

# Investigating strengths and deficits to increase work engagement: A longitudinal study in the mining industry

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Mini-dissertation submitted in partial fulfilment of the requirements for the degree *Magister Artium* in *Industrial Psychology* at the Potchefstroom Campus of the North-West University

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October 2016

## COMMENTS

The reader is reminded of the following:

- The formatting guidelines specified by the postgraduate programme in Industrial Psychology of the North-West University, Potchefstroom Campus were followed in this thesis. The referencing style of this thesis followed the guidelines as prescribed in the Publication Manual (6th edition) of the American Psychological Association (APA).
- The mini-dissertation is submitted in the form of three chapters, which include an introductory chapter, a research article and a concluding chapter.
- The chapter one is the revised research proposal and may be presented in a different tense.
- Each chapter contains its own reference list.
- An adapted version of the research article was submitted for publication in *Acta Commercii*

## ACKNOWLEDGEMENTS

“Our goals can only be reached through a vehicle of a plan, in which we must fervently believe, and upon which we must vigorously act. There is no other route to success.” — Stephen A. Brennan

As I hang up my gloves and sit back to appreciate the fruition of my hard work, I would like to take this moment to thank individuals who were instrumental to the completion of this mini-dissertation:

- Firstly, all glory goes to the Most High God. My Comforter, Guide, Provider. Without you Lord, none of this would be possible.
- To my amazing husband, Mpho Mphahlele. I am in awe of the support you gave me throughout this project. Many weekends were lost, as I worked tirelessly to meet the deadlines. Thank you for keeping me in your prayers. I love you, and truly blessed to have you in my life
- To my supervisor Dr Crizelle Els, you have been an extraordinary pillar for me from day one. Thank you for your vote of confidence in me; your direction and your guidance. None of this would have been possible without you.
- To Dr Leon De Beer and Prof Karina Mostert, words cannot describe the appreciation I have towards you. Your positive feedback kept me going, and your astounding inputs have led to a final product of which I am very proud.
- To my language editor, Cecile van Zyl, I am astonished by your speed of delivery and the quality of your work. Thank you.
- To my fellow students and friends, Liana, Phezi and Chantelle; I cannot begin to think where I would be without your support. We have cried, laughed and stressed together. Your response to the question “How far are you with ...?” always managed to make me feel better. Your friendship and sisterhood means the world to me.
- Last but definitely no least, to my gorgeous baby girl Atlegang. Watching you smile makes me realise how full my life is. Being your mother has been the most rewarding thing in my life. I am proud for you, and love you unconditionally.

## **DECLARATION**

I, **Kgabo Pule Mphahlele**, hereby declare that “Investigating strengths and deficits to increase work engagement: A longitudinal study in the mining industry” is my own work and that the views and opinions expressed in this work are those of the author and relevant literature references as cited in the manuscript.

I further declare that the content of this research was not and will not be submitted for any other qualification at any other tertiary institution.

**PULE MPHAHLELE**

**NOVEMBER 2016**

## **DECLARATION OF LANGUAGE EDITING**

Dear Mr / Ms

Re: Language- and technical editing of dissertation: (Investigating strengths and deficits to increase work engagement: A longitudinal study in the mining industry)

I hereby declare that I language - and technically edited the above-mentioned mini-dissertation by Mrs Pule Mphahlele (student number: 24475505)

Please feel free to contact me should you have any enquiries.

Kind regards

A handwritten signature in black ink, appearing to read 'Cecile van Zyl', with a large loop at the end.

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## SUMMARY

**Title:** Investigating strengths and deficits to increase work engagement: A longitudinal study in the mining industry

**Keywords:** Positive psychology, deficit correction, strengths use, perceived organisational support for strengths use, perceived organisational support for deficit correction, work engagement

Mining remains one of the main contributors to the South African economy. However, the industry is not without challenges. To remain competitive, organisations need to invest in their human capital and employ the best strategies to realise their bottom-line. One way to do this is to ensure that they have an engaged workforce. In literature, there are abundant studies on the antecedents of work engagement. Furthermore, it has been confirmed, by making reference to the JD-R model, that job resources are the main predictors of work engagement. Additional forms of job resources, namely perceived organisational support (POS) for strengths use and POS for deficit correction have been identified and their relation to work engagement over the short term has been established. However, to verify their long-term causal effects on work engagement, a longitudinal perspective is deemed necessary.

Therefore, the objective of this study was to test the relationship between job resources POS for strengths use and POS for deficit correction and work engagement over time. This was done in order to gather a better understanding on the long-term relationship between the constructs in employees within the mining industry of South Africa.

Statistical analysis was conducted by making use of the SPSS and Mplus programs. A longitudinal research design was followed and data was collected in two waves. The sample sizes for the first and second waves were 376 and 79, respectively. To test the hypotheses, structural equation modelling (SEM) was conducted. In order to adequately handle the smaller sample size, Bayesian estimation was employed to establish the longitudinal relationships.

The results indicated a positive relationship between POS for strengths use and POS for deficit correction with work engagement in the shorter term. However, longitudinally, only



POS for deficit correction had a significant positive relationship with work engagement. Although POS for strengths use did not significantly predict work engagement over time, there is merit in adopting this approach in the short term. The results of this study thus confirmed the importance for organisations to adopt a combined strengths use and a deficit correction approach when employing developmental strategies. This, in turn may enhance their employees' work engagement and their dedication to their work and the organisation.

Recommendations to organisations, employees and literature were made after conclusions were drawn.

## OPSOMMING

**Titel:** 'n Onderzoek na sterkpunte en tekortkominge om werksbetrokkenheid te verbeter: 'n Longitudinale studie binne die mynbou-industrie

**Sleutelwoorde:** Positiewe psigologie, tekortkoming-korrigerig, sterkpunt-gebruik, gepersipieerde organisasie-ondersteuning vir sterkpunt-gebruik, gepersipieerde ondersteuning vir tekortkoming-korrigerig, werksbetrokkenheid

Mynbou is steeds een van die vernaamste bydraers tot die Suid-Afrikaanse ekonomie. Die industrie is egter nie sonder uitdagings nie. Om mededingend te bly, moet organisasies in hul mensekapitaal belê en die beste strategieë aan die dag lê om hul vereiste eindresultaat te realiseer. Een manier om dit te doen, is om te verseker dat hulle 'n betrokke werkerskorps het. In die literatuur is daar 'n magdom studies oor die voorlopers van werksbetrokkenheid. Verder is daar ook bevestiging, deur die gebruik van die JD-R-model, dat werkhulpbronne die vernaamste voorspellers van werksbetrokkenheid is. Addisionele vorms van werkhulpbronne, naamlik gepersipieerde organisasie-ondersteuning (GOO) vir sterkpunt-gebruik en GOO vir tekortkoming-korrigerig, is geïdentifiseer en hul verhouding met werksbetrokkenheid oor die korttermyn is vasgestel. Om egter hul langtermyn kousale effekte op werksbetrokkenheid te verifieer, word 'n longitudinale perspektief nodig geag.

Dus was die doelstelling van hierdie studie om die verhouding tussen werkhulpbronne-GOO vir sterkpunt-gebruik en GOO vir tekortkoming-korrigerig en werksbetrokkenheid, oor tyd, te toets. Hierdie is gedoen om sodoende 'n beter begrip van die langtermyn verhouding tussen dié konstrakte in werknemers binne die mynbou-industrie in Suid-Afrika te bekom.

Statistiese analise is uitgevoer deur van die SPSS- en Mplus-programme gebruik te maak. 'n Longitudinale navorsingsontwerp is gevolg en data is in twee golwe ingevorder. Die steekproefgroottes vir die eerste- en tweede golwe was onderskeidelik 376 en 79. Om die hipoteses te toets, is strukturele vergelykingsmodellering (SEM) uitgevoer. Om die kleiner steekproefgrootte voldoende te hanteer, is Bayes-beraming ingespan om die longitudinale verhoudings vas te stel.

Die resultate toon 'n positiewe verhouding tussen GOO vir sterkpunt-gebruik en GOO vir tekortkoming-korrigerende werksbetrokkenheid oor die korttermyn. Longitudinaal het slegs GOO vir tekortkoming-korrigerende egter 'n positiewe verhouding met werksbetrokkenheid gehad. Hierdie resultate bevestig die belangrikheid vir organisasies om beide benaderings toe te pas wanneer ontwikkelingstrategieë uitgevoer word. Hoewel 'n sterkpunt-gebruik benadering werksbetrokkenheid nie oor die langtermyn voorspel het nie, is daar steeds meriete in die voordele van hierdie benadering in die korttermyn. Die resultate van hierdie studie bevestig dus die belangrikheid daarvan dat organisasies van beide 'n sterkpunt-gebruik en 'n tekortkoming-korrigerende benadering volg wanneer die ontwikkelingstrategieë saamgestel word aangesien dit werknemers se werksbetrokkenheid en toewyding aan hul werk en die organisasie positief kan beïnvloed.

Aanbevelings aan organisasies, werknemers en die literatuur is gemaak na gevolgtrekkings afgelei is.

# **CHAPTER 1**

## **INTRODUCTION**

# **CHAPTER 1**

## **INTRODUCTION**

The aim of this mini-dissertation is to determine how strengths use and deficit correction from an organisational perspective predict work engagement over time. A two-wave longitudinal study was undertaken within the South African mining industry to investigate the causal relationships between these constructs.

The overview of the problem statement, hypothesis, research questions and objectives is highlighted in this chapter. Furthermore, the contributions of this study from an individual, organisational and literature point of view are discussed. The research methodology employed is discussed and, lastly, ethical considerations and the layout of succeeding chapters are presented.

### **1.1 PROBLEM STATEMENT**

The South African mining industry remains a major contributor to our gross domestic product (GDP). However, even with an 18.7% contribution recorded in 2010 (Statistics South Africa, 2010), the sector is not immune to challenges. Production loss, increased labour and utilities costs and the wave of industrial unrest are threatening the sustainability and profitability of the sector, as well as the decline in overall GDP contribution. This constitutes regaining competitiveness by optimising on the most valuable assets – people (Salas, Tannenbaum, Kraiger & Smith-Jentsch, 2012). Within organisations, this can be achieved through the training and development of their employees.

Salas et al. (2012) assert that activities that train and develop employees allow organisations to adapt, compete, innovate, produce, be safe, improve service and reach goals. The observable trend with these training and development initiatives is the focus on addressing the deficits of employees. This deficiency approach is characterised in HR practices, such as performance appraisals and development activities, where the goal is to diminish the gap between desired and current abilities by improving on deficits (Linley & Harrington, 2006; Goaverts, Kyndt, Dochy & Baert, 2011).

Within the work context, focusing on improving deficits by means of training and development initiatives has yielded positive organisational outcomes. Traditionally, research in this area has provided sufficient evidence that the approach enhances organisational performance (Arthur, Bennett, Edens & Bell, 2003; Keith & Frese, 2008; Morris & Robie, 2001), organisational commitment (Tansky & Cohen, 2001), job satisfaction (Lee & Bruvold, 2003) and higher levels of work engagement (Schaufeli & Bakker, 2004). On an individual level, employees who have access to training and development initiatives may feel valued, which can have a positive effect on their work engagement (Salas et al., 2012). Furthermore, focusing on improving their deficits can increase performance (Anguinis & Kraiger, 2009).

Contrary to the deficit improvement paradigm, a movement, termed positive psychology, has emerged in the past decade. Linley, Joseph, Harrington and Wood (2006) explain positive psychology as the scientific study of optimal human functioning. This shift in paradigms has yielded the focus from what is psychologically wrong with people, to what assists them to flourish, excel and experience flow. Consistent with the positive psychology movement is the use of strengths. Buckingham (2007) considers strengths to be activities that are energising and those performed with excellence. Furthermore, Linley et al. (2006) explain strengths to be a combination of talents, knowledge and skills that come naturally to individuals assisting in goal attainment.

Previous research on strength use within the organisational context attests that positive organisational outcomes are apparent. A study by Harter, Schmidt and Hayes (2002) found that people who use their strengths at work are more engaged compared to those employees who do not use their strengths. Similarly, Peterson, Stephens, Park, Lee and Seligman (2009) provided evidence that strengths use leads to job satisfaction. Wood, Linley, Maltby, Kashdan and Hurling (2011) found that individuals who use their strengths experienced lower levels of stress. Likewise, Stefanyszyn (2007) found that turnover intention decreased in employees who use their strengths. Research by Biswas-Diener, Kashdan and Minhas (2011) concluded that people who use their strengths at work exhibit increased levels of organisational commitment.

Given the positive outcomes associated with the exclusive focus of strengths use and the exclusive focus on deficit improvement, it is important to comprehend the environment that is

most conducive for both approaches to thrive. Van Woerkom et al. (2016) argue that for employees to utilise their strengths and to improve their deficits, a supportive organisational approach is required. This stance is supported by another study, which highlights the importance of perceived organisational support (POS) on a psychological resource and its impact on positive organisational outcomes (Eisenberger, Stinglhamber, Vandenberghe, Sucharski & Rhoades, 2002). Van Woerkom et al. (2016) further substantiated their argument by explaining that a) employees have a certain perception of their organisation, and b) employees have a perception on how that organisation provides support for them to use their strengths and/or improve or correct their deficits. In addition, employees who perceive their organisation as supportive, and encouraging them to use their strengths and developing or correcting their deficits at work may yield positive outcomes for the organisation (Keenan & Mostert, 2013; Lopez, Hodges & Harter, 2005; Van Woerkom et al., 2016).

Van Woerkom et al. (2016) therefore distinguish between perceived organisational support (POS) for strengths use as the extent to which employees perceive and believe that their organisations support them to use their strengths in the workplace. On the other hand, POS for deficit correction is described as the extent to which employees perceive and believe that their organisations support them to improve/correct their deficits in the workplace (Van Woerkom et. al., 2016).

One organisational outcome that may be influenced by POS for strengths use and deficit correction is work engagement. Work engagement is defined as a “positive, fulfilling, work-related state of mind that is characterised by vigour, dedication, and absorption” (Schaufeli & Bakker, 2004, p. 295). Vigour refers to high levels of energy that one devotes to one’s work, and the ability to face challenges without losing energy. Dedication refers to a strong identification with one’s work. Emotions such as pride, enthusiasm and inspiration are experienced. Absorption refers to the state where an employee is immersed in his/her work under the perception that time flows rapidly (Schaufeli & Bakker, 2004).

The importance of understanding the antecedents of work engagement in an organisational setting cannot be denied. Work engagement achieved at an organisational level can have positive consequences for the competitive advantage of a business. Previous research on work engagement has indicated that once it is realised, it can have a positive effect on

performance, organisational commitment and job satisfaction (Schaufeli & Bakker, 2004; Schaufeli & Salanova, 2008; Schaufeli, Taris & Van Rhenen, 2008).

It is implicit that work engagement can be achieved by employees utilising their strengths, as well as those improving their deficits. Research conducted by Govindji and Linley (2007) showed that employees who use their strengths have higher levels of self-esteem, exhibit high levels of vitality and have feelings of positive energy. A study conducted by Harter et al. (2002) found that the use of strengths is a core predictor of work engagement. Furthermore, Minhas (2010) found that when employees utilise their strengths in an environment that fosters POS for strength use, work engagement increases.

Conversely, employees who are afforded an opportunity to develop or correct their deficits, remediate their weaknesses, thereby improving their career opportunities, advancement, employability and marketability (Benson, 2006; Rothwell & Arnold, 2007). Moreover, when employees invest in their personal development by means of improving their weaknesses, there is a likelihood of them experiencing higher levels of work engagement (Bakker & Geurts, 2004). Various authors support the notion that employee development initiatives within a supportive environment, such as coaching, performance feedback and training facilities, are positively related to work engagement (Demerouti, Bakker, De Jong, Jansen & Schaufeli, 2001; Hakanen, Bakker & Schaufeli, 2006; Salanova, Llorens, Cifre, Martinez & Schaufeli, 2003).

A well-researched theory to help illustrate the relationship between POS for strengths use, POS for deficit correction and work engagement, is the Job Demands-Resources model. The motivational process of the model implies that job resources are the strongest drivers for work engagement. Demerouti, Bakker, Nachreiner and Schaufeli (2001<sub>a</sub>) explain job resources as all aspects (physical, psychological, social and/or organisational) that reduce job demands, stimulate employee growth and facilitate goal achievement in the workplace. Job resources can include aspects such as autonomy, supervisory relationships, colleague support and so forth, all which positively influence employee work engagement (Bakker, 2011).

Van Woerkom et al. (2016) conceptualise POS for strengths use and POS for deficit correction as two forms of job resources. These two concepts suggest that employees, who



experience their organisation as being supportive of them to use their strengths and improve their deficits, tend to elicit more positive energy regarding their work. This can, in turn, be associated with positive organisational outcomes such as work engagement. Furthermore, due to the nature of job resources being able to foster goal achievement in the workplace (Demerouti et al., 2001<sub>a</sub>, Bakker, Demerouti & Schaufeli, 2003), it can be argued that POS for strengths use and POS for deficit correction can assist employees in achieving their work goals, leading to higher levels of work engagement. As previously discussed, various studies confirm POS for strengths use and POS for deficit correction as job resources and their positive relation to work engagement (Bakker & Geurts, 2004; Botha & Mostert, 2014; Rothmann & Joubert, 2007; Rothmann & Rothmann, 2010; Stander & Mostert, 2013).

Although significant value has been added to the body of literature regarding the relationships between POS for strengths use, POS for deficit improvement and work engagement, the studies on these constructs have been of a cross-sectional nature. This limits the knowledge of how constructs can be affected over time, as only a unidirectional view of the relations is achieved. This study therefore seeks to close that gap by providing knowledge on possible reversed causal or reciprocal relationships between POS for strengths use, POS for deficit correction and work engagement through a longitudinal study. Following the above argument, the primary objective of this study is to determine how POS for strengths use and POS for deficit correction predict work engagement over time.

## **1.2 RESEARCH QUESTIONS**

- How are perceived organisational support for strengths use, perceived organisational support for deficit correction and work engagement conceptualised according to literature?
- What are the relationships between perceived organisational support for strengths use, perceived organisational support for deficit correction and work engagement?
- Is perceived organisational support for strengths use a significant predictor of work engagement over time?
- Is perceived organisational support for deficit correction a significant predictor work engagement over time?
- What recommendations can be made for future research and practice?

## **1.3 EXPECTED CONTRIBUTION**

This study can contribute to the individual, the organisation and the field of industrial and organisational psychology, which will be explained next.

### **1.3.1 Contribution for the individual**

The world of work today is full of uncertainty and complexity. Individuals need to be versatile to be able to provide the appropriate response to any task or challenge. It is important for employees to be knowledgeable of what approach will assist them in dealing with job demands over time. Furthermore, employees who are engaged and satisfied with their job can perform at a higher standard, which could assist their career progression. Based on that, investing in the approach with the highest level of benefits will allow employees to increase their ability to respond to change confidently and successfully.

### **1.3.2 Contribution for the organisation**

The development of employees is a key component for any organisation seeking a competitive advantage. This translates to large amounts of money being invested in training and development annually. The study seeks to determine which approach (POS for strengths use or POS for deficit correction) will significantly predict work engagement over time – an outcome that is critical for a healthy organisation. Knowing this, organisations can consequently invest their money in an approach that has the maximum return on investment. Furthermore, there is a strong business case in employing individuals who are satisfied with their jobs, engaged and committed to the organisation. The best approach can assist organisations in providing work conditions that inspire employees to give their best, to go the extra mile and persist in the face of challenges, thereby aiding organisations to flourish and perform competitively.

### **1.3.3 Contribution for the industrial organisational literature**

Literature on understanding the antecedents of work engagement is readily available. However, no studies, to our knowledge, are available on the longitudinal relationship between work engagement and POS for strengths use or POS for deficit correction, particularly in the mining sector within South Africa. In addition to that, understanding how the constructs relate to each other over time will provide insight into the body of literature,

not only on the direction of the relationships, but will also provide an indication of fluctuations (if any) over time.

## **1.4 RESEARCH OBJECTIVES**

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

### **1.4.1 General objective**

The general objective of this study is to determine whether POS for strengths use and POS for deficit correction are significant predictors of work engagement over time.

### **1.4.2 Specific objectives**

The specific objectives of this research are:

- To conceptualise perceived organisational support for strengths use, perceived organisational support for deficit correction and work engagement according to literature.
- To examine the relationships between perceived organisational support for strengths use, perceived organisational support for deficit correction and work engagement.
- To determine whether organisational support for strengths use and organisational support for deficit correction are significant predictors of work engagement over time.
- To make recommendations for future research and practice.

## **1.5 RESEARCH HYPOTHESES**

H<sub>1a</sub>: There is a significant positive relationship between POS for strengths use and work engagement.

H<sub>1a</sub>: There is a significant positive relationship between POS for deficit correction and work engagement.

H<sub>2a</sub>: POS for strengths use is a significant predictor of work engagement over time.

H<sub>2b</sub>: POS for deficit correction is a significant predictor of work engagement over time.

## **1.6 RESEARCH DESIGN**

### **1.6.1 Research approach**

This study followed a quantitative approach. According to Struwig and Stead (2010), this approach is decisive and involves large representative samples and data collection procedures that are structured. A longitudinal research design was utilised. This type of design refers to an investigation where participant outcomes are collected at multiple follow-up times (Menard, 2002). This was relevant to the study, as measurement in terms of change in outcomes and the opportunity to observe patterns for change is key. Primary data was collected by means of a web-based survey.

### **1.6.2 Literature review**

A thorough literature review was conducted by means of obtaining data and evidence on the following keywords: positive psychology, perceived organisation support, strengths use, deficit improvement, Job Demands-Resources and work engagement. Articles relevant to the study were obtained from library resources, which included databases, scientific articles and relevant textbooks. Relevant internet sources, such as Google Scholar, were consulted. The databases included, but are not limited to Academic Search Premier, Business Source Premier, PsycArticles, PsycInfo, EBSCOhost, Emerald, ProQuest, SA ePublications. Scientific articles considered were located in the following journals: *SA Journal of Industrial Psychology*, *Journal of Positive Psychology*, *Journal of Applied Psychology*, *Journal of Managerial Psychology*, *Journal of Economic Psychology*, *European Journal of Training and Development*, *Australian Journal of Management*, *Journal of Marketing Management*, *Journal of Humanistic Psychology*, *Journal of Happiness Studies*, *The Psychologist-Manager Journal*, *Journal of Social and Clinical Psychology*, *International Coaching Psychology Review*, *Review of General Psychology*, *Journal of Management*, *Journal of Occupational Health Psychology*, *Journal of Vocational Behaviour*, *The International Journal of Human Resource Management*, and *Journal of Organizational Behaviour*

### **1.6.3 Research participants**

For the purpose of this study, convenience sampling was applied ( $N = 376$  and  $79$  for the first and second wave, respectively). The data was collected from employees within the mining sector, spanning across different departments and job levels in South Africa in two waves,

three months apart. The geography span was in the Gauteng, Limpopo and Northern Cape Provinces. The sample was diverse and differed in terms of age, gender, marital status and ethnic groups (black, white, coloured and Indian).

#### **1.6.4 Research procedure**

Consent from the mining organisation's management was sought and approved. A letter explaining the objective of the study and motivation was provided. Participation in the study was voluntary, and the confidentiality of participants was emphasised. A link to a web-based survey was sent to the participants via email. The questionnaire was sent out to the same sample of participants in two waves (three months apart) for the longitudinal study. A unique identifier was established for the participants to ensure continuity in the second wave. The code design was as follows: **Gender** (e.g. Female), **year of birth** (e.g. 1982), **number of brothers** (e.g. 1), **number of sisters** (e.g. 1), and **first initial of mother's name** (e.g. H for Helen): Example: (F198211H). The aim for this was to ensure that the same participants who completed the first wave of the survey should also complete the second wave of the survey.

The questionnaire took approximately 30 to 45 minutes to complete. Participants were given two weeks in which to complete the questionnaires. A reminder was sent electronically to remind the participants of the submission date.

#### **1.6.5 Measuring instrument(s)**

*Biographical characteristics:* A biographical questionnaire was used to gather the personal information of the participants. The characteristics measured included age, gender, race, language, level of education, job level and organisational tenure.

*Perceived organisational support for strengths use and deficit correction:* The adapted version of the Strengths Use and Deficit Correction Questionnaire (SUDCO), developed by Van Woerkom et al. (2016), was used to measure POS for strengths use and POS for deficit correction. Five items were used to measure POS for strengths use ( $\alpha = 0.96$ , Van Woerkom et al., 2016). An example item is "This organisation uses employees' strengths." A further six items (e.g. "In this organisation, employees receive training to improve their weak points") were used to measure POS for deficit correction ( $\alpha = 0.93$ , Van Woerkom et al., 2016). This scale is scored on a seven-point frequency scale 0 (almost never) to 6 (almost always).

*Work engagement:* The Utrecht Work Engagement Scale (UWES) (Schaufeli, Salanova, Gonzalez-Roma & Bakker, 2002) was used to measure work engagement. This is the measure that was used in this study. Three dimensions assist in the conceptualisation of work engagement, namely vigour, dedication and absorption. The scale consists of nine items. For the dimension named vigour, three items (e.g. “I am bursting with energy in my work”) have been allocated. Three items (e.g. “I find my work full of meaning and purpose”) measure dedication. Lastly, three items (e.g. “When I am working, I forget everything else around me”) measure absorption (Schaufeli et al., 2002). The scale is reported on a seven-point scale ranging from 0 (never) to 6 (everyday). A high score indicates work engagement. Rothmann and Jordaan (2006) indicated that the three-factor structure has been validated for the South African context. Internal consistency and reliability for the three subscales fell between 0.68 and 0.91 (Coetzee & Rothmann, 2005).

#### **1.6.6 Statistical analysis**

Statistical analysis was carried out using the SPSS program version 20.0 (SPSS Inc., 2012). Descriptive statistics (e.g. means, standard deviations, skewness and kurtosis) and inferential statistics used were to describe and analyse the data (Struwig & Stead, 2010). The Cronbach’s alpha coefficient was used to determine reliability of the constructs measured (De Vos, Strydom, Fouché & Delport, 2011), with a cut-off point of 0.70.

Pearson’s product-moment correlation ( $r$ ) was used to determine the relationships between the variables. A cut-off point of 0.30 (medium effect) and 0.50 (large effect) helped determine the practical significance of the correlation coefficients (Cohen, 1988). The confidence interval level for statistical significance was set at a value of 95% ( $p \leq 0.05$ ).

Structural equation modelling (SEM) was utilised to assess the relationship between all the constructs. This was done using the Mplus 7.3 (Muthen & Muthen, 2015). The goodness-of-fit of the models was determined by  $\chi^2$ , comparative fit index (CFI), Tucker-Lewis index (TLI), root mean square error of approximation (RMSEA), and standardised root mean square residual (SRMR). Sufficient fits for CFI and TLI are values larger than 0.90 (Hoyle, 1995; Byrne, 2010). RMSEA good fit is indicated by values 0.05 and less. SRMR good fit is indicated by values less than 0.05 (Hu & Bentler, 1999).

To handle small samples, Bayesian estimation was utilised to determine the longitudinal relationships. Normal fit statistics were not used, but a potential scale reduction factor (PSR) was considered with a default value in Mplus at  $PSR < 1.05$  (Muthén, 2010). For regression, 95% confidence intervals, which should not cross zero, were utilised.

#### **1.6.7 Ethical considerations**

Creswell (2013) stated that the researcher has an ethical responsibility to guard participants within all sensible limits from any form of physical and psychological discomfort that may emerge during the research project. As a researcher, ethical considerations were taken into account. Reinforcing voluntary participation, informed consent, doing no harm and confidentiality were of primary importance. The North-West University's Ethics Committee reviewed the research proposal and gave permission to continue with the research.

### **1.7 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.

### **1.8 CHAPTER SUMMARY**

The problem statement, research objectives as well as the research hypotheses were outlined in this chapter. An explanation of the research design, which highlighted the participants, methodology and the instruments utilised to measure the constructs, followed. Lastly, this chapter ended with an overview of the chapters to follow.

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## **CHAPTER 2**

### **RESEARCH ARTICLE**

# **Investigating strengths and deficits to increase work engagement: A longitudinal study in the mining industry**

## **ABSTRACT**

**Orientation:** The motivational process of the Job Demands-Resources (JD-R) model indicates that job resources are the main predictors of work engagement. Previous research has found that the two job resources perceived organisational support (POS) for strengths use and POS for deficit correction is also positively related to work engagement. However, the causal relationships between these variables have not been investigated longitudinally.

**Research purpose:** To determine if POS for strengths use and POS for deficit correction are significant predictors of work engagement over time.

**Motivation for the study:** In literature, empirical evidence on the longitudinal relationships between work engagement and specific job resources namely POS for strengths use and POS for deficit correction is limited.

**Research design, approach and method:** A longitudinal design was employed. The first wave elicited a total of 376 responses, whilst the second wave had a total sample size of 79. A web-based survey was used to measure the constructs and to gather data at both points in time. Structural equation modelling were used to investigate the hypotheses.

**Main findings:** The results indicated that both POS for strengths use and POS for deficit correction are positively related to work engagement in the short term. However, only POS for deficit correction significantly predicted work engagement over time.

**Practical/Managerial implications:** The results provide valuable insight to organisations by providing knowledge on which approach influences work engagement levels of their employees in the short and long-term.

**Contribution/Value-add:** The study contributes to the limited research on what job resources predict work engagement over time.

**Keywords:** Positive psychology, deficit correction, strength use, perceived organisational support for strength use, perceived organisational support for deficit correction, work engagement

## INTRODUCTION

It is evident that the mining industry is facing a challenging crisis, globally as well as in South Africa. To gain investor confidence, organisations in the industry have to remain competitive and maximise the value of existing assets (Jamasmie, 2015). This is a tough challenge, considering the unavoidable necessity to respond to the drop in commodity prices, rising production costs and volatile working environments (Deloitte, 2016; Jamasmie, 2015; KPMG, 2016; PwC, 2014). As part of the response to the above mentioned challenges, one of the assets on which they can maximise value on is their employees, who can be trained and developed for optimal functioning (Salas, Tannenbaum, Kraiger & Smith-Jentsch, 2012). This strategy to achieve a competitive advantage through employees has been well researched and proven to be effective by numerous authors over the years (Barney, 1991; De Pablos & Lytras, 2008; Jassim & Jaber, 1998; Wright, McMahan & McWilliams, 1994).

In the past, studies on the concept of training and developing employees have been centred on the notion of improving or overcoming weaknesses or deficiencies (Goaverts, Kyndt, Dochy & Baert, 2011; Linley & Harrington, 2006). Practically, this has translated to employee shortcomings being identified and subsequently addressed through development initiatives. According to Noe (2010) the deficit approach has for several decades been well entrenched in various organisations. In addition, some organisations utilise the development approach to stay abreast of the changing world of work, by continually encouraging employee learning attainment and transference to ensure sustainable success and a competitive advantage (Barney, 2002; Bassi, Ludwig, McMurrer & Van Buren, 2000; Noe, 2010). Furthermore, numerous other studies on the deficit approach have provided scientific evidence of the positive outcomes from an organisational perspective. Salas et al. (2012) have found that higher levels of work engagement can be achieved when organisations support a deficit improvement approach. Similarly, Benson (2006) and Tansky and Cohen (2001) have discovered that organisational commitment is obtained through following this approach. Other outcomes of a deficit correction approach include higher job satisfaction and lower turnover intention (Lee & Bruvold, 2003), as well as increased performance (Abdullah, Ahsan & Alam, 2009, Anguinis & Kraiger, 2009).



The benefits resulting from the deficit improvement approach do however not escape criticism. Kretzmann and Mcknight (1993) have criticised that, as an intervention, it is reactive, as the problem would already be in existence. This has led to the study of more proactive approaches that focus on building what is already going right within organisations. This shift in paradigm occurred with the emergence of the positive psychology movement, where the focus is on what assists people to flourish, excel, experience flow and function optimally, as opposed to mainly focusing on improving their weaknesses (Linley, Joseph, Harrington & Wood, 2006).

Later on, the positive psychology paradigm was supported by the study on strengths, made prominent by Marcus Buckingham, who purports that people grow most in their areas of strengths (Buckingham & Clifton, 2001). This movement fuelled various other research studies on the application and use of strengths within the workplace and subsequently, positive organisational outcomes have been attributed to the strengths approach. Various studies have shown that work engagement is one of the positive outcome of the use of strengths (Botha & Mostert, 2014; Harter, Schmidt & Hayes, 2002; Harzer & Ruch, 2012, 2013; Keenan & Mostert, 2013; Linley & Harrington, 2006; Stander, Mostert & de Beer, 2014; Van Woerkom, Oerlemans & Bakker, 2015). In addition, Clifton and Harter (2003) have indicated that productivity increases for employees who use their strengths. Organisational commitment was also found to be linked to the use of strengths within the organisation (Biswas-Diener, Kashdan & Minhas, 2011).

It is clear that there are positive organisational outcomes associated with both the deficit and strengths-based approaches. It therefore seems important to investigate the effect of *both* these approaches, not only one or the other, on important organisational outcomes. Indeed, recent studies that investigate the contextual dependency of both approaches have emerged (Rust, Diessner & Reade, 2009; Van Woerkom et al., 2016). More specifically, Van Woerkom et al. (2016) reason that it is important for an organisation to be supportive of employees to use their strengths and improve or overcome their weaknesses. These authors argue that positive organisational outcomes are a result of employees who perceive their organisations to be supportive of them using their strengths (perceived organisational support for strengths use) and improving their deficits (perceived organisational support for deficit correction) (Van Woerkom et al., 2016).

Drawing on the arguments by Van Woerkom et al. (2016), the question arises as to what extent perceived organisational support (POS) for strengths use and POS for deficit correction contribute to employee outcomes, specifically work engagement. Work engagement has been linked to bottom-line outcomes (Bakker, Albrecht & Leiter, 2011; George, 2010), is fundamentally a motivational concept, and has been proven to have a positive effect on employee commitment and motivation (Sonnentag, 2011). In addition to that, researchers have indicated that there are organisations that leverage on employees with high levels of work engagement to create a competitive advantage (Christian, Garza, & Slaughter, 2011; Macey & Schneider, 2008; Rich, LePine, & Crawford, 2010).

Ample research on the antecedents of work engagement is available both locally (De Braine & Roodt, 2011; Mostert, Cronjé & Pienaar, 2006; Olivier & Rothmann, 2007; Rothmann & Jordaan, 2006) and internationally (Bakker, Demerouti & Euwena, 2005; Hakanen, Bakker & Schaufeli, 2006; Llorens, Schaufeli, Bakker & Salanova, 2007). Recently, studies have also started to focus on the effect of strengths use and deficit correction on engagement (Botha & Mostert, 2014; Els, Mostert & Van Woerkom, 2015; Keenan & Mostert, 2013; Stander et al., 2014; Van Niekerk, Mostert & de Beer, 2016; Van Woerkom et al., 2016). These studies confirmed the predictive value of both strengths use and deficit correction on engagement. However, all these studies were cross-sectional designs and can therefore not determine if there is a longitudinal relationship between strengths use and deficit correction with work engagement and can also not make causal inferences.

This study aims to add to the body of literature a longitudinal perspective on the relationship between POS for strengths use, POS for deficit correction and work engagement over time in a two wave study. Consequently, the objective of this paper is to determine if POS for strengths use and POS for deficit correction are significant predictors of work engagement over time.

## **LITERATURE REVIEW**

### **Perceived organisational support for strengths use and deficit correction**

Eisenberger, Huntington, Hutchison, and Sowa (1986) concluded in a study they conducted that employees develop global beliefs about how their organisations value their contributions and show care for their well-being. The authors derived the concept of perceived organisational support (POS), which explains the extent to which employees perceive that their organisations care for their well-being and value their contributions. Appropriating from the social exchange theory of Blau (1964), as well as the norm of reciprocity (Gouldner, 1960), POS theory suggests that as perceived support from the organisations increases for employees, an increase and strengthening of organisational commitment is highly probable (Eisenberger, Armeli, Rexwinkel, Lynch & Rhoades, 2001). This finding is supported by other studies, which have linked POS to other positive organisational outcomes, such as job satisfaction (Aquino & Griffeth, 1999; Shore & Tetrick, 1991), lower turnover intention, stress and withdrawal behaviour (Rhoades & Eisenberger, 2002) as well as work engagement (Rich et al., 2010; Saks, 2006).

On the basis of the organisational support theory, Van Woerkom et al. (2016) derived the concepts of perceived organisational support (POS) for strengths use and POS for deficit correction. POS for strengths use is defined as the extent to which employees perceive and believe that their organisations support the use and application of their strengths within the workplace (Van Woerkom et al., 2016). Practically, that translates to organisations having HR practices that allow for and encourage employees to utilise their strengths at work. According to Linley et al. (2006), strengths are a combination of talents (naturally recurring patterns of thoughts, feelings and behaviour), knowledge (facts and lessons learned), and skills. Buckingham (2007) supplements that description by adding that strengths are activities that are energising and performed with effortless excellence. As previously discussed, numerous positive organisational outcomes are associated with the use of strengths within the workplace, such as job satisfaction (Peterson, Stephens, Park, Lee & Seligman, 2009), organisational commitment (Biswas et al., 2011) and work engagement (Botha & Mostert, 2014; Harzer & Ruch, 2012, 2013; Stander et al., 2014; Van Woerkom et al., 2015).

With regard to deficits, Van Woerkom et al. (2016) argue that employees also rely on the support from the organisation to improve and develop their deficits. They define POS for deficit correction as the extent to which employees perceive and believe that their organisations support them to improve their deficits/weaknesses in the workplace. In its purest form, the Free Dictionary (2016) defines the term *deficit* as inadequacy or insufficiency. In the workplace, the common language to describe this is weakness, which implies a personal defect or failing (Free Dictionary, 2016), which relates to skills, knowledge and behaviour that are not fully developed according to a set standard. Traditionally, employee development in organisations was fundamentally from a deficit improvement perspective. Well-entrenched HR processes such as coaching, performance appraisals, training and so forth can give testimony to that, where set performance standards are used as a benchmark to which employees should comply (Linley & Harrington, 2006). As previously discussed, there are positive organisational outcomes that are linked to the deficit improvement approach which include organisational commitment (Bartlett, 2001), job satisfaction (Schmidt, 2007), decrease in turnover intention (Pfeffer & Sutton, 2006) and work engagement (Bakker & Geurts, 2004).

### **POS for strengths use and POS for deficit correction in the framework of the Job Demands-Resources model**

One theory that is often used to explain the motivational process of work engagement is the Job Demands-Resources (JD-R) model. The fundamental assumption of this model is that every occupation has its own sources of employee well-being and these can be classified into two categories, namely job demands and job resources (Bakker & Demerouti, 2007; Demerouti, Bakker, Nachreiner & Schaufeli, 2001). Demerouti and Bakker (2011) further explain that the JD-R model is applicable to various occupational settings, regardless of the demands and resources present.

Job demands refer to those “physical, psychological, social, or organisational aspects of the job that require sustained physical and/or psychological (cognitive and emotional) effort or skills and are therefore associated with certain physiological and/or psychological costs” (Bakker & Demerouti, 2007, p. 312). Typical examples of job demands could be unfavourable working conditions, work overload, strict deadlines, and cognitive and

emotional demands. Job resources on the other hand are defined as “those physical, social, or organisational aspects of the job that may do any of the following: (a) be functional in achieving work goals; (b) reduce job demands and the associated physiological and psychological costs; (c) stimulate personal growth and development” (Bakker & Demerouti, 2007, p. 312). Typical examples include autonomy, social support, career opportunities and role clarity.

One of the main assumptions of the JD-R model is that there are two underlying processes, namely a health-impairment process and a motivational process. When there is not enough time to recover or recuperate from one’s job demands, this could lead to mental and/or physical exhaustion, such as burnout, and eventually ill-health symptoms (Bakker et al., 2005). This is known as the health impairment process. The motivational process implies that job resources mitigate the negative effects of job demands and may lead to increased work engagement and eventually positive organisational outcomes, such as organisational commitment (Bakker, Demerouti, Taris, Schaufeli & Schreurs, 2003).

As previously stated, the motivational process of the JD-R model implies that work engagement is positively influenced by job resources, such as autonomy, social support and role clarity (Bakker et al., 2003; Bakker et al., 2005; Bakker, Hakanen, Demerouti & Xanthopoulou, 2007). This has encouraged other researchers to discover other possible job resources within the work environment. Van Woerkom et al. (2016) conceptualise POS for strengths use and POS for deficit correction as specific forms of job resources. According to these authors, POS for strengths use can be classified as a job resource as it creates an environment that affords employees the opportunity to apply their potential and full capacity (strengths) to achieve organisational goals (Demerouti & Bakker, 2011; Van Woerkom et al., 2016). The application and use of strengths in the workplace have been attributed to higher levels of work engagement (Harter et al., 2002), increased job satisfaction (Peterson et al., 2009) as well as an increase in organisational commitment (Biswas-Diener et al., 2011). Similarly, Van Woerkom et al. (2016) describe POS for deficit correction as a job resource. Training and development initiatives, have over the years, been attributed to enhancing organisational performance and delivering positive results (Arthur, Bennett, Edens & Bell, 2003; Keith & Frese, 2008; Morris & Robie, 2001). Tansky and Cohen (2001) have discovered that the deficit approach leads to increased organisational commitment by

employees. Lee and Bruvold (2003), on the other hand, have associated the development of deficits with an increase in job satisfaction, while Schaufeli and Bakker (2004) have recorded higher levels of work engagement.

Based on the definition of job resources according to the JD-R model, it is clear that both POS for strengths use and POS for deficit correction a) assist in the achievement of work goals; b) assist in dealing with job demands and c) stimulate the personal growth and development of employees. In addition, both POS for strengths use and POS for deficit correction activate similar motivational processes as do other job resources, with positive outcomes such as described above.

### **The relationships between POS for strengths use and POS for deficit correction with work engagement**

Work engagement is a well-researched topic in the field of industrial psychology. It is defined as a “positive, fulfilling, work-related state of mind that is characterised by vigour, dedication, and absorption” (Schaufeli & Bakker, 2004, p. 295). Vigour refers to high levels of energy that one devotes to one’s work, and the ability to face challenges without losing energy. Dedication refers to a strong identification with one’s work. Emotions such as pride, enthusiasm and inspiration are experienced. Absorption refers to the state where an employee is immersed in his/her work under the perception that time flows rapidly (Schaufeli & Bakker, 2004). Some researchers have indicated that vigour and dedication comprise the core dimensions of work engagement. Absorption on the other hand has been equated to flow by some researchers (Gonzalez-Roma, Schaufeli, Bakker & Lloret, 2006; Langelaan, Bakker, van Doornen & Schaufeli, 2006), and as a consequence of work engagement (Schaufeli & Bakker, 2004). Therefore, several studies only include the two core dimensions of vigour and dedication.

Research on work engagement suggests a win-win situation for both employer and employee. For the organisation, work engagement is positively related to customer satisfaction (Salanova, Agut, & Peiró, 2005), financial returns (Xanthopoulou, Bakker, Demerouti, & Schaufeli, 2009), and attaining and maintaining a competitive advantage (Bakker, Schaufeli, Leiter & Taris, 2008). For employees, work engagement has been associated with good

health and a positive work affect (Demerouti, Bakker, De Jonge, Janssen & Schaufeli, 2001) as well as with in-role performance (Schaufeli, Taris & Bakker, 2006).

Given several studies that prove that job resources are the main predictors of work engagement, it is therefore expected that both POS for strengths use and POS for deficit correction lead to increased levels of work engagement. In studies conducted by Botha and Mostert (2014) and Stander and Mostert (2013), POS for strengths use was found to have a significant positive relationship with work engagement. This is consistent with Buckingham's (2007) conclusion that those activities completed from a strengths approach, are energising and will be performed with excellence, which practically can be less time-consuming. As a result, it is expected that employee performance and engagement levels will increase.

From an extrinsic motivational perspective, POS for strengths use creates a work environment where employees can utilise their potential, abilities and efforts to accomplish work tasks well (Demerouti & Bakker, 2011; Van Woerkom et al., 2016). In support of that, Biswas-Diener (2010) explains that employees who apply their strengths feel more energised, and may derive fulfilment from their jobs. Linley and Harrington (2006) also found that a positive psychological state of fulfilment and satisfaction about their abilities creates feelings that may lead to increased levels of work engagement. It is therefore expected that a significant positive relationship will exist between POS for strengths use and work engagement (*Hypothesis 1a*).

With regard to POS for deficit correction, organisations that support employees to rectify their weaknesses, can minimise and in some cases also eliminate any skills and/or behaviour that do not facilitate the attainment of business goals (Smits, Van Woerkom & Van Engen, 2012). Various studies have positively correlated deficit correction with levels of work engagement (Metz, Burkhauser & Bowie, 2006; Salas et al., 2002). In addition, factors such as feelings of employability (implying that employees can remain attractive for current and future organisations (Rothwell & Arnold, 2007) and career advancement (due to improving their skills sets for current and future roles (Benson, 2006) can contribute to increased levels of work engagement. Furthermore, as the work performance of employees improves (due to weaknesses being addressed), employees may experience well-being, and subsequently increased levels of work engagement (Abdullah et al., 2009).

Research studies have also indicated that employees who are offered an environment where they can develop their weaknesses (fostering growth and learning) have a likelihood of experiencing higher levels of work engagement (Bakker & Geurts, 2004), feel valued (Metz, Burkhauser & Bowie, 2006) and are motivated (Salas et al., 2002). The motivational role played by POS for deficit correction can be extrinsic and intrinsic in nature, because it fosters learning and personal growth as well as assists in the achievement of tasks (Bakker & Demerouti, 2007). The intrinsic motivational nature of job resources is also in line with Deci and Ryan's self-determination theory (Deci & Ryan, 2000), which explains that job resources fulfil basic human needs, such as autonomy, competence and relatedness. Based on this reasoning, it is expected that POS for deficit correction will have a significant positive relationship with work engagement (*Hypothesis 1b*).

### **The relationships between POS for strengths use and POS for deficit correction with work engagement over time**

Over the years work engagement research has shown that the construct is stable, permanent and long lasting (Hakanen, Peeters, & Perhoniemi, 2011; Schaufeli, Bakker, & Van Rhenen, 2009). However, several studies have indicated that job resources are positively related to work engagement over time and furthermore, discovered that there is a reciprocal causal relationship present, where job resources predict work engagement, which in turn predicts job resources overtime (Mauno, Kinnunen, Mäkikangas & Feldt, 2010; Simbula, Guglielmi, & Schaufeli, 2011; Xanthopoulou et al., 2009).

In a study by Hakanen, Schaufeli and Ahola (2008), the authors found that the motivational process of the JD-R model was supported over a three year wave period. It was explicitly established that job resources predicted work engagement among Finnish dentists over time. In another longitudinal study by Mauno, Kinnunen, and Ruokolainen (2007), the longitudinal relationship between job resources and work engagement was confirmed among Finnish public workers in a two year period. Lastly, within the educational context, Llorens, et al. (2007) found significant longitudinal relationships between job resources and work engagement among university students. De Lange, De Witte and Notelaers (2008) explain the



underlying mechanisms between the constructs by making reference to the broaden-and-build theory of positive emotions (Fredrickson, 2001).

According to the broaden-and-build theory, positive emotions have the ability to broaden people's thought-action behavioral habits, and to build enduring personal resources that help them cope and understand their environments better. It is through this process that individuals are able to transform and become more knowledgeable, creative and resilient, which can have a positive impact on their psychological and emotional wellbeing over time (Fredrickson, 1998; 2001; 2004). In line with the broaden-and-build theory, De Lange et al. (2008) argue that work engagement (which is a positive emotion), has the capacity to broaden one's thought action patterns, and increase and/or build more job resources. Through this process, engaged employees can better mobilise their job resources, which might have an increase in their capability to regulate their emotions (De Lange et al, 2008; Hobfoll, 2001).

Based on the above studies and the inherent nature of POS for strengths use and POS for deficit correction as job resources and the inherent nature of work engagement as a positive emotion, it is therefore expected that there will be a significant and positive relationship over time between POS for strengths use and work engagement (*Hypothesis 2a*) and also a significant and positive relationship over time between POS for deficit correction and work engagement (*Hypothesis 2b*).

## **RESEARCH DESIGN**

### **The research approach**

A quantitative approach was followed by the researcher to conduct the study. In order to determine the relationship between POS for strengths use and POS for deficit correction over time, a longitudinal two-wave research design was utilised. Menard (2002) defines this research design approach as one where participant outcomes are collected at multiple follow-up times.

## Research participants

A convenience sampling strategy within a mining organisation in South Africa was utilised. Geographically, participants were surveyed from across Gauteng, Limpopo and the Northern Cape. The characteristics of the participants are presented in Table 1.

Table 1

### *Characteristics of the participants*

Item	Category	Wave 1		Wave 2	
		Frequency	%	Frequency	%
Gender	Female	122	32.45	33	41.77
	Male	254	67.55	46	58.23
	Missing values	0	0.00	0	0.00
Ethnicity	Black	128	34.04	11	13.92
	White	201	53.46	58	73.42
	Coloured	26	6.91	5	6.33
	Asian	17	4.52	5	6.33
	Other	7	1.86	0	0.00
	Missing values	2	0.53	0	0.00
Departments	Finance	32	8.51	11	13.92
	HR	49	13.03	12	15.19
	Operations (BI, Logistics)	72	19.15	13	15.46
	Public Affairs	6	1.60	1	1.27
	S&SD	37	9.84	5	6.33
	Strategy	3	0.80	0	0.00
	Supply Chain	27	7.18	4	5.06
	Technical & Projects	138	36.70	31	39.24
	Missing values	12	3.19	2	2.53
Education	Grade 10	7	1.86	0	0.00
	Grade 11	2	0.53	0	0.00
	Grade 12	73	19.41	15	18.99
	Technical Diploma	55	14.63	11	13.92

Table 1 continues

*Characteristics of the participants*

Item	Category	Wave 1		Wave 2	
		Frequency	%	Frequency	%
	Technicon Diploma	54	14.36	11	13.92
	University Degree (e.g. BA, BCom)	77	20.48	12	15.19
	Postgraduate Degree (Honours, Masters)	105	27.93	30	37.97
	Missing values	3	0.80	0	0.00

In total, 376 respondents completed the first wave, which resulted in a response rate of 47%. In the first wave, the total number of male respondents were 254 (67.55%) and females 122 (32.45%). This is representative of the male dominated nature of the mining industry in South Africa. The sample was highly educated, where 48.41% of participants obtained an undergraduate degree and/or an additional post graduate degree

The second wave of results resulted in a total sample of 79 participants who completed the survey at wave 1 and wave 2. Therefore, the 79 participants in the second wave, are those participants whose unique individual identification codes from wave 1 matched those of wave 2. The mean age of these 79 employees were 44.41 ( $SD = 9.35$ ). In terms of gender, the total male respondents represented 58.23% of the population, while females represented 41.77%. A total of 53.16% indicated the percentage of employees who held a university degree or higher.

## Research procedure

Consent from the mining organisation's management was sought and approved. A letter explaining the objective of the study and motivation was provided. Participation in the study was voluntary, and the confidentiality of participants was emphasised. The questionnaire took approximately 30 to 45 minutes to complete. Participants were given two weeks in which to complete the questionnaires on both occasions. A reminder was sent electronically to remind the participants of the submission date. The study was conducted over a three-month period. A link to a web-based survey was sent to the participants via their work e-mail addresses. For the first wave the questionnaire was sent in July and the data for the second wave was collected in October 2015 (three months apart). Individual-level identification codes were

used for the participants to ensure continuity in the second wave and to anonymously link the data from time 1 and time 2. The code design was as follows: **Gender** (e.g. female), **year of birth** (e.g. 1982), **number of brothers** (e.g. 1), **number of sisters** (e.g. 1), and **first initial of mother's name** (e.g. H for Helen): Example: (F198211H).

### **Measuring instrument(s)**

*Biographical characteristics.* Biographical characteristics such as year of birth, gender, ethnicity, education level, work experience, time in current role and work site were measured by means of a biographical questionnaire.

*Perceived organisational support for strengths use and deficit correction.* POS for strengths use and POS for deficit correction were measured using an adapted version of the Strengths Use and Deficit Correction Questionnaire (SUDCO) developed by Van Woerkom et al. (2016). This is a tool that scores on a seven-point frequency scale, ranging from 0 (almost never) to 6 (almost always). POS for strengths use was measured with five items (e.g. “This organisation uses employees’ strengths.”). Van Woerkom et al. (2016) report a Cronbach’s alpha coefficient of  $\alpha = 0.96$  for this dimension. POS for deficit correction, on the other hand, was measured with six items of which “In this organisation, employees receive training to improve their weak points” is an example. The Cronbach’s alpha coefficient for POS for deficit correction was reported as  $\alpha = 0.93$  (Van Woerkom et al., 2016).

*Work engagement.* Work engagement was measured by means of the Utrecht Work Engagement Scale (UWES-9) (Schaufeli, Salanova, Gonzalez-Roma & Bakker, 2002). Work engagement was measured as a single latent variable based on the items of the three dimensions (vigour, dedication and absorption), totalling nine items. Three items measured vigour (e.g. “At work, I feel like I am bursting with energy”). Dedication was also measured by means of three items, an example includes “I am enthusiastic about my job”. Lastly, absorption was measured with three items (e.g. “When I am working, I forget everything else around me”). The scale is measured on a seven point Likert scale ranging from 0 (never) to 6 (everyday). Recent research within South Africa has confirmed work engagement as a one-factor structure, especially when using the UWES-9 (e.g. De Bruin & Henn, 2013; Smidt, De Beer, Brink, & Leiter, 2016).

## Statistical analysis

### Time 1: Measurement model

Statistical analysis was conducted using Mplus 7.3 (Muthen & Muthen, 2015). To measure the degree of linear dependence between the variables, Pearson product-moment correlation ( $r$ ) was used. In addition to that, effect sizes to determine the practical significance were utilised. According to Cohen (1988), cut-off points of 0.30 (medium effect) and 0.50 (large effect) are used to determine the practical significance of the correlation coefficients. The confidence interval level for statistical significance was set at a value of 95% ( $p \leq 0.05$ ).

Confirmatory factor analyses (CFA) was used to determine the factorial validity (Brown, 2015). To calculate the model's goodness of fit, the following fit indices were considered: 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). Guidelines on the cut-off points values according to Lance, Butts and Michaels (2006), are as follows: CFI (between 0.90 and 0.99), TLI (between 0.90 and 0.99), RMSEA (between 0.01 and 0.08) and SRMR (between 0.01 and 0.08) (cf. Van de Schoot, Lugtig & Hox, 2012).

### Time 2: Longitudinal evidence

Firstly, a measurement model was specified with confirmatory factor analysis and maximum likelihood estimation based on the common sample at both points in time. The items were parameterised (labelled) in Mplus to indicate that these were the same items at both time points. This inherently assumes measurement invariance between the two time-points between the items. For model fit, the following fit statistics were considered: CFI, TLI, RMSEA and SRMR.

Given an adequate measurement model according to the fit indices, the factor scores for this model were exported for further analysis with Bayesian estimation in a structural model. Factor scores lessen the number of parameters in the structural model and due to the scale of *missingness* at time 2 ( $n = 79$ ; time 2; common sample). This was deemed necessary to establish longitudinal evidence. Moreover, Bayesian estimation has been shown to handle

small samples quite well (Kosowski, Naik & Teo, 2007; Scheines, Hoijtink & Boomsma, 1999), due to its iterative process. It was decided that evidence for longitudinal relationships between the variables would be considered with this estimation process, since maximum likelihood was unable to estimate this structural model accurately. Bayesian modelling allows for the use of priors specification in models (i.e. information about parameters from past studies or experts). Priors can be non-informative (diffuse) or informative (Muthén, 2010). For this estimation, informed priors were used to inform the final structural model, i.e. the loadings and intercepts from time 1 were specified as prior information for the estimation at time 2 with a variance to this prior (see Table 2 for unstandardised loadings and intercepts used to inform the model at time 2).

Bayesian modelling does not present the same fit statistics as is normally expected (e.g. CFI), but models the need to satisfy convergence criterion in the iterative process. Specifically, 25 000 iterations were specified for this structural model, and for the convergence criterion, the potential scale reduction factor (PSR), the default value in Mplus at  $PSR < 1.05$  was considered (Muthén, 2010). Furthermore, it is important to consider chain mixing in the Markov chain Monte Carlo (MCMC) chains specified. The default chains in Mplus are set to two (i.e. two separate processors for estimation). Basically, what this diagnostic entails is to visually inspect the chain mixing (see Table 4) in the estimation process, that is, if the two chains at some point converge and provide similar estimates and continue doing so, chain mixing has been achieved. The Kolmogorov-Smirnov provides a non-parametric test for chain mixing and indicates whether chain values are similar across each 100 iterations, (for this test to pass the  $p$ -value should be 0.05 or above; non-significant). Finally, regression results in Bayesian modelling are interpreted with higher propensity density and 95% credibility intervals, which are similar to 95% confidence intervals and should also not cross zero (the classic  $p$ -value is therefore not provided).

## RESULTS

### Time 1 data: Measurement model

The results from the confirmatory factor analysis revealed that the specified measurement model fits the data well. This is indicated by the fit indices as follows: CFI (0.94); TLI (0.93); RMSEA (0.06) and SRMR (0.04). The factors measured by the SUDCO were perceived organisational support for strength use and perceived organisational support for deficit improvement.

In Table 2 below, the factor loadings of the measurement model are presented. All of the items loaded significantly onto their respective factors (estimate > 0.60). However, item ABS5 (an absorption item) indicated a lower, but acceptable, loading of 0.53. The unstandardised loadings and intercepts are also presented, as they were used to inform the longitudinal model in the next section of the results.

Table 2

*Unstandardised and standardised loadings for the latent factors at time interval 1 (T1)*

Factor	Item	Unstd. loading	Std. loading	S.E.	p-value	Intercept
Strengths use (T1)	SU1	1.00	0.79	0.03	0.001	3.69
	SU2	1.03	0.82	0.02	0.001	3.54
	SU3	1.13	0.86	0.02	0.001	3.67
	SU4	1.18	0.87	0.02	0.001	3.37
	SU5	1.17	0.87	0.02	0.001	3.26
Deficit correction (T1)	DI1	1.00	0.83	0.03	0.001	3.14
	DI2	1.08	0.90	0.02	0.001	3.24
	DI3	1.00	0.79	0.03	0.001	3.10
	DI4	1.01	0.82	0.03	0.001	3.18
	DI5	0.76	0.69	0.04	0.001	3.68

Table 2 continues

*Unstandardised and standardised loadings for the latent factors at time interval 1 (T1)*

Factor	Item	Unstd. loading	Std. loading	S.E.	p-value	Intercept
Deficit correction (T1)	DI6	0.89	0.75	0.03	0.001	3.00
Work engagement (T1)	VIG1	1.00	0.74	0.04	0.001	4.22
	VIG2	1.03	0.85	0.03	0.001	4.59
	VIG3	1.25	0.85	0.03	0.001	4.51
	DED2	1.14	0.91	0.02	0.001	4.86
	DED3	1.24	0.88	0.03	0.001	4.61
	DED4	0.94	0.83	0.03	0.001	5.26
	ABS3	0.89	0.78	0.04	0.001	5.02
	ABS4	0.95	0.80	0.04	0.001	4.87
	ABS5	0.76	0.53	0.06	0.001	4.34

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

The correlations from the SUDCO dimensions and work engagement to determine the relationship between the variables are presented in Table 3 below.

Table 3

*Correlation matrix for the latent variables*

Variables	1	2	3
1. Strengths use (T1)	(1)		
2. Deficit correction (T1)	0.83	(1)	
3. Work engagement (T1)	0.62	0.53	(1)

All correlations are statistically significant at  $p < 0.001$

Correlations revealed that POS for strengths use and POS for deficit correction are practically and significantly correlated to each other with a large effect ( $r = 0.83$ ). Strengths use was also correlated to work engagement to a large degree ( $r = 0.62$ ). Similarly, deficit correction was



practically and significantly correlated to work engagement with a large effect ( $r = 0.53$ ). All relationships were in a positive direction.

## **Time 2 data: Longitudinal evidence**

### *Factor scores model*

The results of the model to obtain factors scores for the factors at time 1 and time 2 were an adequate fit to the data. Specifically, the following fit indices were shown: CFI (0.91), TLI (0.90) and RMSEA (0.06) and SRMR (0.08). Based on the factor scores, the analysis continued with Bayesian estimation.

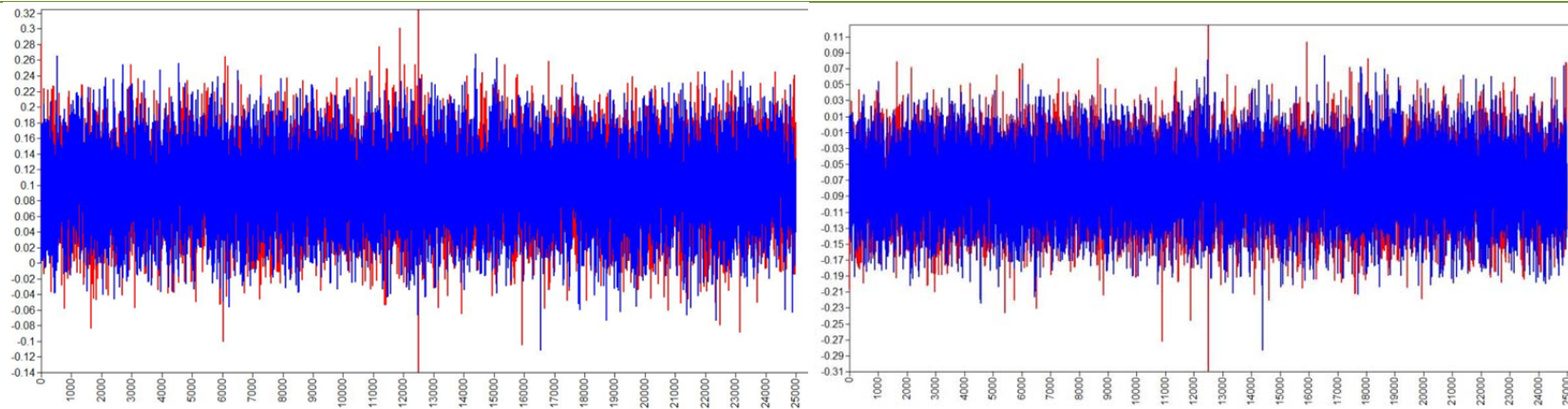
### *Convergence and chain mixing*

After 25 000 iterations the model was below a PSR value of 1.05. The Kolmogorov-Smirnov test also showed that there were no significant differences on any of the parameters between the chains, indicating convergence of the model with adequate mixing. Table 4 below presents visual evidence of the parameter trace plots and distribution for the relationships of interest. As can be seen, sufficient chain mixing took place between the two chains by mixing adequately, and the distribution of the presented parameters is normal (smoothed). Given this evidence, interpretation of the results continued.

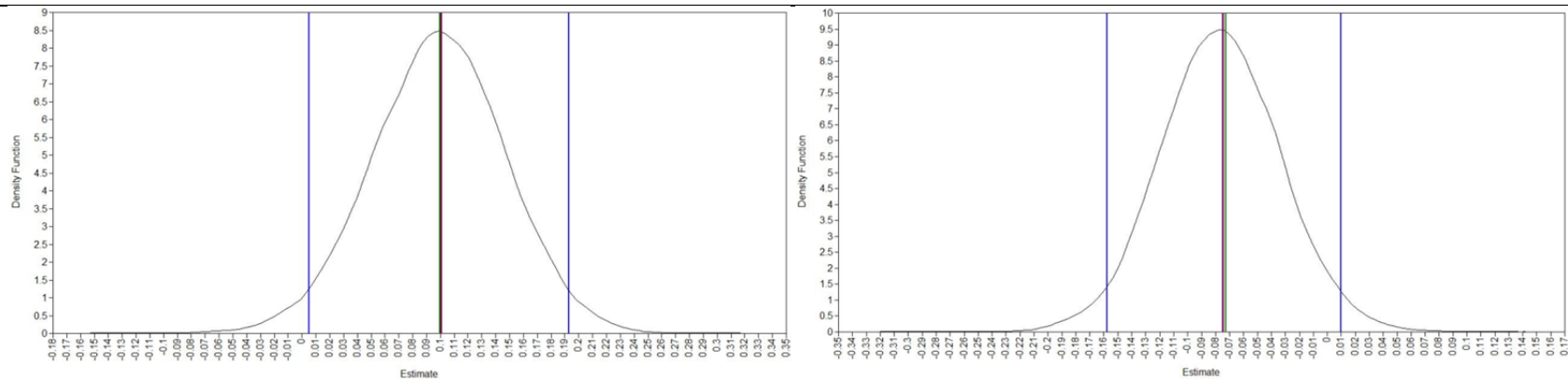
Table 4

*Plots for chain convergence and parameter distributions*

**Parameters: POS for deficit correction (T1) predicting engagement (T2) & POS for strengths use (T1) predicting engagement (T2)**



**Kernel density plots: POS for deficit correction (T1) predicting engagement (T2) & POS for strengths use (T1) predicting engagement (T2)**



*Notes:* See Table 5 for results with 95% CI.

### *Factor loadings and correlations*

The factor loadings for the model in the second testing are indicated in Table 5 below.

Table 5

*Standardised loadings for the latent factors at time interval 2 (T2)*

Factor	Item	Estimate	S.D.	Lower 95%CI	Upper 95%CI
Strengths use (T1)	SU1	0.79	0.02	0.74	0.82
	SU2	0.82	0.02	0.78	0.86
	SU3	0.86	0.02	0.82	0.89
	SU4	0.87	0.02	0.83	0.90
	SU5	0.87	0.02	0.84	0.890
Deficit correction (T1)	DI1	0.84	0.02	0.80	0.87
	DI2	0.90	0.01	0.87	0.92
	DI3	0.79	0.02	0.75	0.83
	DI4	0.82	0.02	0.77	0.85
	DI5	0.67	0.03	0.61	0.73
	DI6	0.75	0.03	0.70	0.80
Strengths use (T2)	SU1	0.77	0.04	0.70	0.84
	SU2	0.82	0.04	0.73	0.87
	SU3	0.82	0.04	0.74	0.87
	SU4	0.81	0.04	0.74	0.88
	SU5	0.83	0.04	0.75	0.89
Deficit correction (T2)	DI1	0.90	0.03	0.84	0.94
	DI2	0.90	0.02	0.86	0.94
	DI3	0.82	0.04	0.74	0.88
	DI4	0.84	0.04	0.75	0.89

Table 5 continues

*Standardised loadings for the latent factors at time interval 2 (T2)*

Factor	Item	Estimate	S.D.	Lower 95%CI	Upper 95%CI
Deficit correction (T2)	DI5	0.69	0.04	0.60	0.77
	DI6	0.80	0.04	0.72	0.86
Work engagement (T1)	VIG1	0.75	0.03	0.70	0.79
	VIG2	0.85	0.02	0.81	0.88
	VIG3	0.85	0.02	0.82	0.88
	DED2	0.91	0.01	0.89	0.93
	DED3	0.89	0.01	0.85	0.91
	DED4	0.84	0.02	0.80	0.87
	ABS3	0.78	0.02	0.73	0.83
	ABS4	0.80	0.02	0.75	0.84
	ABS5	0.54	0.04	0.45	0.62
Work engagement (T2)	VIG1	0.88	0.03	0.81	0.92
	VIG2	0.86	0.03	0.80	0.91
	VIG3	0.93	0.02	0.88	0.96
	DED2	0.95	0.02	0.91	0.97
	DED3	0.89	0.03	0.83	0.93
	DED4	0.83	0.03	0.76	0.89
	ABS3	0.85	0.03	0.77	0.91
	ABS4	0.86	0.03	0.79	0.91
	ABS5	0.78	0.05	0.67	0.85

Notes: S.D. = Posterior Standard deviation; All values were acceptable, i.e. did not cross zero.

As can be seen, all of the items had acceptable positive factor loadings on their respective factors, i.e. all of the loadings were above 0.50. The standard errors for the loadings were also relatively small, indicating the accuracy of the estimation of the loadings.

Table 6

*Correlation matrix for the latent variables at time 2*

Variables	1	2	3	4	5	6
1. POS for strengths use (T2)	1.00					
2. POS for deficit correction (T2)	0.83	1.00				
3. Work engagement (T2)	0.61	0.61	1.00			
4. POS for strengths use (T1)	0.96	0.84	0.63	1.00		
5. POS for deficit correction (T1)	0.84	0.95	0.56	0.84	1.00	
6. Work engagement (T1)	0.61	0.55	0.94	0.66	0.56	1.00

*Notes:* All correlations are statistically significant at  $p < 0.001$

As seen in Table 6 above, the results revealed that POS for strengths use and POS for deficit correction are practically and significantly correlated to each other to a large effect ( $r = 0.83$ ; large effect). Similarly, strengths use and deficit improvement are positively correlated to work engagement to a large degree with  $r = 0.61$  (large effect) and  $r = 0.61$  (large effect), respectively.

### *Regressions*

Tables 7 to 9 present the regression results based on dependent variable. It is important to note that this is just a method for ease of presentation and that all the regressions were run in one model and not separately.

Table 7

*Regression analysis with POS for strengths use (T2) as dependent variable*

Structural path	Estimate	Posterior SD	Lower 95% CI	Upper 95% CI	Sig.
Eng (T1) → POS for strengths use (T2)	0.13	0.03	0.08	0.18	*
POS for strengths use (T1) → POS for strengths use (T2)	0.87	0.02	0.84	0.90	*

Table 7 provides the structural paths between work engagement at time 1 with POS for strengths use at time 2 ( $\beta = 0.13$ ;  $SE = 0.03$ ; 95% CI[0.08, 0.18]). It also provides insight into the relationship between POS for strengths use at time 1 and POS for strengths use at time 2 ( $\beta = 0.87$ ;  $SE = 0.02$ ; 95% CI[0.84, 0.90]). The regression analysis indicates that work engagement at time 1 and POS for strengths use at time 1 are predictors of POS for strengths use at time 2. Both of the structural regressions did not cross zero in the 95% credibility interval, indicating a trustworthy estimate value.

Table 8

*Regression analysis with POS for deficit correction (T2) as dependent variable*

Structural path	Estimate	Posterior SD	Lower 95% CI	Upper 95% CI	Sig.
Eng (T1) → POS for deficit correction (T2)	0.02	0.03	-0.03	0.07	
POS for deficit correction (T1) → POS for deficit correction (T2)	0.94	0.01	0.90	0.96	*

Table 8 provides the structural paths between work engagement at time 1 with POS for deficit correction at time 2 ( $\beta = 0.02$ ;  $SE = 0.03$ ; 95% CI[-0.03, 0.07]). It also provides insight into the relationship between POS for deficit correction at time 1 and POS for deficit correction at time 2 ( $\beta = 0.94$ ;  $SE = 0.01$ ; 95% CI[0.91, 0.96]). The regression analysis indicates that work engagement at time 1 is not a significant predictor of POS for deficit correction at time 2, as the 95% credibility interval for the estimate went through zero. However, the analysis confirmed that POS for deficit correction at time 1 was a significant predictor of POS for deficit correction at time 2.

Table 9

*Regression analysis with work engagement (T2) as dependent variable*

Structural path	Estimate	Posterior S.D.	Lower 95% CI	Upper 95% CI	Sig.
Eng (T1) → Eng (T2)	0.94	0.02	0.89	0.98	*
POS for strengths use (T1) → Eng (T2)	-0.08	0.04	-0.16	0.01	
POS for deficit correction (T1) → Eng (T2)	0.10	0.05	0.01	0.19	*

In the table above, multiple regression analysis revealed that work engagement at time 1 is a predictor of work engagement at time 2 ( $\beta = 0.94$ ;  $SE = 0.02$ ; 95% CI[0.89, 0.98]). In the same token POS for deficit correction at time 1 was a significant predictor of work engagement at time 2 ( $\beta = 0.10$ ;  $SE = 0.05$ ; 95% CI[0.01, 0.19]). However, POS for strengths use at time 1 did not predict work engagement at time 2 as the estimate crossed zero ( $\beta = -0.08$ ;  $SE = 0.04$ ; 95% CI[-0.16, 0.01]).

## DISCUSSION

This study sought to answer whether perceived organisational support (POS) for strengths use and deficit correction were significant predictors of work engagement over time. The study aimed at addressing the gap in literature, as previous research on these constructs has been from a cross-sectional perspective. A sample within the South African mining industry was surveyed in two waves which were three months apart.

The results revealed that both POS for strengths use and POS for deficit correction are positively related to work engagement. This supports and confirms hypotheses 1a and 1b, stating that a positive relationship exists between job resources (POS for strengths use and POS for deficit correction) and work engagement. This finding is in line with various studies that have confirmed a positive relationship between these constructs (Botha & Mostert, 2014; Harter et al., 2002; Linley & Harrington, 2006; Salas et al., 2012; Stander et al., 2014). The finding can further be substantiated by making reference to the Job Demands-Resources model, where job resources were found to be the main predictors of work engagement. From an organisational level there is strong evidence that POS for strengths use is another form of

job resources. This is due to its inherent nature of providing an environment where employees can use their strengths; which in turn, may result in them using their abilities and dedicating efforts to achieve tasks at work (Demerouti & Bakker, 2011; Van Woerkom et al., 2016). Similarly, POS for deficit correction is conceptualised as a job resource, since it can minimise or eliminate behaviour and/or skills that do not contribute to the attainment of business goals (Smits et al., 2012). In addition to that, HR practices in the support of improving deficits develop employees as well as foster their growth. Schaufeli and Taris (2013) believe that work engagement is likely to be achieved when an employee continually invests physical and/or emotional effort to reach work objectives within the context of supportive organisational resources. Since POS for strengths use and POS for deficit correction have been conceptualised as such, it was expected that they will be positively related to work engagement.

The second hypothesis stated that POS for strengths use is a significant predictor of work engagement over time. Unexpectedly, the results established that POS for strengths use was not a significant predictor of work engagement over time; therefore, hypothesis 2a was rejected. This finding is in contrast with longitudinal research conducted by Wood, Linley, Maltby, Kashdan and Hurling (2011), where the authors established that employees who utilised their strengths in work activities, did record higher levels of work engagement over time. Referencing the JD-R model, other studies also recorded significant positive longitudinal relationships between job resources and work engagement (Llorens et al., 2007; Mauno et al., 2007). As previously mentioned, the stability of work engagement could have played a role in the non-significant relations, however, studies with shorter follow-up time-frames have recorded work engagement levels fluctuating (Bakker & Bal, 2010; Sonnentag, 2003; Sonnentag, Dormann, & Demerouti, 2010), thereby nullifying the stability argument.

On the other hand, in a study conducted by Smits et al. (2012), the authors established in their preliminary analysis, that the predictive power of strengths use on work engagement largely disappeared when placed in the same model with deficit improvement behaviour. Although stepwise regression analysis was not adopted in this study, the finding by Smits et al. (2012) could potentially explain the reason for POS for strengths use not significantly predicting work engagement in time 2. Another explanation for the unexpected results can be obtained by understanding the organisational climate of the surveyed company. The mining industry



and the population surveyed, are made up of subject matter experts, who are professionals in their fields. Furthermore, the highly technological aspects of the industry require employees to stay abreast by remaining innovative and constantly coming up with new ways of mining faster and cheaper, yet maintaining safety standards. This expectation requires employees to dig deep within their professional expertise and to bridge the gap between the knowledge they currently have versus what is required for future success. The surveyed organisation places a great deal of emphasis on the expert knowledge of their employees. Given the many challenges that the industry as a whole is facing, it requires the best talent to ensure sustainability and survival. It is probable that the levels of work engagement were not significantly altered, as the psychological climate within the organisation is such that employees equate building on their weaknesses as potential for future success, and therefore not showing strong levels of engagement when utilising their strengths.

In contrast, hypothesis 2b (which stated that POS for deficit correction is a significant predictor of work engagement over time) was confirmed. This is congruent with longitudinal studies (previously mentioned) that purport that job resources predict work engagement over time. Practically, given that the employees are already in a climate that highly esteems a strength-based focus, it could be argued that employees feel that an organisation that supports them in improving their weaknesses, can help in the quest to achieve even better business goals, thereby possibly influencing a strong sense of work engagement. In studies conducted by Els et al. (2015) and Van Niekerk et al. (2016), deficit correction behaviour was found to predict higher levels of work engagement compared to strengths use behaviour. This has been attributed to individuals feeling valued and supported in rectifying their weaknesses. In addition, employees may feel challenged, fulfilled and may feel a sense of accomplishment when improving their weaknesses, thereby responding with motivation and commitment, leading to higher levels of engagement (Els et al., 2015; Tannenbaum, Mathieu, Salas & Cannon-Bowers, 1991; Van Niekerk et al., 2016).

The results further explained the relations between the job resources (POS for strengths use and deficit correction) with work engagement, by observing the reversed causal relationship, which means looking at how work engagement at time 1 influences job resources at time 2. In the case of POS for strengths use, it was found that work engagement at time 1 does indeed predict POS for strengths use at time 2. This finding is in line with Llorens et al.'s

(2007) study, where the normal, reciprocal and reversed influences of work engagement were investigated. It was found that work engagement at time 1, had a significant impact on job resources at time 2. This phenomenon was explained by De Beer, Pienaar and Rothmann Jr (2013) who made reference to the motivational process of the JD-R model and introduced the concept of a 'perceptual hypothesis'. The authors reason that each individual has a perception of his/her job conditions, and that those conditions can change due to an increase in commitment or strain. Having said that, committed employees could view their working conditions more favourably due to the presence of job resources (De Beer et al., 2013), which explains the reason in this study where work engagement (committed employees) at time 1 predicts POS for strengths use at time 2.

Unexpectedly in this study, the reversed effect of work engagement on POS for deficit correction at time 2 was not significant. This finding illustrates an opposite effect to what previous studies have found regarding the reversed causal effects of work engagement on job resources (Bakker & Bal, 2010). However, the non-significance is to a small degree, and this finding could be sample specific.

Lastly, the relationship between job resources at time 1 and job resources at time 2 was significant. This practically means that POS for strengths use and deficit correction at time 1 predicts POS for strengths use and deficit correction at time 2. This finding can be explained by referencing the Conservation of Resources (COR) theory (Hobfoll, 2001), which states that individuals will try to maintain and foster resources that are valuable and important to them in attaining future goals (Salanova, Schaufeli, Xanthopoulou, & Bakker, 2010). Furthermore, the theory makes assumptions about 'loss spirals' and 'gain spirals' where resources may either diminish or increase (Hobfoll, 2001). The latter, which helps explain the findings in this study, elaborates that the gaining of (job) resources has the potential to increase more resources, making it more likely to seek and acquire additional (job) resources (Llorens et al., 2007). Simply stated, it is probable for employees to acquire and seek more job resources in the future, once they are in the possession of current job resources.

## **PRACTICAL IMPLICATIONS**

The aim of the study was to determine the longitudinal relationship between an organisational environment that supports the use of strengths as well as the correction of weaknesses and how those affect work engagement. Given the South African landscape and the emphasis on the training and development of employees, it is important for organisations to understand which approach has the best long-term benefits on the bottom line. Through this study, it has been determined that an environment that supports the correction of deficits influences employees' levels of work engagement in the longer term. Given this, it is therefore justified for organisations to invest money (long term) in development interventions, such as succession planning, as it has been established that work engagement has direct impact on organisational bottom lines (Bakker, Albrecht & Leiter, 2011; George, 2010).

In addition to that, the results indicated that POS for strengths use is positively related to work engagement in the shorter term together with POS for deficit correction. It is therefore advisable for organisations to focus on both employee strengths use and deficit correction when development in the short term is required. For example, development to assist an employee to excel in a current role could be addressed by utilising both a strengths use approach and a deficit correction approach. Furthermore, development interventions that are short-term and time constrained such as coaching could also benefit from following both a strengths-based and deficit correction approach.

From an employee perspective, it is important for them to have the right tools to navigate this complex and changing world of work. Having the knowledge on how to better develop themselves, may have a positive impact on their performance and career progression. It has been established that employees who are engaged have better in-role performance (Schaufeli et al., 2006) and that having the opportunity to address their weaknesses can lead to career advancement (Benson, 2006) and remaining relevant and marketable in their fields (Rothwell & Arnold, 2007)

In terms of the field of industrial psychology, research on these forms of job resources and their relation to work engagement from a longitudinal perspective is lacking. This study aimed at addressing that gap, by also focusing it within the South African context.

## **LIMITATIONS AND RECOMMENDATIONS**

In this study, valuable findings were concluded on the antecedents of work engagement within the South African mining industry over time. However, this research study is not without limitations. Firstly, a longitudinal approach was undertaken to explore causal relationships between the constructs. However, it has been recorded that both strengths use and work engagement are stable phenomena (Hakanen, et al., 2011; Mauno et al., 2007; Schaufeli et al., 2009, Van Woerkom et al., 2015) and therefore utilising research designs with a shorter time frame, such as weekly diaries could better explain variations and differences in the levels of the constructs (Bakker & Bal, 2010; Fritz & Sonnentag, 2007).

The second limitation of the study is with the compilation of the sample. It consisted of individuals at various levels and departments within a single large organisation in the mining industry. The results therefore cannot be generalised to all organisations within the South African context. Caution should be taken when any generalisations are made. It is therefore recommended that a more diverse sample, such as a multi-industry group, be utilised for future research. In addition to that, the study made use of convenience sampling. The sample was taken from the South African mining industry, where the majority of respondents were white males. Based on this homogenous population, generalisations cannot be made, as the sample does not reflect the diversity that is the South African population. It is suggested that future research should make use of a probability sampling strategy to enhance the generalisability of the research results.

Thirdly, the sample size indicating the longitudinal evidence was very small. Generally, larger sample sizes increase the probability of obtaining significance, because they reflect the population mean more reliably (Boyd, Briggs, Fenwick, Norrie & Stock, 2011). Generalisations can therefore not be made in respect of the findings of this study. It is therefore suggested that future research should collect data from a larger sample size to overcome this limitation.

The final limitation of the study is the utilisation of self-report questionnaires in the collection of data. Spector (1994) has criticised this approach, as measurement bias is increased. In addition to that, when people respond to self-report questionnaires, there is a possibility of

social desirability occurring. This simply means that respondents may present themselves in a positive image when responding to the questionnaire (Johnson & Fendrich, 2005). In this study, the constructs being measured were of a subjective nature, thereby restricting the manner in which this problem could be addressed (Salkind, 2009).

## **CONCLUSION**

In this study, it was found that employees who believe that an organisation that supports them to correct their deficits will experience higher levels of work engagement over time. Furthermore, the study established that in the short term, an environment that supports the use of strengths will yield higher levels of engagement. The long-term effect of perceived organisational support for strengths use on employees' work engagement was not established in this study, but it is suggested that future research should further investigate this causal relationship. The sample in this study included employees within the mining industry of South Africa. This study provides much needed clarity on the debate as to which approach (strengths-based or deficit correction) has a positive impact on work engagement over time. It is therefore recommended that organisations should invest in development interventions which help their employees correct their weaknesses for long-term benefits; and that an environment that supports the use for strengths is beneficial in the short term.

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## **CHAPTER 3**

### **CONCLUSIONS, LIMITATIONS AND RECOMMENDATIONS**

## **CHAPTER 3**

### **CONCLUSIONS, LIMITATIONS AND RECOMMENDATIONS**

The conclusions detailed in this chapter are subsequent to the general and specific objectives of this study. The limitations of this study as well as recommendations for practice and future research will also be discussed in this chapter.

#### **3.1 CONCLUSIONS**

Research on the positive outcomes associated with the exclusive use of strengths and the exclusive focus on correcting deficits has been followed by further research establishing the contextual dependency of both approaches. These studies have instituted both dichotomies as important for optimal human and organisational functioning. However, with the vast amount of studies available on both approaches, there is a lack of research on how these approaches predict organisational outcomes over time. This study aimed at determining the longitudinal relationships of both approaches with work engagement within the South African mining industry. The focus on work engagement was due to the relationship with positive organisational outcomes, such as performance, job satisfaction and organisational commitment (Schaufeli & Bakker, 2004; Schaufeli & Salanova, 2008; Schaufeli, Taris & Van Rhenen, 2008).

The general objective of this study was to determine whether perceived organisational support (POS) for strengths use is a significant predictor of work engagement over time, and whether POS for deficit correction is a significant predictor of work engagement over time within the South African mining industry. Hypotheses were formulated of which each was either supported or rejected.

The first objective was to conceptualise perceived organisational support for strengths use, perceived organisational support for deficit correction and work engagement according to the literature. A thorough literature review was presented in Chapter 2, thereby achieving the first objective. With regard to POS for strengths use and POS for deficit correction, as new, virtually unexplored concepts, their origin needed to be understood.

The concept perceived organisational support (POS) was pioneered by Eisenberger, Huntington, Hutchison and Sowa (1986). These authors explained the concept as how employees perceive that their organisation cares for their well-being as well as how that organisation values the contributions they make. It was believed that as POS increased within employees, it was probable that levels of organisational commitment would also increase (Eisenberger, Armeli, Rexwinkel, Lynch & Rhoades, 2001). Appropriating from that principle, Van Woerkom et al. (2016) derived the concepts POS for strengths use and POS for deficit correction. POS for strengths use is defined as the beliefs that employees hold about their organisations actively supporting them to use their strengths. On the other hand, POS for deficit correction is defined as the extent to which employees believe that their organisation provides support for them to correct their weakness (Van Woerkom et al., 2016).

The conceptualisation of POS for strengths use and POS for deficit correction is rooted in the conceptualisation of resources according to the Job-Demands Resources (JD-R) model. This model suggests that all working environments have job demands and job resources (Demerouti, Bakker, Nachreiner & Schaufeli, 2001). Job resources are the main predictors of work engagement and refers to as all aspects (physical, psychological, social and/or organisational) that reduce job demands, stimulate employee learning and growth, and facilitate goal achievement in the workplace (Bakker & Demerouti, 2007). Examples of job resources include team climate, pay autonomy and a supportive supervisor. Van Woerkom et al. (2016) conceptualise POS for strengths use and POS for deficit correction as two additional forms of job resources. Research by Linley, Nielsen, Wood, Gillett and Biswas-Diener (2010) has shown that the strengths approach can facilitate employees in the attainment of goals, thereby contributing to the organisational bottom line. In addition to that, both approaches have been linked to increased levels of work engagement (Harter, Schmidt & Hayes, 2002; Schaufeli & Bakker (2004), thereby buffering the effects of job demands.

For the purposes of this study, the construct of work engagement was defined operationally in accordance with Schaufeli and Bakker (2004, p.295) as a “positive, fulfilling, and work-related state of mind, characterised by vigour, dedication, and absorption”. Vigour is characterised by high levels of energy and strong mental resilience, whereas dedication is characterised by having a strong identification with one’s work (Schaufeli & Bakker, 2004; Bakker, Schaufeli, Leiter & Taris, 2008). The final dimension explaining work engagement is

absorption, which refers to an individual being engrossed in his/her work, to a point where there is the perception that time flows rapidly (Bakker et al., 2008). Although work engagement has been defined by making reference to three dimensions, recent research has revealed that the main two dimensions are dedication and vigour (Gonzalez-Roma, Schaufeli, Bakker & Lloret, 2006; Langelaan, Bakker, van Doornen & Schaufeli, 2006).

The second objective was to determine the relationships between POS for strengths use, POS for deficit correction and work engagement. Various studies have confirmed a positive relationship between POS for strengths use and work engagement (Botha & Mostert, 2014; Harzer & Ruch, 2012; 2013; Keenan & Mostert, 2013; Stander, Mostert & de Beer, 2014). This view is also supported by Buckingham's (2007) view that engaging in strengths-based activities is energising, and therefore performed with effortless excellence. In addition to that, Van Woerkom et al. (2016) conceptualised POS for strengths use as a form of job resource, and therefore the expectation of its positive relationship with work engagement is justified by understanding the motivational process of the JD-R model (Bakker & Demerouti, 2007; Demerouti et al., 2001). With regard to POS for deficit correction, fewer studies have linked it positively to work engagement (Els, Mostert & Van Woerkom, 2015; Schaufeli & Bakker, 2004). However, HR practices such as performance appraisals, coaching and training, and development initiatives have been engineered to foster employee growth by utilising a deficit improvement approach. According to Schaufeli and Taris (2013), when employees invest physically and/or emotionally to reach goals at work (within an environmental context that supports the improvement of weaknesses), there is a strong probability that work engagement levels may be increased. It was therefore expected that POS for deficit correction would be positively related to work engagement.

To determine these relationships in the sample within the mining industry, firstly, confirmatory factor analysis was done to determine the factorial validity of the model. To help determine longitudinal evidence, the same sample was surveyed at both waves. A unique code identifier was designed to ensure continuity in the second wave. This assisted in linking the data from the first wave with the second wave, and to maintain a level of anonymity. A maximum likelihood estimation based on the sample at both time 1 and time 2 was used. Fit statistics indicated the measurement model to be a good fit for the data. Secondly, the correlation matrix of the variables was tested at both time 1 and time 2. The results indicated

that POS for strengths use and POS for deficit correction at time 1 are practically and significantly correlated with work engagement with  $r = 0.62$  and  $r = 0.53$ , respectively. Both relationships were in a positive direction and correlated to a large degree. Similarly, at time 2, POS for strengths use and POS for deficit correction are practically and significantly correlated with work engagement with  $r = 0.61$  and  $r = 0.61$ , respectively. Again, both relationships were in a positive direction and correlated to a large degree.

The third objective was to determine whether POS for strengths use and POS for deficit correction are significant predictors of work engagement over time. The concept of work engagement has been researched many times, and there have been studies that deemed the construct to be stable and not expected to fluctuate much over time (Hakanen, Peeters, & Perhoniemi, 2011; Mauno, Kinnunen & Ruokolainen, 2007; Schaufeli, Bakker & Van Rhenen, 2009). However, interest in the construct work engagement has seen recent studies confirming reciprocal causal relationships, particularly with job resources being present over the longer term (Mauno, Kinnunen, Mäkikangas & Feldt, 2010; Simbula, Guglielmi & Schaufeli, 2011; Xanthopoulou, Bakker, Demerouti & Schaufeli, 2009), thereby forming an alternate argument to the school of thought advocating the stability of work engagement. Furthermore, research designs adopting weekly diary designs to measure work engagement have recorded how to better understand the changes of work engagement and strengths use in every day work life (Van Woerkom, Oerlemans & Bakker, 2015), helping to affirm the argument on the variability of work engagement. Given this, there was an expectation to observe work engagement levels increasing over time as predicted by the job resources, namely POS for strengths use and POS for deficit correction.

To determine the longitudinal relationships between these constructs, multiple regression analysis was undertaken. As expected, POS for deficit correction significantly predicted work engagement at both time 1 and time 2. This finding was in line with the longitudinal studies that have recorded job resources predicting work engagement over time. Unexpectedly, POS for strengths use did not significantly predict work engagement over time. Although step-wise regression analysis was not utilised in this study, not controlling for POS for deficit correction in the model could have had an impact on strengths use. In a study conducted by Smits, Van Woerkom and Van Engen (2012), it was established that the predictive power of strengths-based behaviour on work engagement was significantly reduced when in the same

model as deficit improvement behaviour. In addition to that, the organisational culture and climate of the sample needed to be understood in order to make inferences on the findings. That can help justify the reason for this unexpected result.

Furthermore, regression analysis was done to determine reversed causal relationships between work engagement and job resources. Specifically, the analysis focused on how work engagement at time 1 influences job resources at time 2. The results confirmed the reversed causal relationship between work engagement and POS for strengths use. However, the same result was not found for work engagement at time 1 and POS for deficit correction at time 2. It was revealed that the non-significant finding was small and could be due to a sample-specific phenomenon. With regard to the positive relationship between work engagement at time 1 and POS for strengths use at time 2, the finding was supported by other studies where normal, reciprocal and reversed influences of work engagement were investigated (Bakker & Bal, 2010; Llorens, Schaufeli, Bakker & Salanova, 2007). In relation to De Beer, Pienaar and Rothmann Jr.'s (2013) explanation of the perceptual hypothesis, the authors argue that committed employees (due to their high levels of engagement), have the probability to view their current working conditions more favourably, especially due to the presence of job resources. This can help explain the reason for work engagement at time 1 having a positive impact on job resources (POS for strengths use in this case) at time 2.

The results further revealed how job resources at time 1 predict those at time 2. In essence, the relationship between POS for strengths use at time 1 and POS for strengths use at time 2 was investigated. The same was done for POS for deficit correction. In both cases, the results revealed a significant positive relationship between the constructs. These findings were in line with the assumption made by the Conservation of Resources (COR) theory, where it implies that people will maintain and nurture resources that are most important and valuable to them attaining their goals in the future (Hobfoll, 2001; Salanova, Bakker & Llorens, 2006). In this case, it suggests that both POS for strengths use and POS for deficit correction are viewed as valuable in attaining future goals, and thereby seeing their progressive increase at time 2.

In conclusion, the results showed that both job resources (POS for strengths use and POS for deficit correction) are positively related to work engagement. In addition to that, POS for



deficit correction has significant predictive power on work engagement over time. Although POS for strengths use did not significantly predict work engagement over time, there is merit in adopting this approach in the short term.

### **3.2 LIMITATIONS**

Valuable findings were concluded in this study; however, it is not without limitations. The study undertook a longitudinal approach of two waves that were three months apart. Although causal relationships were determined by means of the longitudinal perspective (Trochim & Donnelly, 2007), some researchers have determined that work engagement fluctuates within very short time spans, such as weeks and/or days (Bakker & Bal, 2010; Sonnentag, 2003; Xanthopoulou, Bakker, Heuven, Demerouti & Schaufeli, 2008). Utilising research designs that use methods such as weekly diaries could have been more beneficial. In addition to that, models, such as the JD-R model, when researched longitudinally, present a unidirectional view of work where normal causal relationships are indicated (De Lange, De Witte & Notelaers, 2008). It will be beneficial to also maintain having a better understanding of any reversed or reciprocal causal relationship between the variables.

The second limitation of the study is with regard to the sample. Data was collected by means of convenience sampling within a single large organisation in the mining industry. Therefore, generalisations cannot be made to other industries. In addition to that, mining is historically male dominated and the participants were predominantly white males. South Africa is a very diverse country. This homogenous population cannot be a true reflection of the South African population. Caution should therefore be taken where any generalisations are attempted.

The third limitation concerns the sample size to ascertain longitudinal evidence. The size of the sample reduced the probability of obtaining significance and predicting the mean population more reliably. Even though Bayesian methods were used to address this limitation, the priors from the first measurement were the only available prior information to use for the estimation of the longitudinal model.

The final limitation concerns the utilisation of self-report questionnaires. This approach has been criticised to increase measurement bias and to increase common method variance

(Spector, 1994; Tremblay & Messervey, 2011). The constructs under study were of a subjective nature, and therefore very little could have been done to mitigate this risk.

### **3.3 RECOMMENDATIONS**

#### **3.3.1 Recommendations for practice**

The main objective of the study was to determine which work environment (strengths-based or deficit improvement approach) has the best effect on work engagement over time. Findings from this study can help organisations establish the right talent and development strategies to ensure maximum benefit to employees and the organisational bottom line.

The results indicated that, in the short term, both a strengths-based approach and deficit improvement approach are positively related to work engagement. The findings went further to clarify that, in this specific case, a deficit improvement approach has a significant positive impact on work engagement in the long term. There are various areas within the human resources function in organisations that can help ascertain whether work engagement levels are healthy both in the short and long term.

It is important to understand the South African context when it comes to the development of employees within organisations. Various legislations, including the Skills Development Act 97 of 1998 and the Skills Levies Act 9 of 1999, provide the fundamental basis on which training and development initiatives are planned annually for organisations. Each year, large organisations are expected to draw up workplace skills plans (WSP) focusing on the current and future needs of their business. It is through this backdrop that processes such as performance management, succession planning and any technological advances or changes are developed. Given the findings of the study and the required WSP, it would be beneficial for organisations to have a development approach that focuses on the short and long term, and categorises processes that will help address that need.

In the short term, organisations can ensure that their performance management process utilises a combined approach, where both strengths use and deficit improvement are a focus. Practically, that means that performance appraisals with employees should include an

element where employees are offered the opportunity to do tasks that utilise their strengths. Furthermore, in areas where gaps are identified, employees should be afforded the opportunity to improve their weaknesses. One such approach can be in coaching, where more skilled and experienced individuals provide technical support and education to those whose weaknesses in a specific task have been identified. This can help clarify the purpose and use of coaches in organisations and can also assist in informing the duration of the coaching relationship (this is not a long-term solution, but a short, concise and effective intervention to remedy unwanted behaviours and/or skills).

Staying within the theme of short-term development for organisations that have process that encourage experiential learning such project assignments, job rotation and placements, it will be beneficial to utilise both approaches (strengths use and deficit improvement) in matching the right employees. For example, consider a project to facilitate wage negotiations for an organisation. Following both approaches, it will be valuable to have a) an employee who is naturally talented in negotiating, persuading and influencing others (supporting the use of strengths) and b) an employee who needs to gain experience in doing wage negotiations with multiple trade unions (supporting deficit improvement). This can ensure a smoother transition into the new task/project with minimal disruptions to business objectives.

In terms of development initiatives in the longer term, organisations that have succession planning as a process can benefit from facilitating it from a deficit improvement perspective. Employees, who are identified as successors for future roles, have gaps that need to be addressed in order to be successful in their intended role. Understanding these gaps, organisations can therefore provide the right longer-term development initiatives, such as formal studies/training, mentoring and job shadowing to ensure the readiness of successors when the time comes.

Lastly, employer branding can help organisations attract and retain the right talent. Organisations can help enhance their employee value proposition (EVP) by highlighting their willingness to support the development and enhancement of strengths and deficits. Potential and current employees will know that not only will they be afforded the opportunity to grow and learn, but that they also work for an organisation that appreciates their areas of strength and expertise.

### **3.3.2 Recommendations for future research**

It is recommended that future research should consider a longitudinal study, of which the research design has shorter time frames, such as weekly diaries, to adequately establish the fluctuations of work engagement in every day work life. In addition to that, the relationship between job resources and work engagement will be better understood by exploring the reversed causal relationships and the reciprocal relations (Zapf, Dormann & Frese, 1996).

It is also recommended for future research to utilise a larger sample size for longitudinal evidence. It will be more representative of the mean population, and will ensure that the population is not homogenous. Furthermore, the population should be from various, different industries in South Africa. This will assist in understanding how the variables manifest in the South African workplace.

Lastly, to minimise the probability of measurement bias, self-report questionnaires can be substituted by utilising objective measures.

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