Belschak & Den Hartog, 2010).

Student burnout: The Maslach Burnout Inventory-Student Survey (MBI-SS) (Schaufeli, Martínez, Pinto, Salanova & Bakker, 2002; Maslach, Jackson & Leiter, 1996) was used to decide the respondents’ levels regarding aspects such as exhaustion, cynicism and professional efficacy. For the purpose of this study, burnout is considered as a one-factor model (De Beer & Bianchi, 2015) with core components of exhaustion and cynicism (Schaufeli & Taris, 2005), as professional efficacy has been shown to be a more divergent factor (cf. Mészáros et al., 2014). Therefore, only participants’ levels of exhaustion and cynicism were measured. Exhaustion was measured in terms of five items (e.g. “I feel emotionally drained by my studies”), and cynicism covering four items (e.g. “I have become less enthusiastic about my studies”). Items were scored on a seven-point frequency rating scale ranging from 0 (never) to 6 (always). The MBI-SS has been validated internationally (Schaufeli, Salanova, González-Romà & Bakker, 2002) and in South Africa (Mostert, Pienaar, Gauche & Jackson, 2007; Pienaar & Sieberhagen, 2005). The reliabilities are 0.79 for exhaustion and 0.73 for cynicism (Pienaar & Sieberhagen, 2005). Mostert, Pienaar, Gauche & Jackson, 2007) found 0.74 for exhaustion and 0.68 for cynicism.

Student engagement: The Utrecht Work Engagement Scale-Student Survey (UWES-S) (Schaufeli, Salanova, González-Romà & Bakker, 2002) was employed to measure the students’ engagement levels. The UWES consists of three dimensions, namely vigour,

dedication and absorption. However, engagement was measured as a one-factor model based on items of vigour and dedication, seeing that previous research has indicated that vigour and dedication are considered to be the core dimensions of engagement (De Bruin & Henn, 2013; De Bruin, Henn, & Muller et al., 2013; Llorens et al., 2007; Schaufeli & Bakker, 2004; Van Wijhe, Peeters, Schaufeli & Van den Hout, 2011). In addition, the role of absorption is considered to be less essential (González-Romá, Schaufeli, Bakker & Lloret, 2006). Therefore, only the vigour and dedication levels of the university students were measured. Vigour was measured in terms of five items (e.g. “When I study, I feel like I am bursting with energy”); dedication was also be measured regarding five items (e.g. “I am enthusiastic about my studies”). Items was then scored on a seven-point Likert scale ranging from 0 (never) to 6 (every day). The UWES-S has been validated internationally (Schaufeli et al., 2002). Also, in South Africa, Pienaar and Sieberhagen (2005) found reliabilities of 0.77 for vigour and 0.85 for dedication. Mostert et al. (2007) supported Pienaar and Sieberhagen (2005) with acceptable Cronbach’s alpha scores of 0.70 for vigour and 0.78 for dedication.

Life satisfaction: The Satisfaction with Life Scale (Diener, Emmons, Larsen & Griffin, 1985) was employed to measure life satisfaction on a 7-point Likert-type scale from 1 (‘Strongly disagree’) to 7 (‘Strongly agree’). Five questions were used to determine life satisfaction (e.g. “So far I have gotten the important things I want in life”). The internal consistency of the scale is reasonable ($\alpha = 0.67$).

1.4.5 Research procedure

Permission was obtained from the registrars from all three campuses of the tertiary education institution included in the present study. The registrars received a letter explaining the purpose of the study. The survey was web-based and a link was sent to the respondents through e-mail. The questionnaire generally took approximately 25-30 minutes to complete. Respondents were given two weeks to complete the questions. A reminder of completion was sent after a week. It was stressed that participation would be voluntary, and that the anonymity and confidentiality of the respondents would be assured. After collection, the data was analysed.

1.4.6 Statistical analysis

The SPSS program (SPSS Inc., 2011) was used for descriptive statistics (e.g. means, averages and standard deviations) of the data. Mplus 7.2 (Muthén & Muthén, 2014) was used to determine the psychometric properties of the adapted questionnaire. To determine the factorial validity, the researcher employed confirmatory-factor analyses (CFA). To perform CFA, a priori hypotheses was required (Williams, 1995), which was used to verify the theoretical assumptions fundamental to the scales. The robust maximum likelihood (MLR) estimator was used to account for the lack of multivariate normality, where it was evident, in the item distribution, and the covariance matrix was used for input (Muthén & Muthén, 2014), otherwise the method of normal maximum likelihood was implemented.

To assess the goodness of the measure and structural model's fit, the following fit indices were measured: 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). Acceptable fit is considered at a value of 0.90 and above for the CFI and TLI (Hoyle, 1995; Byrne, 2001). For the RMSEA a value of 0.05 or less indicates a good fit, whereas values of 0.08 and less are considered to be an acceptable model fit (Browne & Cudeck, 1993). The cut-off point for SRMR was set at less than 0.05 (Hu & Bentler 1999). These cut-off points should, however, only be considered as guidelines, as there is little known consensus on the values for sufficient fit (Lance, Butts & Michels, 2006). The Akaike information criterion (AIC) and sample adjusted Bayesian information criterion (BIC) was used to compare the fit to that of competing models – in other words, the lowest AIC and BIC value will indicate the best fitting model.

Measurement invariance was investigated in the demographics of the group (campus and language groups), by testing for the invariance. This was done in Mplus by ascertaining the significance of the configural, metric and scalar models compared to each other. In an instance where a combination of two of the three models are compared in the invariance test, a *p*-value of greater than 0.05 is sought to show independence of the model, in other words, that the model under comparison is a better model.

Cronbach's alpha coefficients were used to measure the reliability of the constructs. Pearson's product-moment correlation coefficients were used to stipulate the relationship

between the variables. In terms of statistical significance, the value of the confidence interval level ($p \leq 0.01$) was set at 99%. Effect sizes were used to decide on the practical significance of the findings (Steyn, 1999). A cut-off point of 0.50 (depicting a large effect according to Cohen, 1988) was set for the practical significance of correlation coefficients.

1.4.7 Ethical considerations

Ethical and fair research had to be conducted for the present study to be successful. Important factors to consider during the research process, include voluntary participation, informed consent, doing no harm, confidentiality and the maintenance of privacy (Salkind, 2009). The research proposal for the study was reviewed by the North-West University's ethical committee/panel.

1.5 OVERVIEW OF CHAPTERS

The results of the research objectives are presented in the form of a research article in Chapter 2. The conclusions, limitations and recommendations of the research are discussed in Chapter 3.

1.6 CHAPTER SUMMARY

This chapter presented the problem statement, research objectives and research hypotheses. This was followed by a discussion of the measuring instruments, and the research method employed in the present study, concluded by a brief overview of the chapters.

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CHAPTER 2

RESEARCH ARTICLE

Proactive behaviour towards strengths use and deficit improvement: Validating a scale for first-year university students

Abstract

Orientation: There is no existing scale that measures the manner in which first-year university students in the South African context use their strengths and improve their deficits.

Research purpose: To validate two newly developed scales, namely proactive behaviour towards strengths use (PBSU) and proactive behaviour towards deficit improvement (PBDI) for first-year university students.

Motivation for the study: Information regarding strengths use and deficit improvement for both first-year students and tertiary educational institutions could be gained from validating these scales.

Research design, approach and method: A cross-sectional research approach was used. A sample ($N = 776$) of first-year students from a tertiary institution was included. Factorial validity, factorial invariance, convergent, discriminant and predictive validity were used to determine the validity and reliability of the PBSU and PBDI scales.

Main Findings: A two-factor structure was found for the PBSU and PBDI scales, indicating that these are two independent factors. Invariance results indicated that the PBSU and PBDI scales were interpreted similarly between the three campuses and across the Germanic and African language groups. Reliability scores ($\alpha \geq 0.70$) indicated that the items will consistently measure the extent to which students apply PBSU and PBDI. The PBSU and PBDI scales were moderately related to strengths use and proactive behaviour, indicating convergent validity; discriminant validity indicated that one gender group would not show more PBSU and PBDI than the other gender group. PBSU and PBDI positively predicted student engagement and life satisfaction, and negatively predicted burnout.

Practical implications: PBSU and PBDI could enable students to manage study demands and ensure optimal well-being. Students will experience outcomes of proactively using strengths and deficits, such as reduced burnout, and enhanced engagement and life satisfaction. Universities and lecturers can be informed, which allows them to develop support structures and provide students with opportunities to apply PBSU and PBDI to deal with challenges.

Contribution/Value-add: The present study adds to the limited research available on initiating proactive behaviour to use strengths and improve on deficits from an individual perspective. This will help attain possible outcomes, particularly amongst first-year university students within the South African context.

Keywords: Proactive behaviour, strengths use, deficit improvement, validation, first-year university students, student burnout, student engagement, student life satisfaction.

INTRODUCTION

Numerous transitional challenges contribute to the high drop-out rate of first-year students (News24Wire, 2015). These challenges include: sudden exposure to independent living, emotional vulnerability, academic pressure, social adaption, and time and finance management (Darling et al., 2007; Fairbrother & Warn, 2003; Misra & Mckean, 2000). In addition, university stressors include adapting to the crowded university environment (Ongori, 2007; Awino & Agolla, 2008), semester system, and inadequate resources to perform (Agolla & Ongori, 2009; Fredrickson & Losada, 2005; Reeve et al., 2013). Consequently, some or all of these challenges can cause a student to be disorganised and disoriented, which in turn, can manifest in stress (Darling et al., 2007; Robotham & Julian, 2006; Stecker, 2004; Clinciu, 2013) and inadequate coping ability (Agolla & Ongori, 2009).

Even though it should be expected that students experience stress in their first-year, certain students may opt to change stressful life events themselves by forging a positive frame of mind (Ford-Gilboe & Cohen, 2000), enhancing personal health initiatives such as exercising and eating healthy, or using relaxation methods (Ingledew et al., 1996). These actions are referred to as proactive behaviour. Parker (2000) describes proactive behaviour as active, self-starting, persistent, anticipatory, and future- or change-oriented conduct. Different types of proactive behaviour are identified such as the following: seeking feedback (Ashford, Blatt & Van de Walle, 2003), demonstrating initiative (Frese & Fay, 2001), building networks (Ashford & Black, 1996), gathering information (Morrison, 1993), helping others (Organ, 1988), taking charge (Morrison & Phelps, 1999) and redefining work (Ashford & Black, 1996; Wrzesniewski & Dutton, 2001).

Recently, and in line with the Positive Psychology movement, two additional forms of proactive behaviour were identified, namely proactive behaviour towards strengths use (PBSU) and towards deficit improvement (PBDI) (*see* Van Woerkom et al., under review). PBSU refers to individuals' self-starting behaviour to use their strengths, while PBDI describes self-starting behaviour towards improving areas of deficit or weakness. The conceptualisation of these two constructs stemmed from the traditional and almost exclusive focus of psychology and organisations on human weaknesses or deficits (Cravens, Oliver & Stewart, 2010). As a result, the Positive Psychology movement emphasised the importance of

additionally taking into account a focus on human strengths to ensure optimal human behaviour (Compton, 2005; Seligman & Csikszentmihalyi, 2000). Recently, researchers argue the importance of adopting a combined focus on both these constructs in order to optimise individual outcomes (Van Woerkom et al., under review). Therefore, integrating strengths use and deficit improvement behaviour in individuals are combined to ensure a balanced representation of the human experience (Rust, Diessner & Reade, 2009; Seligman, et al., 2004).

Originally these two new scales were introduced as additional forms of proactive behaviour and were conceptualised and measured in the organisational context (Botha & Mostert, 2014; Keenan & Mostert, 2013; Stander, Mostert & De Beer, 2014; Van Woerkom et al., under review). However, the constructs of proactive behaviour towards strengths use and deficit improvement definitely seem valuable coping mechanisms for first-year students. Strengths-use behaviour is associated with well-being and vitality (Park, Peterson & Seligman, 2004) and enables individuals to achieve success by fulfilling their potential (Govindji and Linley, 2007). Also, when individuals work on improving their weaknesses or deficits, it can lead to considerable improvement in their performance (Dunn & Shriner, 1999; Ericsson, Nandagopal, & Roring, 2009).

Therefore, when first-year students demonstrate behaviour in which they use their strengths by adapting to new circumstances and their study environment, it will instil positivity. This will allow them to tap into their personal resources (Frederickson, 2001), and increase their confidence in their abilities to succeed in their studies (Kaslow, Falender, & Grus, 2012). In concurrence, behaviour that proactively aims to overcome weaknesses and develop their deficits will enable first-year students to deal with stressors and challenging events (Grant & Ashford, 2008; Senge, 1990). This will foster behaviour to identify ways of overcoming obstacles in pursuit of their study goals, and can ultimately lead to personal mastery and growth (Senge, 1990).

Focusing on behaviour forms that emphasise strengths use and deficit improvement is also important for universities as institutions (Luthans, Avolio, Avey, & Norman, 2007). The reason is that this type of behaviour from first-year students will help build resilience and promote adaption, and ultimately result in successful, educated and well-adjusted individuals equipped with knowledge, skills, and competencies that enable them to excel in a future

career (Pidgeon, Rowe, Stapleton, Magyar, & Lo, 2014; Wang, 2009). Furthermore, this will enable academic success and could help lowering the high drop-out rate of first-year university students (DeRosier, Frank, Schwartz, & Leary, 2013).

Based on the discussion above, it is clear that studying the proactive behaviour towards strengths use and deficit improvement of first-year students is important. However, the scales to measure these constructs have been developed and validated in the organisational context and has not yet been validated and tested in a sample of first-year students. Some researchers have investigated strengths use behaviour and behaviour to improve deficits in the organisational context. However, the studies have only linked these constructs to burnout (cynicism and exhaustion), engagement (vigour and dedication), and self-efficacy (Els, Mostert, & Van Woerkom, 2015; Van Woerkom, et al., under review). Research to date has also neglected to relate the two dimensions to *general strengths use* and *proactive behaviour*. In the literature no study could be found that investigates the predictive value of these two types of proactive behaviour on student engagement, student burnout, and life satisfaction particularly amongst first-years.

The goal of the present study is, therefore, to validate the two scales that were developed by Van Woerkom et al. (under review) to measure proactive behaviour towards strengths use and deficit improvement for first-year students in a tertiary educational institution. More specifically, this study aims to test the 1) factorial validity, 2) factorial invariance, 3) reliability, and 4) convergent, discriminant, and predictive validity of the two mentioned scales.

LITERATURE REVIEW

Proactive behaviour towards strengths use and deficit improvement

Proactive behaviour has predominantly been researched and directed within the context of organisations. This type of work behaviour is conceptualised as anticipatory, future or change-oriented, active, self-starting, and persistent (Parker, 2000). The present research, however, focused on the individual use of proactive behaviour which consists of the following aspects: taking charge (Morrison & Phelps, 1999), employing personal initiative (Frese & Fay, 2001) and undertaking flexible role orientations (Parker, Wall, & Jackson, 1997). Relevant behaviours include suggesting ideas for future improvements, self-started problem-solving, implementing change initiatives, and social network-building (Grant & Ashford, 2008). Personal initiative is defined as a proactive and persisting behaviour form that individuals initiate to achieve work goals (Frese & Fay, 2001; Frese, Kring, Soose & Zempel, 1996). Crant (2000, p. 436) explains that by using proactive behaviour, the role of taking initiative is to “improve one’s current circumstances and challenge the status quo rather than to passively adapt to current conditions”.

Different types of proactive behaviour have been recognized amongst individuals. These types entail: seeking feedback (Ashford, Blatt & Van de Walle, 2003), demonstrating initiative (Frese & Fay, 2001), building networks (Ashford & Black, 1996), seeking information (Morrison, 1993), helping others (Organ, 1988), taking charge (Morrison & Phelps, 1999), and redefining work (Ashford & Black, 1996; Wrzesniewski & Dutton, 2001). As mentioned above, Van Woerkom et al. (under review) argue that it would also be valuable to measure PBSU and PBDIs forms of proactive behaviour (Bakker & Demerouti, 2014). PBSU refers to an individual’s self-starting behaviour to use strengths, potential and virtues in the workplace; PBDI refers to an individual’s self-starting behaviour to improve areas of deficit (Van Woerkom et al., under review). Individuals who use their strengths (Meyers et al., 2015) can experience significant increase in hope and resilience and ultimately in performance (Luthans, Avolio, Avey, & Norman, 2007). Additionally, by improving deficits, similar results become visible (Dunn & Shriner, 1999; Ericsson, Nandagopal, & Roring, 2009).

In the past, advocates of well-being believed that individuals can improve well-being by mainly improving on weaknesses (Cravens, Oliver & Stewart, 2010). Contrary to this view, Seligman introduced the Positive Psychology movement that suggest moving from exclusively attempting to improve weaknesses, to promoting a focus on strengths (Ereaut & Whiting, 2008; Seligman, 1998; Seligman & Csikszentmihalyi, 2000; Wood & Tarrier, 2010). It is true that deficit-based approaches have been associated with failure, helplessness, and low expectations for individuals (Bogenschneider & Olson, 1998; Centre for child well-being, 2011; Kretzmann & McKnight, 1993). Nevertheless, positive psychology suggests that a combined focus on strengths use and deficit improvement is paramount to ensure well-being (Rust, Diessner & Reade, 2009; Seligman, et al., 2004). Therefore, the present study argues that it is valuable to include both PBSU and PBDI as types of proactive behaviour (Van Woerkom et al., under review).

The measurement of proactive behaviour towards strengths use and deficit improvement

Scales that measure proactive behaviour include the Personal Initiative Scale (Frese, Fay, Hilburger, Leng, & Tag, 1997) and the Proactive Personality Scale (Belschak & Den Hartog, 2010). These scales were designed to measure the differences in individuals' propensities to take action and initiative, and thus change their environment (Bateman & Crant, 1993). With regards to the use of strengths, the Strengths Use Scale (Govindji & Linley, 2007) was developed to assess strengths use among individuals. The items in this scale measures the extent to which individuals will engage in behaviour that is self-starting, problem-solving, and taking charge when focusing on their strengths (Parker, 2000). Even though this scale was validated for university students (Govindji & Linley, 2007; Wood et al., 2011), it focuses exclusively on the use of strengths, and negating deficits.

At present there are no scales available that measure proactive behaviour meant to develop deficits. In order to address this gap, the PBSU and PBDI scales were developed as part of a broader questionnaire by Van Woerkom et al. (under review). These scales were adapted and validated for sport coaches (Stander & Mostert, 2013) and educators (Paver, Mostert, Els & De Beer, 2014). This measure is, however, specifically developed for employees within the organisational context. It could be argued that it would be valuable to adapt and validate the questionnaire for university students.

University students and proactive behaviour

In order for students to cope with the various challenges they face during their first-year at university, they need to develop and employ proactive behaviour, and take personal initiative to deal with the stressors they face (Clark, 2005; Terenzini et al., 1994). Proactive behaviour towards strengths use will enable them to draw actively on their strengths and virtues to enhance their development and goal attainment (Van Woerkom et al., under review). When students engage in this type of behaviour, they would apply their talents rather than passively accept that they do not have control over circumstances (Botha & Mostert, 2014). Following proactive behaviour to develop their deficits means that students are realistic about their shortcomings (Linley et al., 2006), but will show initiative to build on these weaknesses. This could lead to a sense of accomplishment among students (Erickson & Grove, 2007; Langelaan et al., 2006; Schaufeli & Salanova, 2007). Education can help create human capital that can contribute to building a sustainable economy. Adopting constructs such as PBSU and PBDI can help universities produce well-adjusted students equipped with knowledge, skills, and competencies that would possibly help them perform adequately in a future work setting (Pidgeon, et al., 2014; Wang, 2009).

Validity and reliability of the PBSU and PBDI scales

As mentioned previously, Van Woerkom et al. (under review) developed the PBSU and PBDI scales as part of the Strengths Use and Deficit Correction Questionnaire (SUDCO). The overall aim was to create assessment scales that measure both the use of strengths and development of deficits to improve well-being from an organisational *and* individual perspective. Therefore, the questionnaire consists of four scales. Firstly, two scales that measure organisations' support for employees to use their strengths and develop their deficits, also termed perceived organisational support for strengths use (POSSU) and for deficit improvement (POS DI). Secondly, two other scales measure the individual employees' proactive behaviour to use their strengths and develop their deficits (PBSU and PBDI). Since the first two scales are specifically developed in the organisational context and the items refer to the organisation's support, these scales are not applicable to students. Therefore, only the two proactive scales were included in this study.

Promising results were found regarding the validity and reliability of the scales. The PBSU and PBDI scales comprise the following measuring aspects: factorial validity, factorial invariance, reliability, convergent, discriminant, and predictive validity. These aspects are discussed below.

Factorial validity

Factorial validity refers to the validity of a test due to its correlation with a factor, which can be determined by factor analysis (Colman, 2008). Van Woerkom et al. (under review) confirmed a four-factor model of the SUDCO questionnaire, comprising the following factors: perceived organisational support for strengths use (POSSU); perceived organisational support for deficit improvement (POSDI); proactive behaviour towards strengths use (PBSU); and proactive behaviour towards deficit improvement (PBDI).

Two follow-up studies also tested the factorial validity of the SUDCO, including Stander and Mostert (2013), who adapted the model for South African sport coaches; and Paver, Mostert, Els, and De Beer (2014), who adapted the questionnaire for South African educators. In both studies, four competing models were tested, including a four-factor model, a one-factor model (including all four dimensions), a two-factor model (distinguishing between strengths use and deficit improvement), and another two-factor model (differentiating between organisational and individual dimensions). The results of these studies further confirmed the factorial validity of the SUDCO, demonstrating that the four-factor-model showed significantly better fit compared to the competing models. Based on these results, it is expected that a two-factor model will be a better fit than a one-factor model.

H1: A two-factor structure will fit the data significantly better compared to a one-factor structure.

Measurement invariance

The inclusion of cross-cultural evaluation in the present study, ensures that invariance is a requirement (He & van de Vijver, 2012). In this regard Van de Vijver and Tanzer (2004) identified three levels of invariance:

1. *Structural invariance*: The same construct is measured in each group, although the relationship between the scores in the groups differs. This means that the functional form of the relationship between the scores obtained in the various groups is unknown.
2. *Measurement unit invariance*: The scores' origin differs despite having the same measurement unit.
3. *Full scale invariance*: Scores have the same measurement unit and origin in the sample.

To date, only Van Woerkom et al. (under review) has investigated measurement invariance of the SUDCO. This was performed by means of configural, metric, and scalar models for tests of invariance (Preti et al., 2013) based on age and gender in a multi-group analytical framework. Van Woerkom et al. (under review) found strong measurement invariance based on gender and age, which indicates that males and females, as well as employees from the different age groups, perceive the items of the SUDCO in a similar way. These findings were, however, focused on employees and all four scales of the SUDCO. This study aims to investigate invariance among the PBSU and PBDI scales based on campus and language groups.

H2: The two-factor structure of strengths use and deficit improvement will be invariant across campuses and language groups.

Reliability

In order to measure whether the subscales of the SUDCO was reliable among the sample of first-year university students, Cronbach's alpha values were investigated. Adequate reliability scores have been found from previous studies for the PBSU and PBDI scales. Van Woerkom et al. (under review) reported the following Cronbach's alpha values: PBSU, $\alpha = 0.92$ and PBDI, $\alpha = 0.95$. Stander and Mostert's (2013) validation study on sport coaches supported these results, reporting Cronbach's alpha values of $\alpha = 0.93$ for PBSU, and $\alpha = 0.94$ for PBDI. Similarly, Paver et al. (2014) indicated similar results with a validation among educators in the South African context (PBSU, $\alpha = 0.94$; and PBDI, $\alpha = 0.95$). Based on these results, it is hypothesised that the PBSU and PBDI scales will be reliable.

H3: The scales of strengths use and deficit improvement will be reliable ($\alpha \geq 0.70$).

Convergent validity

Convergent validity is obtained when each measurement item correlates strongly with its assumed theoretical construct (Gefen & Straub, 2005; Westen & Rosenthal, 2003). Firstly proactive behaviour was included to determine possible relations between the measurement items and theoretical constructs. As PBSU and PBDI are considered to be forms of proactive behaviour, it can be assumed that these scales would correlate with a general scale measuring proactive behaviour. Belschak, Den Hartog, and Fay's (2010) adapted version of the Personal Initiative Scale (Frese, Fay, Hilburger, Leng, & Tag, 1997) and the Proactive Personality Scale (Crant, 2000) were used to determine proactive behaviour. Secondly, the Strengths Use Scale (Govindji & Linley, 2007) was included to assess the degree to which individuals actually *use* their strengths in a variety of settings and ultimately the convergent validity between the PBSU and PBDI scales and strengths use. Although it is argued that PBSU and PBDI are similar, a stronger correlation is expected between PBSU and strengths use compared to PBDI.

H4: PBSU and PBDI are moderately related to theoretically similar constructs, including proactive behaviour and strengths use.

Discriminant validity

Discriminant validity is evident when each measurement item correlates weakly with constructs from which it is expected to differ theoretically (Gefen & Straub, 2005; Campbell, 1959). The test for discriminant validity adds significant value to the test of validity in the questionnaire (Campbell, 1959). This test is applied to specify differences between the constructs in order to verify the distinct empirical dimensions in the questionnaire (Carlson & Frone, 2003). Due to the only recent emergence of research on the SUDCO, limited studies is accessible on the discriminant validity of the SUDCO constructs (esp. on the PBSU and PBDI) in relation to other established constructs. For the present study, gender was used to test for discriminant validity. There seems to be no valid reason on why males and females would differ on the PBSU and PBDI dimensions. Therefore, it is hypothesised that PBSU and PBDI will be unrelated to gender.

H5: PBSU and PBDI will be unrelated to gender.

Predictive validity

Predictive validity (also named criterion-related or empirical validity) refers to the manner in which a measure can predict the future behaviour of an individual or group (Foxcroft & Roodt, 2013). Difficulties encountered at university (particularly the transition from high school to university; Darling et al., 2007; Fairbrother & Warn, 2003; Misra & Mckean, 2000) remain a constant challenge for university students. Therefore, issues of mental health and emotional well-being in first-year university students are considered to be crucial (Cooke et al., 2006). Studies have indicated that the well-being of students depends to a large extent on low levels of burnout (Schaufeli, Salanova, Gonz ález-Romá, & Bakker, 2002), as well as higher levels of engagement (Coates, 2009; Schaufeli, Salanova, Gonz ález-Romá, & Bakker, 2002) and life satisfaction (Bakker, Albrecht, & Leiter, 2011). Studies focusing on burnout, engagement and life satisfaction among employees are not difficult to find. However, these studies are less prevalent for first-year university students. For the purpose of the present study it will be investigated whether the PBSU and PBDI scales will predict potential outcome variables such as student burnout, student engagement and life satisfaction.

Burnout

Students' experience of burnout manifest in feelings of exhaustion caused by study demands, having a cynical and detached attitude towards studies, and feeling incompetent (Schaufeli et al., 2002); this poses a danger to their well-being. Burnout consists of exhaustion, cynicism, and professional efficacy. For the purpose of the present study, burnout was measured as a one-factor model, seeing that professional efficacy is considered to be a divergent factor (De Beer & Bianchi, 2015; Mészáros, Ádám, Szabó, Szigeti & Urbán, 2014) and not a core component of burnout (Schaufeli, et al., 2005). Therefore, burnout was operationalised as a single latent variable composed of the items that make up the core components of burnout (De Beer & Bianchi, 2015), namely exhaustion and cynicism (Schaufeli & Taris, 2005). Exhaustion refers to physical and emotional depletion caused by overwhelming personal demands and continuous stress (Maslach & Jackson, 1981; Wright & Cropanzano, 1998). Cynicism means having a distant attitude toward one's work (Schaufeli, et al., 2005).

When students show proactive behaviour to use their strengths, feelings of self-efficacy, confidence, and contentedness are enhanced. This could lead to the fulfilment of potential and ultimately the reduction of burnout (Linley & Harrington, 2006; Seligman et al., 2005).

Concurrently, when students perform activities that falls within their areas of deficits (e.g. extra classes and revision exercises), and improve on these deficits (e.g. performing tasks are better and with less effort, learning is quicker, and interest levels higher; Govindji & Linley, 2007), they experience feelings of accomplishment and competence. This is known to provide the following positive outcomes: increases students' levels of energy, motivation and enthusiasm (Langelaan et al., 2006; Schaufeli & Salanova, 2007; Erickson & Grove, 2007), that could counteract their experience of stress (Robotham & Julian, 2006; Stecker, 2004), and ultimately reduce burnout (Maslach, 2006; Schaufeli & Peeters, 2000). The results found by Van Woerkom, et al. (under review), supported this notion by indicating that PBSU and PBDI were negatively related to burnout. It is, therefore, expected that both PBSU and PBDI will most likely reduce students' levels of burnout.

H6: PBSU and PBDI will negatively predict student burnout.

Engagement

Schaufeli, Salanova, González-Romá and Bakker (2001) define work engagement as a positive, fulfilling, work-related state of mind, with core components of vigour, dedication, and absorption. Engagement was measured as a one-factor model, based only on the items of vigour and dedication – the core components of work engagement (De Bruin & Henn, 2013; De Bruin, Hill, Henn, & Muller, 2013). Absorption as a component of engagement was excluded in the present study as it has been considered a consequence of vigour and dedication (Demerouti, Mostert, & Bakker, 2010; González-Romá, Schaufeli, Bakker, & Lloret, 2006).

Recent researchers therefore tend to include only vigour and dedication in their studies on engagement (e.g. Bakker, Schaufeli, Leiter, & Taris, 2008; De Beer, Pienaar, & Rothmann Jr., 2014; Langelaan, Bakker, Schaufeli, & Van Doornen, 2006). Vigour refers to energy and mental resilience during work and the tendency to put effort and persistence in work despite challenges. Dedication refers to being involved in work and experiencing a sense of significance, enthusiasm, inspiration, pride, and challenge. For students, engagement means participating in educationally purposeful activities, inside and outside the classroom context (Kuh et al., 2007), which leads to high-quality learning outcomes (Krause and Coates, 2008).

The extent to which students apply proactive behaviour will determine the effort they put into these educationally purposeful activities (Hu & Kuh, 2001). Coates (2007) states that when students use their strengths, they will choose to partake in learning and challenging academic activities, engage in formative communication with academic staff, become involved in enriching educational experiences, and actively seek support from the university's learning entities. This self-starting behaviour from students promotes a sense of accomplishment (Kuh et al., 2007) that can lead to engagement (Coates, 2009). In addition, students can be engaged by improving their deficits by means of challenging themselves to learn (Coates, 2005), trying out new ideas, and practicing their current skills. Also, when students self-assess, they refocus their own responsibility to remain engaged in the learning process (Krause, 2005).

H7: PBSU and PBDI will positively predict student engagement.

Life satisfaction

Life satisfaction can be seen as a subjective self-assessment of an individual's quality of life defined by feelings of contentment, fulfilment, and happiness (Diener, Emmons, Larsen & Griffin, 1985; Hamarat & Steele, 2002). The presence of strengths predict higher life satisfaction (Isaacowitz et al, 2003), and by using these strengths one can ensure a fulfilling and satisfying life (Seligman, 2002). Researchers agree with Seligman's findings that strengths use is not only a predictor of subjective well-being among students, but also of life satisfaction (Forest et al., 2012; Linley et al., 2010; Proctor et al, 2011). However, Stander et al. (2015) found a negative predicting relationship between deficit improvement and life satisfaction; therefore, a first-year student would be less likely to experience life satisfaction despite proactively working on deficits. A possible reason would be that students may be so overly focused on scrutinizing deficits, that they become less satisfied with their life. In contrast, the present study argues that when individuals work on improving their weaknesses, there will be a stronger increase in life satisfaction (Rust, Diessner & Reade, 2009).

H8: PBSU and PBDI will positively predict life satisfaction.

RESEARCH DESIGN

The research approach

For the purpose of the present research, the principles of a quantitative study were followed. Struwig and Stead (2001) describe the quantitative design as a form of conclusive research involving large representative samples and structured data-collection procedures. A cross-sectional research design was used to collect the data and to achieve the research objectives. Using the cross-sectional research design, the data was gathered by means of an electronic survey; therefore it was possible to study participants at an exact point in time (Du Plooy, 2002). This approach is economical, cost-effective and saves time for the study. This meant the study was both exploratory and confirmatory, since the hypotheses were supported by existing theory, even though there is limited information about the field of individual strengths use and deficit improvement amongst first-year students.

The research method

Research participants

A sample of first-year students of a tertiary institution was included ($N = 776$). A convenience sample was used. The sample was compiled based on gender, age, ethnicity (race), home language, academic and historical year, as well as on-campus and off-campus living. The characteristics of the participants are shown in Table 1 below.

Table 1

Characteristics of the Participants (N = 776)

Item	Category	Frequency	Percentage
Gender	Female	479	61.70
	Male	297	38.30
Age	18-23	597	86.20
	24-28	12	1.60
	30-40	5	0.50
Race	White	293	37.80
	Black	449	57.90
	Coloured	29	3.70
	Indian	2	0.30
Home language	Afrikaans	308	39.70
	English	27	3.50
	Sepedi	23	3.0
	Sesotho	48	6.20
	Setswana	257	33.10
	siSwati	10	1.30
	Tshivenda	8	1.00
	isiNdebele	5	0.60
	isiXhosa	30	3.90
	isiZulu	30	3.90
	isiTsonga	6	0.80
	Other	24	3.10
Academic year	First-year	768	99.00
	Third Year	1	0.10
	Fifth Year	2	0.30
Historical year	First-year	705	90.90
	Second Year	1	0.10
	Third Year	12	1.50
	Fourth Year	5	0.60
	Fifth Year	1	0.10
	Sixth Year	3	0.40
On Campus	On-campus	482	62.10
	Off-campus (distance learning)	194	25.0

Note. Where percentages do not sum to 100, it is due to missing values.

As is clear from Table 1 above, the sample consisted of 776 participants of whom 479 (60.70%) were female and 297 (38.30%) male. The majority of the participants' age was between 18-23 years (86.20%). Furthermore, 449 (57.90%) of the sample were Black, 293 (37.80%) were White, 29 (3.70%) were Coloured and two (0.30%) were Indian. The predominant home language of the participants was Afrikaans (39.70%) and Setswana (33.10%). The remaining languages represented (27.20%) of the entire sample. Most of the participants were first-year academic students [768 (99.00%)] or first-year historical students [705 (90.90%)]. The majority of the participants were on-campus students [482 (62.10%)].

Measuring instruments

Biographical questionnaire. A biographical questionnaire was administered and included questions on age, gender, race, language, campus, faculty and degree.

Proactive behaviour towards strengths use (PBSU) and proactive behaviour towards deficit improvement (PBDI). The two individual sub-scales of the Strengths Use and Deficit Correction Questionnaire (SUDCO), developed by Van Woerkom et al. (under review) were used to measure students' perceptions of their strengths use and deficit improvement. The PBSU scale consists of nine items, while the PBDI scale consists of eight items. Because of the length of the questionnaire administered in this study, it was decided to include five items of the original questionnaire for PBSU (e.g. "In my studies I focus on the things I do well") and five items to measure PBDI (e.g. "In my studies I reflect on how I can improve the things in my life that I am not good at"). All of the items were scored on a seven-point frequency scale ranging from 1 (never) to 7 (almost always). The two scales prove to be reliable: PBSU: $\alpha = 0.92$; and PBDI: $\alpha = 0.95$ (Van Woerkom et al., under review).

Strengths use was measured by means of the Strengths Use Scale (Govindji & Linley, 2007). The scale consists of fourteen items that enquire about the extent to which individuals use their strengths, which are then rated on a scale ranging from 1 (strongly disagree) to 7 (strongly agree). The items in this scale were developed from a review of positive psychology literature (Wood, Linley, Maltby, Kashdan, & Hurling, 2011) and are the only measure available to assess strength use rather than the presence of strength. The Strength Use Scale has good psychometric properties including a clear one-factor structure, highly loading items,

high internal consistency and test-retest reliability of $r = 0.84$, as well as criterion and predictive validity with various indices of well-being (Govindji & Linley, 2007; Wood, Linley, Maltby, Kashdan, & Hurling, 2011).

Proactive behaviour was determined by means of a scale adapted by Belschak, Den Hartog, and Fay (2010), which is based on the Personal Initiative Scale (Frese, Fay, Hilburger, Leng, & Tag, 1997) and the Proactive Personality Scale (Crant, 2000). The scale consists of eleven items that are measured on a seven-point scale, ranging from 1 (disagree strongly) to 7 (agree strongly). The first seven items were used to refer to students' behaviour within a study group (e.g. "When working in a study group, you personally take the initiative to help orientate new group members"). The second set of items consist of four items referring to students' personal preference towards studying and career enhancing methods (e.g. "On a personal level, when you study you find new approaches to execute your tasks so that you can be more successful"). The alpha coefficient for the scale is 0.80 (Belschak & Den Hartog, 2010).

Student burnout: The Maslach Burnout Inventory-student Survey (MBI-SS) (Maslach, Jackson, & Leiter, 1996; Schaufeli, Martínez, Pinto, Salanova, & Bakker, 2002) consists of exhaustion, cynicism and professional efficacy. However, burnout was measured as one factor (De Beer & Bianchi, 2015) with items of its core components (Schaufeli & Taris, 2005), namely the exhaustion and cynicism levels of the participants. Exhaustion was measured with five items (e.g. "I feel emotionally drained by my studies") and cynicism by means of four items (e.g. "I have become less enthusiastic about my studies"). Items were scored on a seven-point frequency rating scale ranging from 0 (never) to 6 (always). The MBI-SS has been validated internationally (Schaufeli, Salanova, González-Romà & Bakker, 2002) and in South Africa (Mostert, Pienaar, Gauche & Jackson, 2007; Pienaar & Sieberhagen, 2005). The reliabilities are 0.79 for exhaustion and 0.73 for cynicism (Pienaar & Sieberhagen, 2005). Mostert, Pienaar, Gauche, and Jackson (2007) reported Cronbach's alphas of 0.74 for exhaustion and 0.68 for cynicism.

Student engagement: The Utrecht Work Engagement Scale-student Survey (UWES-S) (Schaufeli, Salanova, González-Romà, & Bakker, 2002) was used to measure the levels of engagement of the students. The UWES consists of three dimensions, namely vigour, dedication and absorption. However, engagement was measured as one factor based on items of vigour and dedication; previous research has indicated that vigor and dedication are

considered to be the core dimensions of engagement (De Bruin & Henn, 2013; De Bruin, Henn, & Muller et al., 2013; Llorens et al., 2007; Schaufeli & Bakker, 2004; Van Wijhe, Peeters, Schaufeli & Van den Hout, 2011). It was also indicated that the role of absorption is considered to be less essential (González-Romá, Schaufeli, Bakker & Lloret, 2006). Vigour was measured with five items (e.g. “When I study, I feel like I am bursting with energy”). Dedication was also measured with five items (e.g. “I am enthusiastic about my studies”). Items were scored on a seven-point Likert scale ranging from 0 (never) to 6 (every day). The UWES-S has been validated internationally (Schaufeli et al., 2002). In South Africa, Pienaar and Sieberhagen (2005) found reliabilities scores of 0.77 for vigour and 0.85 for dedication. Mostert et al. (2007) also reported acceptable Cronbach’s alphas of 0.70 for vigour and 0.78 for dedication.

Life satisfaction: The Satisfaction with Life Scale (Diener, Emmons, Larsen,& Griffin, 1985) was used to measure life satisfaction on a 7-point Likert-type scale ranging from 1 (strongly disagree) to 7 (strongly agree). Five questions were used to determine life satisfaction (e.g. “So far I have gotten the important things I want in life”). The internal consistency of the scale was found to be reasonable ($\alpha = 0.67$).

Research procedure

After permission was obtained from the registrar, data collection took place. The survey was web-based and a link was sent to the respondents through e-mail. The e-mail explained the purpose and goal of the study, as well as stating the possible value it can add to the university and its students. The participants were also ensured of the confidentiality and anonymity of their information and results. Participation was strictly voluntary. The proposed time-frame for completing the questionnaire was approximately 25-30 minutes. The questionnaire was administered during August and September of 2014; this time frame was chosen to compensate for development of possible engagement and burnout among students. A reminder of completion was sent after two weeks of receiving access to the link.

Statistical analysis

Mplus 7.2 (Muthén & Muthén, 2014) was used to determine the psychometric properties of the adapted questionnaire. To determine the factorial validity, confirmatory factor analyses

(CFA) was used. The maximum likelihood (ML) estimator was used with the covariance matrix as input (Muthén & Muthén, 2014). To assess fit of the measurement and structural models, the following fit indices were considered: 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). Acceptable fit is considered at a value of 0.90 and above for the CFI and TLI (Hoyle, 1995; Byrne, 2001). For the RMSEA a value of 0.05 or less indicates a good fit, whereas values between 0.05 and 0.08 are considered to be an acceptable model fit (Browne & Cudeck, 1993). The cut-off point for SRMR was set at 0.05 (Hu & Bentler 1999). The Akaike information criterion (AIC) and Bayesian information criterion (BIC) was also used to compare the fit to that of competing models (i.e. the lowest AIC and BIC value indicated the best fitting model; Van de Schoot, Lugtig, & Hox, 2012). Cronbach's alpha coefficients were used to measure the reliability of the constructs.

Measurement invariance was investigated based on campus and language groups. This was performed in Mplus by ascertaining the significance of the configural (similar factor structure), metric (similar loadings) and scalar (similar intercepts) models compared against each other. In instance where invariance tests are applied, a *p*-value of greater than 0.05 is sought for the chi-square difference test to show that the models do not differ significantly.

Pearson product-moment correlation coefficients were used to investigate the relationship between the latent variables. In terms of statistical significance, the cut-off value was set at the 95% level ($p \leq 0.05$). Effect sizes were used to decide on the practical significance of the correlations (Steyn, 1999). A correlation larger than 0.29 indicates a medium effect, whereas a correlation larger than 0.49 indicates a large effect (Cohen, 1992). Regressions were also added to create a structural model in order to investigate the hypothesised relationships. In other words, to determine the predictive validity of PBSU and PBDI by ascertaining the direction and strength of the beta (β) coefficients. These coefficients are depicted in Figure 1 below.

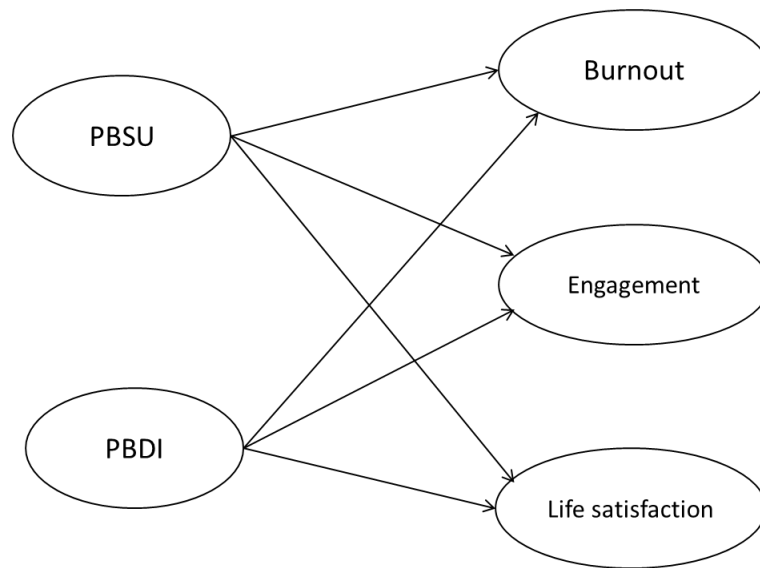


Figure 1. A structural model for the investigation of the regression coefficients

RESULTS

This section focuses on reporting the results for testing the following aspects: the factorial validity of the PBSU and PBDI scales, measurement invariance based on campus and language groups, reliability of the PBSU and PBDI scales, and convergent, discriminant and predictive validity. Results are presented in tables, followed by a description.

Factorial validity

In order to determine the factorial validity of the PBSU and PBDI scales, confirmatory factor analysis (CFA) was used to test two competing measurement models. The first model was the hypothesised two-factor model consisting of PBSU (specified as the first dimension with five items loading on this factor) and PBDI (specified as the second factor with five items loading on this factor). Competing was a one-factor model, where one factor was specified ('proactive behaviour'), where the five PBSU and five PBDI items loaded on a single factor. Table 2 below displays the results after comparing the two-factor and one-factor measurement models.

Table 2

Results of the measurement models

Model	χ^2	df	CFI	TLI	RMSEA	SRMR	AIC	BIC
1: Two-factor	107.02	33	0.98	0.97	0.05	0.04	23076.85	23225.77
2: One-factor	615.91	34	0.82	0.76	0.15	0.09	23583.72	23728.01

Notes: χ^2 = chi-square; df = degrees of freedom; CFI = Comparative fit index; TLI = Tucker-Lewis index; RMSEA = Root mean square error of approximation; SRMR = Standardised root mean residual; AIC = Akaike information criterion; BIC = Bayesian information criterion

The results presented in Table 2 shows that the two-factor model was the best fit for the data. This model also fitted the data significantly better compared to the one-factor model ($\Delta\chi^2 = 508.89$; $\Delta df = 1$; $p < 0.05$). These results offer evidence for Hypothesis 1 – that a two-factor structure will fit the data significantly better as compared to a one-factor structure.

Table 3 below presents the results for the standardised loadings of the items for the latent variables.

Table 3

Standardised factor loadings of the items for the latent variables

Factor	Item	Item text	Loading	S.E.	p
PBSU	PBSU1	I use my strengths proactively	0.75	0.02	0.001*
	PBSU2	I focus on the things I do well	0.62	0.03	0.001*
	PBSU3	I make the most of my strong points	0.79	0.02	0.001*
	PBSU4	I capitalise on my strengths	0.72	0.02	0.001*
	PBSU5	I organise tasks to suit my strong points	0.68	0.02	0.001*
PBDI	PBDI1	I concentrate on my areas of development	0.61	0.03	0.001*
	PBDI2	I focus on developing the things I struggle with	0.78	0.02	0.001*
	PBDI3	I reflect on how I can improve the things in my life that I am not good at	0.75	0.02	0.001*
	PBDI4	I make an effort to improve my limitations	0.77	0.02	0.001*
	PBDI5	I seek feedback regarding my areas of development	0.70	0.02	0.001*

Note: * = $p < 0.001$

Table 3 indicates that the items loaded sufficiently on the respective PBSU and PBDI factors. Standard errors were small, which indicates accurate estimations. For the PBSU factor, the

smallest factor loading was PBSU2 (0.62; “I focus on the things I do well”), while the largest loading was PBSU3 (0.79; “I make the most of my strong points”). For PBDI, the smallest loading was PBDI1 (0.61; “I concentrate on my areas of development”), while the largest proved to be PBDI2 (0.78; “I focus on developing the things I struggle with”).

Measurement invariance testing

Invariance was tested between the different campuses and language groups. Table 4 below displays the results of the invariance testing in order to determine whether the PBSU and PBDI dimensions are invariant across different campuses. Three campus groups took part in invariance testing. The participants of each campus consisted of the following: campus 1 (396 participants), campus 2 (296 participants), and campus 3 (73 participants). For the invariance testing, the other group was not included in either of the groups due to the fact that this group was too small to test invariance on.

Table 4

Results of the invariance testing based on Campus

Structural models	$\Delta\chi^2$	<i>df</i>	<i>p</i>
Metric against configural	17.64	16	0.35
Scalar against configural	31.59	32	0.49
Scalar against metric	13.95	16	0.60

Table 4 indicates that the PBSU and PBDI dimensions displayed strong measurement invariance across all campuses. The reason is that there seems to be no significant difference between metric against configural invariance ($p = 0.35$), scalar against configural invariance ($p = 0.49$), or scalar against metric invariance ($p = 0.60$). These results confirm that PBSU and PBDI were measured and interpreted similarly between the campuses.

Configural invariance occurs when the model fits the data satisfactory in all groups. When all nonzero factor loadings are significantly and substantially different from zero, and any correlations between the factors are significantly below unity (1), one can indicate that there is discriminant validity between the (sub) factors comprising the above--mentioned construct (Byrne, Shavelson, & Muthen, 1989).

Metric invariance (also known as equal factor loadings), indicates that the units of measurement are similar across the groups tested. Metric invariance is an essential condition when comparing across groups and for all levels of measurement equivalence. Scalar invariance indicates that subjects who have the same value on the latent construct should show equal values on the observed variable (Byrne, Shavelson, & Muthen, 1989).

Table 5 below displays the results of the invariance testing to determine whether PBSU and PBDI are invariant across different language groups. Invariance among the 12 language groups in the present study could not be determined, as there were not enough participants in each language group to test for invariance. Instead, the participants were divided into two groups: the first group, consisting of 335 individuals, were labelled “Western Germanic”. This group consisted of English and Afrikaans speaking students. The second group were labelled “African” and consisted of 443 participants.

Table 5

Results of the invariance testing based on language group

Structural models	$\Delta\chi^2$	<i>df</i>	<i>p</i>
Metric against configural	9.73	8	0.29
Scalar against configural	21.60	16	0.16
Scalar against metric	11.87	8	0.16

Table 5 shows that the PBSU and PBDI dimensions displayed strong measurement invariance for both Germanic and African language groups. The reason is that there seems to be no significant difference between metric against configural invariance ($p = 0.29$), scalar against configural invariance ($p = 0.16$), and scalar against metric invariance ($p = 0.16$). These results demonstrated that PBSU and PBDI were invariant between the Germanic and African language groups.

The aforementioned results confirm Hypothesis 2, namely that the PBSU and PBDI scales will be invariant across the different campuses and language groups.

Reliability coefficients, convergent validity and discriminant validity

The comprehensive measurement model included PBSU, PBDI, Strengths Use, Proactive Behaviour, Burnout, Engagement, and Life Satisfaction as latent variables.

The fit of the total research model indicated the following values: CFI = 0.90; TLI = 0.89 RMSEA = 0.06; SRMR = 0.05. The fit indices were considered adequate. Table 6 below displays the correlation matrix for the latent variables of the research model.

Table 6

Correlation matrix for the latent variables

Variables	PBSU	PBDI	SUQ	PAB	Burnout	Engage	SWL	Gender
PBSU	(0.84)	-	-	-	-	-	-	-
PBDI	0.61 ^{***}	(0.84)	-	-	-	-	-	-
Strengths use	0.74 ^{***}	0.56 ^{***}	(0.94)	-	-	-	-	-
Proactive behav	0.51 ^{***}	0.47 ^{**}	0.64 ^{***}	(0.78)	-	-	-	-
Burnout	-0.34 ^{**}	-0.32 ^{**}	-0.35 ^{**}	-0.32 ^{**}	(0.81)	-	-	-
Engage	0.40 ^{**}	0.47 ^{**}	0.54 ^{***}	0.52 ^{***}	-0.42 ^{**}	(0.82)	-	-
Life satisfaction	0.43 ^{**}	0.38 ^{**}	0.52 ^{***}	0.41 ^{**}	-0.57 ^{***}	0.61 ^{***}	(0.89)	-
Gender	-0.06	0.01	0.07	-0.04	0.01	0.07	0.05	(n/a)

Notes: Cronbach's alpha reliability coefficients in brackets on the diagonal; * = Statistically significant; ** = Medium practical significance; *** = Large practical significance; PBSU = Proactive Behaviour Towards Strengths Use; PBDI = Proactive Behaviour Towards Deficit Improvement; n/a = not applicable

Reliability

Table 6 report that favourable Cronbach's alpha reliability coefficients ($\alpha \geq 0.70$) were found for all factors. This offered support for Hypothesis 3, which postulated that the PBSU and PBDI scales would be reliable, or internally consistent.

Convergent validity

As can be seen from Table 6, a practically significant positive relationship was found between PBDI and PBSU (large effect; $r = 0.61$). Convergent validity was found, seeing that the PBSU and PBDI were statistically significantly correlated with strengths use ($r = 0.74$; $r = 0.56$) and also with proactive behaviour (PBSU practically large effect, PBDI practically medium effect). This provided support for Hypothesis 4, and thus for convergent validity.

Discriminant validity

Also evident from Table 6 above is the results of the test for discriminant validity. The expectation was that there would be no statistically significant correlation with gender, providing evidence of discriminant validity. This did prove to be the case: The correlation

between PBSU and gender was found not statistically significant ($r = -0.06$; $p = 0.27$); and the same was true for the correlation between gender and PBDI ($r = 0.01$; $p = 0.95$). Furthermore, the method described by Farrell (2010) was also applied to investigate discriminant validity, by comparing the average variance that was extracted (AVE). In other words, the AVE for each construct should be higher than the shared variance between them. This proved to be the case through the following results: PBSU (AVE = 75.4%) and PBDI (AVE = 67.2%), although, the shared variance between PBSU and PBDI was 43.6%. This finding supports Hypothesis 5 – that PBSU and PBDI demonstrates discriminant validity.

Predictive validity

Predictive validity was tested by adding regression paths in the measurement model of the PBSU and PBDI dimensions, the burnout and engagement (one-factor models), and life satisfaction. Table 7 below displays the results for these regressions on how PBSU and PBDI predict burnout, life satisfaction, and engagement.

Table 7

Regression results for the structural model

Regression path	β	S.E.	p	Result
PBSU → Burnout	-0.26	0.05	0.001	Significant
PBSU → Engagement	0.24	0.05	0.001	Significant
PBSU → Life satisfaction	0.38	0.05	0.001	Significant
PBDI → Burnout	-0.16	0.05	0.001	Significant
PBDI → Engagement	0.34	0.05	0.001	Significant
PBDI → Life satisfaction	0.16	0.05	0.001	Significant

Notes: β = Beta coefficient; S.E. = Standard error; p = Two-tailed statistical significance

The regression results of the structural model are displayed in Table 7. This indicates that PBSU had a significant negative predictive relationship to burnout ($\beta = -0.26$; $p = 0.001$). However, in the case of engagement and life satisfaction, a significant positive predictive relationship was displayed ($\beta = 0.24$; $p = 0.001$; $\beta = 0.38$; $p = 0.001$). The results further indicate that PBDI has a significant negative predictive relationship to burnout ($\beta = -0.16$; $p =$

0.001). A significant positive predictive relationship was also found between PBDI and engagement and life satisfaction ($\beta = 0.34$; $p = 0.001$; $\beta = 0.16$; $p = 0.002$). These results evidently offered support for Hypotheses 6, 7 and 8 by establishing that PBSU and PBDI will be related negatively to student burnout, and related positively to student engagement and life satisfaction.

DISCUSSION

This study argues that two recently developed scales, the proactive behaviour towards strengths use (PBSU) and the proactive behaviour towards deficit improvement (PBDI) could be valuable predictors of first-year university students' success and well-being. The general objective of the present study was to validate the PBSU and PBDI scales for first-year students in a tertiary education institute. In order to achieve this, the study aimed at providing statistical evidence by investigating the following measurements: factorial validity, factorial invariance, scale reliability, and convergent, discriminant, and predictive validity of the PBSU and PBDI scales.

To investigate the first hypothesis, two measurement models were tested, including a one-factor and two-factor model. The hypothesised two-factor model proved to deliver significantly better fit for the data as the fit indices and information criteria indicated. This result is in line with recent literature, which also confirmed a two-factor solution in the organisational context (Stander & Mostert, 2013; Els, Mostert, & Van Woerkom, 2015). This indicates that PBSU and PBDI is not a similar phenomenon, but two independent factors.

Measurement invariance is seen as a requirement for any study on cross-cultural evaluation (He & Van de Vijver, 2012) and focus on the level of measurement at which scores across different cultures are compared (Van de Vijver & Tanzer, 2004). In order to establish invariance across campuses and language groups (Hypothesis 2), the configural, metric and scalar models were compared against each other respectively. The language groups consisted of the Germanic and African groups, and students from three different campuses were included as part of the invariance testing. No significant difference was found between each model based on campus or language group, meaning that the PBSU and PBDI dimensions are interpreted similarly between the campuses and across different language groups. These results provide provincial evidence that these two scales have the potential to be administered successful among students from different groups in cross-cultural studies, particularly for

campus and language groups. Furthermore, the conclusions concerning similarities and differences found in these types of studies can be considered valid with more confidence and not discriminatory towards a specific group (He & van de Vijver, 2012; Van de Vijver, 2011).

In order to determine whether the PBSU and PBDI scales are reliable, Cronbach's alpha values were investigated. Favourable results were found for PBSU ($\alpha = 0.84$) and PBDI ($\alpha = 0.84$). These results confirmed Hypothesis 3. Supporting results were found in the studies by Van Woerkom et al. (under review), Stander and Mostert (2013), and Paver *et al.* (2014), who found Cronbach's alpha values greater than 0.90 for all four scales. These results show promise that items consistently will measure the extent to which students apply proactive behaviour towards strengths use and deficit improvement. The results can also be used for further studies aiming to investigate these constructs reliably amongst first-year students in a tertiary educational environment.

The next objective was to determine the convergent validity of the PBSU and PBDI scales by investigating the relationship between theoretically similar constructs (i.e. proactive behaviour and strengths use). Pearson product-moment correlation coefficients showed that the PBSU and PBDI scales are moderately related to strengths use and proactive behaviour, which provide evidence for the convergent validity of PBSU and PBDI (Hypothesis 4). These results are in line with Paver et al. (2014), who found a significant relationship between PBSU and PBDI and strengths use.

In order to establish the discriminant validity (Hypothesis 5), the researcher tested whether the PBSU and PBDI scales correlated weakly with gender, a variable with which it was not expected to be theoretically associated (Campbell, 1959; Gefen & Straub, 2005). The results showed no practically significant relation between the gender of participants and the PBSU and PBDI constructs. Therefore, it can be inferred that the structure of proactive behaviour towards using their strengths and deficits are the same for both gender groups. This notion was supported by Seligman et al. (2005), who reported no gender differences when working on strengths and weaknesses in their assessments and follow-up assessments.

The final objective was to test the predictive validity of the PBSU and PBDI scales. This test, in other words, ascertained whether there was a predictive relationship between the PBSU and PBDI constructs and student burnout, student engagement and life satisfaction. All the regression paths in the structural model were found significant, with the strongest paths registering between PBSU and life satisfaction ($\beta = 0.38$) and between PBDI and engagement ($\beta = 0.34$). These results confirmed Hypotheses 6, 7 and 8.

Regarding burnout, negative relationships were found between PBSU/PBDI and burnout. This suggests that students who use their strengths and improve on their deficits could display better coping abilities, which lessens their reaction to stressors and its adverse effects, and thus will reduce their levels of burnout. These results are in accordance with preceding literature on the topic. Kadiravan and Kumar (2012) found encouraging outcomes after applying a development training programme for university students. The programme's main focus was on encouraging students to envision success, anticipate future problems, planning on how to deal with them and taking preventive steps to avoid disaster. Students were helped to apply the skills they have learned in order to deal with challenges in everyday situations. The authors found observable decreases in student stress and enhanced coping skills, which has been proven to decrease burnout (Proctor, Maltby & Linley, 2011; Wood, Linley, Maltby, Kashdan & Hurling, 2011).

Furthermore, the results indicated a positive predictive relationship between PBSU and PBDI and engagement. These results suggest that first-year students who utilise their strengths and improve on their deficits will have higher levels of energy and be more dedicated to their studies. When students take the initiative to engage in activities that require continuous learning and place themselves in the position to practice skills and tasks in which they usually underperform, they will experience a sense of accomplishment in their studies. This experience can lead to increased motivation and engagement. Wang et al. (2013) revealed that first-year students who behave proactively in a university environment showed positive implications on their engagement levels. The authors viewed it as essential for students to work proactively on overcoming 'pessimistic tendencies' in order to become more engaged in their educational and social environment.

Lastly, the results revealed a positive relationship between PBSU and PBDI and life satisfaction. This suggests that students who utilise their strengths and improve on their deficits, will not only be able to deal with university challenges and stressors, but can have

meaningful personal and study experiences (Seligman, 2011), which heighten their levels of life satisfaction. Stander et al. (2015) offers support for this finding by indicating a positive predictive relationship between strengths use and life satisfaction. The first-year student sample in the present study, who displayed self-starting behaviour to proactively use their areas of strengths, were most probably able to deal with challenges associated with the university environment and were, therefore, able to experience satisfaction with their lives.

Additionally, the student sample studied by Rust, Diessner and Reade (2009), experienced significant increases in life satisfaction when improving their character strengths *and weaknesses* over against a compared group who was not assigned to work on strengths and/or weaknesses. The group was required to keep weekly logs on how they used their strengths and tapped into opportunities to improve on weaknesses. The success of the second group was measured by the feasibility of the plans made in order to achieve this result, and the number of times they sought weekly feedback from trustees. Those who performed the above-mentioned activities frequently experienced higher levels of life satisfaction.

In summary, the results supported a two-factor model, indicating that PBSU and PBDI are two independent factors. Positive results were found for invariance testing, and favourable reliability scores indicated that the items would consistently measure the extent to which students apply PBSU and PBDI. The results for convergent validity indicated a moderate relation between PBSU and PBDI with strengths use and proactive behaviour. The outcome for discriminant validity showed that one gender group would not show more proactive behaviour towards using their strengths and deficits than the other gender group. For predictive validity, it was found that first-year students who use their strengths and improve on their deficits experience lower levels of burnout and higher levels of engagement and life satisfaction.

Limitations and recommendations

Although the present study makes valuable contributions on student well-being as well as to the field of I/O Psychology, limitations still needs to be factored in. Firstly, although the main focus of the study was on first-year university students, it might not be likely to generalise the findings to senior students. It is, therefore, essential for future studies to include students from various academic year groups to validate the findings of this study further. Secondly, a

cross-sectional research design was used, which means that the present study was restricted from exploring causal statements about the hypothesised relationships. In order to draw richer conclusions about the causality of PBSU and PBDI with student burnout, engagement and life satisfaction, longitudinal research examination is recommended (Govindji & Linley, 2007). Thirdly, the present study could only investigate causal relationships of three constructs, namely burnout, engagement and life satisfaction. As the field of strengths use and deficit improvement is still relatively new (especially amongst students) it would also be valuable to investigate causal relationships of PBSU and PBDI with constructs other than burnout, engagement and life satisfaction. Fourthly, a further limitation is the use of a single self-report questionnaire since a common method variance between predictor and outcome variables might occur (Malhotra, Kim, & Patil, 2006). Future studies could consider using a mixed method to obtain richer data, including interviews, reflection diaries, and focus groups.

Finally, using a method to collect data online collection presented challenges on its own. These challenges included limitations in providing assistance on questions the participants might have, unforeseen technical issues that may occur while administering the questionnaire, and ensuring that students have a thorough understanding of the questions.

Practical implications

Literature is readily available on first-year university student drop-out rates and the challenges they face. However literature is limited on the role that these students' strengths use and deficit improvement might have in this regard. The findings of the present study can be utilised to help students obtain knowledge of the outcomes of being proactive in using strengths and deficits. These benefits include reduced levels of burnout and enhanced engagement and life satisfaction.

The findings of the present research will also add value to universities and educators by providing a better understanding of what proactive behaviour towards strengths use and deficit improvement entails, and whether students are demonstrating this behaviour. Universities can develop supporting structures and interventions, and work in collaboration with educators to provide first-year students with opportunities to apply PBSU and PBDI and thereby adapt to and cope with the challenging university environment. This may lead to better working conditions for both the tertiary educators and students, as well as enhanced well-being and academic success among students. Furthermore, a valid standard

questionnaire will be available to measure first-year university students' ability to use their strengths proactively and improve on their deficits. The reliable and valid psychometric properties of the adapted questionnaire create the opportunity that it can also be administered to senior students.

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CHAPTER 3

CONCLUSION, LIMITATIONS AND RECOMMENDATIONS

In this final chapter, conclusions are provided as drawn from the general and specific objectives of the study presented in Chapter 1. Thereafter the limitations of the study are discussed followed by recommendations made for universities and future research.

3.1 CONCLUSIONS

Research on the use of strengths and improvement of deficits among individuals is limited, especially among first-year university students. It is clear that a proactive approach towards using strengths and improving on deficits can hold valuable outcomes for first-year university students such as helping them cope with newly-found challenges and to achieve success in their studies. In accordance with the Positive Psychology movement, the importance of integrating a balanced focus of PBSU and PBDI are becoming increasingly relevant for first-year students. Moreover, no validated measures are available to determine both PBSU and PBDI among students; therefore, the general objective of the present study was to validate the PBSU and PBDI scales in a sample of first-year university students.

The first objective was to establish what literature has to offer on the concepts of proactive behaviour towards strengths use (PBSU) as well as deficit improvement (PBDI). Proactive behaviour was defined as anticipatory, future or change-oriented, active, self-starting, and persistent work conduct (Parker, 2000). Such behaviour entails taking charge (Morrison & Phelps, 1999), applying personal initiative (Frese & Fay, 2001) and flexible role orientations (Parker, Wall, & Jackson, 1997). An individual who applies personal initiative will display proactive and persisting behaviour patterns in order to achieve work goals (Frese & Fay, 2001; Frese, Kring, Soose & Zempel, 1996). A proactively inclined individual is considered to be constantly seeking for opportunities that will improve or change his/her environment, instead of merely accepting his/her immediate situation (Crant, 2000). In essence, such an individual will constantly display the following behaviour patterns: seek feedback (Ashford, Blatt & Van de Walle, 2003) and information (Morrison, 1993), demonstrate initiative (Frese & Fay, 2001) and suggest ideas for future improvements (Grant & Ashford, 2008). Such a

person will build networks (Ashford & Black, 1996), help others (Organ, 1988), apply self-started problem-solving and change initiatives (Grant & Ashford, 2008), take charge (Morrison & Phelps, 1999) and redefine his/her work (Ashford & Black, 1996; Wrzesniewski & Dutton, 2001).

Due to a lack of focus on the individual components of proactive behaviour, Van Woerkom et al. (under review) include proactive behaviour towards strengths use (PBSU) and deficit improvement (PBDI) as two additional types of such behaviour. They argue that when individuals show proactive behaviour towards strengths use and deficit improvement, they will display self-starting behaviour to use strengths, potential and virtues, and improve on areas of deficit or weakness in an environment offering challenges.

The idea of integrating PBSU as part of the study of individual well-being arose from the Positive Psychology movement (Seligman & Csikszentmihalyi, 2000). The core focus of this school of thought was to include strengths, as opposed to merely focusing on improving weaknesses (Duckworth, Steen & Seligman, 2005), when considering well-being. Although a focus on strengths is considered valuable for the well-being of individuals, this movement argues that a balanced focus on strengths *and* deficits would be ideal to ensure a holistic representation of human well-being (Rust, Diessner & Reade, 2009; Seligman, et al., 2004).

A strength is defined as the natural capacity of an individual to behave, think or feel in a way that allows optimal functioning and performance when he/she pursues specific outcomes (Linley & Harrington, 2006). Deficits, on the other hand, describe individuals' flaws, shortcomings or weak points. Therefore, by choosing to improve on these deficits it would mean that an individual identifies his/her areas of insufficiency and shortage with the aim of restoring or rectifying these areas (Buckingham & Clifton, 2001). The present study, therefore, argued that when students adopt proactive behaviour, they would be able to use their strengths and improve on their deficits to ensure favourable outcomes for their well-being.

This study's research focus was on university students in their first-year of study. Interest arose due to the prevalence of the low success rate of South African students during their first-year in university. It was discovered that first-year students tend to experience transitional and adaptation challenges similar to that of newcomer employees to organisations

(Sonnentag, 2003). These challenges for students entailed: 1) becoming flexible in accordance with a changing schedule (Ongori, 2007; Awino & Agolla, 2008; Agolla & Ongori, 2009); 2) adapting to a crowded university environment and its fast pace; 3) increased responsibility to meet deadlines (Misra & Mckean, 2000) manage time and finances, be self-reliant, and to live independently (Darling et al, 2007); 4) meeting the demands of the academic workload (Agolla & Ongori, 2009); and 5) coping with competition from fellow students, and meeting minimum academic standards (Sonnentag, 2003; Cheng, Leong, & Geist, 1993).

In addition to these challenges, students also find it difficult to adapt emotionally and socially (Fairbrother & Warn, 2003), which causes experiences of stress (Robotham & Julian, 2006; Stecker, 2004). Students particularly view academic stressors as an extensive knowledge base that is required of them, with the perception of insufficient time to develop this base (Carveth, Geese, & Moss, 1996). These stress experiences can prevent students from coping or adjusting, by depleting the resources that enables them to cope (Misra, Crist, & Burant, 2003). This can lead to adverse outcomes, such as drop-out, burnout, disengagement, decreased life satisfaction, and depression (Lazarus & Folkman, 1994; Pearlin, 1999). The worst possible result could be when first-year students turn to unfavourable and destructive coping measures in order to deal with the stressors, for example, alcohol misuse, and dependency on nicotine and other forms of substance abuse (Pierceall & Keim, 2007).

On the other hand, it is found that proactive behaviour and coping may increase positive outcomes while managing to combat stressors (Kelly & Louise, 2007; Kaiser & White, 2009; Dolbier, Jaggars & Steinhardt, 2009). Therefore, it was important to investigate the manner in which students use proactive behaviour and apply personal initiative. This would have indicated clearly how these students are proactive by: envisioning their success, anticipating future problems (Greenglass, 2002) and making plans to deal with difficult problems. It also would shed light on the preventive steps students will take to avoid drop-out or failure of their academic career. In order to investigate this proactive behaviour patterns, the present study validated the two individual scales of the Strengths Use and Deficit Correction Questionnaire for first-year university students in the South African context.

Firstly, the factorial validity was determined. Two measurement models were tested, including a one-factor and a two-factor model. As hypothesised, the two-factor model

showed a significantly better fit for the data. This means that the scales for proactive behaviour towards strengths use and deficits improvement were not the same phenomenon, but two independent factors. Van Woerkom et al. (under review) find a four-factor model, comprising all four factors in the organisational context. These entail: perceived organisational support for strengths use (POSSU); perceived organisational support for deficit improvement (POSDI); proactive behaviour towards strengths use (PBSU); and proactive behaviour towards deficit improvement (PBDI). This result is supported by the following: the literature that also reported a two-factor solution (in the organisational context); Stander & Mostert, 2013, who adapted the SUDCO for South African sport coaches, and Paver, Mostert, Els, and De Beer (2014), who adapted the questionnaire for South African educators.

The next test was to establish measurement invariance. Seeing that the present study's participants comprised two main language groups (Germanic and African), it was necessary to test for measurement invariance. This study was able to determine the extent to which the same construct was measured across the different groups involved in the study (Van de Vijver & Leung, 1997). No significant difference was found between each model (configural, metric and scalar) based on the three campus groups and the two language groups that were included in invariance testing. This means that the PBSU and PBDI scales were interpreted similarly between the campuses and across the different language groups. As a result, the revised questionnaire can be explored confidently in cross-cultural studies and have the potential to be indiscriminate, not favouring a specific group (He & Van de Vijver, 2012; Van de Vijver, 2011).

The reliability of the two scales was also determined. Cronbach's alpha coefficients were used, focusing on the internal consistency of the constructs. The reliability results for the individual scales proved to be favourable: proactive behaviour towards strengths use, $\alpha = 0.84$; and proactive behaviour towards deficit improvement, $\alpha = 0.84$. Van Woerkom et al (under review) support these findings, with alpha coefficients for proactive behaviour towards strengths use, $\alpha = 0.94$; and proactive behaviour towards deficit improvement, $\alpha = 0.94$. In accordance with their finding, Stander and Mostert (2013) report $\alpha = 0.93$ for proactive behaviour towards strengths use; and $\alpha = 0.94$ for proactive behaviour towards deficit improvement. The results of the research by Paver, et al. (2014) yield corresponding results: proactive behaviour towards strengths use, $\alpha = 0.94$; and proactive behaviour towards deficit improvement, $\alpha = 0.95$.

The next objective was to determine the convergent relationship between the PBSU and PBDI scales and theoretically similar constructs, namely proactive behaviour and strengths use. By using Pearson product-moment correlation coefficients, the manner were determined in which the PBSU and PBDI scales are related to these two related constructs (Gefen & Straub, 2005; Cozby, 2009).

First of all, convergent validity was found among PBSU/PBDI and proactive behaviour. Therefore, the **measures that were expected to relate to PBSU and PBDI, were in fact related** (Gefen & Straub, 2005; Westen & Rosenthal, 2003). The relationship between PBSU and proactive behaviour were strong, whereas the relationship between PBDI and proactive behaviour were less strong. This indicates that when students (in this case) show proactive behaviour towards strengths use, they will most likely engage in self-starting techniques (Frese & Fay, 2001; Parker, Williams & Turner, 2006) and use their strengths in their studies to achieve certain successes (Morrison & Phelps, 1999; Grant & Ashford, 2008; Ashford & Black, 1996; Wrzesniewski & Dutton, 2001. Similarly, when these students engage in proactive behaviour towards deficit improvement, they will intentionally influence their situation to alter it (e.g. seek feedback on their performance; Ashford, Blatt & Van de Walle, 2003).

On the other hand, the results revealed a strong relationship between PBSU and PBDI and strengths use. It was expected that strengths use would be related to PBSU, as individuals who are proactive in using strengths, will most likely apply these strengths in challenging situations to achieve goals (Mutrie & Faulkner, 2004). Furthermore, when an individual displays proactive behaviour to use strengths, he/she will most likely take the initiative to use their strengths in situations/tasks in which they sometimes underperform.

A further objective was to establish discriminant **validity; the present study aimed to demonstrate that measures that should not be related to the PBSU and PBDI scales would in fact not relate** (Campbell, 1959; Gefen & Straub, 2005). In this case gender was expected to be unrelated to the PBSU and PBDI scales. Therefore, **low** discriminant correlations were expected between the gender of the participants and the PBSU and PBDI constructs. The results did indeed yield no practical significant relation between gender and PBSU and PBDI. The outcome, therefore, was that one gender group did not behave more

proactively by using their strengths and improving on their deficits than the other gender group.

Finally, predictive validity was measured in order to establish whether PBSU and PBDI would predict appropriate outcome constructs, such as student burnout, student engagement and life satisfaction. The results of the present study supported the expectation of a negative predictive relationship between PBSU and PBDI and burnout. This proved the postulate that, when students use their strengths and improve on their deficits, they display a tendency to adopt better coping abilities, which decreases their reaction to stressors and the accompanying adverse effects and results in overall reduction of their levels of burnout.

The finding mentioned above connects to similar findings by preceding literature. Proctor, Maltby and Linley (2011), and Wood, Linley, Maltby, Kashdan and Hurling (2011) find that when students employed active strategies to increase the use of their strengths and improve their deficits, observable decreases in their stress levels became clear, as well as increases in their coping skills. This copying strategy is known to lessen burnout among students. Similarly, Kadhiravan and Kumar (2012) found positive outcomes in reduced burnout after implementing development training for university students. The program's main focus was encouraging students to envision success, anticipate future problems, plan on how to deal with it and take preventive steps to avoid disaster. Students were helped to apply the learnt skills to address challenges in everyday situations. The authors also found observable decreases in student stress and enhanced coping skills, which lowered their levels of burnout (Proctor, Maltby & Linley, 2011; Wood, Linley, Maltby, Kashdan & Hurling, 2011).

Additionally, the present study found a positive predictive relationship between PBSU and PBDI, and engagement. First-year students who utilised their strengths and improved on their deficits indicated higher levels of energy and showed more dedication towards their studies. This can be explained by a scenario where students take the initiative to engage in activities that require continuous learning, and seek opportunities to practice skills and tasks in which they underperform. These students experienced a sense of accomplishment in their studies – which can result in increased motivation and engagement. Furthermore, students also experienced higher levels of engagement in their educational and social environment, when proactively working on overcoming their ‘pessimistic tendencies’ (Wang, et al., 2013).

Finally, as the results indicated, the use of students' strengths and the improvement of their deficits, lead to an increase in life satisfaction. This implies that students who utilise their strengths and improve on their deficits, will be able to deal with university challenges and stressors, as well as experience meaning in their personal and study experiences (Seligman, 2011). In this way the students improve their levels of life satisfaction. Literature supports this finding. Stander et al. (2015) found a positive predictive relationship between strengths use and life satisfaction among a sample of first-year university students. These students displayed self-starting behaviour to use their areas of strengths proactively. This enabled them to deal with the challenges of the university environment, and ultimately to experience satisfaction in their lives. Additionally, the sample investigated by Rust, Diessner and Reade (2009), did experience increased life satisfaction when the focus was on improving their character strengths and weaknesses, as opposed to the compared group who was not assigned to work on strengths and/or weaknesses.

In summary, the results supported the validity and reliability of the PBSU and PBDI scales for a sample of first-year students. It was also found that PBSU and PBDI predicted burnout, engagement and life satisfaction. These scales, therefore, show the potential to be explored further in future studies on students in higher education institutes within the South African context.

3.2 LIMITATIONS OF THE RESEARCH

Despite the contributions of this type of research, a researcher should take into account possible limitations linked to the research. Firstly, although the present study addressed a gap in literature on first-year students' use of strengths and improvement of deficits, a limitation might be that it used a sample from a single context. The results of such a study can, therefore, not necessarily be generalised to other contexts, for example, students from other academic year groups, other universities or other language groups.

The second potential limitation was using a cross-sectional research design for a prediction study. Seeing that information was gathered at a specific point in time, limited information is available on the cause-and-effect relationships (Institute for Work & Health, 2015). Therefore, the present study had to rely on existing literature to confirm the relationships that were found. It is suggested that future researchers on this topic should employ a longitudinal

research design in order to draw more in-depth conclusions on the prediction of PBSU and PBDI with student burnout, engagement and life satisfaction (Govindji & Linley, 2007).

Thirdly, using a self-report measure/questionnaire might be considered a challenge. Forest, et al. (2012) stated the importance of using observational data or other informants for future research. This calls into question the accuracy of the representation of participants' actual use of strengths. Although the participant's personal perspective was captured, the data was gathered on individual ratings only. Keeping this in mind, there may be issues of potential inaccuracy and validity (Paulhus & Vazire, 2007). These can include social desirability [‘the tendency to respond to items independently of their content’] (Paulhus, 1991, pg. 1), seeking consistency, self enhancement, and self-presentation (Robins & John, 1997). It is recommended that an additional measure for qualitative data collection is added to future studies.

The fourth possible limitation might be that respondent's errors need to be accounted for (e.g., forms of survey error). Certain circumstances that could have affected responses may have had an influence on the nature and quality of the collected data. By using an online method for data collection, the researcher was unable to: 1) provide assistance on questions the respondents might have; 2) instantly correct unforeseen technical issues that may occur while administering the questionnaire; and 3) ensure that participants understand the questions fully.

3.3 RECOMMENDATIONS

Despite these limitations, the present study offers valuable findings that could make students aware of their strengths and deficits, and help them apply proactive measures to use the strengths and improve on the deficits. Additionally, this study can create awareness among universities on the need to offer students the opportunities to use their strengths and improve on their deficits. Eventually this will provide favourable outcomes in students' personal lives and academic careers. Subsequently, recommendations will be offered to universities and with a view to further studies in the Industrial/Organisational field, aimed particularly at first-year university students.

3.3.1 Recommendations for universities

The overall motivation of the present study was to validate the PBSU and PBDI scales for first-year university students. Using this questionnaire will determine the extent to which first-year university students behave proactively to use their strengths and improve on their deficits. Research that include a focus on strengths use to improve well-being is still limited and relatively unexplored with regard to university students, especially in South Africa. Therefore, the present study delivers a contribution to the literature in I/O Psychology by the individual scale validation of the SUDCO that targets South African first-year university students.

Secondly, this study provides the university the knowledge on strengths use, deficit improvement and proactive behaviour, and whether students are using these coping mechanisms within their studies. In this regard, universities can collaborate with its educators to determine students' strength use and deficit improvement. When educators focus on these aspects of students it may lead to better working conditions for both the educator and the student. This can be achieved by implementing intervention programs focused on, for example, preventing the consequences of burnout among students, or instilling methods to preserve strengths and improve deficits – skills that are valuable to students' engagement and life satisfaction.

The results of the present study can serve as a basis for programs aimed at: 1) providing academic, social and personal support in the first-year; 2) involving students in activities to help familiarise them with the university, and thus become effective learners (e.g. guiding students to connect to university life and committees in order to develop a sense of belonging, Tinto, 1999; Tinto, 2000; Pitkethly & Prosser, 2001); 3) exposing students to the university's diverse groups in order to enhance their learning experience (Pitkethly & Prosser, 2001); 4) promoting effective, proactive and healthy ways to deal with university stress and demands; and 5) promoting increased performance, resilience, effective coping skills, and positive reinforcement for further studies. These programmes might even be adapted to suit the needs of senior university students.

Furthermore, teaching the students of South Africa about the tendencies and adverse effects of non-coping with university stressors and challenges can help them adopt measures to

combat difficulties. It can be valuable to conduct the research regarding intervention studies on individual level. It could focus on: student counselling, and assessments (Clinciu, 2013), coping measures, building resilience, and identifying strengths and development areas. Such research can also be done on group level, which could include aspects such as student support groups, student development programs, mentoring, and coaching. Such an initiative will, however, require support and resources from the particular university.

Finally, it is recommended that universities initiate projects, for example, quarterly surveys, to measure first-year students' level of well-being. Such surveys can measure the extent to which first-years cope with their new environment, and also at which levels of resilience they deal with stressors and setbacks. If risk factors are identified, measures can be employed to determine which type of 'intervention' they will relate to the best. Then universities can liaise with student bodies (for independent first-year students), and house committees of residential hostels (for first-year students in hostels), to arrange activities such as group or individual counselling facilitated by competent, trained and registered counsellors/psychologists.

3.3.2 Recommendations for future research

It is recommended that future researchers employ a longitudinal research design, which would allow them to observe causative factors. Longitudinal research is a correlation research study that involves repeated observations of the same variables over extended periods; the researcher's interest lies in making comparisons across time (Badmus, Okonkwo, & Okoh, 2012). This approach is economical and time effective. In addition, it will allow such a study to be both exploratory and confirmatory, seeing that the hypotheses will be supported by existing theory, as well as the longitudinal findings by the research.

Using a mixed-method design is also recommended to ensure that the collected data is rich and in-depth. A mixed method makes use of both qualitative and quantitative research techniques and approaches (Johnson & Onwuegbuzie, 2004). The study field regarding strengths use and deficit improvement is still relatively new and unexplored. Therefore it would be valuable to combine the statistical evidence of human experiences gathered by a quantitative method, with the in-depth observations of these same human experiences gained by using qualitative approaches.

Moreover, it is recommended that this study is replicated in other universities, language groups and students to ensure that the results can be generalised. Finally, it can be valuable to measure additional outcomes to those found in the present study. These outcomes could include intention to drop-out, absenteeism, and self-efficacy among university students of all grade groups.

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