

# **EMPIRICAL EVALUATION OF THE STEYN-BOERS STRUCTURAL MODEL OF PSYCHOLOGICAL WELL- BEING AT WORK**

thesis presented in partial fulfilment of the requirements for the degree of

**MCOMM (PSYCH)**

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## **DECLARATION**

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## ABSTRACT

This study recognised the importance of well-being of employees in today's turbulent working environment. It departed from the notion that the sustainability of organisations is determined by the quality of its workforce and therefore employee well-being is a major priority. The well-being of employees is not a random occurrence, but rather a complex phenomenon. Any attempt to influence or change the well-being of employees should be grounded in a firm understanding of the complexity of the well-being phenomenon.

Steyn (2011) developed a *Salutogenic Model of Occupational Well-being* in an attempt to depict how positive psychological variables can be combined in a dynamic depiction of the nomological net of variables underlying the phenomenon of well-being in the workplace. The rationale for her study was that state-like Optimism and Self-efficacy will have a significant and direct positive effect on their Occupational Well-being, partly because of these psychological resources' ability to foster positive expectations about the future, and partly because of the heightened sense of Organisational Commitment and Work Engagement facilitated by higher levels of Optimism and Self-efficacy.

As a first adaption to the Steyn (2011) study, this study attempted to explicate the arguments that motivated the adaption and expansion of the original Steyn (2011) *Salutogenic Model of Occupational Well-being*, into the *Steyn-Boers Structural Model of Psychological Well-being at Work*. Set within the theoretical frameworks of Positive Organisational Behaviour (POB), the *Broaden-and-Build* theory (Fredrickson, 2001), as well as Hobfoll's (1989) Conservation of Resource (COR) theory, the focus in this study was on explicating the nomological net of variables underlying Subjective Well-being (SWB) and Psychological Well-Being at Work (PWBW), as two contemporary constructs well integrated into the Occupational Well-being literature. SWB was defined as both Hedonic Well-being (HWB) and Eudaimonic Well-being (EWB). HWB was further defined as Positive Affect (PA) and Negative Affect (NA). Well-being was contextualised in the work domain with Dagenais-Desmarais and Sivoie's (2012) Psychological Well-being at Work (PWBW) construct. Hope, Resilience and Gratitude were included as additional psychological resources. Work Engagement was retained in the current study due to its central role in well-being. It was argued that Perceived Organisational Support (POS) and Psychological Ownership should further translate into better well-being and were therefore included in this study.

A non-experimental research design (i.e. survey study) was used to explore the relationships between the various constructs. A convenience sample of 199 respondents was recruited via a social media network platform, *Facebook*, (i.e. non probability sampling technique). The

measurement instruments included were the Positive and Negative Affect Schedule (PANAS) (Watson, Clark & Tellegen, 1988); Ryff's (1989) Psychological Well-being Scale; and the Index of Psychological Well-Being at Work, developed by Dagenais-Desmarais and Savoie (2012). The four constructs that constitute Psychological Capital (Hope, Optimism, Self-efficacy and Resilience) were measured with the Psychological Capital Questionnaire (Luthans, Avey & Avolio 2007a). Gratitude was measured with the Gratitude Questionnaire-Six-Item form (GQ-6), (McCullough, Emmons & Tsang, 2002) and Work Engagement was measured with the 9-item Utrecht Work Engagement Scale (UWES-9) (Schaufeli & Bakker, 2003). Perceived Organisational Support was measured by the Perceived Organisational Support Scale, (Eisenberger, Huntington, Hutchinson & Sowa, 1986) and Psychological Ownership was measured with the Psychological Ownership Questionnaire (Pierce, O'Driscoll & Coghlan, 2004).

Confirmatory factor analysis (CFA) and item analysis were conducted to evaluate the reliability and validity of the measurement instruments. SEM was used to fit the structural model to the data to investigate the extent to which the abovementioned constructs were significant predictors of SWB and PWBW.

The results of the study revealed that different positive psychological resources predicted different aspects of well-being. For example, Hope had an indirect effect on both PA and PWBW, whilst Optimism had a direct effect on EWB and NA, with an indirect effect on PA and PWBW. Self-efficacy had a direct effect on EWB and Resilience a direct effect on PA. Optimism, as found in the Steyn (2011) study, thus played a very central role in overall well-being. Gratitude, although it had no direct effect on any of the well-being constructs, affected NA, PA, EWB and PWBW indirectly by working mainly through Optimism. Strong support that Work Engagement and Perceived Organisational Support contribute to the well-being of employees emerged. Psychological Ownership was the only construct that had no direct or indirect effect on well-being. It was argued that a possible explanation for this may be that Psychological Ownership might not be an antecedent to well-being, but rather a dimension thereof.

The importance of this study was thus condensed in the knowledge that there are certain important antecedents to the management of PWBW. The results provide a probable explanation of the complex nomological net of variables and their interrelationships with each other, which influence Psychological Well-being at Work.

## OPSOMMING

Hierdie studie herken die belangrikheid van werknemer welstand in vandag se ontwrigtende werksomgewing. Dit het vertrek vanaf die idee dat die volhoubaarheid van organisasies bepaal word deur die gehalte van sy werksmag en dus is werknemer welstand 'n belangrike prioriteit. Die welstand van werknemers is nie 'n ewekansige gebeurtenis nie, maar eerder 'n komplekse verskynsel. Enige poging om die welstand van werknemers te beïnvloed of te verander, moet gegrond wees in 'n ferm begrip van die kompleksiteit van die welstand verskynsel.

Steyn (2011) het 'n *Salutogeniese Model van Beroepswelstand* ontwikkel in 'n poging om uit te beeld hoe positiewe sielkundige veranderlikes gekombineer kan word in 'n dinamiese voorstelling van die nomologiese net van veranderlikes, onderliggend aan die verskynsel van welstand in die werksplek. Die rasionaal vir haar studie was dat Optimisme en Self-doeltreffendheid 'n beduidende en direkte positiewe effek op Beroepswelstand sou hê, deels as gevolg van die sielkundige hulpbronne se vermoë om positiewe verwagtinge vir die toekoms te bevorder, en deels as gevolg van die verhoogte gevoel van Organisasieverbintenis en Werksbetrokkenheid wat gefasiliteer word deur hoër vlakke van Optimisme en Self-doeltreffendheid.

As 'n eerste aanpassing tot die Steyn (2011) studie, het hierdie studie gepoog om die argumente wat die aanpassing en uitbreiding van die oorspronklike Steyn (2011) *Salutogeniese Model van Beroepswelstand* tot die *Steyn-Boers Strukturele Model van Sielkundige Welstand by die Werk*, te verduidelik. Met inagneming van die teoretiese raamwerke van *Positiewe Organisasie Gedrag* (POG), *Uitbrei-en-Bou* teorie (Fredrickson, 2001) en Hobfoll (1989) se *Bewaring van Hulpbronne* (BH) teorie, was die fokus van die studie op die uitspel van die nomologiese net van veranderlikes onderliggende aan Subjektiewe Welstand (SW) en Sielkundige Welstand by die Werk (SWW) as twee kontemporêre konstrunkte goed geïntegreer in die Beroepswelstand literatuur. SW was omskryf as beide Hedoniese Welstand (HW) en Eudimoniese Welstand (EW). HW was verder gedefinieer in terme van Positiewe Affek (PA) en Negatiewe Affek (NA). Welstand is gekontekstualiseer in die werk domein met Dagenais-Desmarais en Savoie (2012) se konstruk van Sielkundige Welstand by die Werk (SWW). Hoop, Veerkragtigheid en Dankbaarheid is ingesluit as addisionele Sielkundige Kapitaal. Werksbetrokkenheid is in die huidige studie behou oor sy sentrale rol tot welstand. Dit is aangevoer dat Waargenome Organisasie Ondersteuning (WOO) en Sielkundige Eienaarskap werkers se welstand verder sal bevorder en was dus ingesluit in die studie.

'n Nie-eksperimentele navorsingsontwerp (d.w.s. 'n vraelys studie) was gebruik om die verwantskappe tussen die verskillende konstrunkte vas te stel. 'n Gerieflikheidsteekproef van 199 respondente was gewerf via 'n sosiale media netwerk platform, *Facebook* (d.w.s. 'n nie waarskynlikheidsteekproefneming tegniek). Die meetinstrumente het ingesluit die Positiewe en Negatiewe Affek Skedule (PANAS) (Watson et al., 1988); Ryff (1989) se Sielkundige Welstand Skaal en die Indeks vir Sielkundige Welstand by die Werk wat ontwikkel is deur Dagenais-Desmarais en Savoie (2012). Die vier konstrunkte waaruit Sielkundige Kapitaal bestaan (Hoop, Optimisme, Self-doeltreffendheid en Veerkrachtigheid) was gemeet met die Sielkundige Kapitaal Vraelys-24 (Luthans et al., 2007a). Dankbaarheid was gemeet met die Dankbaarheid Vraelys–Ses-Item vorm (DV-6) (McCullough et al., 2002) en Werksbetrokkenheid was gemeet met die 9-item Utrecht Werksbetrokkenheid Skaal (UWBS-9) (Schaufeli & Bakker, 2003). Waargenome Organisasie Ondersteuning is gemeet deur die Waargenome Organisasie Ondersteuning Skaal (Eisenberger et al., 1986) en Sielkundige Eienaarskap is gemeet met die Sielkundige Eienaarskap Vraelys (Pierce et al., 2004).

Bevestigende faktorontleding en item analise is gebruik om die betroubaarheid en geldigheid van die meetinstrumente te evalueer. Strukturele vergelyking modellering was gebruik om die strukturele model op die data te pas om vas te stel tot watter mate die bogenoemde konstrunkte beduidende voorspellers van SW en SWW is.

Die resultate van die studie het getoon dat die verskillende positiewe sielkundige hulpbronne, verskillende aspekte van welstand voorspel. Hoop het, byvoorbeeld, 'n indirekte uitwerking op beide PA en SWW gehad; terwyl Optimisme 'n direkte invloed op EB en NA, met 'n indirekte effek op PA en SWW getoon het. Self-doeltreffendheid het 'n direkte invloed op EB, en Veerkrachtigheid 'n direkte invloed op PA, gehad. Optimisme, soos gevind in die Steyn (2011) studie, het 'n baie sentrale rol in algehele welstand gespeel. Alhoewel Dankbaarheid geen direkte invloede op enige van die welstand konstrunkte gehad het nie, het dit wel 'n indirekte effek op PA, NA, EB en SWW gehad, meestal deur Optimisme. Sterk steun het na vore gekom dat Werksbetrokkenheid en Waargenome Organisasie Ondersteuning tot die welstand van werknemers bydra. Sielkundige Eienaarskap was die enigste konstruk wat geen direkte of indirekte invloed op welstand gehad het nie. Dit was geargumenteer dat 'n moontlike verduideliking hiervoor mag wees dat Sielkundige Eienaarskap moontlik nie 'n voorspeller van welstand is nie, maar eerder 'n dimensie daarvan.

Die belangrikheid van hierdie studie is dus gekonsentreerd in die wete dat daar sekere belangrike voorspellers tot die bestuur van SWW is. Die resultate verskaf 'n moontlike

verduideliking van die komplekse nomologiese net van veranderlikes en hul onderlinge verbande met mekaar, wat sodoende Sielkundige Welstand by die Werk beïnvloed.

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# CHAPTER 1

## INTRODUCTION

### 1.1 INTRODUCTION

There is no doubt that the world of work in the 21<sup>st</sup> century is a completely different world than in previous eras. Technological advances have paved the way for a number of changes, including globalisation, the rise of the knowledge worker, as well as the creation of significantly more niche markets (Davis, 2010). The net result is a highly competitive marketplace with a strong focus on products and services to meet the needs and requirements of the consumer. In order to keep up with such a fast paced system, there is an intensified need for creativity and innovation in all domains of work, as this will ensure the organisation's competitive positions in the market. Hence, there is a dire need to capitalise on the unique intellectual and personal strengths of employees (Davis, 2010; McAdam & Keogh, 2004; Kanter, 1988).

The sustainability of an organisation is largely determined by the quality of its human resources. For this reason, organisations make significant investments in recruiting applicants with the right educational credentials, work experience and talents. From these applicant pools, important attention is regularly given to selecting the right employees, with many selection assessments showing strong validity in predicting subsequent work performance (Harter, Hayes, & Schmidt, 2004; Schmidt & Rader, 1999). While these are important activities, it is not enough just to hire the right people – organisations need to maintain such a workforce, ensure they are well, motivated and competent. Human Resources (HR) justify their existence by committing themselves to pursuing organisational goals, with the main goal being economic utility. This is achieved through the acquisition and maintenance of a competent and motivated workforce, as well as the effective and efficient management of such a workforce (Theron, 2011).

As companies pursue maximum economic utility, they implement practices that attempt to reduce costs and increase productivity, which often leads to a mentality that favours profitability over the welfare of its employees (Turner, Barling, & Zacharatos, 2002). Financially, it would make sense to prioritise the well-being of employees, as their well-being would contribute to the profitability of the organisation. Better employee well-being will mean more energy, innovation, creativity, positive competition and also a lack of absenteeism and medical costs. In this sense, well-being can be seen as a financial investment, which when managed effectively, will lead to a “high rate on return” (Turner et al., 2002).

The well-being of employees has become a serious and worrisome issue. The enhancement of psychological well-being at work has been described as one of the most pressing dilemmas of contemporary times, with institutions globally, identifying health and stress-induced problems amongst the most frequent stress-related diseases. In addition to its tremendous social impact, it also poses significant costs related to performance, i.e. workplace safety, absenteeism and early retirement (Sanderson, Nicholson, Graves, Tilse & Oldenburg, 2008).

The well-being of employees is not a random occurrence, but rather a complex phenomenon. Any attempt to influence or change employee well-being should be grounded in a firm understanding of the complexity of the well-being phenomenon. This presupposes an understanding of the nomological network of the latent variables which characterises the person and the perceived environment in which they operate (Theron, 2011). This information should assist HR and line management to rationally and purposefully affect the well-being and subsequent work behaviour of employees. Employee psychological health and well-being could then be regarded as a strategic driver of talent attraction, retention, as well as individual and organisational performance excellence (Lockwood, 2007). For these reasons, HR should actively promote positive psychological health and organisational well-being, as it could assist in harnessing the full potential of the workforce and increase organisational performance.

However, the management of well-being should not only be geared towards minimising the incidences of work performance pathology, but it should actively promote employee well-being. It should thus aim to ensure the optimal functioning of all employees, to motivate them to strive for self-actualisation (Seligman, 2003). By analogy it can be said that the pendulum should swing through to the positive side of psychology. It should thus be a “build what’s right” approach as opposed to the traditional “fix what’s wrong” approach (Seligman, 2003). It is about going beyond fixing problems into promoting excellence. It is precisely because of this perspective that the business world needs to turn to the branch of psychology that deals with human flourishing and human strengths, namely positive psychology (Donaldson & Ko, 2010).

The idea of focusing on the positive side of behaviour, was first introduced by Antonovsky (1979), and was named, salutogenesis (Latin *salus* = health, Greek *genesis* = origin). Antonovsky (1979) proposed that health, as opposed to the disease should be studied. This concept was later expanded to not only include health, but also the nature, manifestations and methods to enhance psychological well-being (Wissing & Van Eden, 1997). Within the

positive framework, the salutogenesis concept has evolved in the Organisational Behavioural domain into the paradigm of Positive Organisational Scholarship (POS). This concept is largely concerned with the investigation of positive outcomes, processes and attributes of organisations and their employees (Luthans & Youssef, 2007). The POS approach allows researchers to be proactive. That is, instead of focusing on how to correct problems in a reactive sense, POS aims to study organisations and employees in their most effective form and then draw conclusions and develop appropriate interventions. Closely related to POS is Positive Organisational Behaviour (POB). Like positive psychology, POB does not proclaim to represent some new discovery of the importance of positivity, but rather emphasise the need for more focused theory building, research, and effective application of positive traits, states and behaviours of employees in organisations (Luthans & Youssef, 2007). According to Luthans (2002a), POB is interested in “the study and application of positively oriented human resource strengths and psychological capacities that can be measured, developed and effectively managed for performance improvement in today’s workplace” (p.59).

Wright (2003) argued that the mission of POB must also include the pursuit of employee happiness and health as viable goals in themselves. According to Zwetsloot and Pot (2004), employee well-being is a business value that is of strategic importance and should be viewed as an investment rather than a cost or an expense. Based on these two perspectives, the organisation-centred view of Luthans (2002b) and the employee-centered view of Wright (2003), an integrated positive business value model of employee health and well-being can be proposed. This refers to an approach that can be labelled “Integral Health Management” (Zwetsloot & Pot, 2004) that constitutes a win-win situation for both the organisation and its employees.

Given these approaches it is argued here that both research and practice must focus on employees’ strengths and psychological capabilities that will allow them to have a buffer against negative working conditions. According to Spector (2003), it is well known that individuals differ in their reactions to various organisational conditions and demands placed on them. From a positive psychological perspective it could be argued that certain psychological strengths and characteristics embedded within the individual could decrease the amount of strain experienced by individuals. For example, research has shown that the individual level POB characteristics of being hopeful, optimistic, self-efficient and resilient (together known as the higher-order construct of Psychological Capital, PsyCap; Luthans, Youssef, & Avolio, 2007) may possibly act a buffer against stress and burnout (Avey, Avolio, Crossly & Luthans, 2009; Fredrickson, Tugade, Waugh & Larkin, 2003). It is therefore

argued that the prevalence of these constructs in an individual and the development of them could potentially have an influence on the way employees respond to stress and experience well-being. This, in turn, may positively affect their work quality, and subsequently the profitability of the organisation (Herbert, 2011). The development of these strengths and capabilities would thus assist employees in attaining well-being. This phenomenon can be explained within the framework of the *Broaden-and-Build theory of Positive Emotions* (Fredrickson, 1998, 2001), which provides a valuable framework within which to understand the functional significance of positive emotions in well-being. Whereas negative emotions heighten one's sympathetic activity and narrow one's attention to support specific action tendencies (e.g., attack, escape), positive emotions have the potential to suppress autonomic arousal generated by negative emotions and broaden one's attention, thinking, and behavioural repertoires. The key proposition of *the Broaden-and-Build* theory is that certain discrete positive emotions – including joy, interest, contentment, pride and love – although phenomenologically distinct, all share the ability to broaden people's momentary thought-action repertoires and build their enduring personal resources, ranging from physical and intellectual resources to social and psychological resources.

Supportive evidence for the *Broaden-and-Build* theory comes from research demonstrating that positive emotions produce patterns of thought that are notably unusual, flexible, creative, integrative, open to information, and efficient. In addition, induced positive emotions increase one's preferences for variety and broaden one's arrays of acceptable behavioural options. These cognitive effects of positive emotions have been linked to increases in dopamine levels in the brain, thereby enhancing one's ability to switch set, or modify and adjust efforts, rather than fixate on a particular decision rule (Ashby, Isen, & Turken, 1999). Corroborating research shows that relative to neutral states and negative emotions, low- and high-activation, positive emotions (e.g., contentment, joy) broaden the scope of an individual's visual attention as well as momentary thought-action repertoires (Fredrickson & Branigan, 2003). By broadening an individual's momentary thought-action repertoire, whether through play, exploration or similar activities, positive emotions promote discovery of novel and creative actions, ideas and social bonds, which in turn build that individual's personal resources (Fredrickson, 2001). Together, these studies provide evidence for cognitive broadening associated with positive emotions.

Furthermore, according to the theory, positive emotions can momentarily broaden one's scopes of thought and allow for flexible attention, which, in turn, can improve one's well-being. Over time, and with repeated experiences of positive emotions, this broadened mind-set might become habitual. By consequence, then, the often-incidental effect of experiencing

a positive emotion results in an increase in one's personal resources. These resources function as reserves that can be drawn on in subsequent moments and in different emotional states (Fredrickson, 2001). Tugade and Fredrickson (2004), for example, found that positive emotions may fuel psychological Resilience, build psychological Resilience and trigger upward spirals toward enhanced emotional well-being. Furthermore, the complementary upward spiral which occurs through both the experience of positive emotions and broadened thinking is argued to influence one another reciprocally, leading to substantial increases in emotional well-being over time (Fredrickson & Joiner, 2002; Fredrickson, 2004; Garland, Gaylord, Boettiger & Howard, 2010). Hence, it is argued that the benefits of giving prevalence to, as well as promoting and developing positive psychological capabilities within individuals could hold multiple benefits within the organisational environment (e.g. increased well-being of employees resulting in better commitment, Engagement and ultimately performance).

A related theory, which was used as a framework for this study and that should be considered in conjunction with the *Broaden-and-Build* theory, is *Conservation of Resource* theory (COR; Hobfoll, 1989). The basic tenet of COR theory is that individuals strive to obtain, retain, protect and foster those things that they value. These valued entities are termed resources and can be defined as any object, personal characteristic or energy that is valued in its own right or are valued as a means to attain or protect an ends i.e. other resources (Diener & Fujita, 1995). Hobfoll (1998) states that psychological stress will occur when individuals' resources are threatened with loss, or actual lost, or where individuals fail to gain sufficient resources following significant resource investment. Two main principles follow from COR's central theory. The first principle is *The Primacy of Resource Loss* stipulating that resource loss is disproportionately more salient than resource gain. This means that with equal amounts of loss and gain, loss will have a bigger impact. The other important principle in this theory is *Resource Investment*, which proposes that people must invest resources in order to protect against resource loss, recover from losses and gain resources. Hobfoll (2001) states that those individuals with more resources are less vulnerable to resource loss and more capable of coordinating resource gain. On the other hand those individuals who have fewer resources are more vulnerable to lose their resources and struggle more to gain resources. In this study the COR theory is important as it will be utilised to explain why individuals with certain resources will have the ability to easily acquire other resources. The *Resource Investment* principle will further be applied to explain why certain individuals will easily gain resources and also why they can easily recover from losses.

Steyn (2011) developed a structural model of Occupational Well-being in an attempt to depict how positive psychological variables can be combined in a dynamic depiction of the nomological net of variables underlying the phenomenon of Occupational Well-being. Her study was grounded in the salutogenesis and POS paradigms to elucidate the arguments that motivated the conceptualisation of the proposed *Salutogenic Model of Occupational Well-Being*. The rationale for her study was that state-like Optimism and Self-efficacy would have a significant and direct positive effect on perceived Psychological Health. The relationships between Optimism (Life Orientation Test-Revised; Scheier, Carver & Bridges, 1994), Self-efficacy (General Self-efficacy Scale; Sherer, Maddux, Mercandante, Prentice-Dunn, Jacobs & Rogers, 1982) and Occupational Health [(measured with the GHQ-28; Goldberg, 1972; and an adapted version of Diener, Emmons, Larsen and Griffin's (1985) Satisfaction with Life Scale)] was furthermore hypothesised to be reinforced through indirect associations that acted through a combination of Work Engagement (measured with the Utrecht Work Engagement Scale, Schaufeli & Bakker, 2003) and Organisational Commitment (measured with the Organisational Commitment Questionnaire, Mowday, Porter & Steers, 1979), both of which was urged to foster a sense of individual Meaningfulness. She thus proposed that optimistic and self-efficacious individuals will experience greater levels of health (evident in better Psychological Health and more Satisfaction with Work-life) than their more cynical counterparts. It was argued that this was due, partly, because of their ability to foster positive expectations about the future, and partly because of their heightened sense of Commitment and Work Engagement facilitated by their higher levels of Optimism and Self-efficacy.

As a first adaption to the Steyn (2011) model, this study focus on explicating the nomological net of variables underlying Subjective Well-being (SWB) and Psychological Well-Being at Work (PWBW), as two contemporary constructs well integrated into the Occupational Well-being literature. SWB is defined as both Hedonic Well-being (HWB) and Eudaimonic Well-being (EWB). HWB focuses on the experience of maximising pleasure and minimising pain, where EWB is found in the expression of virtue – doing what is worth doing (Ryan & Deci, 2001). Thus, the distinction is between purely subjective felt needs and objectively valid needs. Straume and Vittersø (2012) states that HWB is typically experienced when life is easy or a goal is reached, where EWB is typically experienced when facing challenges or goal attainment. Rather than focusing on either one of these views on SWB, Ryan and Deci (2001) followed by other researchers (Keyes, Shmotkin, Ryff, 2002; Keyes & Magyar-Moe, 2003; Lent, 2004), have suggested that it could be optimal to consider SWB as constituting both these two constructs, since each perspective sheds a different light on the construct of SWB. Moreover, a recent development in contextualising SWB within the workplace has

been the work of Dagenais-Desmarais and Savoie (2012) with the development of the Index of Psychological Well-being at Work (IPWBW). According to these authors, traditional HWB and EWB measures measure the construct of *context-free* SWB. The construct of PWBW is, “a construct describing an individual’s subjective positive experience at work, and comprise five primary Eudaimonic dimensions, namely Interpersonal Fit at Work, Thriving at Work, Feeling of Competency at Work, Perceived Recognition at Work, and Desire for Involvement at Work” (Dagenais-Desmarais & Savoie, 2012, p. 676). It is argued that context-free SWB will lead to higher levels of well-being in the workplace, i.e. higher levels of PWBW as indicated in the proposed structural model (see figure 3.1). Hence, this construct will also be included in the adapted Steyn (2011) model, providing a contemporary and contextualised view of SWB in the workplace.

As a further elaboration and adaption of the Steyn (2011) study, this study propose an argument which states that positive psychological capital will have a significant and direct positive impact on employees’ Subjective Well-being in the workplace. PsyCap is an individual’s positive psychological state of development and includes Self-efficacy (having confidence to take on and put in the necessary effort to succeed at challenging tasks); Optimism (making a positive attribution about succeeding now and in the future); Hope (persevering towards goals and, when necessary, redirecting paths to goals) and Resilience (when beset by problems and adversity, sustaining and bouncing back and even beyond to attain success) (Luthans, et al., 2007c). The addition of PsyCap to the original Steyn (2011) model elaborates the model by the inclusion of Hope and Resilience (as complimentary to the Optimism and Self-efficacy variables that were included in the original model), as further positive psychological capabilities that influence well-being. It is further argued in this study that Gratitude (i.e. a generalised tendency to recognise and respond with grateful emotion to the roles of other people’s benevolence in the positive outcomes that one obtains) may lead to higher levels of well-being within an individual (McCullough et al., 2002). Hence, the model is further elaborated with the inclusion of Gratitude in the nomological net of variables explaining well-being. As argued in the Steyn (2011) model, Work Engagement, which is a positive, fulfilling, work-related state of mind characterised by Vigour, Dedication and Absorption (Schaufeli & Bakker, 2001), can be a product of the expanded repertoire of positive emotions resulting from the PsyCap variables and Gratitude, when the *Broaden-and-Build* theory is applied. The construct of Work Engagement was therefore retained in the current study.

Social support, according to Cohen (2004) is considered a coping resource in difficult and demanding situation. Perceived Organisational Support was included in this study as an



emotional and material resource which employees can draw from when handling demanding situations. POS, according to Eisenberger et al., (1986) is the employees' perception concerning the extent to which the organisation values their contribution and cares about their well-being. POS is nurtured by conditions such as fair treatment, supervisory support, rewards and favourable job conditions (Rhoades & Eisenberger, 2002). Therefore POS can be seen as a resource that employees can draw from to increase their well-being within the workplace. Moreover, the positive emotions experienced by resilient, hopeful, self-efficacious and optimistic employees that exhibit Gratitude should translate into better interpersonal relationships in the workplace, further building social networks. It is therefore argued that POS would influence Work Engagement and SWB through the heightened positive emotions experienced when good interpersonal relationships translate into emotional and instrumental support in the workplace. Together with the established support system, it is also argued that Psychological Ownership (i.e. the authority to make decisions and complete a whole task) should empower and motivate employees to excel in the work environment. This should further translate into better well-being. Thus, it is proposed that hopeful, optimistic, self-efficacious, resilient employees who show Gratitude and are engaged in their work; perceive organisational support and have ownership in their jobs, will experience greater levels of SWB, which should translate into better PWBW.

### **1.1.1 Research aim, question and objectives**

This study will consequently draw from the Positive Organisational Behaviour (POB) paradigm to explain the arguments that motivated the adaptation and expansion of the original Steyn (2011) *Salutogenic Model of Occupational Well-being*, into the *Steyn-Boers Structural Model of Psychological Well-being at Work*. The aim of this study is to attempt to depict the nomological network of latent variables (presented in figure 3.1) that explains variance in the underlying psychological processes of PWBW.

In line with the rationale of the study as outlined above, arguments will be proposed (presented in chapter 2) which states that the four PsyCap variables (Hope, Optimism, Self-efficacy and Resilience), together with Gratitude and Perceived Organisational Support will have direct positive effects on SWB, as well as indirect positive effects on PWBW through mediators, such as SWB, Work Engagement and/or Psychological Ownership.

Given the theoretical framework of this research, the following research question has been formulated:

Are the proposed constructs related to each other, as well as to Subjective Well-being and Psychological Well-being at Work in the sense that it permits the structural model of Psychological Well-Being at Work (as hypothesised by Boers) as a possible approach to explaining variance in PWBW?

The research question will be addressed by attempting to achieve the following research objectives:

- expand and adapt the structural model of Psychological Well-being at Work as originally defined and tested by Steyn (2011);
- test the fit of the model;
- evaluate the significance of the hypothesised paths in the model; and
- consider the modification of paths in the model by inspecting the modification indices and how the possible modification of paths are supported theoretically.

### **1.1.2 Structure of the thesis**

This thesis will firstly, in chapter 2, present the theoretical framework of the study by defining each construct, and explaining how the constructs relate to each other as well as to well-being in the workplace. Chapter 3 will introduce the rationale, aims and objectives of the research and present details regarding the sample. The measurement instruments and means of data analyses are discussed in depth. The results will be discussed in chapter 4. The thesis ends with a discussion chapter (chapter 5) which will include a brief summary of the study and the results, the main limitations of the study, implications for practice, and recommendations for future research.

## CHAPTER 2

### THEORETICAL FRAMEWORK OF THIS RESEARCH

#### 2.1 INTRODUCTION

In this chapter an overview of Steyn's (2011) study will be provided and thereafter the literature in support of the current study will be presented. Each construct will be individually defined and discussed in order to systematically uncover the logic underlying the structure of the proposed expanded model. More specifically, the reasoning of how it was decided to include each construct, as well as how each construct fits into the nomological network will be explained.

#### 2.2 THE STEYN (2011) SALUTOGENIC STRUCTURAL MODEL OF OCCUPATIONAL WELL-BEING

Steyn (2011) developed a *Salutogenic Model of Occupation Well-being*. The goal was to depict the nomological network of latent variables<sup>1</sup> that directly and/or indirectly influence Occupation Well-being. Optimism (the ability to expect good things, despite being faced with adversity; Carver & Scheier, 2004), Self-efficacy (an individual's perceived expectations of their ability to reach a specific goal; Wu, 2009), and Meaningfulness, both in (defined as Work Engagement) and at work (defined as Organisational Commitment) were combined in a structural model to provide one plausible explanation for the interaction of these variables in explaining variance in Occupational Well-being. Occupational Well-being was defined by two constructs, namely Psychological Health and Satisfaction with Work-Life. These constructs were measured with the General Health Questionnaire (GHQ, Goldberg, 1972) and the Satisfaction with Life Scale (Diener, et al., 1985), adapted to the Satisfaction with Work-Life scale.

Optimism was measured with the Life Orientation Test-Revised (Scheier, et al., 1994). The General Self-efficacy Scale (Sherer, et al., 1982) was used to measure the construct of Self-efficacy. Steyn (2011) also included Meaningfulness into the model as she argued that mankind have an inherent need to engage in activities that they believe have the result of leading a rewarding life. Steyn (2011) further acknowledged Pratt and Ashworth's (2003) stance that finding meaning at work implies the cultivation of a strong sense of organisational membership, while meaningfulness in work relates to employees being

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<sup>1</sup> Steyn's model offers one possibility of the network of latent variables leading to well-being. Her study was the first in a series of studies with the aim of gaining a better understanding of the complexity of the constructs underlying individual and organisational well-being.

engaged in work, i.e. nurturing their callings (Gardner, Csikszentmihalyi & Dammon, 2001). She used the Organisational Commitment Questionnaire (Mowday, et al., 1979) and the Utrecht Work Engagement Scale (Schaufeli & Bakker, 2003) to measure these two dimensions of Meaningfulness respectively (Steyn, 2011). Steyn (2011), therefore, proposed that optimistic and self-efficacious individuals will experience greater levels of health (evident in more Psychological Health and more Satisfaction with Work-life) than their more cynical counterparts (Steyn, 2011). It was argued that this could be, partly, because of such individual's ability to foster positive expectations about the future, and partly because of their heightened sense of Commitment and Engagement, facilitated by their higher levels of Optimism and Self-efficacy.

The rationale for developing the model was based upon previous research of the included constructs. Firstly, Optimism, as defined by Carver and Scheier (2004), has been empirically linked to several aspects of Subjective Well-being. Three-way interactions have been noted between ratings of Optimism, social support and stress on physical and Psychological Well-being (Sumi, 1997). Those individuals who, thus, reported higher Optimism and social support were inclined to experience higher levels of SWB, regardless of their perceived levels of stress. Optimism has additionally been linked to greater performance, persistence, the ability to transform problems into opportunities and being open-minded in order to seek novel solutions (Peterson, 1991; Snyder, 2000; Snyder, Rand & Sigmon, 2005).

Self-efficacy was used to describe individuals' perceived expectations of their ability to reach a specific goal (Wu, 2009). Expectations of personal efficacy thus determine whether an individual's coping behaviour will be initiated, how much task-related effort will be exercised, and the duration of that effort in the face of disconfirming evidence. Research has indicated that individuals with high levels of Self-efficacy are much more confident and more self-assured in their ability to accomplish goals. This consequently makes them achievers within the organisational setting (Stajkovic & Luthans, 1998). Higher levels of Self-efficacy are additionally associated with an individual preference for challenging tasks, as well as the effort, motivation and persistence to follow through with tasks (Bandura, 1986), which, in turn, are linked to the regulation of the stress process for improved well-being.

Steyn (2011) tested the model on a sample of 202 employees, across three organisations. Of the 202 employees, 71.78% of the participants were employees of a medium sized South African property management and development company, 17.82% were educators at a primary institution, while a further 9.5% were in the employment of a small tobacco organisation. The ethnic composition was 42.6% White; 40.1% Coloured; 14.4% African, and

3% Indian / Asian. Tenure at the respective organisation was recorded to be 12.2% 0 - 12 months, 25.8% between 1 - 4 years; 27.7% between 5 - 8 years; 33.8% more than 8 years of service.

CFA and item analyses were conducted to evaluate the reliability and validity of the measuring instruments after which the proposed structural model was fitted to the data. The results of the model suggested that Optimism influenced Psychological Health directly. The relationship between Optimism and Occupational Well-being (i.e. Psychological Health) was further highlighted through an indirect causal effect, as mediated through Work Engagement (i.e. Meaningfulness). Optimism also causally influenced Satisfaction with Work-Life (the other aspect of Occupational Well-being). This indirect effect was mediated by Work Engagement and Organisational Commitment. The structural model indicated no significant paths between Self-efficacy and any of the other variables (Steyn, 2011).

Figure 2.1 depicts the results obtained for the structural model and indicates the supported paths between the positive psychological antecedents of Optimism, Self-efficacy, and Meaningfulness (Work Engagement and Organisational Commitment) and Occupational Well-Being (Psychological Health and Satisfaction with Work Life).

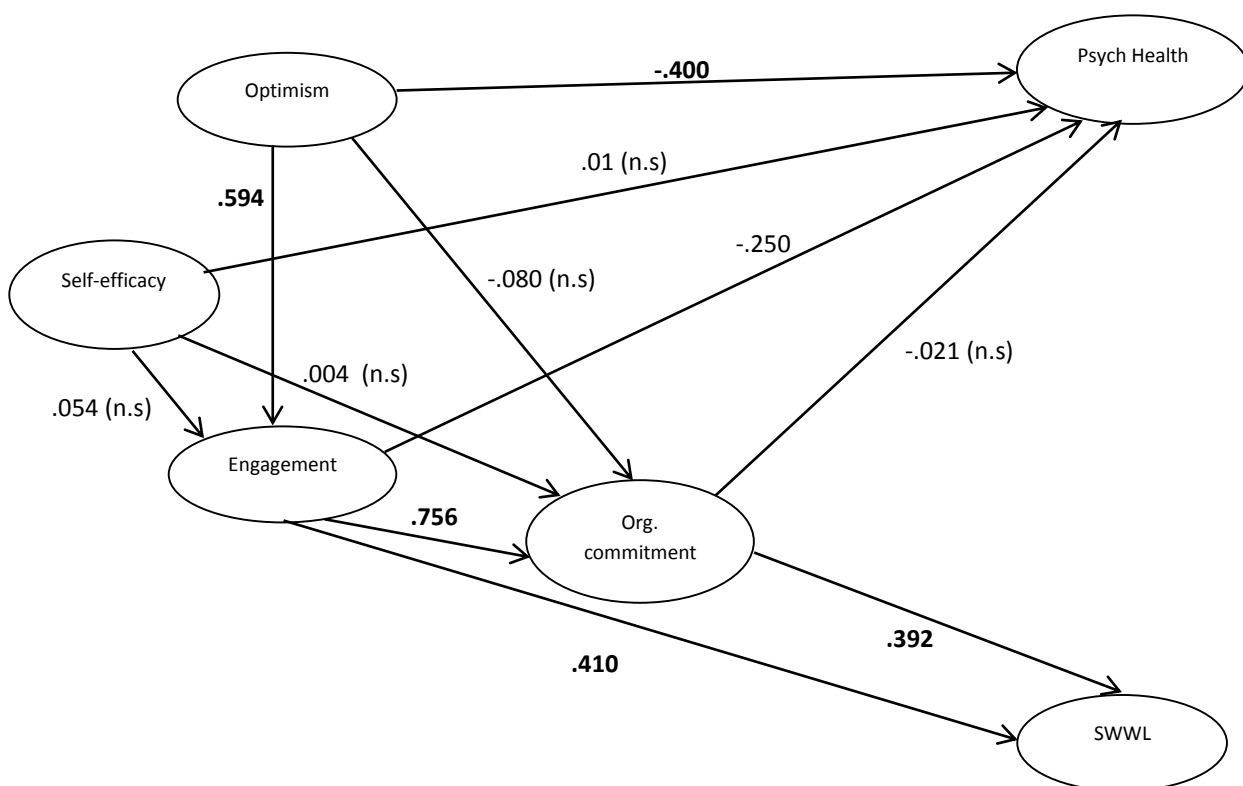


Figure 2.1: Steyn's (2011) Salutogenic Structural Model of Occupational Well-Being

The Steyn (2011) study revealed insights into the salutogenic<sup>2</sup> structure of Occupational Well-being. It focused on the complexity of Occupational Well-being in terms of the possible nomological net of variables that underlies it in terms of the positive psychology antecedents of Optimism, Self-efficacy and Meaningfulness. Although the study generated unique insights into the well-being paradigm, some limitations could be identified.

A first limitation is that Occupational Well-being, as the main construct in the study, was defined very narrowly. Steyn (2011) defined the concept of Occupational Well-being as synonymous to Psychological Well-being, according to the Cotton and Hart (2003) framework. Cotton and Hart (2003) have argued that Occupational Well-being consists of a framework of both emotional and cognitive components. The emotional components are conceptualised in terms of two independent dimensions of Positive and Negative Affect (Watson, 1988), which are termed morale and distress. The emotional components can operate at the individual, employee or workgroup levels. Steyn (2011) only focused on the individual emotional component of the absence of distress as an indicator of well-being, by measuring Psychological Well-being with the General Health Questionnaire (GHQ; Goldberg, 1972). Furthermore, according to Cotton and Hart (2003), the cognitive component of Occupational Well-being is termed job satisfaction and reflects employees' judgements about their levels of satisfaction with their work (Cotton & Hart, 2003). Steyn (2011) measured the individual cognitive component with an adapted version of the Satisfaction with Life Scale (Diener, et al., 1985) in an attempt to contextualise the satisfaction of life construct within the workplace. Given the limitations of the conceptualisation and measures of well-being used in the Steyn (2011) study, it is argued that a more comprehensive conceptualisation and operationalisation of the well-being construct (i.e. EWB, HWB and PWBW) as proposed in this study, will provide more practical utility to studies in this field.

A further significant limitation to the Steyn (2011) study was the finding that the results revealed no support for a causal link between Self-efficacy and any of the other variables. This finding stands in stark contrast to existing research trends on Self-efficacy in the well-being domain. Although the use of the Generalised Self-efficacy Scale could have influenced these results, this needs further investigation. Therefore the current study will also include the Self-efficacy construct within the adapted *Steyn-Boers Structural Model of Psychological*

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<sup>2</sup> Antonovsky (1979) introduced the notion of salutogenesis (Latin *salus* = health; Greek *genesis* = origin), proposing that the origins of health, rather than disease should be studied.

*Well-being at Work* in an attempt to investigate whether these results were sample specific, or whether it can be replicated.

Lastly, given the strong path between Work Engagement and Organisational Commitment in the Steyn (2011) results which replicated other research in this regard, the current study will omit the Organisational Commitment variable from the structural model. However, the more contemporary variable of Psychological Ownership will be included in the revised model to provide more insight into how this variable in combination with the other variables in this study could account for variance in SWB and PWBW. The rationale for the further elaboration of the model with the inclusion of the constructs of Gratitude and Perceived Organisational Support will also be theoretically outlined in the following section.

## **2.3 INTRODUCTION TO THE CURRENT STUDY**

This study has the aim of elaborating and adapting Steyn's (2011) *Salutogenic Model of Occupational Well-being*. In order to do this, the included constructs need to be discussed in terms of their definitions, the arguments as to why these specific constructs could have an effect on SWB and PWBW, as well as the underlying relationships these constructs may have with one another.

## **2.4 SUBJECTIVE WELL-BEING AND PSYCHOLOGICAL WELL-BEING AT WORK**

Human happiness, also often referred to as Subjective Well-being (SWB), has been a topic of interest for many centuries, starting with Ancient Greek philosophy, post-enlightenment western-European moral philosophy, and economic sciences. Being happy is of great importance to people, and happiness has been found to be a highly valued "goal" in societies (Diener, 2000). The rise of positive psychology (Seligman & Csikszentmihalyi, 2000) has legitimised attention to happiness and other positive states as opposed to the previously dominant disease model (Fisher, 2010). Organisational researchers soon adapted this concept into the world of work where the concepts Positive Organisational Behaviour (POB) and Positive Organisational Scholarship (POS) were born. Although the two terms, SWB and Happiness, are used interchangeably by layman, in research they are viewed separately. SWB refers to how people experience their quality of life and includes both emotional reactions and cognitive judgments (Diener, 1984), whereas Happiness is defined as a combination of life satisfaction and the relative frequency of Positive and Negative Affect (Diener, Colvin, Pavot & Allman., 1991). SWB therefore encompasses moods and emotions, as well as evaluations of one's satisfaction with general and specific areas of

one's life (Diener, Suh, Lucas, Smith, 1999). Therefore, concepts encompassed by SWB include Positive and Negative Affect, happiness and life satisfaction (Diener, 2000). SWB is therefore a multidimensional construct, evaluated by both cognitive and emotional judgements and comprises of high Positive Affect, low Negative Affect and a cognitive emotional evaluation of one's life. The cognitive element refers to what one thinks about his or her life satisfaction in global terms (life as a whole) and in domain terms (in specific areas of life such as work, relationships, etc.). The affective element refers to emotions, moods and feelings. Affect is considered positive when emotions, moods and feelings experienced are pleasant and negative when it is unpleasant (Diener et al, 1999).

According to Diener (1984) the construct of SWB has three hallmarks. Firstly, it is subjective, as it resides within the experience of the individual. Diener (2000) points out that the key in *Subjective Well-being* is that the person *himself/herself* is making the evaluation of life – not experts, philosophers or anyone else. Thus, the person him/herself is the expert here: "Is *my* life going well, according to the standards that *I* choose to use?" Secondly, it includes positive measures and is not just the absence of negative measures. This means that individuals should not just view their happiness in terms of the absence of negativity, but positive events, emotions etc., must also be present. Thirdly, it can be viewed as a global assessment of all aspects of a person's life, as emphasis is usually placed on the integrated judgement of the person's life, even though satisfaction within a certain domain may be assessed (Diener, 1984).

SWB is often also conceptualised as Hedonic Well-being (HWB) or alternatively, Eudaimonic Well-being (EWB), or an integration of the two concepts. The Hedonic approach focus on life satisfaction more or less in the same light as previously defined by Diener et al., (1999), stating that well-being is indicated through Positive Affect, Negative Affect and life satisfaction (Andrews & McKennell, 1980; Campbell, Converse & Rodgers, 1976; Diener, 1984). Equating well-being with Hedonic pleasure or happiness has a long history. Aristippus, a Greek philosopher from the fourth century B.C., taught that the goal of life is to experience the maximum amount of pleasure, and that happiness is the totality of one's Hedonic moments (Ryan & Deci, 2001). His early philosophical hedonism conceptualisation has been followed by many others. Hobbes (as cited in Ryan & Deci, 2001) argued that happiness lies in the successful pursuit of our human appetites, and DeSade (as cited in Ryan & Deci, 2001) believed that pursuit of sensation and pleasure is the ultimate goal of life. Utilitarian philosophers such as Bentham argued that it is through individuals' attempts to maximize pleasure and self-interest that the good society is built. Hedonism, as a view of well-being, has thus been expressed in many forms and has varied from a relatively narrow



focus on bodily pleasures to a broad focus on appetites and self-interests (Ryan & Deci, 2001). Hedonic philosophers believed that humans essentially desire to maximise their experience of pleasure and to minimise pain; where pleasure and pain were seen as powerful indicators of good and bad, and hence maximising pleasure was seen as a way of maximising the good in one's life. These philosophers traditionally took a 'subjectivist' position, in that the individual is considered to be in the best position to determine how well they are (Diener, 2009).

The predominant view among Hedonic psychologists is that SWB consists of subjective happiness and concerns the experience of pleasure versus displeasure, broadly construed to include all judgments about the good/bad elements of life. HWB is thus not reducible to physical hedonism, for it can be derived from attainment of goals or valued outcomes in varied realms (Diener, Gohm, Suh & Oishi, 1998). According to Fisher (2010) SWB is seen as having two correlated components: judgement of life satisfaction (assessed globally, as well as in specific domains, such as work), and affect balance, or having many positive feelings and relatively few or rare negative feelings (Diener et al., 1999), which is similar to HWB.

Ryff and Singer (1998) define eudaimonia as the idea of striving towards excellence, based on one's own unique potential. Eudaimonia is more precisely defined as "the feelings accompanying behaviour in the direction of, and consistent with, one's true potential" (Waterman, 1984, p. 16). Aristotle was the first person to come up with the concept of EWB, when he proclaimed that living a life of contemplation and virtue, in accordance with one's inherent nature (i.e. living authentically, or in truth to one's 'daimon'<sup>3</sup>) was the pathway to well-being (Norton, 1976). Daimon, then, is an ideal in the sense of an excellence, a perfection towards which one strives, and it gives meaning and direction to one's life. The Eudaimonic<sup>4</sup> approach criticises the exclusive focus on pleasure, as embodied in the Hedonic approach, as being too narrowly self-indulgent and state that an individual should strive for more than mere pleasure. Aristotle defined acting virtuously as behaving in a way that is noble and is worthwhile for its own sake; often emphasising the virtues of justice, kindness, courage, and honesty. What becomes immediately apparent is that eudaimonia

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<sup>3</sup> Daimon is the Greek derivative for the term demon. In this sense the term "demon" means "replete with knowledge." The ancient Greeks thought there were good and bad demons called 'eudemons' and 'cacodemons.' The term 'daimon' means "divine power," "fate" or "god." Daimons, in Greek mythology, included deified heroes. They were considered intermediary spirits between men and the gods. Good daimons were considered to be guardian spirits, giving guidance and protection to the ones they watched over. Bad daimons led people astray (Urban Dictionary, 2010).

<sup>4</sup> The Eudaimonic approach in this study is similar to Steyn's (2011) "meaningfulness" construct. Both hold the argument that individuals want to engage in meaningful matters and that this contributes to their well-being.

seems a more complex and elusive concept than hedonia. Eudaimonic approaches also emphasise that well-being and happiness are on-going processes, not end states (Ryan & Deci, 2001). Aristotle, for example, considered Hedonic happiness to be a vulgar ideal, making humans slavish followers of desires. He posited, instead, that true happiness is found in the expression of virtue — that is, in doing what is worth doing (Ryan & Deci, 2001). Fromm (1981), drawing on this Aristotelian view, argued that optimal well-being requires distinguishing between those needs (desires) that are only subjectively felt and whose satisfaction leads to momentary pleasure, and those needs that are rooted in human nature and whose realisation is conducive to human growth and produces eudaimonia, i.e. “well-being.”

In this light i.e. eudaimonia, SWB is seen as the ultimate level of functioning and it is referred to in terms of optimal functioning, meaning and self-actualisation (Ryan & Deci, 2000). Within this approach true SWB derives from personal growth and actively contributing to doing what is right and virtuous. From the Eudaimonic perspective, subjective happiness cannot be equated with well-being. Waterman (1993) stated that, whereas happiness is hedonically defined, the Eudaimonic conception of well-being calls upon people to live in accordance with their daimon, or true self. He suggested that eudaimonia occurs when people’s life activities are most congruent or meshing with deeply held values and are holistically or fully engaged. Under such circumstances people would feel intensely alive and authentic, existing as whom they really are — a state Waterman labelled personal expressiveness (PE) (Ryan & Deci, 2001). Empirically, Waterman (1993) showed that measures of Hedonic Well-being and enjoyment and PE were strongly correlated, but were nonetheless indicative of distinct types of experience. For example, whereas both PE and Hedonic measures were associated with drive fulfilments, PE was more strongly related to activities that afforded personal growth and development. Furthermore, PE was more associated with being challenged and exerting effort, whereas Hedonic enjoyment was more related to being relaxed, away from problems, and happy.

Ryff and Singer (1998) have explored the question of well-being in the context of developing a lifespan theory of human flourishing. Also drawing from Aristotle, they describe well-being not simply as the attaining of pleasure, but as “the striving for perfection that represents the realization of one’s true potential” (Ryff 1995, p. 100). Ryff and Keyes (1995) thus refer to Psychological Well-being (PWB) in terms of the Eudaimonic approach and presented a multidimensional approach to the measurement of PWB that taps into six distinct aspects of human actualization: Autonomy (a strong sense of individuality and personal freedom); Environmental Mastery (creation of a surrounding context so as to satisfy one’s needs and

desires); Personal Growth (a sense of dynamic life-long learning and continues development of one's potential); Positive Relations with Others (developed and kept warm ties with others); Purpose in Life (a sense of direction in life that unifies one's efforts and challenges); and Self-Acceptance (positive self-regard that includes awareness of personal limitations) (Gustainiene, 2012). These six constructs define PWB (also referred to as Eudaimonic Well-being) both theoretically and operationally and they specify what promotes emotional and physical health (Ryff & Singer 1998).

The debate between what really constitutes well-being is complicated and won't be settled easily. Both these views (HWB and EWB) offer theoretical and practical approaches of importance. Evidence from a number of investigators has indicated that well-being is probably best conceived as a multidimensional phenomenon that includes aspects of both the Eudaimonic and Hedonic conceptions of well-being. For example, Compton, Smith, Cornish and Qualls (1996) investigated the relation among 18 indicators of well-being and mental health, identifying two factors, one that seemed to reflect SWB and the other, personal growth. These two factors were themselves moderately correlated. The results of this study thus suggested that the Hedonic and Eudaimonic foci are both overlapping and distinct and that an understanding of well-being may be enhanced by measuring it in differentiated ways. King and Napa (1998) asked people to rate features of the good life and found that both happiness and meaning were implicated. Similarly, McGregor and Little (1998) analysed a diverse set of mental health indicators and also found two factors, one reflecting happiness and the other, meaningfulness. These researchers showed that, when pursuing personal goals, doing well and feeling happy may be disconnected from finding meaning and acting with integrity. Since the state of research regarding the conceptual debate, of (i.e. how SWB should be defined) does not allow for a clear theoretical frame on which to base empirical work, Ryan and Deci (2001), followed by Keyes and his colleagues (Keyes et al. 2002; Keyes 2006; Keyes & Magyar-Moe, 2003), and Lent (2004), have suggested that it would be optimal to consider SWB as integrating these two research trends, since each perspective sheds a different light on the construct. To that end, Diener et al. (1998) acknowledge that neither the Hedonic nor the Eudaimonic approach is sufficient in itself to explain the entirety of the construct of well-being. Therefore, in the PWBW structural model proposed in this study, both the Hedonic and Eudaimonic approaches to well-being were included. Hedonic well-being is presented separately by the two components of PA and NA in the model, whilst the higher order construct of EWB were also included in the model.

Dagenais-Desmarais and Savoie (2012) argue that work is a specific life domain, distinct from other domains which comprise specific parameters leading to unique experiences for

individuals. Most individuals spend at least half their waking hours at work, making this life domain a primary focus for most. Work is also a life domain offering individuals great opportunities to use their full potential while requiring them to embrace imposed responsibilities and externally prescribed expectations. For this reason, these authors (Dagenais-Desmarais & Savoie, 2012) argue that it is inadequate to only use context-free measures to determine employees' true psychological functioning. Another reason for conceptualising SWB to be domain-specific, is Diener and his co-workers' concern (Diener, Scollon, Lucas, 2003) that SWB can fluctuate between specific life domains. Studies have shown that general SWB is moderately correlated with SWB in specific life domains (Campbell et al., 1976). Furthermore, in the case of job or life satisfaction as components of HWB, research evidence provides mixed support for the relationship between life satisfaction and job satisfaction (e.g. Hart, 1999; Judge & Watanabe 1993; Rode, 2004). The cross-sectional correlations between life and work satisfaction reported ranged from  $r = .19$  to  $r = .49$  (Judge & Klinger, 2008). This suggests that one is not simply the contextualised transposition of the other. Empirical studies have also shown that work frame-of-reference measures grant incremental validity over context-free measures when predicting important organisational outputs such as performance (English, 2001; Hunthausen, Truxillo, Bauer & Hammer, 2003). This empirical evidence, combined with the rational argument favouring context oriented measures, support the hypothesis of a unique, yet related, conceptualisation of PWBW over context-free SWB.

Before the work of Dagenais-Desmarais and Savoie (2012) no adequate conceptual framework has been devoted specifically to Psychological Well-being at Work (PWBW). Previous research has focused mainly on identifying organisational characteristics leading to overall employee SWB (Warr, 2006), or on the effect of SWB (e.g. Cropanzano & Wright, 1999; Wright, Cropanzano, Denney & Moline, 2002). Research has also been conducted on job satisfaction, equating it with HWB (Ilies, Schwind & Heller, 2007). However, Cropanzano and Wright (1999) have argued that researchers too often measure one or several components of context-free SWB without questioning the adequacy of such a methodological choice when predicting organisational outcomes, such as performance.

Dagenais-Desmarais and Savoie (2012) utilised an inductive approach to develop the Psychological Well-being at Work (PWBW) construct. To ensure content validity, the Index of Psychological Well-being at Work (IPWBW) was developed using a bottom-up approach<sup>5</sup>. The model's fit indices were calculated through CFA to provide initial estimates for further efforts toward the confirmation of the PWBW structure. The CFA was performed on raw data, with the Maximum Likelihood estimation method in Amos (Arbuckle, 2006). The following fit indices were obtained  $\chi^2 = 1982.354$  ( $p < .001$ ); CFI = .906; RMSEA=.77 (.074; .080). Exploratory factor analysis (EFA) allowed for the identification of a sound and parsimonious five-dimension structure for the PWBW construct, namely Interpersonal Fit at Work (the perception of experiencing positive relationships with individuals interacting with oneself within the work context); Thriving at Work (the perception of accomplishing a significant and interesting job that allows one to fulfil oneself as an individual); Feeling of Competency at Work (the perception of possessing the necessary aptitudes to do one's job efficiently and have mastery of the tasks to perform); Perceived Recognition at Work (the perception of being appreciated within the organisation for one's work and one's personhood) and Desire for Involvement at Work (the will to involve oneself in the organisation and to contribute to its good functioning and success). According to Dagenais-Desmarais and Savoie (2012) these themes that emerged are not separate constructs manifesting themselves independently, but is rather an all-encompassing construct, PWBW, that interact with one another to reflect a larger theme.

In the only published (2012) study of the instrument (available at the time of this study), Dagenais-Desmarais and Savoie (2012) determined PWBW's convergent and discriminant validity by including other measures of well-being in their study. One of these measures was the PANAS. A correlation of .526 was found between PWBW and PA supporting the "related but distinct" nature of PWBW with regard to the context-free hedonic (PA) PWB dimensions. These authors also conducted a hierarchical regression analysis to further define PWBW's relationship with other well-being variables. The total score (PWBW) was used as the dependent variable to be predicted by overall scores of context-free PWB, psychological distress, PA, NA and satisfaction with life. After entry of the five indicators of psychological distress the total variance explained by the model as a whole was 34% of the variance of PWBW. In the final model, only context-free PWB, PA and satisfaction with life were

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<sup>5</sup> A series of 20 critical incident interviews were conducted with French-speaking workers from a variety of industry sectors. The participants were then asked to report critical incidents of PWBW that they had experienced. After identifying a manifestation pool derived from the participants' experiences, a further quantitative study was conducted to investigate the dimensional structure of PWBW.

statistically significant. This once again underscores the importance of PA for the PWBW construct.

According to Dagenais-Desmarais and Savoie (2012) PWBW incorporates both job satisfaction and Positive Affect components. Fredrickson's (2001) *Broaden-and-Build* theory states that positive emotions may foster more well-being in the sense that the positive emotions broaden a person's thought-action repertoire, encouraging them to discover novel lines of thought or action. Experiments have also shown that positive emotions produce patterns of thoughts that are notably unusual, flexible, creative and receptive (Isen, 1987). In more general terms, positive emotions "enlarge" the cognitive context, an effect linked to increases in brain dopamine. Therefore, it is argued in this study that an increase in PA will lead employees to experience more PWBW as the upward spiral will assist them to accumulate more resources, which should result in them experiencing more PWBW, noted through more experiences of Interpersonal Fit at work, Thriving at Work, Feeling of Competency at Work, Perceived Recognition at Work and a Desire for Involvement at Work. Therefore, it is hypothesised that PA will have a significant positive effect on PWBW.

**Hypothesis 3<sup>6</sup>: In the proposed PWBW model it is hypothesised that PA positively influences PWBW.**

Dagenais-Desmarais and Savoie (2012) further revealed in their study that a correlation of -.357 was found between PWBW and NA, indicating that a negative relationship between these two constructs exists. However, the results of the regression analysis from this study revealed that support was not obtained for NA being a predictor of PWBW (-.074) when the regression model also included the PA predictor. It is, however, proposed in this thesis that NA will have a significant negative effect on PWBW. It is argued here that if individuals experience more negative emotions such as feeling "distressed", "upset", "guilty", "scared", "hostile"<sup>7</sup> etc., they will be less able to experience "Thriving at Work", nor have a "Desire for Involvement at Work" or a "Feeling of Competency at Work", which are core dimensions in PWBW.

**Hypothesis 4: In the proposed PWBW model it is hypothesised that NA negatively influences PWBW.**

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<sup>6</sup> The hypotheses start with number 3, as Hypothesis 1 and 2 are set out for the exact fit and close fit of the structural model. This will be discussed in section 3.4.

<sup>7</sup> These words are some of the items on the Negative Affect subscale of the Positive and Negative Affect Schedule (PANAS) which was used in this study. The Scale will be introduced in section 3.6.1.

Work is a life domain offering individuals with great opportunities to use their full potential while requiring them to embrace imposed responsibilities and externally prescribed expectations (Dagenais-Desmarais & Savoie, 2012). The construct of PWBW seems to carry a strong Eudaimonic connotation as Dagenais-Desmarais and Savoie (2012) found Eudaimonic themes such as congruence and self-realization underlying the conceptualisation of the construct. Therefore, the subscales of PWBW show close similarities with the key EWB dimensions (as defined by Ryff 1989). For example, Feeling of Competency at Work (i.e. perception of possessing the necessary aptitudes to do one's job efficiently and have mastery of the tasks to perform) is conceptually close to the EWB Environmental Mastery component (i.e. a sense of mastery and competence in managing the environment). Moreover, it could be argued that Interpersonal Fit at Work (i.e. perception of experiencing positive relationships with individuals interacting with oneself within the work context) is conceptually similar to Positive Relations with Others (i.e. having warm, satisfying and trusting relationships with others and being concerned about the welfare of others); whilst Desire for Involvement at Work (i.e. will to involve oneself in the organisation and to contribute to its good functioning and success) can be related to some extent to Ryff's Purpose in Life (i.e. holds beliefs that give life purpose and has aims and objectives for living) dimension. However, on the other hand, the PWBW dimensions such as Thriving at Work and Perceived Recognition at Work clearly do not have equivalence in the context-free SBW (i.e. EWB) dimensions listed in this study, and represent distinctive components of PWBW (Dagenais-Desmarais & Savoie, 2012).

In order to investigate the convergent and divergent validity of the PWBW construct with EWB, Dagenais-Desmarais and Savoie's (2012) included the Psychological Well-being Manifestation Scale (Massé, Poulin, Dassa, Lambert, Bélair & Battaglini, 1998) in their study to measure EWB. This scale comprises of six dimensions, namely, Self-Esteem, Mental Balance, Social Involvement, Sociability, Control of Self and Event and Happiness. A correlation of .500 was found between this measure of EWB and PWBW (Dagenais-Desmarais & Savoie, 2012). According to Kline (1998), correlations in the order of 0.60 (and less) may be interpreted as providing support for discriminant validity (i.e. the various constructs do not overlap to such an extent that they measure exactly the same thing). It was therefore confirmed in their study that these two constructs share some variance, but also measure unique constructs. Based on these results it is argued here EWB would have an effect on PWBW.

**Hypothesis 5: In the proposed PWBW model it is hypothesised that EWB positively influences PWBW.**

### 2.4.1 Outcomes of SWB and PWBW

When it comes to happiness and success, Fisher (2010) argues that happy individuals are successful across multiple life domains, including income, work performance and health. These relationships are found not only because success brings happiness, but because happiness, in the form of trait and/or state Positive Affect, has a causal effect on success. Those who are happy, engage in behaviours that cascade to create improved outcomes in psychological, tangible and even psychological domains (Fisher, 2010). More than 90% of people agree with the statement that a happy worker is a productive worker (Fisher, 2003; Kluger & Tikochinsky, 2001; Ledford, 1999; Staw & Barsade, 1993). One explanation could be that happy individuals are more active, approach-oriented, energetic, interested in their work, sympathetic to their colleagues and persistent in the face of difficulties compared to their unhappy counterparts. The other reason, argued within the framework of the *Broaden-and-Build* theory (Fredrickson, 2001), is that happy employees may generate more job-related resources. For instance, happy employees may act in a more pleasant way so that colleagues are more inclined to provide instrumental, social and emotional support (Fisher, 2003). When reviewing studies of SWB in the workplace, it is important to note that in organisational research the terms SWB, happiness and job satisfaction are often used interchangeable (Hosie, Sevastos & Cooper, 2006). This is not theoretically correct, as argued earlier, but nevertheless, does happen.

Various researchers have engaged in studies to determine the correlation between “the happy worker” and “the productive worker”. A review that incorporated 254 studies showed an average correlation between overall job satisfaction and performance of .30 after correcting for measurement errors, with a stronger correlation for employees who performed tasks of higher complexity (Judge, Thoresen, Bono & Patton, 2001). Lee and Allen (2002) showed that work-related Positive Affect (e.g. enthusiasm, excitement) was positively correlated with colleagues’ ratings of help provided to other individuals ( $r = .18$ ) and with ratings of citizenship behaviour directed at the organisation more broadly ( $r = .24$ ). Other studies have operationalised performance as financial turnover. For instance, Koys (2001) showed that overall employee satisfaction correlated .35 with store profitability in the subsequent year. Lyubomirsky, King and Diener, (2005) analysed 10 studies with longitudinal research designs that included a diverse set of SWB measures that were affective in nature (e.g. PANAS, one-item happiness, positive emotions on the job) as well as job performance (e.g. supervisory evaluations, salary, absenteeism, second interviews) across different time frames (ranging from 3 months to 19 years). On the whole, the authors reported an average longitudinal correlation of .24, suggesting that happiness precedes job



performance. Bakker (2009) concluded in his study that positive affective states of SWB that are characterised by high levels of pleasure and activation, such as Work Engagement and happiness at work, are positively related to high levels of job performance. A recent meta-analysis of the happiness-success relationship included more than 25 workplace studies and observed correlations to outcomes such as supervisor ratings, organizational citizenship behaviour, turnover intentions, satisfaction with work, customer service, job autonomy, and job performance (Lyubomirsky et al., 2005).

#### **2.4.2 Antecedents of SWB and PWBW**

Numerous studies have reported on the relations between well-being, personality and genetics. Well-being research, including studies with twins, indicates that nearly half of reported level of happiness is determined by a genetic set point or set range (Diener et al., 1999). While much of happiness appears to be determined at birth, it is believed that individuals can move within the upper and lower bounds of their happiness set range.

When it comes to personality, the Big 5's relations to well-being have been thoroughly researched. Extraversion and Neuroticism have received the most empirical attention in relation to SWB. Fujita (1991) determined the correlation between Extraversion and Positive Affect to be .80 and that Neuroticism and the experience of Negative Affect were virtually indistinguishable. Costa and McCrae (1980) discovered that Extraversion predicted Positive Affect and Neuroticism predicted Negative Affect over a ten-year period. DeNeve and Cooper (1998) have conducted a meta-analysis where they identified Extraversion and Agreeableness as consistently positively correlated with global SWB, whilst Neuroticism was consistently negatively related. Conscientiousness and Agreeableness both correlate moderately with SWB but at lower levels than Extraversion and Neuroticism. The fifth trait of the Big Five, Openness to Experience, is generally not related to an individual's experience of Positive- or Negative Affect or life satisfaction (Gottfredson, 1994).

Other happiness-relevant circumstances may include the region in which one lives, or life status variables such as job status, income, health, marital status, or religion (Diener et al., 1999). Contrary to popular belief, as little as 8-15% of variance in happiness levels is accounted for by all circumstantial factors combined (Argyle, 1999; Diener et al., 1999). While it seems likely that a positive change in circumstance will have an initial positive impact on one's happiness, the concept of Hedonic adaptation (Fredrick & Loewenstein, 1999; Kahneman, 1999) suggests that humans readily adapt to change, whether the change is positive or negative. As a result, the excitement of a new car, home, or job, or the sadness

that accompanies losing a colleague or experiencing bodily injury, typically wears off over time as people return to their previously-established happiness level.

Although many other variables, as discussed above, have an influence on SWB, this study will solely focus on positive state-like constructs (e.g. PsyCap) that can be developed within the workforce. It is argued in this study that being able to develop these constructs, it provides HR with leverage to develop and maintain a healthy workforce. The importance of the influence of personality on SWB is well researched, whilst the variables included in the POB field provides a unique opportunity of incremental exploration.

## **2.5 PSYCHOLOGICAL CAPITAL (PsyCap)**

The concept of Positive Psychology was introduced by Martin Seligman in 1998 (Seligman & Csikszentmihalyi, 2000). This movement placed emphasis on the study of optimal human functioning and the variables that promote positive human emotions, traits and institutions (Seligman & Csikszentmihalyi, 2000). Positive psychology focuses on building strengths and competencies, as opposed to merely treating disorders, deficits and pathologies (Seligman, 2003). Most research in this field include multiple theoretical and research areas that share a communal focus on positive (optimal) human functioning, psychological (or subjective) health, peoples' adaption to illnesses and other forms of adversity. The increased focus on these positive phenomena has generated a corresponding upswing, in both scientific and lay interest, in such topics as Positive Affect, meaning, mastery, personal growth, forgiveness, Gratitude, Hope, Optimism and spirituality. These concepts have also been explored in their relation to mental and physical health, and their potential application to promote well-being and health (Selegman & Csikszentmihalyi, 2000).

In this study where the focus is on understanding the unique interplay between the psychological strengths of individuals in the workplace to explain variance in PWBW, it is argued that positive psychological capital plays a key role. It is argued that individuals with higher levels of PsyCap use intentional efforts to produce creative ways of attaining goals. These individuals possess the confidence (Self-efficacy) necessary to arrive at desired goals, develop alternative paths when obstructions arise (Hope), have a positive attribution and outlook for the future (Optimism), and are able to bounce back from setbacks (Resilience) in case of any difficulty or failure that may arise due to implementing innovative ideas (Avey, Wernsing, & Luthans, 2008; Luthans et al., 2007c). For example, it has been shown that individuals with higher levels of PsyCap, at difficult times of organisational change, show positive Work Engagement and Organisational Citizenship Behaviours (OCBs) (Avey et al., 2008). Together, these PsyCap resources have cognitive, affective,

motivational and decisional components (Bandura, 1997; Bandura, & Locke, 2003; Carver & Scheier, 1999; Peterson, 2000) that facilitate the attainment of higher levels of well-being in the workplace. For example, Avey, Luthans, Smith and Palmer (2010) have proposed that PsyCap is related to, and may help facilitate, the occupational health objective of attaining higher levels of employee Psychological Well-being. Other researchers in occupational health and health psychology have demonstrated that well-being is indeed impacted by PsyCap (Avey et al., 2009), as well as its individual constructs of Hope (Snyder, Lehman, Kluck & Monsson, 2006), Resilience (Britt, Adler & Bartone, 2001), Self-efficacy (Bandura, 1997), and Optimism (Carver, Smith, Antoni, Petronis, Weiss & Derhagopian, 2005).

The *Broaden-and-Build* theory has specific relevance to this argument. Fredrickson and Joiner (2002) provide both theoretical and empirical evidence that positive emotions trigger “upward spirals” of broader thinking, functioning and well-being. This could thus serve as a framework for introducing positive psychology within the well-being domain, as these broadening processes act in a synergistic way with each other and help to build enduring personal resources. For example, multiple researchers (e.g. Fredrickson & Joiner, 2002; Fredrickson, 2004; Garland et al., 2010) have been able to show that the complementary upward spiral which occurs through the experience of positive emotions and broadened thinking influences one another reciprocally, leading to substantial increases in emotional well-being over time. Hence it is proposed that the positive psychological capacities embodied within PsyCap (i.e. Hope, Optimism, Self-efficacy and Resilience) would, due to the positive emotional affect underlying the capacities, act in an integrative, interactive and broadening way to affect SWB.

Another relevant theory to be applied in this study is Conservation of Resource Theory (COR) (Hobfoll, 1989). This theory emerged from resource and psychosocial theories of stress and human motivation and has the premise that individuals strive to obtain, retain, protect and foster resources and that individuals with more resources are less vulnerable to resource loss and more capable of orchestrating resource gain (Hobfoll, 2001). Social scientists who study stress have found that personal resources (e.g. perceived self-control, Self-efficacy, and perception of improvement) and social resources (e.g. emotional support, assistance from managers and co-workers) buffer against the negative impact of stressful life events. Resources are defined as objects, conditions, personal characteristics, and energies that are either itself valued for survival, directly or indirectly as a means of achieving these resources (Alvaro, Lyons, Warner, Hobfoll, Martens, Labonte & Brown, 2010). The type of resources that are relevant in this study are personal resources / capabilities (which include skills and traits, such as Gratitude or PsyCap) as well as social

resources (Organisational Support). Individuals with fewer personal (e.g. less PsyCap) and social resources (e.g. less support) are more vulnerable to resource loss, less capable of resource gain and highly risk-adverse – which would all translate into less SWB and PWBW. Their high-resource counterparts are just the opposite (Hobfoll, 2001). COR theory also suggests that having one major resource is typically linked with having others (Hobfoll, 2001). For this reason, resources must be invested to gain additional resources and to offset the potential or actual loss of resources (Alvaro et al., 2010).

Within the framework set by the *Broaden-and-Build* theory, as well the COR theory, the four PsyCap constructs will now be discussed in terms of their definitions, relevance to well-being and underlying relationships with the other constructs included in this study.

## **2.5.1 Hope**

### **2.5.1.1 Hope Defined**

Most people think of Hope as simply wishful thinking or sunny advice offered by friends and family “hoping for the best” in times of trouble. Throughout history, such Hope has been portrayed as both a positive and negative human attribute, with famed mental health physician Karl Menninger (1959) referring to Hope as “a motive force for a plan of action” (p 439), whereas the early philosopher and statesman Francis Bacon warned: “Hope is a good breakfast, but a bad supper”, insinuating that one should be hopeful at the beginning of a task, journey, search, etc., but at the end of it, one should have accomplished what one intended to. If Hope still exists, the “journey” is either not completed or has not been satisfactory. The absence of Hope, however, does not indicate that the journey was a success.

These loose terms do not offer a measurable construct and is restricted to lexical use. To use this construct in its full, positive, measurable domain, the PsyCap Hope construct embodies the definition provided by Snyder (2002, p.250): “Hope is a positive motivational state that is based on an interactively derived sense of successful (a) agency (a sense of willpower, or determination to begin and maintain the effort needed to achieve goals) and (b) pathways (a sense of waypower, or belief in one’s ability to generate successful plans and alternatives when obstacles are met in order to achieve goals).” Agency is further described by Snyder (2000) as reflecting a person’s desire to get started towards a goal as well as the “stick to it” aspect of not prematurely abandoning the attempted journey. It refers to the motivation we have to undertake the routes towards the goals. It also refers to the successful determination in meeting goals in the past, present and future. These self-referential thoughts involve the mental energy to begin and continue using a pathway through all

stages of the goal pursuit. Related to this point, there are evidence that high-Hope individuals embrace such self-talk agency phrases as, “I can do this,” and “I am not going to be stopped” (Snyder, Laponite, Crowson, & Early, 1998).

Pathways, on the other hand, are characterised as the ability to come up with alternative plans of action should an initial path towards a goal be blocked. As such, high - as compared to low - Hope individuals should be more decisive (and certain) about the pathways for their goals (Woodbury, 1999). For a low-Hope person, the pathway thinking is far more fragile, and the resulting route is not well articulated. Beyond the primary route, the high-Hope person also should be very good at producing plausible alternate routes. High-Hope individuals describe themselves as being flexible thinkers who are facile at finding alternative routes, whereas low-Hope persons report that they are less flexible (Irving, Snyder & Crowson, 1998). Pathway thinking should become increasingly refined and precise as the goal pursuit sequence progress toward the goal attainment. Differences in this process should appear, however, depending on the trait Hope level of the person. That is to say, high-Hope individuals, more so than low-Hope individuals, should more quickly tailor their routes effectively so as to reach their goals (Snyder, 2002). Snyder (2000) asserted that an individual low in planfulness is disadvantaged under normal circumstances and is especially problematic during difficult times. However, a person with a definite sense of pathway thinking is not hindered by obstacles but instead look for alternative means to achieve a desired goal or outcome.

For hopeful thinking to exist, it necessitates both pathways and agency thoughts. These two concepts feed on each other and are thus iterative, as well as additive, over a given goal pursuit sequence (Snyder, 1995). Because of varying levels of hopeful thoughts, however, differing robustness should emerge in pathways and agency thoughts. The full high-Hope person (i.e. high pathways and high agency) will have iterative pathway and agency thoughts that are fluid and fast throughout the goal pursuit sequence. Contrariwise, the full low Hope person (i.e. low pathways and low agency) will have iterative pathway and agency thoughts that are halting and slow in the goal sequence. The mixed pattern of high pathways and low agency would entail active routing thoughts that are not energised by the necessary motivational thinking. On the other hand, the mixed pattern of low pathways and high agency would entail active motivation that is basically useless without the necessary pathway thoughts. In these missed Hope patterns, the weakest agency or pathways component slows the iterative thinking (Snyder, 2002).

Goals are the cognitive component that anchors the Hope theory (Snyder, 1994). These goals are necessarily valuable and uncertain and provide both direction and an endpoint in hopeful thinking. Goals remain but unanswered calls without the requisite means to reach them. Accordingly, people approach particular goal pursuits with thoughts of generating usable routes (Snyder, 2002). For a high-Hope person pursuing a specific goal, this pathway thinking entails the production of one plausible route, with a connected sense of confidence in this route. Barriers can come to the foreground during the pursuit of the goals. In these circumstances one has a decision to either give up, or use one's pathway thoughts to create new routes. High-Hope individuals will persevere to reach their goals and thereby redirect their path to overcome the obstacle. Snyder, Irving and Anderson (1991) have found that high-Hope individuals cope with obstacles more effectively as they tend to have several alternative routes, allowing them to better handle or avoid stress and negative emotions associated with setbacks (Snyder, et al., 1991).

According to Snyder (2000), Hope has been theoretically and psychometrically shown to be both dispositional and state-like. In order to include Hope in the POB framework, the focus will fall on the state-like properties, as it is subjective to development and change. Snyder (2000) describes Hope as a relatively enduring mind-set, but also emphasised that there exists a more transitory state form of Hope that can be developed and managed.

There are two general types of desired goals in Hope theory; the first reflect positive or "approach" goals and the second involves the prevention of a negative goal outcome. The approach goal may (a) be envisioned for the first time; (b) relate to the sustaining of a present goal; or (c) represent the longing to improve a positive goal wherein one already has made progress. Prevention of a negative goal, in its strongest form, is stopping something before it happens, or delaying the unwanted.

#### **2.5.1.2 Hope and SWB**

In the Hope theory, emotions are reflections of responses to the perception as to how one is doing (or has done) in the goal-pursuit activities. Positive emotions should thus flow from the perceptions of successful goal pursuit. The perception of successful goal pursuit may result from unobstructed movement towards desired goals or it may be that the individual has effectively overcome obstacles or blockages that have appeared in the goal pursuit. For persons that are high as compared to low in Hope, there should be differing emotional sets that they have about their lives (Snyder, 2002). Other researchers have also stated that goal attainment is associated with positive emotions (Snyder, Sympson, Ybasco, Borders, Babyak & Higgins, 1996), whereas goal blockages are related to negative emotions (Diener,

1984). Snyder (2000) states that this is not always the case as high-Hope individuals do not react in the same way to barriers as low-Hope individuals, instead they view barriers as challenges to overcome and use their pathway thoughts to plan alternative routes to their goal (Snyder, 2000). A high-Hope individual should have enduring positive emotions, with a sense of an effective “appetite” in the pursuit of goals. A low-Hope person, on the other hand, is predicted to have negative emotions, with a sense of affective lethargy about the pursuit of goals. Therefore, the dispositional Hope levels also should have associated emotional sets that are brought to bear on particular goal pursuit activities (Snyder, 2002). Diener (1984) found that low Hope is associated with negative outcomes including a reduction in well-being.

In this sense, it is argued that the positive emotions derived from the attainment of goals can be seen in a Hedonic light and hence lead to higher Positive Affect (PA). In the same sense it can be argued that these individuals do not experience a great deal of negative emotions (i.e. Negative Affect; NA), as it will only lead to obstruction in their goal pursuing exertions. Therefore, the following hypotheses were included in this study:

**Hypothesis 6: In the proposed PWBW model it is hypothesised that Hope positively influences PA.**

**Hypothesis 7: In the proposed PWBW model it is hypothesised that Hope negatively influences NA.**

Although the above argument provides sufficient evidence that Hope may most likely have a positive effect on HWB (defined as both PA and NA), it can also be argued that Hope constitutes the very essence of a healthy mind, as goal-directed behaviour is so inherently part of human behaviour. Overcoming unforeseen obstacles by redirecting the pathways to these goals is only a possibility for those with an open and clear mind.

In terms of Eudaimonic Well-being it can be argued that the motivational state imbedded in Hope will lead to the ability to regulate behaviour from within, thereby being self-determinant and independent (Autonomy). The motivation component, together with the will- and waypower will further lead the individuals to develop a sense of mastery and competence in managing the environment. By overcoming obstacles i.e. pathway thinking, they will learn to make effective use of surrounding opportunities and thereby also choose or create contexts suitable to personal needs and values (Environmental Mastery). The pathway thinking will further lead the individuals to see themselves grow and they will thus open themselves to new experiences and see improvement in themselves and their behaviour overtime

(Personal Growth). As Hope is the “stick to it” aspect and high-Hope individuals will not prematurely abandon a journey, it could be argued that high-Hope individuals will also not easily abandon people they treasure, provided that these high-Hope individuals enjoy the company of others. In this case, it could be argued that high-Hope individuals may more regularly develop trusting relationships and will be concerned about the well-fare of others (Positive Relations with Others). Lastly high-Hope individuals will, due to their perseverance, develop a sense of directedness with aims and objectives, thereby developing Purpose in Life. They will also develop positive attitudes towards the self (Self-Acceptance). It is therefore proposed that Hope will have a positive effect on EWB.

**Hypothesis 8: In the proposed PWBW model it is hypothesised that Hope positively influences EWB.**

### **2.5.1.3 Hope in the Workplace**

In the workplace it is often evident that some employees get discouraged, lose motivation and give up, while others remain hopeful, create alternative plans and persevere. Recent theory on POS (Cameron, Dutton & Quinn, 2003) and POB (Luthans 2002a, 2002b) suggests that Hope play an important role in employee performance. Accordingly, high-Hope individuals are likely to be more productive and higher performing employees. However, merely stating that hopeful employees are more likely to reach their goals, and therefore, perform at higher levels is not sufficient. The argument is rather that Hope is positively related to job performance because of the cognitive process underlying Hope (i.e. pathways and agency thinking) and the behaviours that are likely associated with these cognitive processes (Peterson & Byron, 2007).

According to Luthans and Jensen (2002), Hope can be developed in employees to help them better cope and thrive within the uncertain and turbulent environments and also have the bonus effects of making employees more effective organisational performers. Moreover, it can then be argued that the Hope theory has considerable power that needs to be recognised and understood to become a vital part of human resource development (Luthans & Jensen, 2002).

## **2.5.2 Optimism**

### **2.5.2.1 Optimism Defined**

Optimism can be defined as making an internal, relatively stable and global attribution regarding positive events, such as global achievement, and an external, relatively unstable, and specific cause for negative events such as a failed attempt of reaching a goal



(Seligman, 1990). The inference can thus be drawn that optimists attribute positive events to personal, permanent and pervasive causes and interpret negative events in terms of external, temporary and situation specific factors. In layman terms optimists can be defined as “people who expect good things to happen to them” while pessimists are “people who expect bad things to happen to them” (Carver & Scheier, 2005; p. 231). Scheier and Carver (1993) define Optimism as a generalised expectancy that one will experience good outcomes in life. This definition of Optimism was used in the development of the PsyCap questionnaire (and construct). This definition makes no distinction regarding the agency through which Optimism occurs, whether through the individual’s efforts, the efforts of others, or outside forces. According to Scheier and Carver (1992) Optimism leads to persistence in goal-directed striving and some authors have characterised Optimism as the most powerful predictor of behaviour. Scheier and Carver (1985) further regard Optimism as a goal-based construct which is present when an outcome has significant value. The theory of dispositional Optimism (Scheier & Carver, 1985) states that one’s thoughts about the future affect one’s circumstances because by expecting to do well, one will work more effectively and persist more to achieve the set goals.

There are currently two main views of Optimism, one being an explanatory style and the other a dispositional Optimism view. The explanatory style seeks to determine people’s beliefs based on past experiences and constitutes a more indirect approach to studying Optimism. It is based on an individual’s attributional style, i.e. formed by the way we perceive or explain past life experiences. People who believe their past experiences were positive and that negative memories were out of their control (external factors) are said to have a positive explanatory style, or are deemed to be optimistic. Seligman (1998) believes there are three major factors that determine what a person's explanatory style is: permanence, pervasiveness, and personalisation. Permanence embodies the idea that people believe they are the cause of negative events and that bad experiences will always be with them. Such individual’s views are pessimistic in nature. The way we interpret and cope with life events determines the way we let them interfere with our functioning. Speaking in terms of “sometimes” and “under certain conditions” is healthier than using phrases such as “always” and “forever” (Seligman, 1998, p. 44). The second factor in defining a person's explanatory style, as described by Seligman (1998), is pervasiveness. Pervasiveness (specific vs. universal) is based on the way individuals allow unfortunate circumstances to affect their entire lives. Individuals who look at disappointment, such as getting a bad grade in a class, as being a total failure in everything they do, will describe their misfortune in “universal” terms. On the other hand, individuals who get a bad grade, and can isolate the bad grade to

just that grade, are said to be making a "specific" explanation of the event. The specific pervasiveness style allows such individuals to not explain things in black and white terms and view misfortunes as situation specific. Therefore, they are able to reinforce and enhance the positive qualities that they do have; even when they are faced with negative life events (Seligman, 1998, p. 47). The third and final part of a person's explanatory style is personalisation (internal vs. external). Personalisation deals with the way people describe the cause of bad events. They either blame themselves (internal), which causes low self-esteem, or they blame others (external), and tend to like themselves better.

The second type of Optimism, termed dispositional Optimism, attempts to study Optimism through direct beliefs individuals have regarding future life events. These direct beliefs are measured directly by using measures such as the Life Orientation Test-Revised (LOT-R; Scheier et al., 1994). This approach is more focused on optimistic beliefs about future events, compared with the attributional theory, which aims to understand why people are optimistic or pessimistic and how they became that way. Through the direct beliefs optimistic individuals have regarding their future events, optimists can easily be studied. It also allows for studying Optimism with other known variables that promote psychological and physical well-being (Scheier & Carver, 1992). However, only identifying the beliefs of Optimism and not the causes, does not allow for the origin of negative belief systems to be studied. Therefore, the use of an attributional style model appears to be a better way to understand why people are optimistic or pessimistic, while the direct belief model is more capable of just measuring if a person has an optimistic or pessimistic view of future events.

Gillham and Seligman (1999) stated that the beneficial effects of Optimism have been shown to enhance one's ability to deal with stress and depression. Seligman (1998) reported that optimistic people experience less depression and increased enjoyment in social interaction. This is due to their ability to expect positive future outcomes based on positive past experiences.

#### **2.5.2.2 Optimism and SWB**

The positive psychology movement has built upon working towards the positive aspects of 'human strengths and virtues' (Sheldon & King, 2001) and the aspect of the human conditioning that leads to happiness rather than being focused on healing (Seligman & Csikszentmihalyi, 2000). The power of positive thinking to promote well-being is encouraged with confident thoughts providing an optimistic outlook on life (Marshall, Wortman, Kusulas, Hervig & Vickers, 1992). This stance is supported by Diener et al. (1999) which reported that Optimism correlates significantly with SWB. Carver (2006) further states that because

optimists believe adversity can be handled successfully and because they expect good outcomes, they are likely to experience a more positive mix of feelings. These positive feelings experienced by individuals in their state of Optimism, is purely Hedonic, as the absence of pain and the presence of pleasure and positivity are what is experienced. At the opposing end, pessimists believe that the final result will be negative, causing these individuals to be more susceptible towards the experience of negative emotions such as anxiety, guilt, anger and grief (Carver & Scheier, 2004). The results of a meta-analysis on “happiness” research clearly provided empirical support for the view that happy, positive people have better physical and mental health (Lyubomirsky et al., 2005). According to Strutton and Lumpkin (1992) optimists are expected to use more effective coping strategies that may buffer them against the detrimental effects of stress and other strain-related diseases associated with ill health, resulting in better well-being. Moreover, Gillham and Seligman (1999) hold that the beneficial effects of Optimism have been shown to enhance one’s ability to deal with stress and depression. Steyn (2011) included Optimism in her study and measured it with the LOT-R (positive) scale. Occupational well-being was measured with the General Health Questionnaire. The findings revealed that low to moderate significant negative<sup>8</sup> correlations between LOT-R scores and the GHQ subscales emerged: GHQ Somatic symptoms ( $r = -.386$ ,  $n = 202$ ,  $p < .01$ ), GHQ Anxiety ( $r = -.371$ ,  $n = 202$ ,  $p < .01$ ), GHQ Dysfunction ( $r = -.359$ ,  $n = 202$ ,  $p < .01$ ), and GHQ Depression ( $r = -.433$ ,  $n = 202$ ,  $p < .01$ ). Since higher scores on the GHQ as a clinical measure are indicative of the possible presence of pathology (Goldberg, 1972), these negative correlations corroborate the relationship between Optimism and good Psychological Health. Steyn (2011) thus found full support for the hypothesis that a positive relationship exists between Optimism and general Psychological Health, defined as a component of Occupational Well-being. Moreover, the results of the structural model indicated that Optimism directly predicted Psychological Health, as measured by the GHQ, as well as through an indirect link through Engagement. Optimism furthermore, had an indirect effect on Satisfaction with Work-Life through Engagement and Organisational Commitment (Steyn, 2011).

The effect of Optimism on Psychological Health has also been studied by Taylor, Kemeny, Reed, Bower and Gruenewald (2000). Their research suggested that if an individual can practise optimistic habits then they can enhance their Psychological Health. Positive and optimistic thoughts are deemed to have protective psychological effects on preserving mental health as well as improving it (Taylor, et al., 2000). Furthermore, research by Carver

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<sup>8</sup> Lower scores on the GHQ scale indicate better psychological health.

and Scheier (2002) has confirmed that positive thinking impacts the way that individuals respond to difficult situations.

Lyubomirsky, Dickerhoof, Boehm and Sheldon (2011) conducted an 8-month-long experimental study to examine the immediate and longer term effects of regularly practicing two assigned positive activities of which 'expressing Optimism' was one. It was found that the amount of effort that participants applied to the intervention activities, including imagining their best possible future, was directly related to improvements in their subsequent well-being. Lucas, Diener, and Suh (1996) revealed that Optimism correlates with measures of SWB such as life satisfaction, pleasant affect and unpleasant affect. It is, therefore, proposed in this study that higher levels of Optimism would be related to higher levels of HWB, i.e. an increase in self-reported Positive Affect and a decrease in self-reported Negative Affect.

**Hypothesis 9: In the proposed PWBW model it is hypothesised that Optimism positively influences PA.**

**Hypothesis 10: In the proposed PWBW model it is hypothesised that Optimism negatively influences NA.**

Scheier and Carver (1985) have referred to Optimism as a goal-based construct which is present when an outcome has significant value. This leads to the argument that Optimism has to be present when individuals engage in a meaningful task, as they have to be optimistic to achieve the outcome they desire. Optimism is a generalised tendency to expect favourable outcomes in one's life (Scheier & Carver, 1985). Specifically, those who believe that positive outcomes will follow when working towards a goal are more likely to achieve their goal, whereas, those who expect failure are more likely to disengage from their goal. This pattern leads optimists to achieve their goals more often than pessimists. Scheier and Carver (1993) reviewed findings showing that optimists maintain higher levels of SWB when facing a stressor. Scheier, Weintraub, and Carver (1986) found that optimists tend to use problem-focused coping, seek social support, and emphasise positive aspects of the situation upon encountering difficulties. Pessimists tend to use denial, focus on stressful feelings, and disengage from relevant goals. It appears that those who think positively use more effective forms of coping.

It could therefore be proposed that Optimism may be a significant contributor to EWB as it can be argued that Optimism may affect several of the EWB's core dimensions. For example, it could be argued that the achievement orientation of optimistic individuals could

enhance / impact on the sense of mastery and competence such individuals experience in managing their environments (Environmental Mastery). Optimists' ability to easily make decisions will possibly lead to an increase in Autonomy, i.e. being self-determined and independent (Ryff, 1989) and thereby making decisions without being pressured by social forces. Furthermore, the optimists' belief that people are inherently good may possibly lead to higher levels of Positive Relations with Others, as they should more easily form warm satisfying relationships with others due to being more concerned about others' welfare (Ryff, 1989).

**Hypothesis 11: In the proposed PWBW model it is hypothesised that Optimism positively influences EWB.**

Scheier et al., (1986) revealed that optimists seek social support. A supportive climate may create positive conditions which will allow PsyCap to flourish (Luthans, Avolio, Avey & Norman, 2007b). When it comes to optimists in the organisation, mistakes are more likely attributed to external, unstable and specific causes. If employees make mistakes in a supportive climate, the climate may contribute to them feeling confident in their abilities, allowing them to attribute failures to external circumstances vs. low personal knowledge, skills and abilities (Luthans et al., 2007b). Following this argument, because of the positive attributional style held by such individuals, they will more easily perceive the working environment to be supportive than their pessimistic counterparts. It is therefore argued that Optimism will lead to Perceived Organisational Support (POS)<sup>9</sup>.

**Hypothesis 12: In the proposed PWBW model it is hypothesised that Optimism positively influences POS.**

### **2.5.2.3 Optimism in the Workplace**

In the workplace, optimistic employees tend to use more problem-solving techniques to deal with stressful or difficult tasks, whereas pessimists were found to make more use of avoidant behaviours, such as overeating, sleeping and drinking (Strutton & Lumpkin, 1992). A study was conducted by Phelps and Waskel (1994) to determine the relationship between Optimism and increased performance and production. Among women between the ages of 40 and 75 years old, those who had a more positive explanatory style were found to be more

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<sup>9</sup> Perceived Organisational Support (POS) refers to employees' perception concerning the extent to which the organisation values their contribution and cares about their well-being (Eisenberger, Huntington, Hutchinson & Sowa, 1986). This construct will be introduced at a later stage in this chapter.

productive at work, enjoyed being at their job and were more creative with their skills. Other research on Optimism in the workplace has examined the physical and psychological health of women. A study by Fry (1995) aimed to determine if Optimism played a role in the physical and psychological health of women executives in Canada. The participants were 104 women with 79% between the ages of 36 and 52. Various assessment tools were used to determine levels of Optimism, self-esteem, and physical complaints. The authors measured Optimism using the Life Orientation Test (LOT). Self-esteem was measured by the Rosenberg Self-Esteem Inventory (RSEI) and health was assessed by the Health Opinion Survey (HOS). Results of the study found that Optimism was associated with higher self-esteem, less physical complaints, and lower burnout rates among the women executives. The researchers point out that these findings have important implications for helping women acclimate to both the psychological and physical stressors in high stress jobs. This research suggests that developmental interventions and prevention programs, focused on increasing Optimism levels to enhance the physical/Psychological Well-being of employees, may lead to increased production and satisfaction in the workplace.

### **2.5.3 Self-efficacy**

#### **2.5.3.1 Self-efficacy Defined**

According to Luthans et al., (2007b) PsyCap was founded on theoretical frameworks that have been widely recognised. One of the frameworks is Bandura's (1986) Social Cognitive Theory. Self-efficacy expectations, according to Bandura (1977, 1986), can be defined as one's belief of being able to cope with specific tasks and situational demands. Bandura (1986) further postulates that Self-efficacy operates as a cognitive mechanism through which perceived controllability reduces stress reaction. The concept has its roots in Bandura's Social Learning Theory and can also be defined as one's confidence in one's ability to mobilise the motivation, cognitive resources, and courses of action necessary to execute a specific course of action within a given context (Stajkovic & Luthans, 1998). Those individuals who are high on Self-efficacy tend to choose more challenging tasks and activities, extend their motivation and effort to successfully accomplish their goals and persevere when faced with obstacles (Luthans & Youssef, 2004).

The early development of the Self-efficacy theory was influenced primarily by two interacting factors (Bandura, 1977). It was firstly influenced by the development of the capacity for symbolic thought, particularly the capacity for understanding cause-and-effect relationships and the capacity for self-observation and self-reflection. In infancy, one starts to develop a sense of personal agency. This moves from the perception of the causal relationship between events, to an understanding that actions produce results, to the recognition that

one can produce actions that cause results. Secondly, the development of Self-efficacy is influenced by the responsiveness of environments, particularly social environments, to the youngster's attempts at manipulation and control. Those environments that are responsive to the child's action facilitate the development of efficacy beliefs, where non-responsive environments will inhibit this development. Efficacy beliefs and a sense of agency continue to develop throughout the life-span as one integrates information from five primary sources, i.e. performance experiences (successful attempts at control that one attributes to one's own efforts will strengthen Self-efficacy for that behaviour or domain); vicarious experiences (one's observations of the behaviour of others and the consequences of those behaviours); imaginal experiences (imagining oneself or others behaving effectively or ineffectively in hypothetical situations); verbal persuasion (what others say to one, regarding what they believe one can or cannot do), and physiological and emotional states (influence Self-efficacy when one learns to associate poor performance or perceived failure with aversive physiological arousal and success with pleasant feeling states) (Bandura, 1997).

Self-efficacious individuals have specific traits and characteristics. According to Luthans et al., (2007c) these individuals can be identified or distinguished by five important characteristics. They (1) set high goals for themselves and select themselves to enter these difficult tasks; (2) they welcome and thrive on challenges; (3) these individuals are highly self-motivated; (4) they devote the required effort to accomplish the tasks; and (5) they will persevere when faced with obstacles (Luthans, et al., 2007a). These individuals will continuously challenge themselves with higher self-set goals by seeking and voluntarily opting for difficult tasks (Luthans, et al., 2007a). These individuals thus have the ability to persevere in their goal-directed behaviour.

Self-efficacy theory has proposed that all forms of psychotherapy and behavioural change operate through a common mechanism: the alteration of the individual's expectations of personal mastery and success (Bandura, 1977). According to this theory, two types of expectancies exert powerful influences on behaviour, namely outcome expectancies and Self-efficacy expectancies. The former refers to the belief that certain behaviours will lead to certain outcomes; and the latter that one can successfully perform the behaviour in question (Sherer, et al., 1982).

One last theoretical comment that needs to be made regarding the conceptualisation of this construct is that it exists in two forms; namely specific Self-efficacy (SSE) and general Self-efficacy (GSE). The former refers to efficacy beliefs that are task specific, where the latter refers to the concept in a more global nature. Both forms have self-confidence as the basis

of self-evaluation. Although originally described as applying to a very specific domain of activity, there is increasing recognition that individuals can also have a “generalised” level of Self-efficacy across a common domain of challenges and tasks, such as the workplace (Parker, 1998). GSE is a motivational state as it involves the individual's beliefs regarding their abilities to perform and succeed at tasks across different situations (Kanfer & Heggestad, 1997).

### **2.5.3.2 Self-efficacy and SWB**

Research has indicated that high levels of Self-efficacy constantly enable individuals to confront formerly fear and anxiety provoking stimuli (Bandura, 1977). Jex and Bliese (1999) conducted research on the buffering effect of Self-efficacy with regards to the negative impact of work stressors of the Psychological Well-being of employees. It was argued that individuals high on Self-efficacy are more likely to confront their stressors, while those low on Self-efficacy are more likely to be consumed by it (Kinicki & Latack, 1990). Therefore, by relying on their problem-focused coping, employees higher on Self-efficacy are better equipped to have more adaptive reactions to setbacks and stressors in their work environment, and are accordingly more likely to preserve healthy levels of SWB (Sivanathan, Arnold, Turner & Barling 2004). It has also been determined by previous research that Self-efficacy affects positive adaptation to healthy actions, as well as the facilitation of constructive behavioural modifications when confronted with adversity. On a physiological level Bandura (1977) has argued that high levels of Self-efficacy can initiate the emission of catecholamine and serotonin within the human body. Catecholamine is crucial to the effective stress management while serotonin is known as the “happy hormone” which allows us to feel moments of ecstasy.

The ability of highly efficacious individuals to foster feelings of competence in particular domains through the extent of effort, may accordingly lead them to flourish and expect similar, positive outcomes in future (Bandura, 1986). Hence, they may be better equipped to regulate their personal notions of perceived stress and strain (Bandura, 1997). Steyn (2011) stated that individuals high on Self-efficacy may exhibit better Psychological Well-being, simply because after having failed once, they will continue to persist in their efforts without being burdened by feelings of inadequacy and low self-worth that are often associated with a lack of mental well-being. Research has indicated that individuals with high levels of Self-efficacy are much more confident and more self-assured in their ability to accomplish goals. This consequently makes them achievers within the organisational setting (Stajkovic & Luthans, 1998). It could be argued that this central role of self-regulation and motivation, together with confidence being embedded in the construct will lead to certain dimensions of



EWB. It could, firstly, lead to Environmental Mastery in the sense that the self-regulation and motivation component might lead the individual to make effective use of surrounding opportunities and will be able to develop a sense of mastery and competence in managing their environment (Ryff, 1989). Furthermore, it could facilitate more Autonomy as the self-regulation will lead to a sense of independence. Individuals higher in Self-efficacy might also more readily develop a positive attitude toward the self; acknowledge and accept multiple aspects of self, including good and bad qualities i.e., the Self-Acceptance component of EWB. Self-efficacy equip individuals with the confidence that they can utilise the necessary skills for coping with stress, engage in self-regulation and mobilising the resources required to meet situational demands (Chen, Gully & Eden, 2001). For this reason, it is argued in this study that Self-efficacy will positively influence EWB.

**Hypothesis 13: In the proposed PWBW model it is hypothesised that Self-efficacy positively influences EWB.**

On the other hand, it has been shown that low levels of Self-efficacy have been found in depression patients (Bandura, 1997; Maddux & Meier, 1995). Maddux (2004) have argued that this is due to their incapability to effectively cope in important domains of life. High frequencies of experienced anxiety and avoidant behaviour are most likely to manifest in those persons possessing low Self-efficacy beliefs about their coping skills in situations that appear as threatening (Bandura, 1997). Bandura (1997) further states that this experienced anxiety can further lead to reduced performance, which subsequently further reduces one's perceived competence within a particular domain. The argument can thus be reversed that individuals having high Self-efficacy beliefs will have low levels of depression and anxiety and therefore exhibit lower levels of Negative Affect (NA).

**Hypothesis 14: In the proposed PWBW model it is hypothesised that Self-efficacy negatively influences NA.**

The feeling that an individual holds that is needed to accomplish important goals, termed Self-efficacy, has been shown to predict life satisfaction and positive emotions (Feasel, 1995). Additionally, Feasel (1995) showed that experiencing higher Self-efficacy towards more important goals was a stronger predictor of well-being, than experiencing Self-efficacy in relation to less important goals. This demonstrates that feeling efficacious is important in terms of well-being, but also highlights the need to feel competent in areas of life that one feels are significant. In addition, there are considerable evidence regarding the positive effects of Self-efficacy on performance and well-being in different domains, including the

workplace (Bandura, 1986). These positive emotions relate to HWB. It can thus be argued that Self-efficacy will have a positive effect on the Positive Affect component of SWB.

**Hypothesis 15: In the proposed PWBW model it is hypothesised that Self-efficacy positively influences PA.**

### **2.5.3.3 Self-efficacy in the Workplace**

Stajkovic and Luthans (1998; p. 66) define the concept of Self-efficacy in the workplace as “one’s conviction (or confidence) about his or her abilities to mobilize the motivation, cognitive resources or courses of action needed to successfully execute a specific task within a given context.” According to this definition Self-efficacy may play a central role in the development of occupational stress. Occupational stress will occur when an individual perceives the demands of their environment as exceeding their coping ability and resources, while Self-efficacy refers to the person’s belief about their ability and cognitive resources. Therefore, Self-efficacy can act as a buffer against the development of occupational stress. Self-efficacy is the PsyCap construct that has the strongest theoretical underpinning. This statement is based on the extensive theory building and empirical research of well-known social psychologist Albert Bandura (1997) and the meta-analysis of 114 studies that found a positive 0.38 relationship between efficacy and work-related performance (Stajkovic & Luthans, 1998). In the workplace, high efficacious individuals will show extra effort and tenacious perseverance in accomplishing a given task. It is expected that individuals who have the belief in their capabilities to complete a task will put a lot of effort into that task and display higher levels of Engagement (Stajkovic & Luthans, 1998).

The strength of an individual’s conviction in their own effectiveness is likely to affect whether they will try to cope with a given situation (Bandura, 1977). In the workplace, those individuals with high efficacious beliefs will be more likely to engage in difficult tasks and have a higher threshold towards stress. People fear and tend to avoid threatening situations they believe exceed their coping skills, whereas they get involved in activities and behave assuredly when they judge themselves capable of handling situations that would otherwise be intimidating. Efficacy expectations determine how much effort people will expend and how long they will persist in the face of obstacles and aversive experiences (Bandura, 1977).

In a study conducted by Matsui and Onglatco (1992), it was found that higher Self-efficacious women, equipped with the knowledge that they have the capability to handle heavy job demands, should be able to develop strategies to cope with these demands. These strategies can involve changing the degree of effort exerted, decrease the allocated

time needed to complete tasks, etc. On the other hand, people with low Self-efficacy expectations will tend to submit to the pressure brought about by the heavy work demands.

## **2.5.4 Resilience**

### **2.5.4.1 Resilience Defined**

The Resilience construct incorporated into the PsyCap construct is based on the work of Wagnild and Young (1993). Resilience is defined as the positive psychological capacity to rebound, to bounce back from adversity, uncertainty, conflict, failure or even positive change, progress and increased responsibility (Luthans, 2002a). Individuals with high resiliency have the ability to cope and adapt more easily during risk and adversity (Masten, 2001; Masten & Reed, 2002). Bandura and Locke (2003) state that individuals high on Resilience believe they have what it takes to succeed. High Resilience provides the necessary staying power in the face of repeated failures, setbacks, and sceptical or even critical reactions that are inherently discouraging. Even during highly changing and uncertain situations, Resilience help individuals to be more flexible and to adapt themselves (Coutu, 2002). High-Resilience individuals literally bounce back from setbacks and difficult situations (Tugade & Fredrickson, 2004). It can also be said that these individuals display “the capacity to remain well, recover or even thrive on adversity” (Hardy, Concato & Gill, 2004, p. 257). People that are high on Resilience tend to be more effective in a variety of life experiences, including adjustment and development, especially under life-course threatening conditions (Block & Kremen, 1996; Coutu, 2002; Masten 2001). The concept Resilience, therefore, helps us to understand why one person reacts in a stressed way to an objectively minor event when someone else may not experience distress even in the face of apparent misfortune (Dyer & McGuinness, 1996). Something very unique to individuals with high levels of Resilience is that after a negative event, the employee rebounds to a higher level of motivation, therefore rebounding beyond homeostasis (Richardson, 2002). High-Resilience individuals also have (a) a firm acceptance of reality, (b) a deep belief, often supported by strongly held values, that life is meaningful and (c) an astounding ability to improvise and adapt to significant change (Coutu, 2002).

### **2.5.4.2 Resilience and SWB**

Fredrickson et al., (2003) found a significant relationship between Resilience and stress in that highly resilient individuals exhibited faster psychological and emotional recovery from stress. Research indicates that resilient individuals are better equipped to deal with the stressors in a constantly changing workplace environment, as they are open to new experiences, are flexible to changing demands, and show more emotional stability when

faced with adversity (Tugade & Fredrickson, 2004). It could thus be argued that individuals with a higher level of Resilience would be more likely to experience less occupational stress. It could, furthermore, be argued that when these individuals do experience stress, their ability to better cope with these demands may protect them to a certain extent from the development of burnout. It has also been shown that elasticity, a latent variable consisting of measures of ego Resilience, ego control and hardiness; negatively predict emotional distress (Gramzow, Sedikides, Panter, & Insko, 2000). This supports the hypothesis that more Resilience will result in increased well-being. In this study it is argued that Resilience will affect EWB, as being resilient, i.e. going “back” into (sometimes very negative) circumstances to continue to face the setback or difficulties is about persevering in doing what is right and virtuous, without experiencing direct positive feelings. Such Resilience rather becomes a motivation, coming from within an individual, of doing what needs to be done to accomplish a certain goal (EWB). It has been also shown that resilient individuals have zestful and energetic approaches to life, and they are curious and open to new experiences (Klohn, 1996; Masten, 2001; Werner & Smith, 1992; Wolin & Wolin, 1993). Ryff, Singer, Love and Essex (1998) discussed Resilience and adult life in terms of psychological well-being. They define Resilience in terms of 1) positive reactions to adverse events and stress, 2) the ability to function and adapt following incapacity, and 3) retained competence under adversity. Resilience, according to these authors (Ryff, et al., 1998) is more than just the absence of illness, it is the ability to flourish after hardship and stress, more specifically, moving toward a state of physical, mental and emotional well-being. It is thus evident that Resilience could influence certain EWB dimensions, of which the most obvious one is Environmental Mastery. It could be argued, for example, that being able to cope with adversity will help individuals in managing their environment and thereby to control a complex array of external activities. These individuals will have the competency to regulate behaviour from within (Autonomy) and will change and grow as a result of the faced adversity in ways that reflect more self-knowledge and effectiveness (Personal Growth). Resilience is an inner strength guided by a positive mind-set, individuals high on Resilience might thus find meaning in their suffering or adversity. They might see this perceived meaning as a possible resource aiding them in overcoming the adversity (Purpose in Life). With this mind-set, individuals will accept that “everything happens for a reason” leading them to feel positive about past life experiences and accepting themselves for who they are (Self-Acceptance). These individuals might further use the resources available to them as a means of overcoming their hardships, one of which could be support from others, which will lead them to have positive relations with others and thereby forming warm and trusting

relationships with others (Positive Relations with Others). It can therefore be argued that Resilience will have a positive influence on EWB.

**Hypothesis 16: In the proposed PWBW model it is hypothesised that Resilience positively influences EWB.**

#### **2.5.4.3 Resilience at Work**

Resilience is also found in the workplace. Employees are now experiencing more stress than at any other time in history. Not only are employees experiencing more jobs throughout their life time, but downsizing and the resulted lay-offs also tend to put more strain and pressure on (remaining) employees. These increasing levels of stress point to the importance of having and developing resilient employees (Luthans, Vogelgesang & Lester, 2006). Resiliency has been correlated with work performance (Luthans, Avolio, Walumbwa & Li, 2005). Moreover, organisations that have developed Resilience in their employees have shown to be more adaptive and successful over time (Luthans et al., 2005). A bad experience or failure on a task in an individual's organisational life does not have to be a reason for career derailment. Resilient employees may use an adverse experience to increase performance on subsequent tasks and may actually be more valuable to the organisation in terms of their adaptability in times of subsequent change or uncertainty (Hind, Frost & Rowley, 1996).

#### **2.5.5 Hope, Optimism, Self-efficacy and Resilience**

When it comes to the interplay between the four PsyCap constructs, Cozzarelli (1993) stated that psychological resources seem to act in concert, as many of the psychological resources are related. This suggests that if an individual is high in one psychological resource, they are often high on the others as well. Before discussing the interplay between the four PsyCap constructs, it is important to mention that their empirically based discriminant validity has been proven in various studies and by various researchers internationally (Bandura, 1997; Luthans & Jensen, 2002; Luthans, et al., 2007c; Snyder 2000, 2002) and also in South Africa (Görgens-Ekermans & Herbert, 2013). It is proposed that PsyCap presents the common source variance (i.e. common mechanistic processes) connecting the four constructs of Hope, Optimism, Self-efficacy and Resilience (Luthans et al., 2007b). It is this common underlying link that runs between the four constructs that ties them together into a higher-order core factor. As indicated in the definition of PsyCap, this commonality or underlying link is a mechanism shared across each of the facets that contribute to a motivational propensity to accomplish tasks and goals (Luthans et al., 2007b). In addition, theoretical support for PsyCap as a second-order core construct can be found in

psychological resources theory (Hobfoll, 2002), as well as Fredrickson's (2001) *Broaden-and-Build* theory. Fredrickson (2001) confirms that these constructs act in a synergistic way and therefore act in an integrated, interactive, and broadening way with its factors of Hope, Optimism, Self-efficacy and Resilience in the motivated and motivating pursuit of success and desirable organisational outcomes (Luthans, et al., 2007b; Luthans & Youssef, 2007; Luthans, et al, 2007c).

Law, Wong and Mobley (1998) have also recommended that multidimensional constructs such as psychological resources, like PsyCap, may be better understood in terms of an underlying core factor. This is especially evident when constructs are highly related, yet integrated with each other, like PsyCap is. For example, faced with a setback, if highly resilient employees with the ability to bounce back are also self-efficacious and highly hopeful, they will most probably be motivated to persist and put forth the required effort to overcome the problem. In addition, they would also pursue alternate pathways in order to return to their original level of functioning or beyond where they were before the adverse event. Moreover, those high in Optimism may have a positive perspective in general, but combined with Self-efficacy and Hope, may also have the persistence to pursue many alternative pathways when necessary to achieve their optimistic expectations and goals (Herbert, 2011).

Snyder (2000) found that individuals high in Hope tend to be more confident on specific tasks (Self-efficacy) and will be able to quickly bounce back (Resilience) after temporary hopelessness. In accordance with Snyder (2000), Bandura (1997) has also shown that those high in Self-efficacy will be more resilient to adversity. Moreover, according to Luthans, Avey, Avolio, Norman and Combs, (2006) Self-efficacy training can also help develop and build Optimism. In addition, Hope training can have a positive impact on Optimism development. Furthermore, in a study by Magaletta and Olivier (1999) significant positive relationships between Hope (measured by the Hope Scale; Snyder, et al., 1991) and Optimism (measured by the LOT; Scheier & Carver, 1985) ( $r = .550$ ,  $n = 204$ ,  $p < 0.001$ ), between Hope and Self-efficacy (measured by the SES; Sherer et al., 1982) ( $r = .592$ ,  $n = 204$ ,  $p < 0.001$ ) and between Self-efficacy and Optimism ( $r = .507$ ,  $n = 204$ ,  $p < 0.001$ ) emerged. Similar results between Hope and Optimism were also reported by Holleran and Snyder (1990) as well as Scheier and Carver (1985). It was argued that these associations are due to the fact that all three concepts (Hope, Optimism and Resilience) are conceptually tied to positive expectancies for the future. They concluded that their findings provided evidence that Hope, Optimism and Self-efficacy are related but not identical constructs. This was further corroborated by the multiple regression analysis results which

indicated that all three constructs made a unique contribution in the prediction of well-being (measured by the General Health Questionnaire; Goldberg, 1972). Other research that confirms the strong relationships between the four constructs comprising PsyCap was conducted by Luthans et al. (2007c). They conducted two studies to analyse the PCQ-24 (Luthans et al., 2007b) and test their various hypotheses related to it. Strong correlations emerged from the data analysis of Study 1 between Hope and Optimism ( $r = .61$ ,  $n = 115$ ,  $p < 0.01$ ), Hope and Self-efficacy ( $r = .51$ ,  $n = 115$ ,  $p < 0.01$ ), Hope and Resilience ( $r = .47$ ,  $n = 115$ ,  $p < 0.01$ ), Optimism and Self-efficacy ( $r = .44$ ,  $n = 115$ ,  $p < 0.01$ ), Optimism and Resilience ( $r = .49$ ,  $n = 115$ ,  $p < 0.01$ ) as well as between Self-efficacy and Resilience ( $r = .40$ ,  $n = 115$ ,  $p < 0.01$ ). Similar results were found in study 2, as significant relationships between all of these constructs emerged in a similar fashion.

Although these four constructs are very similar in certain aspects, it is important to clearly distinguish between them in order not to proxy an already existing theory (Snyder et al., 2005). Hope, for example, has various similarities with Optimism. Although these two constructs share a common perspective regarding the importance of expectancies and both are within the context of goal-directed behaviour, the two constructs differ in how the expectancies operate. Scheier and Carver (1985) defined Optimism as a generalised expectancy that one will experience good outcomes in life and that Optimism leads to persistence in goal-directed striving. Whereas Snyder's agency component of Hope is similar to this expectancy explanation, the pathway component is not explicitly addressed by Optimism theory. Even though an optimist may believe that "good things will result," he or she may lack the vital pathway thinking (i.e. the ability to generate new alternative paths) needed to overcome barriers and attain the desired result. In other words, Optimism has the willpower of Hope, but not the waypower (Luthans & Jensen, 2002). Another distinction is found in the agency through which outcomes will occur, whether through the individual's own effort, the efforts of others, or outside forces. According to Snyder (2000), Optimism and Hope diverge in that Optimism includes expectations about outcomes obtained through others and forces outside the self, whereas Hope draws from the agency within the individual. The pathway component of Hope pertains uniquely to the outcomes obtained and the actions initiated by the self. Again, Hope theory explicitly emphasises the iterative, combined impact of the willpower and the waypower processes. Although optimists believe that good things will happen to them, a theoretical analysis indicates Optimism per se does not imply clear plans for where one wants to go, and when optimists encounter obstacles, they may get stuck or give up. A hopeful person, as opposed to an optimistic one, the theory

would predict, is adept at thinking of ways around the obstacles and thus is better equipped to deal with stressful, negative situations (Luthans & Jensen, 2002).

According to Bandura (1997) for Self-efficacy to be activated, a goal-related outcome must be important enough to capture attention, which is similar to the premise held in the Hope theory. The goals emphasis parallels Hope theory, but it differs in that for Hope theory there may be enduring, cross-situational and situational goal-directed thoughts. Within Self-efficacy theory, the person is posited to analyse the relevant contingencies in a given goal attainment situation (called outcome expectancies, somewhat similar to pathways thoughts in the Hope theory). Relative to the outcome expectancies wherein the focus is on the given contingencies, pathway thinking reflects the self-analysis of one's capabilities to produce initial routes to goals, as well as additional routes, should the first become impeded. Thereafter the person is hypothesised to evaluate his/her capacity to carry out the actions inherent in the outcome expectancies (called efficacy expectations, with some similarity to agency thought). Whereas the efficacy expectancy emphasis the personal perception about how a person can perform the requisite activities in a given situational context, Hope theory emphasises the person's self-referential belief that he/she will initiate and continue the requisite actions (Snyder et al., 2005). Magaletta and Oliver (1999) reported that Hope accounted for unique variance, independent of Self-efficacy, in predicting well-being and that the factor structure of the two constructs varies. One final difference is that Bandura's Self-efficacy theory does not address the issue of emotions per se, whereas Hope theory gives an explicit hypothesis about emotions being the result of goal-directed behaviour.

Bandura (1997) made a distinction between efficacy expectations (a person's confidence that he/she has the ability to successfully perform a specific task) and outcome expectancies (a person's belief that a specific behaviour will produce a given outcome). The agency component of Hope is on the surface similar to Bandura's notion of efficacy expectations, and outcome expectancies appear similar to the pathways component of Hope. Snyder (2000) acknowledged that Bandura's theory noted the bi-directionality of efficacy and outcome expectancies, but emphasised that Bandura (1997) asserted the efficacy expectations (i.e., Self-efficacy) to be a stronger predictor of behaviour than outcome expectancies. Snyder's Hope theory, in contrast, posits that agency and pathway are equally essential and operate in a combined, iterative manner. Also, Bandura has emphatically asserted that efficacy expectancies are situation specific, whereas Snyder's Hope theory takes a cross-situational perspective.



Bandura (1977) stated that performance accomplishments are based on personal mastery experiences and successes raise mastery expectations; repeated failures lower them, particularly if the mishaps occur early in the course of events. After strong efficacy expectations are developed through repeated success, the negative impact of occasional failures is likely to be reduced (Bandura, 1977). Efficacy expectations determine how much effort people will expend and how long they will persist in the face of obstacles and aversive experiences (Bandura, 1977).

Based on this discussion it is clear that the four PsyCap constructs share a lot of variance, primarily reflected in the higher order PsyCap construct. However, it is also clear from the discussion that there are fundamental differences between the four individual constructs. Because of the current research compilation in this domain there is no question that the four individual constructs are interrelated. The nature of these interrelationships has been substantiated by correlation studies (Gorgens-Ekermans & Herbert, 2013; Luthans et al., 2007a; Luthans et al., 2007b) as well as some recent SEM studies that have started to emerge (e.g. Prinsloo, 2013). Given the fact that it is well known that these constructs are interrelated, it was decided to not hypothesise any paths between the PsyCap four constructs, themselves, in this study (and therefore in the model). This was done in the interest of allowing for other paths in the model, without ending up with an almost fully saturated, extremely complex model to be fitted to the data. Research clearly indicates that the probability is high that significant paths will be found, but as this study has the aim of proving incremental findings on the relationships between the PsyCap constructs and other well-being variables, it was decided rather to omit these paths (between the PsyCap constructs themselves) from the model.

## **2.6 GRATITUDE**

Gratitude, which is mainly viewed as an affective state, also called grateful disposition or disposition toward Gratitude, can be defined as a generalised tendency to recognise and respond with grateful emotions to the roles of other people's benevolence in the positive outcomes that one obtains (McCullough, et al., 2002). The essential message of Gratitude is that a life orientated around gratefulness is the solution for insatiable yearnings and life's ills. Moreover, highly grateful people may possess a worldview in which everything they have, and even life itself, is a gift. This level of appreciation for the good things in life may lead grateful people to avoid taking benefits for granted. In this sense, they always have a sense of appreciation for what they have and never accept it as mere possessions that they deserve or earned. This may help sustain their happiness and SWB (McCullough et al.

2002). A grateful response to life, can lead to peace in mind, happiness, physical health, and deeper more satisfying personal relationships (Emmons & McCullough, 2003).

It is known that affective traits lower one's threshold for experiencing certain emotional states (Rosenberg, 1998). For example, hostility lowers the threshold for experiencing anger. Insofar as the Gratitude disposition creates a reduced threshold for recognising and responding with Gratitude to the role of other people's benevolence in one's positive outcomes, this disposition might cause several discrete emotional experiences (McCullough et al. 2002). In other words, it will lower the threshold to experience Gratitude more frequently and more easily. Although a variety of life experiences can elicit feelings of Gratitude, prototypically Gratitude stems from the perception of a positive personal outcome, not necessarily deserved or earned, but that is due to actions of another person. Gratitude has been defined as "the willingness to recognize the unearned increments of value in one's experience" (Bertocci & Millard, 1963, p. 389), and "an estimate of gain coupled with the judgment that someone else is responsible for that gain" (Solomon, 1977, p. 316).

Certain elements in Gratitude exist that seems not to be distinct, but rather co-occurring. The first facet of the grateful disposition is called 'intensity'. A dispositionally grateful person who experiences a positive event is expected to feel more intensely grateful than would someone less disposed towards Gratitude. A second facet can be called 'frequency'. A dispositionally grateful person might report feeling grateful many times a day and Gratitude might even be elicited by even the simplest favour or act of politeness. A third facet is called 'span'. Gratitude span refers to the number of life circumstances for which a person feels grateful at a given time. Dispositionally grateful people might be expected to feel grateful towards a variety of domains, e.g. their families, their jobs, their health and life itself, along with a variety of other benefits. A fourth aspect is called 'density', which refers to the number of people to whom one feels grateful for a single positive outcome. When asked to whom one feels grateful for a single positive outcome, a dispositionally grateful person might list many other people than a less disposed grateful person (McCullough et al. 2002).

A grateful response to life circumstances may be an adaptive psychological strategy and an important process by which people positively interpret everyday experiences. The ability to notice, appreciate, and savour the elements of one's life has been viewed as a crucial determinant of well-being (Bryant, 1989; Janoff-Bulman & Berger, 2000; Langston, 1994). Recent research in mainstream psychology suggests that Gratitude plays a role in promoting psychological and physical well-being (Emmons & McCullough, 2003). Based on a series of self-report assessments, McCullough et al. (2002) found that a disposition of Gratitude is

positively associated with Positive Affect, well-being, pro-social traits, and spirituality. In another study Emmons and McCullough (2003) also found that an intentional grateful focus for daily life circumstances may be a useful cognitive appraisal strategy that can positively impact long-term levels of well-being. Lyubomirsky, et al., (2005) conducted two 6-week-long interventions that isolated two specific activities thought to enhance well-being, committing acts of kindness and “counting one’s blessings”. The one relevant here, “counting one’s blessings”, was based on previous research demonstrating that Gratitude can bolster feelings of satisfaction and well-being (Emmons & McCullough, 2003). In this study, participants were instructed to regularly think about things for which they were grateful (e.g. “a healthy body”, “my mother” and “having a Valentine”) and it was found that Gratitude did enhance levels of well-being. These levels of well-being can be related to increased levels of PA, as being grateful will elicit positive feelings and emotions.

There are two reasons why this specific construct are deemed important to this study. Firstly, Weiner (1986) proposed that when people recognise that they have obtained a positive outcome (i.e. exhibit Gratitude), it causes happiness. Given that happiness is interpreted as falling under the umbrella term of SWB – i.e. HWB, it may be expected that Gratitude could be a direct antecedent to HWB. Secondly, people experiencing Gratitude, attribute the happiness they experience to an external source, e.g. they feel that someone has contributed or even given them the moment of happiness and then they feel grateful towards that person/object. Consequently, happiness stems from Gratitude. Therefore it is proposed that Gratitude will have a direct positive effect on PA.

**Hypothesis 17: In the proposed PWBW model it is hypothesised that Gratitude positively influence PA.**

It can further be argued that attributions are central to Gratitude and attributional style may be central to the disposition toward Gratitude (McCullough et al, 2002). The attributional style should inherently be positive as these individuals will attribute their gratuity to positive surroundings. According to McCullough et al, (2002) grateful people are prone to experience positive emotions and SWB. This leads to the argument that Gratitude may possibly influence Optimism by influencing the optimistic view of the individual and expanding the level of experienced positive emotions even further.

**Hypothesis 18: In the proposed PWBW model it is hypothesised that Gratitude positively influences Optimism.**

Several theorists and researchers (e.g. Lazarus & Lazarus, 1994; Mayer, Salovey, Gomberg-Kaufman, & Blainey, 1991; Ortony, Clore, & Collins, 1998; Weiner, 1986) have noted that Gratitude typically has a positive emotional valence. Hence it is argued that the disposition toward Gratitude is rooted in basic tendencies to experience positive emotions. Seeing oneself as the beneficiary of other people's generosity may lead one to feel affirmed, esteemed and valued which may boost self-esteem and perceived social support (McCullough et al. 2002). Although this argument reinforces the hypothesis that Gratitude will have a positive effect on PA, it also provides reason to argued that a link may exist between Gratitude and Perceived Organisational Support. Emmons and McCullough (2003) state that a grateful response to life can lead to deeper, more satisfying relationships. Therefore, if a person is positive, by exhibiting positive emotions related to Gratitude, the person will more easily attract people and thereby build a social support network. In this sense it makes sense to argue that Gratitude will have a positive effect on POS.

**Hypothesis 19: In the proposed PWBW model it is hypothesised that Gratitude positively influences POS.**

One of the ways certain people cope well with adversity is through the use of positive emotions and laughter. Historically, the possible usefulness of positive emotion in the context of extremely aversive events was either ignored or dismissed as a form of unhealthy denial (Bowlby, 1980). Recently, however, research has shown that positive emotions can help reduce levels of distress following aversive events both by quieting or undoing negative emotions and by "increasing continued contact with and support from important people in the person's social environment" (Bonanno & Keltner, 1997, p. 134). It is, therefore, argued here that this undoing of negative emotions could mean that people with high levels of Gratitude would more intentionally silence negative feelings and emotions. It is therefore argued that Gratitude will negatively influence Negative Affect.

**Hypothesis 20: In the proposed PWBW model it is hypothesised that Gratitude negatively influences NA.**

## **2.7 WORK ENGAGEMENT**

The emergence of knowledge work has resulted in an increased focus on employees' performance. Psychological Well-being and employee health have therefore become essential for organisations to survive (Weehuizen 2008, as cited in Ouweneel, Le Blanc, Schaufeli & Van Wijhe, 2012). In this sense, it is important for employees to be engaged in their work. Research suggest that high levels of Work Engagement and Psychological Well-

being play a central role in delivering some of the important outcomes that are associated with successful, high performing organisations (Ouweneel et al., 2012). Work Engagement was thus included in this study, as it plays a central role in the health and well-being of employees. Although the relationship between Work Engagement and perceived psychological health is not widely documented, a number of recent studies successfully tested a model that linked Work Engagement and perceived health, and accordingly demonstrated the negative relationship between burnout (i.e. viewed as the opposite of Work Engagement by some researchers; Maslach and Leiter, (1997)) and health (Schaufeli & Bakker, 2004; Hakanen, Bakker & Schaufeli, 2006). Furthermore in a recent study by Schaufeli, Taris and Van Rhenen (2008) in which the authors used a sample of 527 telecom managers to empirically distinguish between the constructs of workholism, burnout and Work Engagement, a positive correlation between Work Engagement and unimpaired social functioning, as well as between Work Engagement and physical health was found.

The appearance of Work Engagement coincides with the rise of positive psychology that has shifted the focus from malfunctioning towards human strengths and optimal functioning (Seligman & Csikszentmihalyi, 2000). Work Engagement is a particularly interesting well-being measure in that it can be considered as an active measure of well-being instead of a passive measure, like job satisfaction that is characterised by satiation. Hence, it is argued by Bakker and Demerouti (2008) that engaged employees are activated towards performing better and behaving positively in the workplace. According to Fredrickson (2003), there are four reasons why engaged workers perform better than “non-engaged workers”. Firstly, engaged workers often experience positive emotions, including happiness, joy and enthusiasm. Secondly, engaged employees tend to experience better psychological and physical health. Thirdly, they create their own job and personal resources (e.g. support from others); and lastly, they transfer their Engagement to others. Fredrickson (2003) further states that good health (as a result of being engaged) facilitates performance because individuals can use all their mental and physical resources (skills, abilities, knowledge etc).

Although there is some broad agreement about Work Engagement and its role in the workplace, there is a lack of clarity about its definition. Robinson, Perryman and Hayday (2004, p.9) state that it is “A positive attitude held by the employee towards the organisation and its values. An engaged employee is aware of business context, and works with colleagues to improve performance within the job for the benefit of the organisation”. Many other authors assume that Work Engagement is the opposite of burnout. For example, Maslach and Leiter (1997) assumed that Work Engagement is characterised by energy, involvement and efficacy which are considered the direct opposites of the three burnout

dimensions - exhaustion, cynicism and lack of professional efficacy, respectively. Engaged employees have a sense of energetic and effective connection with their work activities and they see themselves able to deal well with the demands of their job. However, some researchers argue that it is not plausible to study these two constructs on the same continuum, i.e. as opposites, but rather as two separate axes. The argument put forward is that when an employee is not burned-out, it does not necessarily mean he/she is engaged and vice versa. Secondly, it has been argued that the relationship between burnout and Work Engagement cannot be empirically studied when they are measured with the same questionnaire. Therefore, both concepts cannot be included simultaneously in one model in order to study their concurrent validity. For this reason burnout and Work Engagement has been defined as two distinct concepts, and it has been argued that it should be assessed independently (Schaufeli & Bakker, 2001). This means that, at least theoretically, an employee who is not burned-out may score high or low on Work Engagement, and an engaged employee may score high or low on burnout. In practise, however, it is likely that burnout and Work Engagement are substantively negative correlated. In contrast to Maslach and Leiter's (1997) approach, Schaufeli and Bakker's (2003) approach enables the assessment of the strength of the association between Work Engagement and burnout since different instruments assess both constructs independently.

Work Engagement, according to Schaufeli and Bakker (2001), is a positive, fulfilling, work-related state of mind that can be characterised by Vigour, Dedication and Absorption. It is a persistent and pervasive affective-cognitive state that is not focused on any particular object, event, individual or behaviour. It is a desirable condition with organisational purpose which suggests involvement, commitment, passion, enthusiasm, focused effort, and energy (Schaufeli & Bakker, 2001). The three dimensions of Work Engagement, namely Vigour, Absorption and Dedication, can be viewed as interdependent constructs. Vigour is characterised by high levels of energy and mental resiliency while working, the willingness to invest effort in one's work, not being easily fatigued and persistence even in the face of difficulties (Schaufeli & Bakker, 2001). Individuals high on Vigour will have a sense of competence and their willingness to invest effort will allow them to make effective use of surrounding opportunities. Hence it could be argued that higher levels of Vigour may contribute to more Environmental Mastery, a EWB component. Furthermore, studies have repeatedly shown that interest (as defined in Eudaimonic terms) is strongly associated with feelings of Work Engagement (e.g. Thrash, 2007; Vittersø, Overwien & Martinsen, 2009). The interest component will most probably be linked to the Vigour subdimension of Work Engagement. Dedication is characterised by deriving a sense of significance from one's

work, by feeling enthusiastic and proud about one's job, and by feeling inspired and challenged by it (Schaufeli & Bakker, 2001). Dedicated individuals will have a sense of directedness, have meaning in what they do and have aims and objectives in their work and personal life. Therefore, it could be argued that more dedicated individuals may experience more Purpose in Life, in terms of their EWB. Absorption, the third dimension of Work Engagement, is characterised by being totally and happily immersed in one's work and having difficulties detaching oneself from it. Time passes quickly and one forgets everything else that is around (Schaufeli & Bakker, 2001). This dimension is very similar to the construct of flow. Csikszentmihalyi (1975) introduced the concept of flow and defined it as "a highly enjoyable psychological state that refers to the holistic sensation people feel when they act with total involvement in an activity" (p.36). According to Csikszentmihalyi (1990), individuals who experience flow are so intensively involved in an activity, that nothing else matters while doing it, they are extremely intrinsically motivated and take great pleasure in the activity. Fritz and Avsec (2007) further state that flow occurs only when the individual moves beyond his or her average experience of challenge and skills and where there is an investment of psychic energy into a task. Fritz and Avsec (2007) conducted a research study where they found that flow was positively related to SWB. They concluded that the experience of flow is more related to emotional than cognitive aspects of SWB, which, according to them, is not surprising as flow is an extremely emotional experience. According to Seligman (2011), Engagement is about flow.

Moreover, Moneta (2004) summarises the relation between flow and well-being as follows:

*Flow theory constitutes a synthesis of Hedonic and Eudaimonic approaches to Subjective Well-being. Consistent with the Hedonic perspective, flow theory states that flow has a direct impact on Subjective Well-being by fostering the experience of happiness in the here and now. Consistent with the Eudaimonic perspective, flow theory states that flow has an equally important indirect effect on Subjective Well-being by fostering the motivation to face and master increasingly difficult tasks, thus promoting lifelong organismic growth. In particular, flow theory states that the frequency and intensity of flow in everyday life pinpoint the extent to which a person achieves sustained happiness through deliberate striving, and ultimately fulfils his or her growth potential (p. 116).*

Based on these arguments it is proposed that in the *Steyn-Boers Structural Model of Psychological Well-being at Work*, Engagement will have a positive effect on both EWB and HWB (positive effect on PA and negative effect on NA).

**Hypothesis 21: In the proposed PWBW model it is hypothesised that Work Engagement positively influence EWB.**

**Hypothesis 22: In the proposed PWBW model it is hypothesised that Work Engagement positively influences PA.**

**Hypothesis 23: In the proposed PWBW model it is hypothesised that Work Engagement negatively influences NA.**

According to Bakker and Demerouti (2007), the Job Demands–Resources Model (JD–R), divides the work environment into job demands and job resources. Job demands refer to physical, psychological, social, or organisational features of a job that require sustained physical and/or psychological effort from an employee that can result in physiological and/or psychological costs. Common job demands, which initiate a health impairment process, include work overload, job insecurity, role ambiguity, and role conflict. On the other hand, job resources refer to physical, psychological, social, or organisational features of a job that are functional in that they (1) help achieve work goals; (2) reduce job demands and the associated physiological and psychological costs; and (3) stimulate personal growth, learning, and development. It is this last job resource of employees' personal development, growth and learning that could also be applicable to the development of the state-like constructs of PsyCap (Hope, Optimism, Self-efficacy and Resilience) which may lead to an increase in the Work Engagement of employees. Job resources, which initiate a motivational process, can come from the organisation (pay, career opportunities and job security), interpersonal and social relations (supervisor support, co-worker support and team climate), the organisation of work (role clarity and participation in decision making), as well as from the task itself (skill variety, task identity, task significance, autonomy and performance feedback) (Bakker & Demerouti, 2007). Higher PsyCap, which is a personal resource, may, for example, predispose an individual to have a more positive evaluation of available job resources and the utilisation thereof (e.g. better support utilisation, utilisation of career opportunities, of better interpersonal relationships and team climate). The basic premise of the JD-R model is that high job demands exhaust employees' physical and mental resources and lead to a depletion of energy and health problems. Job resources are motivational and can lead to positive attitudes, behaviour and well-being (Bakker & Demerouti, 2007). Job resources (which could be influenced by the personal resources of Hope, Optimism, Self-



efficacy and Resilience) can help individuals cope with job demands and have been found to buffer the effect of job demands on job strain (Bakker & Demerouti, 2007). Research on the JD-R model has found that job demands are related to burnout and health problems while job resources predict Work Engagement, extra-role performance, and organisational commitment (Bakker & Demerouti, 2007). Job resources have also been repeatedly identified as significant predictors of Work Engagement by a number of researchers (Bakker & Demerouti, 2008; Llorens, Bakker, Schaufeli & Salanova, 2007; Mauno, Kinnunen & Ruokolainen, 2007; Schaufeli & Bakker, 2004; Schaufeli & Salanova, 2007; Xanthopoulou, Bakker, Demerouti & Schaufeli, 2007). Employees who create their own resources (e.g. support) are better able to deal with their job demands and to achieve their work goals (Bakker & Demerouti, 2007). Judge, Bono, Erez and Locke (2005) have argued that access to more individual personal resources, leads to more positive self-regard, and then more goal self-concordance is expected to be experienced. Individuals with goal self-concordance are intrinsically motivated to pursue their goals, and as a result generally experience higher performance and satisfaction (Luthans & Youssef, 2007). Based on this argument, it could be argued that certain PsyCap constructs will influence Work Engagement.

PsyCap Resilience was defined as the positive capacity to bounce back from adversity, uncertainty, conflict, failure or even positive change with the ability to cope and adapt more easily during risk and adversity (Luthans, 2002a; Masten, 2001). Individuals with Resilience thus have the ability to show mental vitality as they are not prone to give up when faced with hardships. It can therefore be argued that Resilience will have a positive effect on Vigour (as a component of Work Engagement) as Vigour is characterised by high levels of energy and mental resilience while working. These high-Vigour individuals further have a willingness to invest effort in their work, they do not get easily fatigued and can persist even in the face of difficulties (Schaufeli & Bakker, 2001).

**Hypothesis 24: In the proposed PWBW model it is hypothesised that Resilience positively influences Work Engagement.**

Self-efficacy was defined in this study as a general, stable trait that reflects an individual's expectation regarding their ability to perform tasks successfully in a variety of achievement situations (Bandura, 1977). Research has established that work-related Self-efficacy is related to both in-role and extra-role performance, through employees' Work Engagement (Xanthopoulou, et al., 2008). When employees believe they are able to effectively deal with their work requirements, it is more likely that they would be willing to put more effort into the task. If they have a higher level of Self-efficacy and are able to perform a task, they will be

more likely to engage in that specific task, i.e. show Vigour, Dedication and Absorption. It is further expected that Self-efficacy is positively related to Work Engagement as it leads to a greater willingness to spend additional energy and effort on completing a task, and hence more task involvement and Absorption (Schaufeli & Salanova, 2007). It can thus be hypothesised that Self-efficacy will have a positive effect on Work Engagement.

**Hypothesis 25: In the proposed PWBW model it is hypothesised that Self-efficacy positively influences Work Engagement.**

Optimistic individuals tend to exhibit unique characteristics, such as their effortless motivation to work hard (Luthans, 2003), which can be linked to the Dedication component of Work Engagement. Their high morale and exhibition of more goal-directed behaviour (Luthans, 2003), could also be linked to the Absorption component of Work Engagement. Furthermore, optimists have the ability to persist under severe conditions, regard disappointments as temporary and valuable life experiences and have a general inclination to be cheerful and mentally and physically energised (Luthans, 2003). It is therefore argued that certain characteristics inherent to Optimism, as a psychological resource, may act as a driver for the Vigour, Dedication and Absorption components, which defines Work Engagement behaviours.

To this end the results of the Steyn (2011) structural model revealed that a significant path existed between Optimism and Work Engagement. She also reported significant correlations between the Life Orientation Test Revised (LOT-R; measure used for Optimism) and all three subscales of the UWES.

**Hypothesis 26: In the proposed PWBW model it is hypothesised that Optimism positively influences Work Engagement.**

Hope has been defined as a positive cognitive state that is based on a sense of successful goal-directed determination and planning to meet these goals (Snyder et al., 1991). It can therefore be said that Hope is the motivated persistent pursuit of goals and the expectation that work-related goals can be achieved (Sweetman & Luthans, 2010). Hope will thus lead to the expectation of attaining current work-related goals (Bryant & Cvengros, 2004). It can thus be expected that individuals high on Hope will exhibit the necessary mental resiliency to attain their set goals and persist in the face of difficulties, i.e. Vigour. These high-Hope individuals will be dedicated to their tasks in the sense that they will feel challenged by it, i.e. Dedication, which might further lead them to be totally immersed by the tasks, i.e. Absorption. It is therefore argued that Hope represents an individual characteristic that is

expected to initiate Work Engagement. High-Hope individuals will set work goals for themselves and then they will be engaged in attaining these goals and work-related activities (Ouweneel et al., 2012). Subsequently, it is argued that Hope enables a person to direct energy in dedicating pursuing a goal (i.e. Work Engagement) (Gallagher & Lopez, 2009). There is thus a strong theoretical argument for hypothesising a path between Hope and Work Engagement.

**Hypothesis 27: In the proposed PWBW model it is hypothesised that Hope positively influences Work Engagement.**

Schaufeli, Bakker and Van Rhenen (2009), in their study among 201 telecom managers, found that Work Engagement itself can also predict more Work Engagement. In their results, they found a positive gain spiral, which indicates that initial Work Engagement (measured by the UWES; Schaufeli & Bakker, 2003) predicts an increase in job resources (measured by a shortened version of the Questionnaire on the Experience and Evaluation of Work, QEEW; Van Veldhoven, De Jonge, Broersen, Kompier & Meijman, 2002), which, in its turn, further increased Work Engagement. This argument can be linked with the *Broaden-and-Build* theory (Fredrickson, 2001) that resources will trigger the upward spiral to generate more resources. Knowing this, it can be argued that organisations should invest in interventions and programmes in order to improve the job resources of their employees by developing their personal state-like resources of Hope, Optimism, Self-efficacy and Resilience – which may improve the positive utilisation of job resources. This may improve the Work Engagement of their workforce.

## **2.8 PERCEIVED ORGANISATIONAL SUPPORT**

A growing body of literature has stressed the importance of social support in the reduction of stress and the improvement of well-being (Nahum-Shani, Bamberger & Bacharach, 2011). According to Cohen (2004) social support is considered a coping resource, a social “fund” containing emotional and material resources which people may draw from when handling demanding and stressful circumstances. Support in an organisation is defined in terms of Perceived Organisational Support. POS refers to employees’ perception concerning the extent to which the organisation values their contribution and cares about their well-being (Eisenberger et al., 1986). The perception of organisational support is usually fostered by conditions such as fair treatment, supervisory support, rewards and favourable job conditions (Rhoades & Eisenberger, 2002). POS is believed to influence health and well-being as it creates a set of positive conditions that employees can draw from to increase their subjective well-being within the workplace. Luthans et al., (2007b) state that a

supportive climate may create positive conditions which will allow PsyCap to flourish. Furthermore, if individuals are positive they will more likely attract other people and thereby easily create their own social support networks which will further enhance their well-being. POS has thus been included in this study as it is believed to contribute to this study as it will foster conditions for increased well-being and have a positive effect on stress reduction. The inclusion of POS in this study, therefore, allows for the investigation of whether some of the positive psychological resources (e.g. Optimism and Gratitude) included in this study act through POS to indirectly effect well-being, or as well as to investigate the direct relationship between POS and well-being.

The inclusion of this construct can further be linked to *Conservation of Resources* (COR) theory (Hobfoll, 1989). COR theory proposes that people's well-being is dependent upon their sense of access to resources within their environment. Those individuals in possession of more resources are less likely to encounter stressful circumstances that negatively affect their Psychological Well-being. Hobfoll (2001) further states that individuals strive to obtain, retain, protect and foster valued resources. Hobfoll (2001) has found 74 resources that have validity in the Western context. Of these 74 resources, five can be related to the context of organisational support. These include: "feeling valuable to others", "acknowledgement of my accomplishments", "understanding from by employer", "support from co-workers" and "help with tasks at work". This indicates that a supportive environment within an organisation plays a large role when it comes to employees' perceived resources.

According to Ryff (1989) "Positive Relations with Others", is one of the six dimensions of Psychological Well-being / EWB. Hence it is argued in this study that within the business environment, POS is very often also equated to positive relations and subsequent support networks, and that it is a necessary and important dimension for employees to be subjectively and psychologically well in the workplace. Individuals who have positive relations with others (or supportive networks within the organisation) are concerned about the welfare of others and understand the basic requirements of human relationships.

Based on the social exchange theory (Blau, 1964; Homans, 1958), researchers have suggested that people implicitly and explicitly calculate the amount of support they receive and give, and perceive their support in terms of three patterns of supportive exchange: (1) reciprocal, in which an equal amount of support is given and received; (2) under-reciprocating, in which support given exceeds that received; and (3) over-reciprocating, in which support received exceeds that given (Rook, 1987). Accordingly, perceiving the exchange of support as under-reciprocating tends to evoke feelings of unfairness,

exploitation, resentment and burden (Rook, 1987), while perceiving the exchange as over-reciprocating tends to generate feelings of indebtedness, guilt and shame. From this point of view, individuals who perceive their supportive relationships as being reciprocal are likely to have a greater sense of well-being. According to Gouldner (1960), the norm of reciprocity is also a key in Organisational Support Theory (OST) which can be applied to the employee-employer relationship. It suggests that employees who receive favourable treatment from their organisation, would feel an obligation that they should care about the organisation's benefits and contribute to the achievement of organisational goals. Therefore, if managers are concerned about the employees' commitment to the organisation, the employees are concerned with the organisations commitment to them (Eisenberger et al., 1986). Employees regard the organisation as an important source of socio-emotional resources, such as respect, caring and tangible benefits such as wages and medical benefits. If the employees perceive the organisation to have a high regard of them, it will help to meet the employees' needs for approval, esteem and affiliation. They will also perceive justice, as they view positive evaluation by the organisation as an indication that increased effort will be noted and rewarded. For this reason, employees will take an active interest in the regard with which they are held by their employer (Eisenberger, Cummings, Armeli & Lynch, 1997; Eisenberger et al. 1986; Rhoades & Eisenberger, 2002). In this sense a healthy culture of caring and respect in an organisation, will have a beneficial effect on interpersonal relationships which will increase feelings of justice and recognition and thereby lead to increased Psychological Well-being. Furthermore it can be argued that POS will lead to certain core dimensions of EWB in the sense that if individuals receive support from the organisation, they will feel more confident in making their own decisions, and thereby a learning environment will be fostered. This could lead to increased levels of Autonomy (a component of EWB) in that employees could become more independent. The supportive environment will further allow individuals to choose or create contexts that are suitable to their personal needs and the environment will assist employees to make effective use of surrounding opportunities, thereby increasing their Environmental Mastery (another component of EWB). Ryff (1989) describes individuals undergoing Personal Growth (sub-dimension of EWB) as having feelings of continued development, they see themselves as growing and expanding and is open to new experiences. These individuals further have a sense of realising their own potential and change in ways that reflect more self-knowledge and effectiveness. It can thus be argued that a supportive environment will result in employees growing and developing their potential. Furthermore, from the reciprocal point of view, getting support from the organisations will result in employees wanting to give support

to the organisation. This will thus foster conditions for warm, satisfying relationship with co-employees (the Positive Relations with Others component of EWB).

**Hypothesis 28: In the proposed PWBW model it is hypothesised that POS positively influence EWB.**

According to Eisenberger et al., (1986), behavioural outcomes of POS would include increases in in-role and extra-role performance and decreases in withdrawal, such as absenteeism and turnover. According to Organisational Support Theory (OST), the development of POS is encouraged by employees' tendency to assign humanlike characteristics to the organisation (Eisenberger et al., 1986). On the basis of the personification, employees view their favourable or unfavourable treatment as an indication that the organisation favours or disfavors them. OST also addresses the psychological aspects underlying consequences of POS. The first aspect is what is known as the reciprocity norm, which was introduced earlier in this section. The argument leads that POS should produce a felt obligation to care about the organisation's welfare and to help the organisation reach its objectives. The second aspect stipulates that the caring, approval, and respect implied by POS should fulfil socio-emotional needs, leading workers to incorporate organisational membership and role status into their social identity. The third psychological aspect underlying POS is that support should strengthen employees' beliefs that the organisation recognises and rewards increased performance (i.e., performance-reward expectancies). These processes should have favourable outcomes both for employees (e.g., increased job satisfaction and heightened positive mood) and for the organisation (e.g., increased affective commitment and performance, reduced turnover) (Rhoades & Eisenberger, 2002).

By looking at the underlying psychological aspects of POS, it can be argued that POS will have a positive and direct influence on Work Engagement. By taking the reciprocal relationship into account, employees who perceive the organisation to be supportive and thereby also perceive increases justice, will want to, in return, support the organisation by striving to achieve its goals. Secondly, by incorporating organisational membership into their social identity, they will exhibit higher levels of Work Engagement by having high levels of energy and persistence in the face of difficulties (Vigour). The sense of identity will further lead them to have feelings of enthusiasm and pride (Dedication), and ultimately these individuals should be more inclined to be totally and happily immersed in their work (Absorption) (Schaufeli & Bakker, 2001).

**Hypothesis 29: In the proposed PWBW model it is hypothesised that POS positively influence Work Engagement.**

## **2.9 PSYCHOLOGICAL OWNERSHIP**

To have a place is, according to the French political philosopher Simone Weil (1952), an important “need of the human soul” (p.41). A number of scholars have linked this need for place to feelings of ownership (e.g. Ardrey, 1966; Darling, 1939; Duncan, 1981; Porteous, 1976; Weil, 1952). Darling (1939) state that ownership is in essence a psychological expression. It is because of this need that people devote significant amounts of time, energy, and resources to acquire, protect, decorate, and display their homes.

Psychological Ownership (PO) was included in this study as it believed to contribute to well-being. It is argued here that individuals will evaluate a target more favourable when they own it (Nesselroade, Breggan & Allison, 1999) and possessions closely integrated with the self tend to be more positively valenced. According to Van Dyne and Pierce (2004) when individuals have PO, they will experience the target as an extension of the self and therefore feel a sense of responsibility towards the target object. Thereby PO towards a target object has psychological and emotional consequences. According to Formanek (1991), experiencing feelings of ownership produce a positive and uplifting effect that makes owned objects to be more attractive and favourable. In context, feelings of ownership are naturally pleasure producing because possessions can result from self-enhancing biases, individual effort, controllability, and approval and acceptance from others (Pierce, Kostova & Dirks, 2003). Pierce et al., (2003) state that PO will have both positive and negative consequences for the individual. On the positive side, it is likely to lead to assumption of responsibility, caring, protection, nurturance, stewardship, and a willingness to make personal sacrifices and assume risk on behalf of the target. On the negative side, it may lead to alienation, frustration, and stress. Recognising both the positive and the dark side of this state suggests that there may be a limit to what constitutes a “healthy” level of PO.

The core of Psychological Ownership (PO) is a sense of possession (Furby, 1978). James (1963) state that possessive feelings are universal and can refer to tangible or intangible objects. These feelings can be based on either legal Ownership or on the absence of such legality. More precisely, PO has been described as a cognitive-affective construct defined as “the state in which individuals feel as though the target of Ownership or a piece of that target is theirs” and reflects “an individual’s awareness, thoughts and beliefs regarding the target of ownership (Pierce, et al., 2003, p.86). Luthans et al. (2007b) propose that PO falls within the emerging literature of POB. These authors argue that PO has much in common with

more widely recognised constructs and approaches such as psychological capital (Luthans, et al., 2007c), POS (Cameron, et al., 2003), and PWB (Quick & Quick, 2004; Wright & Cropanzano, 2004; Wright, 2005). Not only does PO share a sense of positivity and striving for accomplishment and success (i.e. EWB) with these related POB constructs, but PO also fits the specific POB inclusion criteria (Luthans, 2002a, 2002b; Luthans et al., 2007b). Conventional wisdom suggests that people will take better care of, and strive to maintain and nurture the possessions they own. This “sense” of ownership and this “motivation” to protect and improve the object of ownership, has stimulated organisational behaviour scholars to better understand the positive construct of Psychological Ownership (Avey et al., 2009). Based on research conducted by Pierce, Kostova and Dirks, (2001) on what constitute possession and ownership, they concluded that: (1) the feeling of ownership is innately human, (2) PO can occur towards both tangible and intangible objects (targets) and (3) PO has important emotional, attitudinal and behavioural effects on those that experience Ownership.

Pierce et al., (2001) described PO as an attitude with both affective and cognitive elements. They illustrate this with the following phrases that denote feelings of ownership or possession: “She is MY daughter”, or “That is OUR house”. The authors hereby propose that PO consists, in part, of an emotional attachment to the organisation that transcends the mere cognitive evaluation of the firm. They further propose that this tight connection between possession and feelings of ownership can be directed to the organisation as a whole or at specific aspects of the organisation as the group, job, work-tools, or work itself. For example, some employees have PO for their work and others might have ownership feelings for the overall organisation. In this study, the focus will be on the organisation, i.e. PO for the organisation.

The work of Locke (1690), Sartre (1969), and Rochberg-Halton (1980), among others, provides us with insight into the relationship between work and Psychological Ownership. As part of his political philosophy, Locke (1690) argued that we own our labour and ourselves, and therefore, we are likely to feel that we own that which we create, shape, or produce. Through our labour, we not only invest our time and physical effort but also our psychic energy into the product of that labour. As noted by O’Reilly (2002, p.19) “when managers talk about ownership, what they typically want to instil is not financial ownership, but Psychological Ownership - a feeling on the part of the employees that they have a responsibility to make decisions that are in the long term interest of the company”. Van Dyne and Pierce (2004) further states that employees do not have to own stock in a company to



consider themselves as owners. Experiencing feelings of ownership will result in higher organisational commitment, job satisfaction and organisational-based self-esteem.

Pierce, et al., (2001) state that these feelings of ownership allow individuals to fulfil three basic human motives: to have a sense of place, or home, efficacy and effectance and self-identity. These motives, therefore, are among the reasons for experiencing feelings of ownership. To have a sense of belongingness is the basic need. It is thus argued that this type of 'possession', captured symbolically by 'home', provides employees with a sense of place. Therefore, if employees have the perception that their organisation values them and cares about their well-being (Eisenberger et al., 1986), they will possibly feel at home and feel that "the organisation is theirs" (Pierce et al., 2003).

**Hypothesis 30: In the proposed PWBW model it is hypothesised that POS positively influence PO.**

Self-identity is another motive that leads to experiencing PO. Pierce et al., (2001) defined self-identity as a clear sense of self. Researchers have noted that groups of people (Abrams & Hogg, 2004) and possessions often act as symbols through which people identify themselves. Specifically, it has been noted that individuals establish, maintain, reproduce and transform their self-identity through interactions of tangible possessions and intangibles such as an organisation (Rousseau, 1998). Albert, Ashton and Dutton (2000) suggest that by internalising the organisational identity as a definition of the self, the individual gain a sense of meaningfulness and connectedness. It is important to note here that a sense of connectedness would refer to being connected with the mission or goal of the organisation, which is different to having a sense of belongingness to a place or a group.

According to Van Dyne and Pierce (2004) feelings of possession will create a sense of responsibility. These feelings of responsibility will lead employees to invest time and energy to benefit the organisation. This will furthermore lead the employees to "do what is right and virtuous" and allow them to discover "meaning and self-actualisation", which are two important dimensions of EWB (Ryan & Deci, 2001). Furthermore, when employees feel a sense of PO or possession toward the organisation, work acquires existential significance or purpose that triggers active participation. This significance or purpose can be linked to Ryff's dimension of "Purpose in Life" stating that these individuals have a sense of directedness, aims and objectives. If individuals feel ownership towards an object they will be more inclined to use their own initiatives instead of seeking advice from superiors. This will lead the individuals to be more self-determinant and independent (Autonomy). A hypothesis is thus proposed stating that PO will have a direct significant effect on EWB.

**Hypothesis 31: In the proposed PWBW model it is hypothesised that PO positively influences EWB.**

## **2.10 SUMMARY**

The literature study offered a theoretical argument which was presented in an attempt to depict the nomological network of latent variables that explain variance in the underlying psychological processes of PWBW. The research was initiated by a need to adapt and expand on the Steyn (2011) study in an attempt to get “closer to the truth” of the factors that interplay to predict well-being in the workplace. This theoretical argument can be summarised in the form of a structural model (figure 3.1). The model will be tested to determine whether the theoretical arguments outlined above are legitimate. The next chapter will state the various research hypotheses and the methodology to be used to test these relationships.

## **CHAPTER 3**

### **RESEARCH METHODOLOGY**

#### **3.1 INTRODUCTION**

The previous chapter focused on the literature review of the various constructs and their relationships with each other. The literature has culminated in the formulation of certain research hypotheses. In this chapter a discussion will be presented regarding the purpose and aim of this study, followed by an overview of the research objectives, hypotheses and design. The chapter will conclude with an in-depth discussion on the measurement instruments utilised in this study, and the psychometric integrity of each instrument (i.e. reliability and validity).

#### **3.2 RESEARCH PURPOSE**

For an organisation to sustain its competitive advantage in today's turbulent environment, the quality of its human resources is of paramount importance. The human resource department justify their existence by committing themselves to pursuing organisational goals, with the main goal being economic utility. This is achieved through the acquisition and maintenance of a competent and motivated workforce, as well as the effective and efficient management of such a workforce (Theron, 2011). It is also well known, and frequently acknowledged, that the human resources are the most costly and unpredictable component of a business. Most departments within an organisation have the ability to directly and/or indirectly show their contribution to company success by means of financial measures. With the human resource department, this is more challenging. However, if employees are developed and managed correctly, the human resources of an organisation can provide a significant competitive advantage to the organisation. For example, research has shown that the effectiveness and productivity of employees directly impact on the profitability of the business (Slaski & Cartwright, 2002). Financially it would thus make sense to prioritise the well-being of employees. Better employee well-being should translate into more energy, innovation, creativity, positive competition and also a lack of absenteeism and medical costs (Turner, Baling & Zacharatos, 2002). In this sense, well-being can be viewed as a financial investment, which when managed effectively, will lead to a "high rate on return".

The Psychological Well-being of current day employees has become a serious and worrisome issue. Sanderson et al., (2008) state that stress-related diseases poses significant costs related to performance, e.g. workplace safety, absenteeism and early retirement (Sanderson, et al., 2008). Employee psychological health and well-being could be

regarded as a strategic driver of talent attraction, retention, and individual and organisational performance excellence. HR should therefore promote organisational well-being as well as positive psychological health as it could incseems repetitive rease organisational performance.

This study has drawn from the Positive Organisational Behaviour (POB) paradigm to explicate the arguments that motivated the adaption and expansion of the original Steyn (2011) *Salutogenic Model of Occupational Well-being*, into the *Steyn-Boers Structural Model of Psychological Well-being at Work*.

This is a first adaption to Steyn's study. The adaption and expansion was motivated by certain limitations posed by the Steyn (2011) study. These limitations include that Occupational Well-being was defined too narrowly, no significant link existed between Self-efficacy and any of the other included constructs and Organisational Commitment emerged as a very strong predictor of Work Engagement, which resulted in the decision to omit the construct of Organisational Commitment in this study (refer to section 2.1 of Chapter 2 for a more in-depth discussion on the Steyn (2011) study.) As an adaption and expansion to the Steyn (2011) study, in this study Subjective Well-being is defined, in a generic sense, as both Hedonic Well-being (HWB) and Eudaimonic Well-being (EWB). HWB focuses on the experience of maximising pleasure and minimising pain, where EWB is found in the expression of virtue – doing what is worth doing (Ryan & Deci, 2001). The construct of Psychological Well-being at Work (PWBW) developed by Dagenais-Desmarais and Savoie (2012) was therefore also included as a domain specific, i.e. work, measure of SWB. This study further elaborated on the Steyn (2011) study by including additional variables not included in the original model. Hope (persevering towards goals and, when necessary, redirecting paths to goals) and Resilience (when beset by problems and adversity, sustaining and bouncing back and even beyond to attain success) (Luthans, et al., 2007c) was included as further positive psychological capabilities that influence well-being. It was argued that Gratitude would also have an effect on the well-being of individuals. In this study it is further argued that the organisation can foster psychological capital (e.g. Luthans, Avey, Clapp-Smith & Li, 2008) which could result in higher levels of well-being. This could be done by providing employees with the necessary (Perceived Organisational) Support to flourish in their work. Together with the established support system, it is also argued that Psychological Ownership should empower and motivate employees to excel in the work environment. This should further translate into better well-being.

### 3.3 RESEARCH AIM, QUESTION AND OBJECTIVES

The aim of this study was to depict the nomological network of latent variables (see figure 3.1) that explain variance in the underlying psychological processes of PWBW. The benefits of the research may be that organisations could obtain more insight into human resource interventions that could be applied, related to the variables included in this research. The HR department of organisations can, for example develop appropriate training initiatives (e.g. PsyCap) or actively help establish a corporate culture of positive well-being if these factors have empirically been shown to influence well-being at work.

Given the theoretical framework of this research, the following research question has been formulated:

Are the proposed constructs related to each other, as well as to Subjective Well-being (SWB) and Psychological Well-being at Work (PWBW) in the sense that it permits the construction of the *Steyn-Boers Structural Model of Psychological Well-being at Work* as a possible approach to explaining variance in PWBW?

The research question was addressed by attempting to achieve the following research objectives:

- expand and adapt the Steyn (2011) structural model that will best explain the interaction/influence among the various variables;
- test the fit of the model;
- evaluate the significance of the hypothesised paths in the model; and
- consider the modification of paths in the model by inspecting the modification indices and how the possible modification of paths are supported theoretically.

### 3.4 RESEARCH HYPOTHESES

The proposed research methodology served the aim and objectives of the study. The aim was to expand and adapt Steyn's (2011) original *Salutogenic Model of Occupational Well-being* and to empirically test the validity of the adapted *Steyn-Boers Structural Model of Psychological Well-being at Work*.

The overarching substantive research hypothesis of this study is that the structural model depicted in figure 3.1 provides a valid account of the psychological processes that determines variance in psychological well-being at work. The substantive hypothesis was

dissected into 29 more detailed path-specific research hypotheses. The hypotheses that have been formulated in line with the objectives of the study will be tested.

The ideal in a research study would be to find an exact fit, i.e. the model perfectly explains the co-variance between the indicator variables. LISREL 8.8 was thus used to test the null hypothesis of exact fit.

$H_{01}$  exact fit: **RMSEA = 0**

$H_{a1}$  exact fit: **RMSEA > 0**

However, exact fit is very rarely a possibility. Therefore, the close fit null hypothesis should be considered as it takes the error of approximation into account (Diamantopoulos & Siguaw, 2000). Close fit is implied if the difference between the observed and reproduced score is equal to or less than .05. LISREL 8.8 will be used to test the following null hypothesis for close fit.

$H_{02}$  close fit: **RMSEA  $\leq$  0.05**

$H_{a2}$  close fit: **RMSEA > 0.05**

In accordance with the aim of this study, the findings of previous studies as discussed in the literature review, and the proposed structural model (depicted in figure 3.1), the substantive research hypothesis can be dissected into the following 29 path-specific research hypotheses and their respective path coefficient statistical hypotheses:

**Hypothesis 3:** In the proposed PWBW model it is hypothesised that PA positively influences PWBW.

$H_{03}$ :  $\beta_{64}=0$

$H_{a3}$ :  $\beta_{64}>0$

**Hypothesis 4:** In the proposed PWBW model it is hypothesised that NA negatively influences PWBW.

$H_{04}$ :  $\beta_{63}=0$

$H_{a4}$ :  $\beta_{63}<0$

**Hypothesis 5:** In the proposed PWBW model it is hypothesised that EWB positively influences PWBW.

$H_{05}$ :  $\beta_{65}=0$

$$H_{a5}: \beta_{65} > 0$$

**Hypothesis 6:** In the proposed PWBW model it is hypothesised that Hope positively influences PA

$$H_{06}: \gamma_{41} = 0$$

$$H_{a6}: \gamma_{41} > 0$$

**Hypothesis 7:** In the proposed PWBW model it is hypothesised that Hope negatively influences NA.

$$H_{07}: \gamma_{31} = 0$$

$$H_{a7}: \gamma_{31} < 0$$

**Hypothesis 8:** In the proposed PWBW model it is hypothesised that Hope positively influences EWB.

$$H_{08}: \gamma_{51} = 0$$

$$H_{a8}: \gamma_{51} > 0$$

**Hypothesis 9:** In the proposed PWBW model it is hypothesised that Optimism positively influences PA.

$$H_{09}: \beta_{41} = 0$$

$$H_{a9}: \beta_{41} > 0$$

**Hypothesis 10:** In the proposed PWBW model it is hypothesised that Optimism negatively influences NA.

$$H_{010}: \beta_{31} = 0$$

$$H_{a10}: \beta_{31} < 0$$

**Hypothesis 11:** In the proposed PWBW model it is hypothesised that Optimism positively influences EWB.

$$H_{011}: \beta_{51} = 0$$

$$H_{a11}: \beta_{51} > 0$$

**Hypothesis 12:** In the proposed PWBW model it is hypothesised that Optimism positively influences POS.

$$H_{012}: \beta_{71}=0$$

$$H_{a12}: \beta_{71}>0$$

**Hypothesis 13:** In the proposed PWBW model it is hypothesised that Self-efficacy positively influences EWB.

$$H_{013}: \gamma_{52}=0$$

$$H_{a13}: \gamma_{52}>0$$

**Hypothesis 14:** In the proposed PWBW model it is hypothesised that Self-efficacy negatively influences NA.

$$H_{014}: \gamma_{32}=0$$

$$H_{a14}: \gamma_{32}<0$$

**Hypothesis 15:** In the proposed PWBW model it is hypothesised that Self-efficacy positively influences PA.

$$H_{015}: \gamma_{42}=0$$

$$H_{a15}: \gamma_{42}>0$$

**Hypothesis 16:** In the proposed PWBW model it is hypothesised that Resilience positively influences EWB.

$$H_{016}: \gamma_{53}=0$$

$$H_{a16}: \gamma_{53}>0$$

**Hypothesis 17:** In the proposed PWBW model it is hypothesised that Gratitude positively influences PA.

$$H_{017}: \gamma_{44}=0$$

$$H_{a17}: \gamma_{44}>0$$



**Hypothesis 18:** In the proposed PWBW model it is hypothesised that Gratitude positively influences Optimism.

$$H_{018}: \gamma_{14}=0$$

$$H_{a18}: \gamma_{14}>0$$

**Hypothesis 19:** In the proposed PWBW model it is hypothesised that Gratitude positively influences POS.

$$H_{019}: \gamma_{74}=0$$

$$H_{a19}: \gamma_{74}>0$$

**Hypothesis 20:** In the proposed PWBW model it is hypothesised that Gratitude negatively influences NA.

$$H_{020}: \gamma_{34}=0$$

$$H_{a20}: \gamma_{34}<0$$

**Hypothesis 21:** In the proposed PWBW model it is hypothesised that Work Engagement positively influences EWB.

$$H_{021}: \beta_{52}=0$$

$$H_{a21}: \beta_{52}>0$$

**Hypothesis 22:** In the proposed PWBW model it is hypothesised that Work Engagement positively influences PA.

$$H_{022}: \beta_{42}=0$$

$$H_{a22}: \beta_{42}>0$$

**Hypothesis 23:** In the proposed PWBW model it is hypothesised that Work Engagement negatively influences NA.

$$H_{023}: \beta_{32}=0$$

$$H_{a23}: \beta_{32}<0$$

**Hypothesis 24:** In the proposed PWBW model it is hypothesised that Resilience positively influences Work Engagement.

$$H_{023}: \gamma_{23}=0$$

$$H_{a23}: \gamma_{23}>0$$

**Hypothesis 25:** In the proposed PWBW model it is hypothesised that Self-efficacy positively influences Work Engagement.

$$H_{025}: \gamma_{22}=0$$

$$H_{a25}: \gamma_{22}>0$$

**Hypothesis 26:** In the proposed PWBW model it is hypothesised that Optimism positively influences Work Engagement.

$$H_{026}: \beta_{21}=0$$

$$H_{a26}: \beta_{21}>0$$

**Hypothesis 27:** In the proposed PWBW model it is hypothesised that Hope positively influences Work Engagement.

$$H_{027}: \gamma_{21}=0$$

$$H_{a27}: \gamma_{21}>0$$

**Hypothesis 28:** In the proposed PWBW model it is hypothesised that POS positively influences EWB.

$$H_{028}: \beta_{57}=0$$

$$H_{a28}: \beta_{57}>0$$

**Hypothesis 29:** In the proposed PWBW model it is hypothesised that POS positively influences Work Engagement.

$$H_{029}: \beta_{27}=0$$

$$H_{a29}: \beta_{27}>0$$

**Hypothesis 30:** In the proposed PWBW model it is hypothesised that POS positively influences PO.

$$H_{030}: \beta_{87}=0$$

$$H_{a30}: \beta_{87}>0$$

**Hypothesis 31:** In the proposed PWBW model it is hypothesised that PO positively influences EWB.

$$H_{031}: \beta_{58}=0$$

$$H_{a31}: \beta_{58}>0$$

**Table 3.1**  
*Path coefficient statistical hypotheses*

|  |   |   |   |   |
|--|---|---|---|---|
| <b>Hypothesis 3:</b><br>H <sub>03</sub> : $\beta_{64}=0$<br>H <sub>a3</sub> : $\beta_{64}>0$   | <b>Hypothesis 9:</b><br>H <sub>09</sub> : $\beta_{41}=0$<br>H <sub>a9</sub> : $\beta_{41}>0$      | <b>Hypothesis 15:</b><br>H <sub>015</sub> : $\gamma_{42}=0$<br>H <sub>a15</sub> : $\gamma_{42}>0$ | <b>Hypothesis 21:</b><br>H <sub>021</sub> : $\beta_{52}=0$<br>H <sub>a21</sub> : $\beta_{52}>0$   | <b>Hypothesis 27:</b><br>H <sub>027</sub> : $\gamma_{21}=0$<br>H <sub>a27</sub> : $\gamma_{21}>0$ |
| <b>Hypothesis 4:</b><br>H <sub>04</sub> : $\beta_{63}=0$<br>H <sub>a4</sub> : $\beta_{63}<0$   | <b>Hypothesis 10:</b><br>H <sub>010</sub> : $\beta_{31}=0$<br>H <sub>a10</sub> : $\beta_{31}<0$   | <b>Hypothesis 16:</b><br>H <sub>016</sub> : $\gamma_{53}=0$<br>H <sub>a16</sub> : $\gamma_{53}>0$ | <b>Hypothesis 22:</b><br>H <sub>022</sub> : $\beta_{42}=0$<br>H <sub>a22</sub> : $\beta_{42}>0$   | <b>Hypothesis 28:</b><br>H <sub>028</sub> : $\beta_{57}=0$<br>H <sub>a28</sub> : $\beta_{57}>0$   |
| <b>Hypothesis 5:</b><br>H <sub>05</sub> : $\beta_{65}=0$<br>H <sub>a5</sub> : $\beta_{65}>0$   | <b>Hypothesis 11:</b><br>H <sub>011</sub> : $\beta_{51}=0$<br>H <sub>a11</sub> : $\beta_{51}>0$   | <b>Hypothesis 17:</b><br>H <sub>017</sub> : $\gamma_{44}=0$<br>H <sub>a17</sub> : $\gamma_{44}>0$ | <b>Hypothesis 23:</b><br>H <sub>023</sub> : $\beta_{32}=0$<br>H <sub>a23</sub> : $\beta_{32}<0$   | <b>Hypothesis 29:</b><br>H <sub>029</sub> : $\beta_{27}=0$<br>H <sub>a29</sub> : $\beta_{27}>0$   |
| <b>Hypothesis 6:</b><br>H <sub>06</sub> : $\gamma_{41}=0$<br>H <sub>a6</sub> : $\gamma_{41}>0$ | <b>Hypothesis 12:</b><br>H <sub>012</sub> : $\beta_{71}=0$<br>H <sub>a12</sub> : $\beta_{71}>0$   | <b>Hypothesis 18:</b><br>H <sub>018</sub> : $\gamma_{14}=0$<br>H <sub>a18</sub> : $\gamma_{14}>0$ | <b>Hypothesis 24:</b><br>H <sub>024</sub> : $\gamma_{23}=0$<br>H <sub>a24</sub> : $\gamma_{23}>0$ | <b>Hypothesis 30:</b><br>H <sub>030</sub> : $\beta_{87}=0$<br>H <sub>a30</sub> : $\beta_{87}>0$   |
| <b>Hypothesis 7:</b><br>H <sub>07</sub> : $\gamma_{31}=0$<br>H <sub>a7</sub> : $\gamma_{31}<0$ | <b>Hypothesis 13:</b><br>H <sub>013</sub> : $\gamma_{52}=0$<br>H <sub>a13</sub> : $\gamma_{52}>0$ | <b>Hypothesis 19:</b><br>H <sub>019</sub> : $\gamma_{74}=0$<br>H <sub>a19</sub> : $\gamma_{74}>0$ | <b>Hypothesis 25:</b><br>H <sub>025</sub> : $\gamma_{22}=0$<br>H <sub>a25</sub> : $\gamma_{22}>0$ | <b>Hypothesis 31:</b><br>H <sub>031</sub> : $\beta_{58}=0$<br>H <sub>a31</sub> : $\beta_{58}>0$   |
| <b>Hypothesis 8:</b><br>H <sub>08</sub> : $\gamma_{51}=0$<br>H <sub>a8</sub> : $\gamma_{51}>0$ | <b>Hypothesis 14:</b><br>H <sub>014</sub> : $\gamma_{32}=0$<br>H <sub>a14</sub> : $\gamma_{32}<0$ | <b>Hypothesis 20:</b><br>H <sub>020</sub> : $\gamma_{34}=0$<br>H <sub>a20</sub> : $\gamma_{34}<0$ | <b>Hypothesis 26:</b><br>H <sub>026</sub> : $\beta_{21}=0$<br>H <sub>a26</sub> : $\beta_{21}>0$   |   |

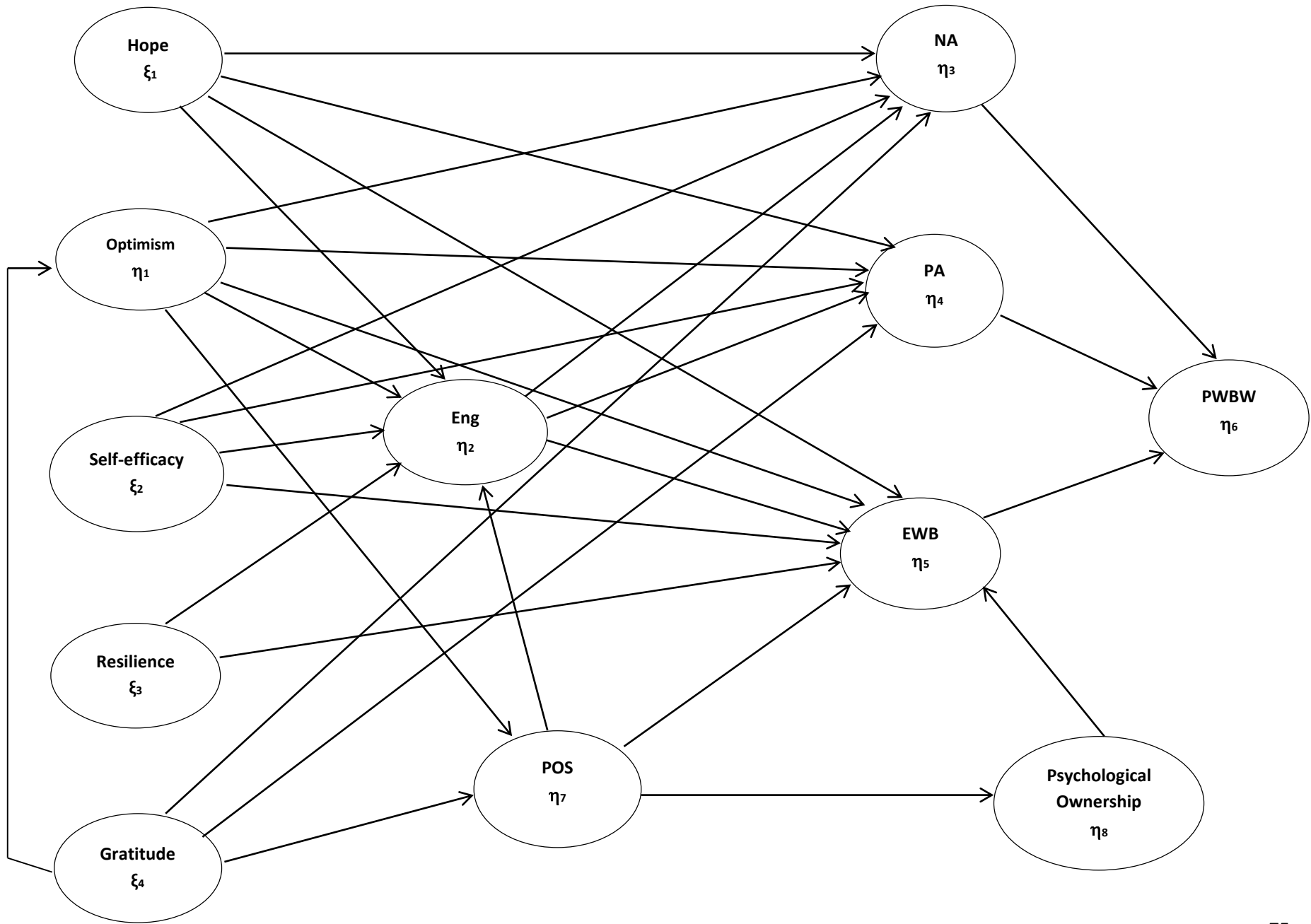


Figure 3.1: Steyn-Boers Structural Model of Psychological Well-being at Work

## 3.5 RESEARCH DESIGN AND PROCEDURE

### 3.5.1 Research Design

A non-experimental research design was used in this research. A researcher uses this type of research design when he/she wants to observe relationships between variables without controlling or manipulating the variables in any way (Kerlinger & Lee, 2000). More specifically, an *ex post facto* correlation design was utilised to test the validity of the hypothesised structural model. The nature of this specific research design precluded the drawing of casual inferences from significant path coefficients, as correlations do not suggest causation.

### 3.5.2 Sampling

A sample refers to a sub-set of the population and then using it as representative of that population (Bryman & Bell, 2003). Kerlinger and Lee (2000) also refer to sampling as taking a portion of the population with the aim of obtaining a representative indication of the population's opinions and attitudes about the phenomenon being studied.

Structural Equation Modelling (SEM) requires an appropriate sample size in order to produce reliable estimates (Hair, Black, Balbin, Anderson & Tatham, 2006). Gorsuch (1983) suggested at least five participants per construct and not less than 100 individuals per data analysis. Kline (2010) suggested that a very complicated path model needs a sample size of 200 or larger, while Bagozzi and Yi (2012) proposed that the sample size should be above 100, preferably above 200. This is supported by Hair et al. (2006) who recommend a sample size of at least 200 but not exceeding 400. According to Hair et al., (2006) when a sample exceeds 400 – 500 participants the SEM analysis becomes too sensitive and almost any differences is detected, making goodness of fit measure show poor fit. According to the guidelines specified above, it is argued that this study's sample size of 199 is close enough to 200 to allow for the calculation of reliable SEM results.

Convenience sampling via a social media network (i.e. non probability sampling technique) was employed in this study. Due to the fact that SWB and PWBW are such generalised concepts and necessary and important factors in all organisations, it was decided to include possible respondents from a range of various companies and industries. The chosen social media platform was *Facebook* where individuals who met specific criteria were sent a link to access the online electronic composite questionnaire.

As part of the process of obtaining ethical clearance, an informed consent template had to be submitted to the ethical committee. A standard informed consent template which covers

all general issues (e.g. confidentiality) was used, however some additional information had to be included as *Facebook*<sup>10</sup> has its own policy on informed consent. There were thus additional matters related to the use of a social media platform that had to be considered in order to ensure that all ethical requirements regarding the data collection was met. The informed consent template of this study (see appendix A), which preceded the questionnaire, was thus created to be aligned with the general informed consent content (e.g. procedures, risks and discomforts, information on confidentiality and anonymity etc.) as well as the requirements set out by the *Facebook* policy on data gathering. Given that the invitation was extended to *Facebook* friends of the researcher and the supervisor, it was assumed that these individuals have, voluntarily, already shared their contact information with the researchers. The (contact) information was therefore already freely available to the researcher and supervisor and the possible participants were well informed through the informed consent preamble to the questionnaire of their rights to voluntary participation, confidentiality and further rights as research participants.

### 3.5.3 Research Participants

As a social media platform was used for gathering the data, inclusion criteria for the possible participants were specified. The inclusion criteria for participants were as follows:

- permanent resident of South Africa;
- at least 18 years or older;
- employed full-time in the formal job market;
- employed for at least six months in their present job; and
- willing to share their information for research purposes

This means of data collection offered some benefits, but it also posed some disadvantages and limitations. This data collection procedure had the benefit of allowing the researcher to tap into a possible participant pool from a wide range of industries and occupations. This, to a certain extent, ensured that any organisation-specific confounding variables (e.g. organisation culture) were controlled for. Another benefit of the data collection method was

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<sup>10</sup> A search of policies on the *Facebook* site regarding any policy documents relating to the use of *Facebook* as a platform to access possible participants, revealed that the following information was available in the “Protecting of People’s Rights” section: “If you collect information from users, you will: obtain their consent, make it clear you (and not *Facebook*) are the one collecting their information, and post a privacy policy explaining what information you collect and how you will use it. You will not tag users or send email invitations to non-users without their consent. *Facebook* offers social reporting tools to enable users to provide feedback about tagging.” The informed consent formulation that accompanied the online questionnaire covered the relevant issues as stipulated in the *Facebook* requirements regarding the protection of participant’s rights.

that due to the online administration of the questionnaire, no missing data was evident in the final dataset.

The main disadvantage of using *Facebook* relates to the generalisability of the sample. Most participants were acquainted with the researcher and study leader. As a result the majority of the sample live in the same province (Western Province), have the same ethnic origin (Caucasian), share a first language (Afrikaans) and are mostly in their 20's - 30's. The sample is thus not a good reflection of the general population of South Africa. This will be discussed in greater depth in section 4.2 in chapter 4.

### 3.5.4 Data Collection

Upon receipt of ethical clearance to conduct the research, all the researcher's "friends"<sup>11</sup> on *Facebook* which met the inclusion criteria, were invited to participate in this study. Upon completion of the online questionnaire the anonymous data went straight into an access data base with a unique identification number. The participants' identities were therefore not known to the researchers. The link was sent to the *Facebook* friends of the principle investigator (and the supervisor, as insufficient numbers were achieved with the former approach). Participation was completely voluntary and all information was kept confidential. To further ensure that the sample was large enough, the study relied on snowball sampling (Babbie & Mouton, 2002), where each participant that the researcher and supervisor invited, was asked to forward the link to one other individual on their *Facebook* "friends list" who met the necessary inclusion criteria. Snowball sampling is a non-probability sampling technique where existing study subjects recruit subjects among their acquaintances (Babbie & Mouton, 2002). The sample group thus appear to grow like a rolling snowball.

Participants were required to complete the survey within a specific time limit, i.e. one month. Participation was encouraged through the incentive of a lucky draw. However, in order to enter participants for the lucky draw, a valid email address was required. Therefore participants were informed by the informed consent formulation that by providing an email address their anonymity was sacrificed. However, the assurance was still given that all data would be kept confidential. The survey included sections addressing informed consent and demographic information, accompanied with a composite questionnaire that measured the

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<sup>11</sup> Friends on *Facebook* refer to those individuals that are acquainted with the researcher and have previously accepted a "friend request". This implies that the person who sent the request may, after the acceptance, view the newly added "friend's" personal information and vice versa. By sending invitations to participate in the research to "friends" of the researcher and supervisor it was argued that this was not deemed to be an invasion of privacy, as the informed consent formulation clearly allowed the possible participant to accept or reject the request.

various constructs. Given the method of data collection, it was impossible to calculate a response rate.

### **3.5.5 Data Analysis**

The choice of data analyses techniques are dependent on the type of research questions the study is aiming to answer. In general, data analyses techniques focus on relationships, significance or group membership, and the factor structures of utilised instruments (Field, 2005; Hair et al., 2006). This study's main research question was guided by several research hypotheses, each investigated through the data analysis applied in this research. More specifically, the data in this study was analysed by means of quantitative techniques (e.g. structural equation modelling). This section will elaborate on the various data analysis techniques that were employed to investigate the research hypotheses as well as certain aspects of the measurement instruments (e.g. factor structure and internal consistency).

#### **3.5.5.1.1 Item Analysis**

The various measurements that were used to measure the latent variables were developed with the specific intention to measure a specific construct or a specific dimension of a construct. According to Smuts (2011), the items comprising these scales have been specifically developed to indicate an individual's standing on the specific dimensions of the latent variables.

Item analysis was thus used to determine the internal consistency of the responses of respondents to items of the various measuring instruments used. Item analysis was further used to establish whether the items successfully reflected the intended latent variable and to identify those items not successfully measuring the intended dimension. Items that did not contribute to the internal consistency of the latent dimension in question were flagged and considered for elimination (Steyn, 2011). From the results of all the analyses, a set of item statistics were investigated to flag possible problematic items. Based on an analysis of the results per instrument or subscale, decisions were made regarding the retention or deletion of items in the respective scales.

#### **3.5.5.1.2 Exploratory Factor Analyses (EFA)**

Typically, the goal of EFA is to allow the data to determine the interrelationships amongst a set of variables. In this study it was decided to use EFA to inspect the factor structures of the instruments in question when the confirmatory factor analysis (CFA) results suggested a poor fit between the observed data and the original theoretical model. Consequently, EFA were only performed on three scales (the PANAS, the Gratitude Questionnaire and the



Psychological Ownership Questionnaire). The objective of the analyses was to inspect the factor structures of these scales. In cases where the uni-dimensionality was not met, the possibility of meaningful factor fusion was investigated. The question, therefore, was whether the extracted factors constitute meaningful subthemes within the original latent variable in question. Furthermore, the ability of a single factor to account for the observed inter-item correlation matrix was also investigated. This approach was taken to investigate the magnitude of the factor loadings when a single factor (as per the *a priori* model) was forced and to examine the magnitude of the factor loadings. In all cases, the credibility of the extracted factor structure as an explanation of the observed inter-item correlation matrix were evaluated by examining the matrix of residual correlations. The percentage of large residual correlations was regarded as reflecting on the credibility of the extracted factor solution as an explanation for the observed correlation matrix.

Principal component factor analysis (PCA) with varimax rotation was used to analyse the variance shared between the items comprising the scale/subscales in question. The decision on the number of factors to extract was based on the Eigen-value-bigger-than-one rule, as well as the scree plot. A factor loading was considered acceptable if  $\lambda_{ij} > .50$ .

#### **3.5.5.1.2 Confirmatory factor analysis**

To evaluate the quality of the measurement instruments (i.e. measurement models) in terms of the data obtained, CFA may be conducted as a way of testing how well measured variables represent a smaller number of constructs (Hair et al., 2006).

CFA is similar to EFA in many respects, but according to Hair et al. (2006), philosophically it is quite different. With CFA, the researcher must specify the number of factors that exist within a set of variables, as well as the relationships between observed variable and factors, before results can be computed. This information is often obtained from the EFA or theory<sup>12</sup>, and therefore the CFA serves to confirm the observed structures of the constructs. Structural equation modelling (SEM) is then used to test how well a priori pattern of factor loadings fits the actual data. Therefore, CFA assists researchers to either reject or accept their preconceived measurement theory of the constructs included in their study. Only once the factor structure is accepted with confidence, can the researcher continue to evaluate the research questions.

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<sup>12</sup> In the case of this study all CFAs that were conducted were specified to test the original theoretical structure of the instruments used in this research.

### *Variable type*

Before CFA can be conducted the variable type must be specified and the normality of the data should be investigated. The responses of the items on all the questionnaires utilised in this study were captured on ordinal scales. Jöreskog (2005) has argued that the ordinal nature of the data requires that polychoric correlations and the asymptotic covariance matrix should be analysed. Conversely, a Monte Carlo study by Muthén and Kaplan (1985) investigated results that were obtained from different estimation techniques (i.e. ML, Generalized Least-Squares, Asymptotically Distribution Free, Categorical variable methodology) when applied within a CFA SEM framework on non-normal categorical variables, dealt with as interval scale (continuous) non-normal variables. The outcome of their research indicated that using Maximum Likelihood (ML) estimation, where scales are classified as continuous and, where these variables are reasonably skewed and kurtotic, is permissible as the standard error and chi-square estimates were not critically misrepresented. Therefore, for the purpose of this study, the items (i.e. observed variables) for all the questionnaires were specified to be continuous in all the CFA analyses.

### *Normality and estimation technique*

To further ensure that SEM statistical assumptions were not violated, the univariate and multivariate normality of the indicator variables for the various subscales, i.e. for all the measurement instruments used in this research, were routinely inspected with PRELIS (Jöreskog & Sörbom, 1996). The results of the normality analyses are reported at the beginning of each section that reports on the CFA analysis for each separate measurement instrument, as well as for the final measurement model for the structural model tested in this research. In cases where the null hypothesis of the univariate and multivariate normality was rejected, Robust Maximum Likelihood (RML) was specified as the estimation technique (Tabachnick & Fidell, 2001) for the specific analysis. Conversely, in cases where the null hypothesis of the univariate and multivariate normality could not be rejected, Maximum Likelihood<sup>13</sup> estimation would be utilised.

### *Goodness of fit indices*

Goodness-of-fit indices are numerical indices that evaluate how well the model accounts for the data. A wide range of goodness of fit indices have been developed that can be used as a summary of the model's overall fit. However, Diamantopoulos and Siguaw (2000) warn that none of these indices are unambiguously superior to the rest in all conditions, and that

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<sup>13</sup> ML estimation was never employed as the null hypothesis for the multivariate normality of all the instruments were always rejected, requiring RML estimation to be used.

specific indices have been shown to operate fairly differently under a range of conditions. These authors assert that sample size, estimation procedure, model complexity, degree of multivariate normality and variable independence, or any combination thereof, may influence the statistical power of the resulted indices.

Several goodness of fit statistics were used to determine the validity of the measurement models in the current study. These include the Satorra- Bentler chi-square ( $S-B\chi^2$ ), standardised root mean square residual (SRMR), root mean square error of approximation (RMSEA), non-normed fit index (NNFI), the comparative fit index (CFI) and the P-Value for Test of Close Fit. These indices were selected, as they are the most widely reported in other studies (Byrne, 1998; Hair et al., 2006). Simulation research by Hair et al. (2006), suggest that model characteristics such as sample size and the number of observed variables in the model, should be used to set the appropriate cut-off values for the above-mentioned GOF indices. For a sample smaller than 250 participants (as is the case in this research with  $n = 199$ ) the fit indices in table 3.2 are applicable (Hair et al., 2006) and will be referred to throughout this chapter.

**Table 3.2**  
***Suggested cut-off values of fit indices demonstrating Goodness-of-Fit given differential model complexity (Hair et al., 2006)***

| <b>N &lt; 250</b>  |  |                          |                   |
|--|--|--------------------------|-------------------|
| <b>GOF statistics</b>  | <b>m ≤ 12</b>                                | <b>12 &lt; m &lt; 30</b> | <b>m ≥ 30</b>     |
| CFI / NNFI   | > .97  | > .95                    | > .92             |
| SRMR   | Could be biased upward,<br>use other indices | ≤ .08                    | < .09             |
| RMSEA  | < .08  | < .08                    | < .08             |
| Models in this study that<br>comply with the different<br>criterion. | GQ6  | PANAS                    | Ryff PWB Scale    |
|  | UWES-9                                       | PsyCap-24                | Measurement Model |
|  | POSS   | PWBW Scale               | Structural Model  |
|  | PsyOwn Quest.                                |                          |                   |

*Note: m = number of observed variables; N applies to number of observations per group when applying CFA to multiple groups at the same time; CFI = comparative fit index (CFI); NNFI = non-normed fit index; GQ6 = Gratitude Questionnaire; PANAS = Positive and Negative Affect Schedule; Ryff PWBW Scale = Ryff Psychological well-being scale; UWES-9 = Utrecht Work Engagement Scale; PsyCap 24 = Psychological Capital Questionnaire; POSS = Perceived Organisational Support Scale; PWBW Scale = Psychological Well-being at Work Scale; PsyOwn Quest. = Psychological Ownership Questionnaire; Measurement model = Measurement model of the Steyn-Boers Model of Psychological Well-being at Work; Structural Model = Structural Model of Psychological Well-being at work.*

*a.) Satorra – Bentler scaled chi square ( $S-B\chi^2$ )*

Satorra and Bentler (2001) proposed a family of scaling corrections aimed at improving the chi-square approximation of goodness-of-fit test statistics in small samples, large models

and non-normal data. The Satorra-Bentler scaled chi-square is generated when robust estimation techniques are employed. Robust estimation techniques are used when data deviates from the normal distribution. If the data departs markedly from multivariate normality, the Satorra-Bentler scaled chi square statistic ( $S-B_{\chi^2}$ ) should be used to provide an improved estimate of the fit of a model (Satorra & Bentler, 2001).

*b.) Standardised root mean residual (SRMR)*

The SRMR is the standardised square root of the mean of the squared residuals, in other words, an average of the residuals between individual observed and estimated covariance and variance terms. Lower SRMR values represent better fit and higher values represent worse fit. The average SRMR value is 0, meaning that both positive and negative residuals can occur (Hair et al., 2006). In research with a sample size of less than 250 respondents (as is the case in this study), and with number of observed variables ranging between 12 and 30 (which applies to most of the measurement models tested in this study), a cut-off value to indicate good model fit of .08 can be suggested for the SRMR (Hair et al., 2006). Kelloway (1998) has a more strict view and suggests that SRMR-values that are smaller than .05 are indicative of an acceptable fit.

*c.) The root mean square error of approximation (RMSEA)*

The RMSEA is a good representation of how well the model fits the population, not just the sample used for estimation. Lower RMSEA values indicate a better fit (Hair et al., 2006). In general, values below .08 for the RMSEA are indicative of acceptable fit, with values below .05 suggesting a very good fit (Hair et al., 2006).

*d.) Comparative fit index (CFI) and non-normed fit index (NNFI)*

A general guideline for the interpretation of the CFI and NNFI is that values of .92 and higher indicates satisfactory fit between the postulated model and empirical data (Hair et al., 2006) for a sample with a population with less than 250 and more than 30 observed variables. This cut-off value may, however, change if less observed variables are present in the specified model. Table 3.2 contains the different cut-off values deemed appropriate for the different models tested in this study.

### **3.6 MEASUREMENT INSTRUMENTS**

To evaluate the fit of the *Steyn-Boers Structural Model of Psychological Well-being at Work*, the latent variables comprising the model had to be operationalised. Diamantopoulos and Siguaw (2000) emphasised that if the quality of the measures used cannot be trusted, then

any evaluations of the relationships presented in the structural model will be problematic. Consequently, available literature was reviewed on the reliability and validity of the selected instruments to justify the selection of these specific measures at the onset of the research. The existing research evidence that supported the psychometric integrity of each measure is presented below. Additionally, the successes with which the indicator variables represent the latent variables comprising the structural model in this specific study were empirically evaluated via item analysis, exploratory factor analysis (EFA), where it was necessary, and confirmatory factor analysis (CFA).

Item analyses were performed to determine whether the items of each measure reflected a common underlying variable and that all the items of each measure sensitively differentiate between the different states of the latent variable being measured. Poor items were flagged and considered for deletion. EFA was performed only in those instances where the CFA results suggested a poor fit between the observed data and the original theoretical model.

Due to the fact that the data was gathered through the means of an electronic survey, participants had to answer all the questions<sup>14</sup> once they voluntarily agreed to participate. This had the benefit of the data being free from random missing values and therefore no missing values had to be imputed.

### **3.6.1 Hedonic Well-Being (HWB)**

The Positive and Negative Affect Schedule (PANAS) was used in this study to measure employees' HWB. The scale was developed by Watson, et al., (1988) with the goal of assessing the distinct dimensions of Positive Affect (PA) and Negative Affect (NA). The scale consists of two 10-item subscales for the two affects respectively.

The psychometric properties of the PANAS have been well researched, and the measure has consistently been identified as a reliable and valid measure for both Positive and Negative Affect (Crawford & Henry, 2004; Watson, et al., 1988). The scale takes the form of a 5-point Likert scale ranging from 1 (very slightly or not at all) to 5 (extremely). Positive Affect items include words such as Interested, Strong and Proud, where Negative Affect items include words such as Guilty, Scared and Hostile. It can be used with various time frames, ranging from "at this specific moment" to "during the last year". Internal consistency estimates range from good to excellent in community and psychiatric samples for both the Positive Affect ( $\alpha = .83 - .90$ ) and the Negative Affect subscale ( $\alpha = .85 - .90$ ) (Petrie,

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<sup>14</sup> The electronic survey was designed with a built-in function where a participant could not move to a next page if all the questions on the current page were not completed.

Chapman & Vines, 2012). The two scales are minimally correlated with each other ( $r = -.05$  to  $-.35$ ), suggesting that they indeed measure separate constructs. Petrie et al. (2012) reported good internal consistency for the PA subscale ( $\alpha = .89$ ) and the NA subscale ( $\alpha = .92$ ).

### 3.6.1.1 Descriptive statistics and item analyses

Item analyses were conducted with the SPSS Scales Reliability Procedure on both subscales, namely the Positive Affect subscale and the Negative Affect subscale. The results of the item analyses, as well as the descriptive statistics are presented in table 3.3.

The results of the analysis were very good as both of the subscales obtained values comfortably exceeding the .70 benchmark for an acceptable reliability coefficient (Nunnally, 1978). No poor items were identified after inspection of the two sets of item statistics, and all the items on the two subscales were retained for further data analysis.

**Table 3.3**

*The means, standard deviation and reliability statistics for the PANAS*

| PANAS subscale  | Number of Items | M     | SD    | $\alpha$ |
|-----------------|-----------------|-------|-------|----------|
| Positive Affect | 10              | 34.45 | 7.376 | .883     |
| Negative Affect | 10              | 40.77 | 6.616 | .836     |

### 3.6.1.2 Confirmatory Factor Analysis

#### 3.6.1.2.1 Measurement Model Specification and Data Normality

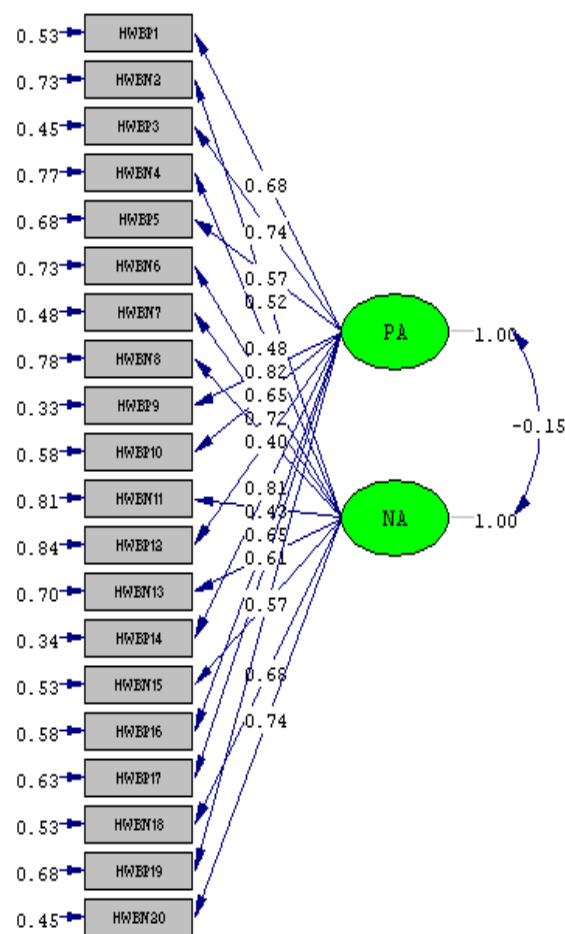
Structural equation modelling (SEM) was used to perform CFA on the set of indicator variables for the PANAS. The measurement model was specified to consist of 20 observed variables ( $X$ 's), two unmeasured latent factors ( $\xi$ 's; i.e. the PANAS subscales) with single-headed arrows from the  $\xi$ 's to  $X$ 's representing the proposed regression of the observed variable onto the latent factors ( $\lambda$ 's). Next, the univariate and multivariate normality of the indicator variables for the two subscales were investigated with PRELIS (Jöreskog & Sörbom, 1996). The null hypothesis of multivariate normality was rejected (skewness and kurtosis:  $\chi^2=540.260$ ,  $p=.000$ ). Hence, RML estimation was employed to derive model parameter estimates.

**Table 3.4**  
**Test of Multivariate normality (PANAS)**

| Value  | Skewness |         | Value   | Kurtosis |         | Skewness and Kurtosis |             |
|--------|----------|---------|---------|----------|---------|-----------------------|-------------|
|        | Z-score  | P-value |         | Z-score  | P-value | Chi-Square            | P-Value     |
| 89.144 | 20.230   | .000    | 523.577 | 11.446   | .000    | <b>540.269</b>        | <b>.000</b> |

**3.7.1.2.2 Evaluation of the measurement model**

The measurement model, in this instance, represents the relationship between the Positive Affect (PA) and Negative Affect (NA) constructs and its manifest indicators. The aim of the confirmatory factor analysis (CFA) was to determine whether the operationalisation of the PA and NA latent variables were successful.



Chi-Square=458.80, df=169, P-value=0.00000, RMSEA=0.093

**Figure 3.2: Measurement model of the PANAS scale (Standardised Solution)**

The results of this analysis (and all the rest to follow) will be discussed by evaluating the overall fit statistics based on the selected array of model fit indices, discussed previously, produced by LISREL. Thereafter a conclusion on the psychometric integrity of the respective

scale will be drawn. The purpose of assessing the overall fit of a model is to determine the degree to which the model as a whole is consistent with the empirical data at hand.

The results of the single group CFA conducted with LISREL 8.80 (Jöreskog & Sörbom, 2002) for the measurement model of the PANAS are reported in table 3.5. The exact fit of the measurement model is tested by evaluating the S-B $\chi^2$  statistic. In this model a Satorra Bentler Scaled chi-square value of 458.801 with 169 degrees of freedom and  $p = .000$  was obtained. Thus, the null hypothesis of exact fit was rejected ( $p < .05$ ). The null hypothesis of close fit has also been tested by LISREL and is shown in table 3.5 as the P-Value for Test of Close Fit (RMSEA  $< .05$ ) = 0.00. Based on this result the close fit null hypothesis was rejected ( $p < .05$ ) and it was concluded that the measurement model did not obtain close fit. According to Hair et al., (2006) when the sample is smaller than 250 with between 12 and 30 observed variables, as in this case, the CFI should be higher than .95 and the SRMR and RMSEA should be lower than .08. According to these general guidelines, the model results indicated mediocre fit. All the factor loadings were statistically significant and ranged from .431 (item 11 = Irritable) to .818 (item 9 = Enthusiastic), with the exception of one factor loading being below .40. This was item 12 (Alert) with a loading of .398.

**Table 3.5**

***Goodness of fit statistics for the PANAS measurement model***

| Model | $X^2$   | S-B $\chi^2$ | df  | S-B $\chi^2/$<br>df | NNFI | CFI  | RMR  | SRMR  | RMSEA<br>(CI)             | P(close) |
|-------|---------|--------------|-----|---------------------|------|------|------|-------|---------------------------|----------|
|       | 540.260 | 458.801      | 169 | 2.714               | .892 | .904 | .104 | .0914 | .0931<br>(.0829;<br>.103) | .000     |

*Note:  $X^2$ , Chi-square; S-B $\chi^2$ , Satorra-Bentler Scaled Chi-square; NNFI, non-normed fit index; CFI, comparative fit index; RMR, root mean square residuals; SRMR, standardised root mean residual; RMSEA, root mean square error of approximation \* $p < 0.05$ .*

### **3.7.1.3 Exploratory Factor Analysis**

As the CFA yielded results that did not indicate good fit, it was decided to conduct an EFA on the original scale. Firstly, an unrestricted EFA was conducted on the 20-item scale. The results suggested that five factors could be extracted (table 3.6) accounting for 64.587% of the variance being explained. For the five factor solution, 30% of non-redundant residuals had absolute values greater than .05. The rotated factor solution therefore provided a fairly credible explanation for the observed inter-item correlation matrix. The content of the five factors were investigated to determine whether the five factors would make theoretical sense. However, no meaningful subthemes could be established for the five extracted factors. As an alternative an EFA was conducted where a two factor solution was forced



onto the data (table 3.7). The two factors explained 46.122% variance. In the two factor solution, however, 50% of the non-redundant residual had absolute values greater than .05. Although the two factor solution had a higher percentage of non-redundant residuals, than the five factor solution, theoretically it made more sense as the factor structure that was derived from the analysis was similar to the factor structure of the PANAS (see table 3.7). Given the results of the item analysis, as well as the sufficient loadings obtained for the items in the two factor EFA, no items were removed from the instrument. However, the results of the initial EFA (five factor structure) were used to calculate the item parcels for the measurement model of the structural model.

Other research seems to suggest that there have been some inconsistencies regarding the factor structure of the PANAS. Kwon, Kalpakjian and Roller (2010) conducted a study to determine the factor structure of the PANAS and the relationship between Positive and Negative Affect. EFA was performed on the sample to examine the underlying dimensions of the PANAS. Two factors were extracted and oblique rotation was applied to interpret pattern of loadings. Kwon et al., (2010), however, concluded that the factor analyses suggested the possibility of a third dimension reflecting Negative Affect and that Affect may consist of more than two general dimensions. Watson et al., (1988) conducted an EFA with varimax rotation that revealed the first two factors accounted for a very high proportion of the common variance, with all items loading cleanly on their designated factor. Although no other studies were found to report the same factor structure as found in this study (five factors), Terracciano, McCrae and Costa Jr. (2003) did report that in light of the strong empirical robustness of the PANAS scales, there are surprising inconsistencies among CFA studies of the two-factor model.

**Table 3.6**

***Rotated factor matrix of the PANAS (free EFA)***

|                     | <b>Factors</b> |             |             |             |             |
|---------------------|----------------|-------------|-------------|-------------|-------------|
|                     | <b>1</b>       | <b>2</b>    | <b>3</b>    | <b>4</b>    | <b>5</b>    |
| <b>Interested</b>   | <b>.744</b>    | -.062       | .133        | -.145       | -.019       |
| <b>Distressed</b>   | -.013          | .247        | -.049       | <b>.756</b> | .022        |
| <b>Excited</b>      | <b>.848</b>    | .027        | .099        | -.020       | -.008       |
| <b>Upset</b>        | -.176          | .091        | .022        | <b>.795</b> | .120        |
| <b>Strong</b>       | .416           | -.183       | <b>.531</b> | .039        | -.102       |
| <b>Guilty</b>       | -.078          | .205        | -.020       | .169        | <b>.827</b> |
| <b>Scared</b>       | -.038          | <b>.753</b> | .051        | .107        | .317        |
| <b>Hostile</b>      | -.151          | .198        | .163        | <b>.540</b> | .224        |
| <b>Enthusiastic</b> | <b>.825</b>    | .042        | .191        | -.215       | .020        |
| <b>Proud</b>        | <b>.622</b>    | .073        | .239        | -.197       | -.171       |

|            |             |             |             |             |             |
|------------|-------------|-------------|-------------|-------------|-------------|
| Irritable  | -.185       | .120        | -.048       | <b>.705</b> | .049        |
| Alert      | .033        | .092        | <b>.826</b> | .011        | -.040       |
| Ashamed    | -.021       | .285        | -.094       | .132        | <b>.807</b> |
| Inspired   | <b>.764</b> | -.070       | .297        | -.142       | -.029       |
| Nervous    | .129        | <b>.780</b> | -.070       | .341        | -.061       |
| Determined | .523        | -.052       | <b>.526</b> | .057        | -.020       |
| Attentive  | .344        | .068        | <b>.740</b> | -.050       | .001        |
| Jittery    | .024        | <b>.650</b> | .034        | .349        | .192        |
| Active     | .378        | .006        | <b>.636</b> | .037        | .003        |
| Afraid     | -.115       | <b>.859</b> | .039        | .054        | .205        |

Table 3.7

*Rotated factor matrix of the PANAS (forced EFA)*

|              | Component       |                 |
|--------------|-----------------|-----------------|
|              | Positive Affect | Negative Affect |
| Interested   | <b>.684</b>     | -.181           |
| Distressed   | -.080           | <b>.615</b>     |
| Excited      | <b>.746</b>     | -.053           |
| Upset        | -.193           | <b>.585</b>     |
| Strong       | <b>.622</b>     | -.131           |
| Guilty       | -.088           | <b>.576</b>     |
| Scared       | .058            | <b>.725</b>     |
| Hostile      | -.061           | <b>.566</b>     |
| Enthusiastic | <b>.799</b>     | -.134           |
| Proud        | <b>.668</b>     | -.157           |
| Irritable    | -.227           | <b>.520</b>     |
| Alert        | <b>.510</b>     | .127            |
| Ashamed      | -.073           | <b>.592</b>     |
| Inspired     | <b>.794</b>     | -.176           |
| Nervous      | .115            | <b>.704</b>     |
| Determined   | <b>.715</b>     | -.005           |
| Attentive    | <b>.714</b>     | .060            |
| Jittery      | .070            | <b>.737</b>     |
| Active       | <b>.667</b>     | .055            |
| Afraid       | .007            | <b>.729</b>     |

### 3.6.2 Eudaimonic Well-Being

Ryff's (1989) Psychological Well-being scale (RPWB) was used to measure Eudaimonic Well-being. The RPWB was originally validated on a sample of 321 well-educated, socially connected, financially-comfortable and physically healthy men and women (Ryff, 1989). The

scale consists of six subscales namely, Positive Relations with Others, Autonomy, Environmental Mastery, Self-Acceptance, Personal Growth and Purpose in Life. People who score high on Positive Relations with Others have warm satisfying relationships and are concerned about the welfare of others. These individuals are capable of strong empathy, affection and intimacy (Ryff, 1989). An example of an item on this subscale is: "It is important for me to be a good listener when close friends talk to me about their problems." Autonomy refers to the characteristics of being self-determining and independent; and being able to resist social pressure to think and act in certain ways. This subscale thus has items that refer to how people view themselves in terms of Autonomy (Ryff, 1989). An example of an item is "I am not afraid to voice my opinions, even when they are in opposition to the opinions of most people". Individuals scoring high on Environmental Mastery (example item: "My efforts to find the kind of activities and relationships that I need have been quite successful") have a sense of mastery and competence in managing their environment. These individuals make effective use of surrounding opportunities and are able to choose or create contexts suitable to personal needs and values (Ryff, 1989). Individuals who display high levels of Self-Acceptance possesses a positive attitude toward the self, acknowledges and accepts multiple aspects of self, including good and bad qualities (Ryff, 1989). An example item is: "When I compare myself to my friends and acquaintances, it makes me feel good about who I am". Personal Growth (example item: "For me, life has been a continuous process of learning, changing and growth") refers to the feeling of continued development. Individuals high on this construct are open to new experiences, have a sense of realising his or her potential and are changing in ways that reflect more self-knowledge and effectiveness (Ryff, 1989). The last subscale, Purpose in Life, refers to individuals that have goals in life and a sense of directedness. These individuals feel there is meaning to present and past life, hold beliefs that give life purpose and have aims and objectives for living (Ryff, 1989). An example item for this subscale is: "I am an active person in carrying out the plans I set for myself."

The internal consistency coefficients for the subscales, in the original validation sample (Ryff, 1989), were as follows: Self-Acceptance, .93; Positive Relations with Others, .91; Autonomy, .86; Environmental Mastery, .90; Purpose in Life, .90; and Personal Growth, .87. The test-retest reliability coefficients over a six week period on a subsample of the respondents (n = 117) that participated in the validation study, were as follows: Self-Acceptance, .85; Positive Relations with Others, .83; Autonomy, .88; Environmental Mastery, .81; Purpose in Life, .82; and Personal Growth, .81 (Ryff, 1989).

The scale utilises a Likert scale response format, ranging from 1 (strongly disagree) to 6 (strongly agree). There are three different versions of the scale, namely a 14-item, 9-item and a 6-item per subscale version. The 9-item per subscale version was used in this study. Therefore, each of the six subscales contained nine items which resulted in a total of 54 items for the scale. The items are presented in a random order.

### **3.6.2.1 Descriptive statistics and item analyses**

Item analyses were conducted on all the subscales using SPSS Scale Reliability Procedure (SPSS Version 16, 2007).

On the Autonomy subscale, the Cronbach alpha of .692 pointed towards the fact that the items do not seem to respond in unity to the systematic differences in the latent variable, although all the items were designed with the intention to measure Autonomy. By evaluating the inter-item correlation matrix, the inter-item correlations of item 19 were all negative. Although item 19's squared multiple correlation (.313) were comfortable within the range (.159 - .464), the deletion of item 19 would have incurred an increase in alpha ( $\Delta = .113$ ) and result in a Cronbach alpha of .742. The results thus suggested that item 19 on the total scale should have been flagged as a poor item. Item 19 ("Being happy with myself is more important to me than having others approve of me") was thus deleted. After the deletion of item 19, the subscale's reliability coefficient (.741) exceeded the .70 benchmark for an acceptable reliability coefficient (Nunnally, 1978).

On the Environmental Mastery subscale, item 7 ("I do not fit very well with the people and the community around me") was flagged as a poor item. The initial Cronbach alpha of the subscale was .764, which was above the recommended .70 level. However, the results of the item analysis indicated that should item 7 be removed, the Cronbach alpha will increase to .778. The squared multiple correlation of this item was the lowest of all the items on this subscale with a value of .130. The other squared multiple correlations ranged between .200 - .472. The inter-item correlations for this item with the others were somewhat lower than the rest. Although the Cronbach's alpha before and after deletion of this item were both above Nunnally's (1978) benchmark, taking the basket of evidence into account, it was decided to remove item 7 from the item pool.

The subscale Purpose in Life, also contained a poor item. The item that was flagged was item 8 ("I live life one day at a time and don't really think about the future"). The initial Cronbach alpha for this subscale was above .70 (Nunnally 1978) with a value of .75. The Item-Total Statistics table indicated that the Cronbach alpha will increase to .766 if this item were to be deleted from the subscale. The squared multiple correlation for this item was the

lowest compared to the others on the subscale with a value of .112. The other items' squared multiple correlations ranged from .188 - .397. The inter-item correlation matrix revealed that the inter-item correlations of this item were low in relation to the other items' inter-item correlations. It was decided to remove this item from the item pool.

Table 3.8 contains the mean, standard deviations and Cronbach alphas for all the subscales after the respective poor items were deleted. Descriptive statistics for the total scale are presented in table 3.9. The Cronbach alpha ( $\alpha = .928$ ) indicated that the overall scale also obtained sufficient reliability according to Nunnally's (1978) benchmark.

**Table 3.8**

*The means, standard deviation and reliability statistics for the Ryff's PWB subscales*

| Ryff's PWB scale      | Number of Items | M     | SD    | $\alpha$ |
|-----------------------|-----------------|-------|-------|----------|
| Autonomy              | 8               | 34.00 | 6.492 | .742     |
| Environmental Mastery | 8               | 34.92 | 6.803 | .778     |
| Personal Growth       | 9               | 44.80 | 5.957 | .716     |
| Relationships         | 9               | 42.46 | 7.319 | .775     |
| Purpose in Life       | 8               | 38.19 | 6.264 | .766     |
| Self-Acceptance       | 9               | 40.76 | 7.722 | .837     |

**Table 3.9**

*The mean, standard deviation and reliability statistic for the Ryff's PWB scale*

| Ryff's PWB scale | Number of items | M      | SD     | $\alpha$ |
|------------------|-----------------|--------|--------|----------|
| EWB              | 51              | 235.13 | 31.168 | .928     |

### 3.6.2.2 Confirmatory Factor Analysis

#### 3.6.2.2.1 Measurement Model Specification and Data Normality

SEM was used to perform CFA on the set of indicator variables for the Ryff Psychological Well-being scale. The measurement model was specified to consist of 51 observed variables ( $X$ 's), six unmeasured latent factors ( $\xi$ s; i.e. the various subscales) with single-headed arrows from the  $\xi$ 's to  $X$ 's representing the proposed regression of the observed variables onto the latent factors ( $\lambda$ s). The univariate and multivariate normality of the indicator variables for the six subscales were investigated with PRELIS, before the CFA was conducted (Joreskog & Sörbom, 1996). The null hypothesis of multivariate normality was rejected (skewness and kurtosis:  $\chi^2=1767.796$ ,  $p=.000$ ). Once again RML Estimation was employed to derive model parameter estimates.

**Table 3.10*****Test of multivariate normality (Ryff PWB scale)***

| Value   | <b>Skewness</b> |         | Value    | <b>Kurtosis</b> |         | <b>Skewness and Kurtosis</b> |             |
|---------|-----------------|---------|----------|-----------------|---------|------------------------------|-------------|
|         | Z-score         | P-value |          | Z-score         | P-value | Chi-Square                   | P-Value     |
| 994.896 | 39.280          | .000    | 2989.083 | 14.997          | .000    | <b>1767.796</b>              | <b>.000</b> |

**3.7.2.2.2 Evaluation of the measurement model**

This measurement model represents the relationship between the six subscales, namely Autonomy, Positive Relationship with Others, Environmental Mastery, Purpose in Life, Self-Acceptance and Personal Growth, and their manifest indicators.

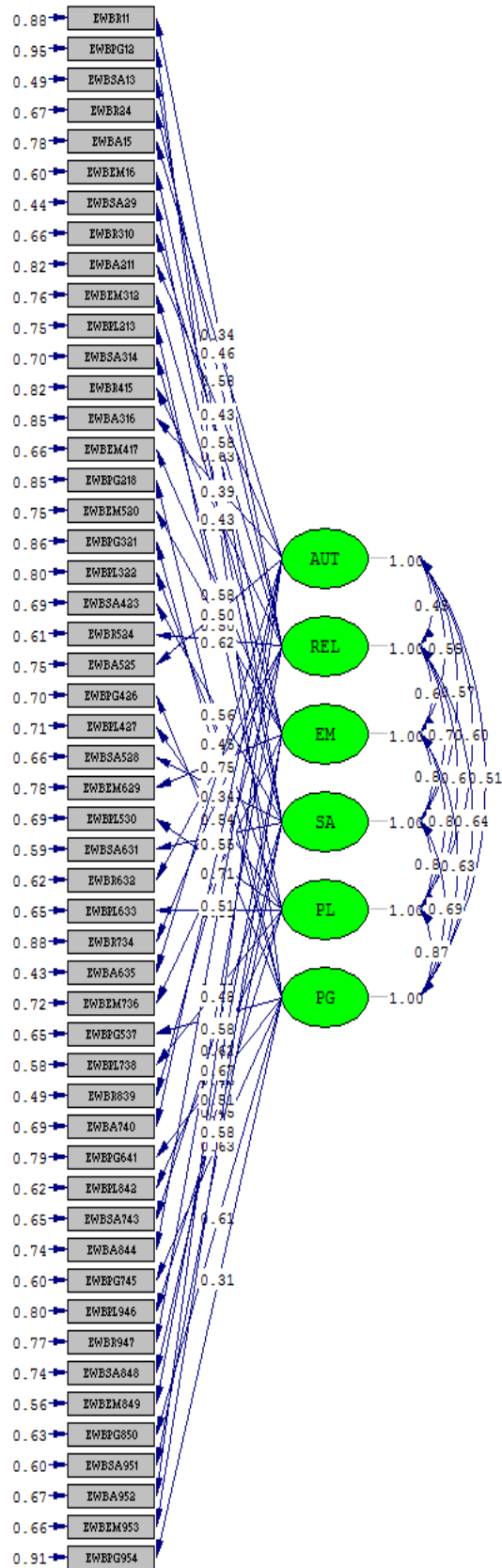


Figure 3.3: Measurement model of Ryff's PWB scale (Standardised Solution)

The results of the CFA conducted with LISREL 8.8 (Jöreskog & Sörbom, 2002) are presented in table 3.11. The results indicated reasonable fit. The revised measurement model contained 51 observed variables (after the deletion of the three items described in the previous section). Based on the Hair et al., (2006) recommended cut-off values (table 3.2) for good model fit (for a model of this complexity) the CFI and NNFI should be above .92, the SRMR less than .09, and the RMSEA less than .08. The NNFI (.888) and the CFI (.893) were slightly below the required level. However, the SRMR (.0940) marginally missed the cut-off value, whilst the RMSEA was below the suggested cut-off value. Both the exact fit and close fit hypotheses were rejected and it was concluded that the basket of evidence showed reasonable model fit. Of the 51 items, 44 obtained significant factor loadings above the .40 cut-off. These loadings ranged from .426 - .750.

**Table 3.11**

***The Goodness of Fit Statistics for Ryff's PWB Scale***

| Model | $X^2$    | S-B $\chi^2$ | df   | S-B $\chi^2/$<br>df | NNFI  | CFI   | RMR   | SRMR   | RMSEA<br>(CI)      | P(close) |
|-------|----------|--------------|------|---------------------|-------|-------|-------|--------|--------------------|----------|
|       | 2700.272 | 2647.196     | 1209 | 2.19                | 0.888 | 0.893 | 0.157 | 0.0940 | 0.0775;<br>0.08150 | 0.000    |

*Note:  $X^2$ , Chi-square; S-B $\chi^2$ , Satorra-Bentler Scaled Chi-square; NNFI, non-normed fit index; CFI, comparative fit index; RMR, root mean square residuals; SRMR, standardised root mean residual; RMSEA, root mean square error of approximation \* $p < 0.05$ .*

### 3.6.3 Psychological Well-Being at Work

The Index of Psychological Well-being at Work (IPWBW) was developed by Dagenais-Desmarais and Savoie (2012). According to Dagenais-Desmarais and Savoie (2012) the PWBW construct intends to describe an individual's subjective positive experience at work, which comprises of primarily Eudaimonic dimensions. These include Interpersonal Fit at work, Thriving at Work, Feeling of Competency at Work, Perceived Recognition at Work and a Desire for Involvement at Work. The IPWBW utilises a 5-point Likert response scale ranging from 0 (Disagree) to 5 (Completely Agree). There are two forms of the scale, a 25 item scale and an 80 item scale. The 25 item scale was used for this study.

The IPWBW has been shown to have adequate internal consistency, both at scale and factor level. Dagenais-Desmarais and Savoie (2012) reported that the Cronbach alpha for the entire scale was .964 and that the subscales' alphas were as follows: Interpersonal Fit at work  $\alpha = .920$ ; Thriving at Work  $\alpha = .907$ ; Feeling of Competency at Work  $\alpha = .861$ ; Perceived Recognition at Work  $\alpha = .833$ ; and A Desire for Involvement at Work  $\alpha = .888$ .



These Cronbach alphas are high, suggesting strong internal consistency for the dimensions (Dagenais-Desmarais & Savoie, 2012).

### 3.6.3.1 Descriptive statistics and item analyses

Item analyses were conducted with the SPSS Scales Reliability Procedure on all the subscales, as well as on the whole scale as the higher order construct of PWBW was included in the final model. The results of the item analyses, as well as the descriptive statistics for the subscales are contained in table 3.12.

The results of the item analyses indicated that all the subscales' reliability coefficients comfortably exceeded the .70 benchmark for an acceptable reliability coefficient (Nunnally, 1978). Moreover, very good reliability was indicated by the fact that three of the subscales obtained values above .90. This reflected very favourably on the internal consistency of these subscales. No poor items in any of the subscales were identified through inspection of the item analysis statistics and all the items on the subscales were retained in further analyses. In addition, the item analysis results for the total scale also showed very good reliability with a coefficient of .960 (table 3.13).

**Table 3.12**

*The means, standard deviation and reliability statistics for the PWBW subscales*

| PWBW subscales | Number of Items | M     | SD    | $\alpha$ |
|----------------|-----------------|-------|-------|----------|
| IFW            | 5               | 24.17 | 5.578 | .909     |
| TW             | 5               | 22.26 | 6.920 | .949     |
| FCW            | 5               | 25.22 | 4.652 | .835     |
| PRW            | 5               | 22.27 | 6.659 | .918     |
| DIW            | 5               | 24.99 | 5.182 | .841     |

*Note: IFW = Interpersonal Fit at Work; TW = Thriving at Work; FCW = Feeling of Competency at Work; PRW = Perceived Recognition at Work; DIW = A Desire for Involvement at Work.*

**Table 3.13**

*The mean, standard deviation and reliability statistics for the PWBW scale*

| PWBW | M      | SD     | $\alpha$ |
|------|--------|--------|----------|
| PWBW | 118.91 | 24.753 | .960     |

### 3.6.3.2 Confirmatory Factor Analysis

#### 3.6.3.2.1 Measurement Model Specification and Data Normality

Structural Equation Modelling (SEM) was used to perform CFA on the set of indicator variables for the IPWBW. The measurement model was specified to consist of 25 observed variables (X's), and the five unmeasured latent factors ( $\xi$ s; i.e. the IPWBW subscales). The

univariate and multivariate normality of the indicator variables for the five subscales were investigated with PRELIS (Joreskog & Sörbom, 1996). The null hypothesis of multivariate normality was rejected (skewness and kurtosis:  $\chi^2=2400.986$ ,  $p=.000$ ). RML estimation was employed to derive model parameter estimates.

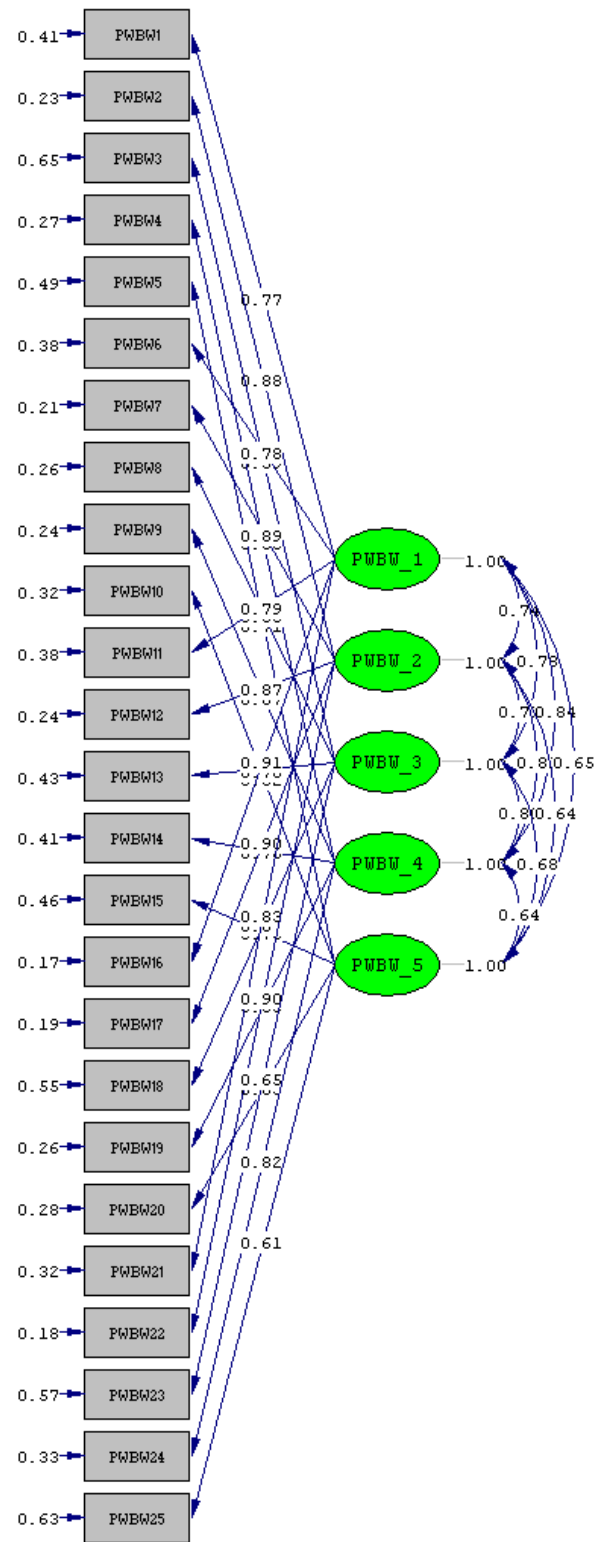
**Table 3.14**

***Test of multivariate normality (PWBW scale)***

| Value   | Skewness |         | Value   | Kurtosis |         | Skewness and Kurtosis |             |
|---------|----------|---------|---------|----------|---------|-----------------------|-------------|
|         | Z-score  | P-value |         | Z-score  | P-value | Chi-Square            | P-Value     |
| 240.210 | 45.504   | .000    | 934.626 | 18.176   | .000    | <b>2400.986</b>       | <b>.000</b> |

**3.6.3.2.2 Evaluation of the measurement model**

The measurement model, in this instance, represented the relationships between the PWBW subscales and its manifest indicators.



Chi-Square=672.43, df=265, P-value=0.00000, RMSEA=0.088

Figure 3.4: Measurement model of the PWBW scale (Standardised Solution)

The results of the CFA conducted with LISREL 8.8 (Jöreskog & Sörbom, 2002) are presented in table 3.15. The GOF for the model was evaluated in terms of the set of indices / cut-off values for measurement models with between 12 and 30 observed variables (refer to table 3.2). A Satorra Bentler Scaled chi-square value of 672.434 with 265 degrees of freedom and  $p = .000$  emerged. The null hypothesis for exact fit was rejected ( $p < 0.05$ ). The results further revealed that the null hypothesis for close fit was also rejected ( $p < .05$ ). However, both the CFI and NNFI (.973 and .970 respectively) were above .95 which indicated good model fit. The SRMR value of .0684 was under the .08 cut-off (Hair et al., 2006), further indicating good model fit. The RMSEA was slightly above the .08 cut-off point. However, given all the other results it could be concluded that overall good model fit was achieved. All the items on the scale obtained significant factor loadings. The loadings ranged from .609 (item 25) to .903 (item 17).

**Table 3.15**

***The Goodness of fit statistics for the PWBW scale***

| Model | $X^2$   | S-B $\chi^2$ | df  | S-B $\chi^2$ /df | NNFI | CFI  | RMR  | SRMR  | RMSEA<br>(CI)              | P(close) |
|-------|---------|--------------|-----|------------------|------|------|------|-------|----------------------------|----------|
|       | 879.856 | 672.434      | 265 | 2.537            | .970 | .973 | .123 | .0684 | .0881<br>(.0799;<br>.0964) | .000     |

*Note:  $X^2$ , Chi-square; S-B $\chi^2$ , Satorra-Bentler Scaled Chi-square; NNFI, non-normed fit index; CFI, comparative fit index; RMR, root mean square residuals; SRMR, standardised root mean residual; RMSEA, root mean square error of approximation \* $p < 0.05$ .*

### 3.6.4 PsyCap-24

The four constructs that make out Psychological Capital, namely Hope (example item: “There are lots of ways around any problem”); Optimism (example item: “I always look on the bright side of things regarding my job”), Self-efficacy (example item: “I feel confident analysing a long-term problem to find a solution”); and Resilience (example item: “I usually manage difficulties one way or another at work”) were measured with the PCQ-24 (Psychological Capital Questionnaire – Self Rater Version; Luthans, et al., 2007a). The instrument makes use of a 6-point Likert response scale, ranging from strongly disagree (1) to strongly agree (6). Each of the four subscales in the PCQ-24 was drawn from established scales which have been previously tested for a range of psychometric characteristics.

Luthans et al., (2007b), conducted two studies in order to examine the psychometric properties of the PCQ-24, and evaluate the underlying relations of the four PsyCap constructs. They had four samples, the first two being management students, the third engineering students and the fourth sample were insurance service employees (Luthans et

al., 2007b). The Cronbach alphas for each of the six-item subscales and the overall PsyCap measure for the four samples were as follow: Hope (.72, .75, .80, .76); Resilience (.71, .71, .66, .72); Self-efficacy (.75, .84, .85, .75); Optimism (.74, .69, .76, .79); and overall PsyCap (.88, .89, .89, .89). Although there were two Cronbach alphas which fell below the recommended .70 level (Nunnally, 1987), the reliability of the overall PsyCap measure in all four samples were consistently above conventional standards (Luthans et al., 2007b). The PCQ-24 also demonstrated adequate confirmatory factor analytic structure across multiple samples as well as strong internal reliability ( $\alpha = .92$ ) (Luthans, et al., 2007b).

Görgens-Ekermans and Herbert (2013) conducted a validation study on the PCQ-24 within the South African context. The following Cronbach Alphas were reported; Hope:  $\alpha = .81$ ; Optimism:  $\alpha = .67$ ; Self-efficacy:  $\alpha = .83$  and Resilience  $\alpha = .69$ . Although two of the values fell below the recommended .70 value (Nunnally, 1987), it was pointed out that there is a general clear trend in most research for these two subscales (Optimism and Resilience) to obtain lower reliability values (Görgens-Ekermans & Herbert, 2013).

#### **3.6.4.1 Descriptive statistics and item analyses**

Item analysis, using the SPSS Reliability Procedure (SPSS Version 16, 2007), was conducted. The Cronbach alphas were similar to those found in the studies conducted by Luthans et al., (2007b), with all subscales attaining values above .70 (Nunnally, 1987). On the Resilience subscale one item was flagged as a possible poor item. This conclusion was reached after an inspection of the squared multiple correlations and the inter-item-correlations. This negatively keyed item, had the lowest squared multiple correlation on the subscale (.075). The other five items had squared multiple correlations ranging from .319 to .492. The inter-item correlations were also much lower than the rest, ranging from .010 to .210 and none of the others were below .30. The results revealed that the Cronbach alpha of the subscale will increase from .726 to .814 if the item was to be deleted. However, due to the fact that the initial Cronbach alpha for this subscale was acceptable, and there are only six items measuring Resilience, it was decided to rather protect the integrity of the original scale and not delete the item from the subscale. All the items of the PCQ-24 were therefore included in the subsequent analyses. The reliability statistics for the four subscales are presented in table 3.16 and for the entire scale in table 3.17. The Cronbach alpha for the PCQ-24 was .927, indicating high reliability.

**Table 3.16***The means, standard deviation and reliability statistics for the PsyCap-24 subscales*

| PsyCap 24 Subscales | Number of Items | M     | SD    | $\alpha$ |
|---------------------|-----------------|-------|-------|----------|
| Self-efficacy       | 6               | 28.70 | 5.620 | .895     |
| Hope                | 6               | 27.42 | 5.344 | .854     |
| Optimism            | 6               | 26.27 | 5.002 | .708     |
| Resilience          | 6               | 28.43 | 4.285 | .726     |

**Table 3.17***The mean, standard deviation and reliability statistics for the PsyCap-24*

| PsyCap 24 | Number of Items | M      | SD      | $\alpha$ |
|-----------|-----------------|--------|---------|----------|
| PsyCap 24 | 24              | 110.82 | 301.715 | .927     |

### 3.6.4.2 Confirmatory Factor Analysis

#### 3.6.4.2.1 Measurement Model Specification and Data Normality

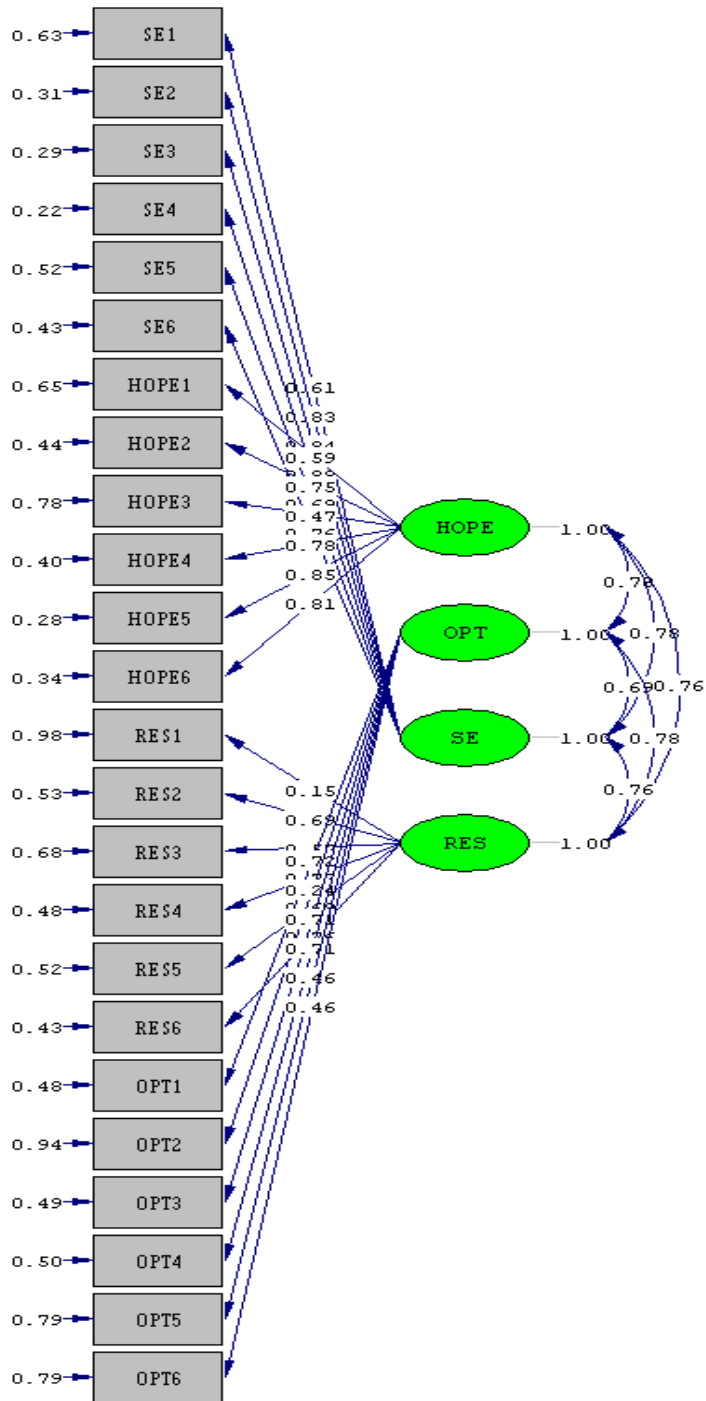
SEM was used to perform CFA on the sets of indicator variables for the four PsyCap constructs. The measurement model was specified to consist of 24 observed variables ( $X$ 's), and the four unmeasured latent factors ( $\xi$ s; i.e. the PsyCap subscales). The null hypothesis of multivariate normality was rejected (skewness and kurtosis:  $\chi^2=1650.850$ ,  $p=.000$ ) and hence RML estimation was employed to derive model parameter estimates.

**Table 3.18***Test of multivariate normality (PsyCap-24)*

| Value   | Skewness |         | Value   | Kurtosis |         | Skewness and Kurtosis |             |
|---------|----------|---------|---------|----------|---------|-----------------------|-------------|
|         | Z-score  | P-value |         | Z-score  | P-value | Chi-Square            | P-Value     |
| 191.374 | 37.488   | .000    | 802.396 | 15.668   | .000    | <b>1650.850</b>       | <b>.000</b> |

#### 6.4.2.2. Evaluation of the measurement model

The measurement model, in this instance, represented the relationship between the PsyCap variables (Hope, Optimism, Self-efficacy and Resilience) and its manifest indicators. A visual representation of the measurement model is provided in figure 3.5.



Chi-Square=407.93, df=246, P-value=0.00000, RMSEA=0.058

**Figure 3.5: Measurement model of PsyCap-24 (Standardised Solution)**

The results of the CFA are presented in table 3.19. The GOF for the model was evaluated in terms of the Hair et al., (2006) guidelines for models with between 12 and 30 observed variables (refer to table 3.2). A Satorra Bentler Scaled chi-square value of 407.933 with 246 degrees of freedom emerged. The null hypothesis for exact fit was rejected ( $p < 0.05$ ). However, the results further revealed that the null hypothesis for close fit could not be rejected ( $p = .102$ ;  $p > .05$ ). Hence, close fit was obtained. Both the CFI and NNFI (.980 and .978 respectively) far exceeded the .95 cut-off, which indicated good model fit. The SRMR

value of .0697 was well under .08 (Hair et al., 2006) further indicating a good fitting model. Furthermore, the RMSEA was well below the cut-off point of .08, also indicating very good fit. All the factor loadings were statistically significant, except for two items, namely item 13<sup>15</sup>, on the Resilience subscale, with a value of .152 and item 17 in the Optimism subscale with a loading of .234. The other values ranged from .456 (items 23 and 24) to .884 (item 4).

**Table 3.19**

***The Goodness of fit statistics for the PsyCap-24***

| Model | X <sup>2</sup> | S-BX <sup>2</sup> | df  | S-BX <sup>2</sup> /<br>df | NNFI  | CFI   | RMR    | SRMR   | RMSEA<br>(CI)                 | P(close) |
|-------|----------------|-------------------|-----|---------------------------|-------|-------|--------|--------|-------------------------------|----------|
|       | 608.004        | 407.933           | 246 | 1.658                     | 0.978 | 0.980 | 0.0966 | 0.0697 | 0.0577<br>(0.0476;<br>0.0674) | 0.102    |

*Note: X<sup>2</sup>, Chi-square; S-BX<sup>2</sup>, Satorra-Bentler Scaled Chi-square; NNFI, non-normed fit index; CFI, comparative fit index; RMR, root mean square residuals; SRMR, standardised root mean residual; RMSEA, root mean square error of approximation \*p < 0.05.*

### 3.6.5 Gratitude Questionnaire-6

A self-report measure of Gratitude, called the Gratitude Questionnaire six item form (GQ-6) was used in the study. It was designed by McCullough et al., (2002) to assess individual differences in the proneness to experience Gratitude in daily life. An example of an item on this questionnaire is “I have so much in life to be thankful for”. The questionnaire response format is in the form of a Likert scale, ranging from 1 (strongly disagree) to 7 (strongly agree), with six items related to Gratitude. The GQ-6 has been shown to have good internal reliability, obtaining Cronbach alphas between .82 and .87 (McGullough, et al., 2002). Through a series of exploratory and confirmatory factor analyses, a robust one-factor scale was developed (McGullough, et al., 2002). Confirmatory factor analysis (CFA) specifying a one-factor congeneric measurement model yielded goodness-of-fit indices that were typically considered to be within acceptable ranges (i.e., Comparative fit indices (CFI) ranged from .90 to .95, and Standardised Root Mean Residuals (SRMR) typically ranged from .05 to .10). Cronbach’s alpha estimates for the six-item totals have ranged from .76 to .84 (McCullough, et al., 2002).

<sup>15</sup> This is a reverse keyed item and has also posed problems in other studies (e.g. Görgens-Ekermans & Hebert, 2013). It was also revealed in the results of the item analysis that this item should be flagged as a possible poor item.



Scores on the GQ-6 have been found to have significant correlations with other measures hypothesised to measure the experience of Gratitude in everyday life, and there is evidence that the GQ-6 relates to other positive traits such as life satisfaction, Hope, spirituality and religiousness, forgiveness, empathy and pro-social behaviour, and is negatively related to depression, anxiety, materialism and envy (McCullough et al., 2002).

### 3.6.5.1 Descriptive statistics and item analyses

Item analysis of the GQ-6 revealed a reliability coefficient of .787 (table 3.20), which was comfortably above the cut-off point stipulated by Nunnally (1978). The item statistics were reviewed and the results of the item analysis indicated that if item 3 and item 6 would be deleted, the Cronbach alpha would increase. The deletion of item 3 would have incurred an increase ( $\Delta = 0.015$ ) in the Cronbach alpha resulting in .802. The deletion of item 6 would have incurred a very small increase in the alpha ( $\Delta = 0.004$ ) and result in the alpha being .791. Items 3 and 6 were the only two negatively keyed items on this scale. These two items were investigated for elimination as it might improve the scale internal consistency. It was determined that if these two items were to be deleted, the Cronbach alpha would only be marginally higher. As this scale only has six items, it was decided to rather protect the integrity of the scale and not to remove these two items.

**Table 3.20**

*The means, standard deviation and reliability statistics for the GQ-6*

| Gratitude -6Q | Number of items | M     | SD    | $\alpha$ |
|---------------|-----------------|-------|-------|----------|
| Gratitude     | 6               | 37.52 | 4.950 | .787     |

### 3.6.5.2 Confirmatory Factor Analysis

#### 3.6.5.2.1 Measurement Model Specification and Data Normality

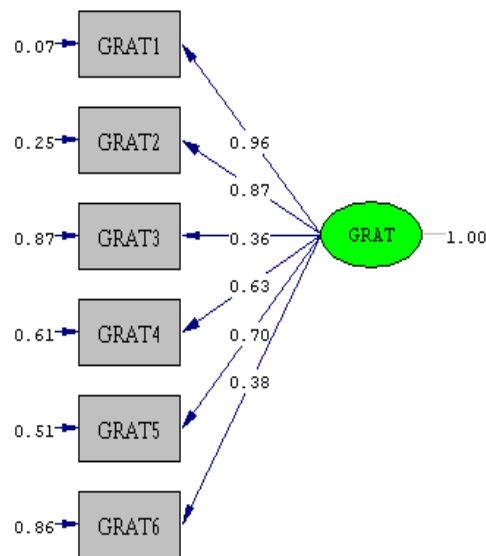
A CFA was conducted on the GQ-6 measurement model which was specified to consist of six observed variables ( $X$ 's), and one unmeasured latent factor ( $\xi$ s; i.e. Gratitude). The null hypothesis of multivariate normality was rejected (skewness and kurtosis:  $X^2 = 1066.123$ ,  $p = .000$ ). RML was used as the estimation method. A graphical representation of the GQ-6 measurement model is presented in figure 3.6

**Table 3.21**

*Test of multivariate normality (GQ-6)*

| Value  | Skewness |         | Value   | Kurtosis |         | Skewness and Kurtosis |             |
|--------|----------|---------|---------|----------|---------|-----------------------|-------------|
|        | Z-score  | P-value |         | Z-score  | P-value | Chi-Square            | P-Value     |
| 39.852 | 29.725   | .000    | 115.327 | 13.512   | .000    | <b>1066.123</b>       | <b>.000</b> |

### 3.6.5.2.2 Evaluation of the gratitude measurement model



Chi-Square=36.10, df=9, P-value=0.00004, RMSEA=0.123

**Figure 3.6: Measurement model of the GQ-6 (Standardised Solution)**

The results of the CFA conducted with LISREL 8.8 (Jöreskog & Sörbom, 2002) are presented in table 3.22. A Satorra Bentler Scaled chi-square value of 36.102 with 9 degrees of freedom and  $p = .000$  emerged. The null hypothesis for exact fit was rejected ( $p < .05$ ). The results further revealed that the null hypothesis for close fit should also be rejected ( $p < .05$ ). The GOF for the model was evaluated in terms of the Hair et al., (2006) guidelines for models with less than 12 observed variables. The CFI (.958) fell marginally below the .97 recommended value indicating reasonable fit, whilst the NNFI (.930) fell even further below .97, also suggesting only reasonable fit. An SRMR value of .0672 was obtained, indicative of good model fit. However, the RMSEA was well above the cut-off point of .08 (RMSEA = .123). Four of the six factor loadings were above the .50 recommended loading, ranging from .626 (item 4) to .963 (item 1). The two loadings which were below .50 were .363 (item 3) and .377 (item 6) and thus also the two flagged, as well as negatively-keyed items.

**Table 3.22**  
**The Goodness of Fit Statistics for the GQ-6**

| Model | $X^2$  | S-B $\chi^2$ | df | S-B $\chi^2$ /<br>df | NNFI | CFI  | RMR   | SRMR  | RMSEA<br>(CI)            | P(close) |
|-------|--------|--------------|----|----------------------|------|------|-------|-------|--------------------------|----------|
|       | 47.922 | 36.102       | 9  | 4.011                | .930 | .958 | 0.122 | .0672 | .123<br>(.0829;<br>.167) | .00234   |

Note:  $X^2$ , Chi-square; S-B $\chi^2$ , Satorra-Bentler Scaled Chi-square; NNFI, non-normed fit index; CFI, comparative fit index; RMR, root mean square residuals; SRMR, standardised root mean residual; RMSEA, root mean square error of approximation \* $p < 0.05$ .

### 3.6.5.3 Exploratory Factor Analysis

Given that three of the four GOF results did not meet the suggested cut-off values for good model fit, it was concluded that the factor structure of the instrument should be further investigated with EFA. At first an unrestricted EFA was conducted, i.e. SPSS was allowed to freely determine how many factors to extract. The results showed that one factor with an eigen value greater than one could be extracted, explaining 57.88% of the variance. The loadings for the rotated factor solution are presented in table 3.23. After an investigation of the non-redundant residuals with absolute values greater than .05 for this factor solution, it was noted that it was unacceptably high (86%). It was further evident that the second eigen value approached one (.973), which suggested that a possible second factor underlies the scale. Based on this information, it was decided to force a two factor solution in a subsequent analysis (table 3.24). The two factor model explained 71.097% of the variance. The percentage of non-redundant residuals came down to 40%, which, although still high, was markedly better than for the one factor solution. Hence, it seemed that the two factor solution was a more permissible account of the structure of the scale in this sample. All the positively keyed items loaded onto one factor (Gratitude-positive) and the two negatively keyed factors loaded onto the other factor (Gratitude-negative). For this solution all the loadings were above .70 (table 3.24). A CFA was therefore conducted on the derived two-factor solution displayed below.

**Table 3.23**

*Structure matrix of the GQ-6 loading on one factor*

|            | <b>Factor 1</b> |
|------------|-----------------|
| GRAT 1     | .897            |
| GRAT 2     | .840            |
| GRAT 3 (-) | .513            |
| GRAT 4     | .772            |
| GRAT 5     | .795            |
| GRAT 6 (-) | .538            |

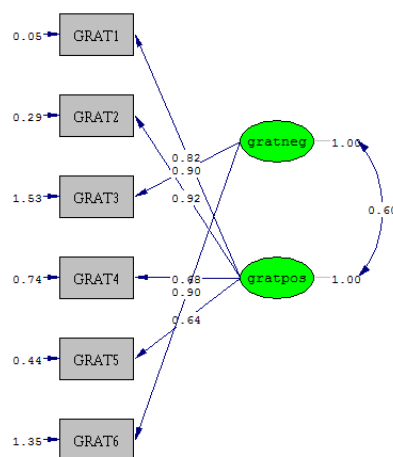
**Table 3.24**

**Structure matrix of the GQ-6 loading on two factors**

|            | Factor 1    | Factor 2    |
|------------|-------------|-------------|
| GRAT 1     | <b>.887</b> | .234        |
| GRAT 2     | <b>.838</b> | .203        |
| GRAT 3 (-) | .162        | <b>.820</b> |
| GRAT 4     | <b>.773</b> | .182        |
| GRAT 5     | <b>.817</b> | .145        |
| GRAT 6 (-) | .206        | <b>.787</b> |

### 3.6.5.4 Confirmatory Factor Analysis

The revised measurement model, in this instance, represented the relationship between Gratitude-positive and Gratitude-negative and its manifest indicators.



Chi-Square=28.13, df=8, P-value=0.00045, RMSEA=0.113

**Figure 3.7: Measurement model of the two factor GQ-6 (Standardised Solution)**

The exact fit of the measurement model was tested by the S-B $\chi^2$  statistic. In this model a Satorra Bentler Scaled chi-square value of 28.133 with 8 degrees of freedom and  $p = .000$  was obtained. Thus the null-hypothesis of exact fit was rejected ( $p < .05$ ). The null hypothesis of close fit was also tested by LISREL and is shown in table 3.25 as the P-Value for Test of Close Fit (RMSEA  $< .05$ ) was equal to .0113. Based on the result the close fit null hypothesis was rejected ( $p < .05$ ) and it is concluded that the measurement model did not obtain close fit. All the GOF indices improved, compared to the one-factor CFA model (reported in table 3.22). The CFI (.969) and NNFI (.942) increased marginally and the SRMR (.0473) decreased. Unfortunately, the RMSEA was still above the recommended .80 level (.113). However, in this model the lower boundary for the RMSEA did, at least, include

the 0.08 cut-off value (at .06) – which was not the case for the previous model. Based on the basket of evidence derived for this model it was concluded that the two factor model provided a better account (although still only reasonable fit) of the structure of the instrument in this sample, than the one factor model. The completely standardised loadings (all significant) ranged from .589 (item 3) to .966 (item 1).

**Table 3.25**

***The Goodness of Fit Statistics for the GQ-6 revised measurement model***

| Model | X <sup>2</sup> | S-BX <sup>2</sup> | df | S-BX <sup>2</sup> /<br>df | NNFI | CFI  | RMR   | SRMR  | RMSEA<br>(CI)        | P(close) |
|-------|----------------|-------------------|----|---------------------------|------|------|-------|-------|----------------------|----------|
|       | 36.410         | 28.133            | 8  | 3.517                     | .942 | .969 | .0548 | .0473 | .113(.0693<br>;.159) | .0113    |

*Note: X<sup>2</sup>, Chi-square; S-BX<sup>2</sup>, Satorra-Bentler Scaled Chi-square; NNFI, non-normed fit index; CFI, comparative fit index; RMR, root mean square residuals; SRMR, standardised root mean residual; RMSEA, root mean square error of approximation \*p < 0.05.*

### 3.6.6 Work Engagement

Work Engagement was measured with the 9-item Utrecht Work Engagement Scale (UWES-9). The instrument consists of three subscales, namely Vigour, Dedication and Absorption. Each subscale comprises of three items (Schaufeli & Bakker, 2003). The instrument response format is in the form of a 7-point Likert-scale, ranging from never (1) to always (7).

According to confirmatory factor analysis (CFA) results (Schaufeli & Bakker, 2003), the UWES-9 seems to have a three-dimensional structure, although these three dimensions seem closely related. The internal consistency of the three scales of the UWES-9 is good. That is, in most studies Cronbach alphas for the scales range between .80 and .90 (Demerouti, Bakker, De Jonge, Jansen & Schaufeli, 2001; Salanova, Bresc  & Schaufeli, 2003; Salanova, Schaufeli, Llorens, Pier  & Gray, 2000; Schaufeli, Taris & Van Rhenen, 2008). Lastly, scores on the UWES-9 have been shown to be relatively stable across time. Two year stability coefficients for Vigour, Dedication and Absorption have been reported to be .30, .36 and .46, respectively (Bakker, Euwema, & Van Dierendonck, 2003).

G rgens-Ekermans and Herbert (2013) used the UWES-9 on a South African sample and reported acceptable psychometrics with Cronbach alphas close to or above .70: Vigour = .86, Dedication = .85 and Absorption = .68. Steyn (2011) also used this scale to measure Work Engagement i.e. meaning in work, in a South African sample. The item analysis of the subscales yielded very good results. All three subscales obtained Cronbach alphas well above .70 (Vigour = .832, Dedication = .827 and Absorption = .770).

### 3.6.6.1 Descriptive statistics and item analyses

Consistent with previous research the item analyses of the UWES subscales yielded very good results. All three subscales obtained Cronbach alpha values well above .70. Vigour and Dedication both achieved values above .85, suggesting strong evidence of more than sufficient reliability of these subscales. The item statistics of all three subscales were investigated. On two of the subscales (Vigour and Absorption), no items were flagged as poor items. On the Dedication subscale, it was evident that if item 7 (“I am proud of the work that I do”) was to be deleted, the Cronbach alpha would increase from .886 to .917. The squared multiple correlation of item 7 (.465) was lower than the other two squared multiple correlations on the subscale (.731 and .747). The inter-item correlation matrix also revealed that item 7’s inter-item correlations were lower than the other. As the UWES-9 only has three items per subscale and the Cronbach alphas of the subscales were above .70 (Nunnally, 1987), it was decided to rather protect the integrity of the scale and therefore not to remove the flagged item. Item analysis was also conducted on the entire scale. A Cronbach alpha of 0.935 was obtained, suggesting high reliability for the composite scale (table 3.27).

**Table 3.26**

*The means, standard deviation and reliability statistics for the UWES-9*

| UWES-9     | Number of Items | M     | SD    | $\alpha$ |
|------------|-----------------|-------|-------|----------|
| Vigour     | 3               | 13.79 | 3.933 | .900     |
| Dedication | 3               | 15.72 | 3.891 | .886     |
| Absorption | 3               | 15.67 | 3.523 | .799     |

**Table 3.27**

*The means, standard deviation and reliability statistics for the UWES-9*

| UWES-9 | Number of Items | M     | SD     | $\alpha$ |
|--------|-----------------|-------|--------|----------|
| UWES-9 | 9               | 45.18 | 10.390 | .935     |

### 3.6.6.2 Confirmatory Factor Analysis

#### 3.6.6.2.1 Measurement Model Specification and Data Normality

SEM was again used to perform CFA on the set of indicator variables for the UWES-9. The measurement model was specified to consist of nine observed variables (X’s), three unmeasured latent factors ( $\xi$ s; i.e. the three UWES-9 subscales) with single-headed arrows from the  $\xi$ ’s to X’s representing the proposed regression of the observed variables onto the latent factors ( $\lambda$ s). Before the CFA was conducted the univariate and multivariate normality of the indicator variables for the scale was investigated with PRELIS (Jöreskog & Sörbom,

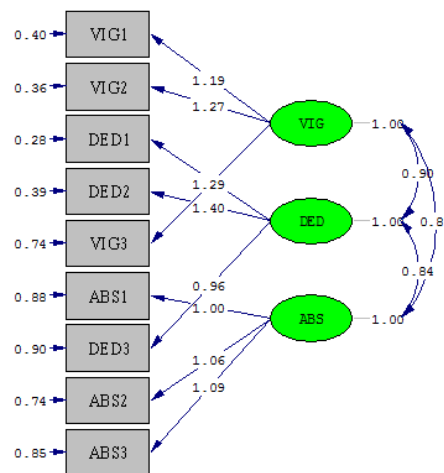
1996). The null hypothesis of multivariate normality was rejected (skewness and kurtosis:  $\chi^2=467.693$ ,  $p=.000$ ) and hence RML estimation was employed to derive model parameter estimates. The measurement model is presented in figure 3.8.

**Table 3.28**  
*Test of multivariate normality (UWES-9)*

| Value  | Skewness |         | Value   | Kurtosis |         | Skewness and Kurtosis |             |
|--------|----------|---------|---------|----------|---------|-----------------------|-------------|
|        | Z-score  | P-value |         | Z-score  | P-value | Chi-Square            | P-Value     |
| 22.983 | 18.170   | .000    | 152.276 | 11.727   | .000    | <b>467.693</b>        | <b>.000</b> |

**3.6.6.2.2 Evaluation of the measurement model**

The measurement model, in this instance, represented the relationships between the dimensions of Work Engagement (Vigour, Dedication and Absorption) and its manifest indicators.



**Figure 3.8: Measurement model of the UWES (Standardised Solution)**

Table 3.29 contains the results of the single group CFA of the three factor measurement model. The exact fit of the measurement model was tested by the S-B $\chi^2$ . A Satorra Bentler chi-square value 43.874 with 24 degrees of freedom and  $p = .000$  was obtained. Thus, the null hypothesis of exact fit was rejected ( $p < 0.05$ ). The null hypothesis for close fit was not rejected ( $p = .198$ ) and therefore it could be concluded that this measurement model obtained close fit. The RMSEA value fell well below the cut-off value of .08, indicating good fit. The incremental fit indices (NNFI = .989 and CFI = .993), as well as the value of the SRMR = .0467 provided further strong evidence of good model fit (all comfortably meeting the cut-off values specified by Hair et al, 2006, for a model of this complexity). This finding was further corroborated by the fact that all nine completely standardised factor loadings obtained values larger than .70, ranging from .711 (item 8) to .928 (item 3). It was therefore

concluded that sufficient evidence existed to verify the validity of the three-factor measurement model within the current sample.

**Table 3.29**

***The Goodness of Fit Statistics for the UWES-9***

| Model | $X^2$  | S-B $X^2$ | df | S-B $X^2/$<br>df | NNFI | CFI  | RMR   | SRMR  | RMSEA<br>(CI)              | P(close) |
|-------|--------|-----------|----|------------------|------|------|-------|-------|----------------------------|----------|
|       | 80.715 | 43.847    | 24 | 1.827            | .989 | .993 | .0914 | .0467 | .0646<br>(.0327;<br>.0945) | .198     |

*Note:  $X^2$ , Chi-square; S-B $X^2$ , Satorra-Bentler Scaled Chi-square; NNFI, non-normed fit index; CFI, comparative fit index; RMR, root mean square residuals; SRMR, standardised root mean residual; RMSEA, root mean square error of approximation \* $p < 0.05$ .*

### 3.6.7 Perceived Organisational Support

The Perceived Organisational Support Scale (POSS) was used to measure POS. The scale was developed by Eisenberger, et al., (1996) and utilises a Likert response scale which range from strongly disagree (1) to strongly agree (6). The original scale consists of 36 items, but the 8-item version was used in this study. An example of an item is “The organisation values my contribution to its well-being”. Rhoades and Eisenberger (2002, p.699) indicated that “because the original scale is uni-dimensional and has high internal reliability, the use of shorter versions does not appear problematic. Prudence nevertheless dictates that both facets of the definition of POS (valuation of employees’ contribution and care about employees’ well-being) be represented in shorter versions of the questionnaire”.

Eisenberger et al., (1986) performed a reliability and item analysis on the scale, which resulted in a Cronbach alpha of .97, with item-total correlations ranging from .42 to .83. The mean and median item-total correlations were .67 and .66 respectively. They concluded that every one of the 36 items showed a strong loading on the main factor, with minimal evidence for the existence of other factors. In a study conducted by Uçar and Ötken (2010), a Cronbach alpha of .88 was reported for the 36-item version of the scale, which is well above the recommended level of .70 (Nunnally, 1987). The substantial factor loading of each item and the high proportions of relative variance and total variance accounted for were notable since the items were constructed to include a wide variety of ascribed organisational attitudes and possible actions relevant to employees' interests (Uçar & Ötken, 2010). These findings indicate that employees develop global beliefs concerning the degree to which the organisation values their contributions and cares about their well-being (Eisenberger et al., 1986).



### 3.6.7.1 Descriptive statistics and item analyses

The item analysis of the POSS yielded very good results. A Cronbach alpha value well above .70 ( $\alpha = .926$ ) indicated strong evidence of sufficient reliability of the scale. The items statistics revealed that there were no poor items. No items, if deleted, would result in a Cronbach alpha higher than the existing one of .926.

**Table 3.30**

*The means, standard deviation and reliability statistics for the POSS*

| POSS | Number of Items | M     | SD     | $\alpha$ |
|------|-----------------|-------|--------|----------|
|      | 8               | 40.44 | 11.768 | .926     |

### 3.6.7.2 Confirmatory Factor Analysis

#### 3.6.7.2.1 Measurement Model Specification and Data Normality

SEM was again used to perform CFA on the set of indicator variables for the POSS. The measurement model was specified to consist of eight observed variables ( $X$ 's), one unmeasured latent factor ( $\xi$ s; i.e. the POS latent factor) with single-headed arrows from the  $\xi$  to  $X$ 's representing the proposed regression of the observed variables onto the latent factor ( $\lambda$ s). The univariate and multivariate normality of the indicator variables for the scale was investigated with PRELIS (Jöreskog & Sörbom, 1996). The null hypothesis of multivariate normality was rejected (skewness and kurtosis:  $\chi^2=398.695$ ,  $p=.000$ ). RML estimation was employed to derive model parameter estimates.

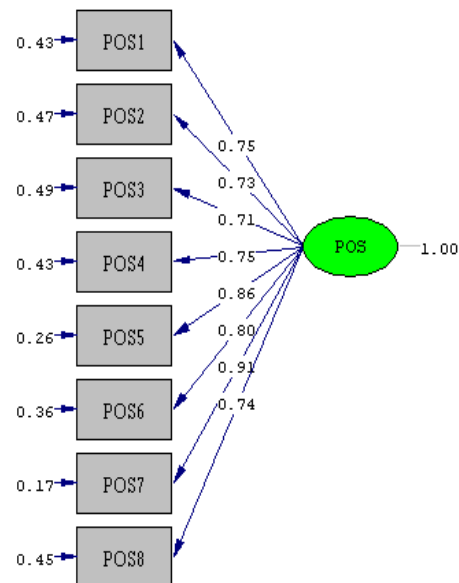
**Table 3.31**

*Test of multivariate normality (POSS)*

| Value  | Skewness |         | Value   | Kurtosis |         | Skewness and Kurtosis |             |
|--------|----------|---------|---------|----------|---------|-----------------------|-------------|
|        | Z-score  | P-value |         | Z-score  | P-value | Chi-Square            | P-Value     |
| 17.921 | 16.417   | .000    | 127.137 | 11.366   | .000    | <b>398.695</b>        | <b>.000</b> |

### 3.6.7.2.2 Evaluation of the measurement model

The measurement model, in this instance, represented the relationships between Positive Organisational Support and its manifest indicators.



Chi-Square=45.73, df=20, P-value=0.00088, RMSEA=0.081

**Figure 3.9: Measurement model of the POSS (Standardised Solution)**

Table 3.32 contains the results of the single group CFA of the one factor measurement model. The exact fit of the measurement model was tested by the  $S-B\chi^2$ . A Satorra Bentler chi-square value of 45.726 with 20 degrees of freedom and  $p = .00$  was obtained. Thus, the null hypothesis of exact fit was rejected ( $p < 0.05$ ). However, the close fit null hypothesis could not be rejected ( $p = .0512$ ) and it could therefore be concluded that the model obtained close fit. The RMSEA value fell slightly above the cut-off value of .08. However, the incremental fit indices (NNFI=.983 and CFI=.988), as well as the value obtained for the SRMR=.0464 provided strong evidence of good model fit (based on the Hair et al., 2006, cut-off values, table 3.2). Based on the basket of evidence derived for this model, it was concluded that good model fit was achieved. All completely standardised loadings obtained significant values larger than .70, ranging from .715 (item 3) to .913 (item 7).

**Table 3.32****The Goodness of Fit Statistics for the POSS**

| Model | X <sup>2</sup> | S-BX <sup>2</sup> | df | S-BX <sup>2</sup> /<br>df | NNFI | CFI  | RMR  | SRMR  | RMSEA<br>(CI)             | P(close) |
|-------|----------------|-------------------|----|---------------------------|------|------|------|-------|---------------------------|----------|
|       | 87.741         | 45.726            | 20 | 2.2863                    | .983 | .988 | .145 | .0464 | .0806<br>(.0498<br>;.112) | .0512    |

Note: X<sup>2</sup>, Chi-square; S-BX<sup>2</sup>, Satorra-Bentler Scaled Chi-square; NNFI, non-normed fit index; CFI, comparative fit index; RMR, root mean square residuals; SRMR, standardised root mean residual; RMSEA, root mean square error of approximation \*p < 0.05.

### 3.6.8 Psychological Ownership

Psychological Ownership was measured with a scale initially developed and validated by Pierce, Van Dyne and Cummings (1992). This scale was developed through an exploratory study due to limited previous research on the development of a scale that measures Psychological Ownership. The reason was that the authors weren't aware of any empirical work on the construct of Psychological Ownership within organisations. Pierce et al., (2004) examined the homogeneity and dimensionality of the Ownership items with CFA (LISREL 8.8) using maximum likelihood estimation and listwise deletion. The results supported homogeneity and uni-dimensionality of their Psychological Ownership measure. Cronbach's alpha results showed acceptable internal consistency reliability (.87, .90 and .93) in three samples (Pierce et al., 1992).

The Measure of Psychological Ownership comprises of seven items with a 7-point Likert response scale ranging from 1 (strongly disagree), to 7 (strongly agree). In a study conducted by Pierce, et al., (2004), a Cronbach Alpha of .92 for the scale was reported.

#### 3.6.8.1 Descriptive statistics and item analyses

An item analysis was conducted with the SPSS Scales Reliability Procedure. The results of the item analysis, as well as the descriptive statistics are presented in table 3.33. The results of the analysis revealed that the Cronbach alpha far exceeded the .70 benchmark for acceptable reliability coefficients (Nunnally, 1978), indicating very good internal consistency for this scale. Item 6 on this scale was flagged as a potentially poor item, as the Cronbach alpha would increase from .921 to .933 should this item be deleted. The squared multiple correlation (.247) was lower than the other items' squared multiple correlations which ranged from .529 to .879. The inter-item correlations of this item were also lower than the other and in some instances even negative, which further corroborated that the item should be flagged. However, given the fact that the scale already had obtained a very high reliability coefficient

(.921) and that the scale only consist of seven items, the flagged item was not deleted from the item pool.

**Table 3.33**

*The means, standard deviation and reliability statistics for the Psychological Ownership Scale*

| PsyOwn | Number of<br>Items | M     | SD     | $\alpha$ |
|--------|--------------------|-------|--------|----------|
|        | 7                  | 27.72 | 11.589 | .921     |

### 3.6.8.2 Confirmatory Factor Analysis

#### 3.6.8.2.1 Measurement Model Specification and Data Normality

SEM was again used to perform CFA on the set of indicator variables for the Psychological Ownership scale. The measurement model was specified to consist of seven observed variables ( $X$ 's), one unmeasured latent factor with single-headed arrows from the  $\xi$  to  $X$ 's representing the proposed regression of the observed variables onto the latent factor ( $\lambda$ s). The univariate and multivariate normality of the indicator variables for the scale was investigated with PRELIS (Jöreskog & Sörbom, 1996). As with all the previous models, the null hypothesis of multivariate normality was rejected (skewness and kurtosis:  $\chi^2=146.216$ ,  $p=.000$ ). RML estimation was once again employed to derive model parameter estimates. The measurement model is presented in figure 3.10.

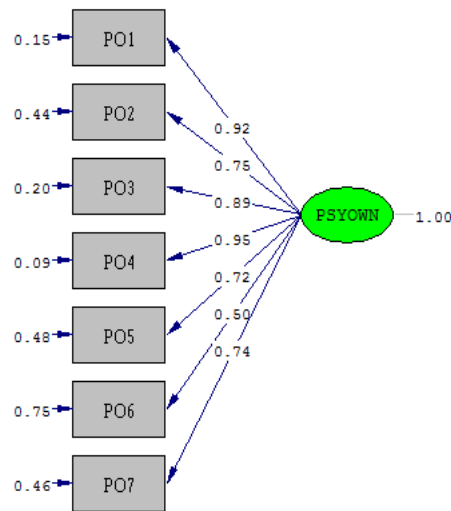
**Table 3.34**

*Test of multivariate normality (Psychological Ownership Scale)*

| Value | Skewness |         | Value  | Kurtosis |         | Skewness and Kurtosis |             |
|-------|----------|---------|--------|----------|---------|-----------------------|-------------|
|       | Z-score  | P-value |        | Z-score  | P-value | Chi-Square            | P-Value     |
| 8.321 | 9.512    | .000    | 82.599 | 7.466    | .000    | <b>146.216</b>        | <b>.000</b> |

#### 3.6.8.2.2 Evaluation of the measurement model

The measurement model, in this instance, represents the relationships between Psychological Ownership and its manifest indicators.



Chi-Square=140.70, df=14, P-value=0.00000, RMSEA=0.214

**Figure 3.10: Measurement model of the Psych Own Questionnaire before EFA (Standardised Solution)**

To investigate the dimensionality of the proposed one factor model of the original scale, a CFA was conducted with LISREL 8.8 (Jöreskog & Sörbom, 2002). The results are described in the table 3.35. The CFA results indicated weak evidence for the single factor structure of the scale. All of the fit indices indicated poor model fit, as the RMSEA of .214 far exceeded the .08 cut-off level and the NNFI (.888) and CFI (.925) both fell well below .97. As expected both the hypotheses of exact and close model fit ( $p < 0.05$ ) were rejected.

**Table 3.35**

***The Goodness of Fit Statistics for the Psychological Ownership Scale***

| Model | $X^2$   | S-B $X^2$ | df | S-B $X^2$ /df | NNFI | CFI  | RMR  | SRMR  | RMSEA (CI)              | P(close) |
|-------|---------|-----------|----|---------------|------|------|------|-------|-------------------------|----------|
|       | 273.658 | 140.703   | 14 | 10.050        | .888 | .925 | .301 | .0777 | .214<br>(.183;<br>.247) | .000     |

*Note:  $X^2$ , Chi-square; S-B $X^2$ , Satorra-Bentler Scaled Chi-square; NNFI, non-normed fit index; CFI, comparative fit index; RMR, root mean square residuals; SRMR, standardised root mean residual; RMSEA, root mean square error of approximation \* $p < 0.05$ .*

### **3.6.8.3 Exploratory Factor Analysis**

Given the results of the CFA, an EFA was conducted to further investigate the factor structure of the instrument in the current sample. At first an unrestricted EFA was conducted, i.e. SPSS was allowed to freely determine how many factors to distract. The results showed that there was one factor with an eigen value greater than one that explained 68.608% of the variance. The loadings for this factor solution are presented in table 3.36.

**Table 3.36****Structure matrix of the Psychological Ownership Questionnaire (one factor)**

|          | Factor 1 |
|----------|----------|
| PO 1     | .893     |
| PO 2     | .852     |
| PO 3     | .908     |
| PO 4     | .917     |
| PO 5     | .833     |
| PO 6     | .576     |
| PO 7 (-) | .766     |

After an investigation of the non-redundant residuals with absolute values greater than .05 for the one factor solution, it was noted that it was unacceptably high (71%). This suggested that the one factor solution was probably not the best representation of the factor structure of the scale in this sample, suggesting the possibility of more factors underlying the scale. Although there was only one eigen value greater than one, the unacceptably high residuals motivated further analyses. Based on the content of the items of the scale, i.e. some items referred to “MY” company/organisation and others to “OUR” company/organisation, it was decided to force a two factor solution. In this instance 79.267% of the variance were declared by the two factors.

The percentage non-redundant residuals for this solution came down to 33%, which, although still high, was markedly better than the one factor solution. All the loadings were above .70 (table 3.37). Hence, it seemed that the two factor solution was a more permissible account of the structure of the scale in this sample. From the results it was evident that items 1, 3, 4, 7 loaded significantly on factor 1, while items 2 and 5 loaded significantly on factor 2. The item content were investigated and it was determined that there were indeed underlying themes in the items that loaded on the two different factors. The item loadings on factor 1 represented a more individualistic approach to Psychological Ownership consisting of items such as: “This is MY organisation” and “I sense that this is MY company”. The second factor had a collectivistic approach and consisted of items such as: “I sense that this organisation is OUR company” and “This is OUR company”. Item six revealed itself as a complex item as it loaded on both factors and both the loadings were relatively weak. It was decided to delete this item to ensure both factors have items with strong loadings. In the item analysis, the Cronbach alpha was .921 if no items were removed. The item-total statistics did, however,

indicate that if item 6 was to be removed, the Cronbach alpha would increase to .933. This item was initially flagged during the item analysis, but as the Cronbach alpha of the scale was high and the scale only consists of seven items, it was at first decided not to delete this item. However, after investigating the results of the dimensionality analysis, it was decided to delete item 6. After the deletion of item 6 the EFA analysis was re-run and the loadings presented in table 3.38 were obtained.

**Table 3.37*****Structure matrix of Psychological Ownership Scale (Before item 6 was removed)***

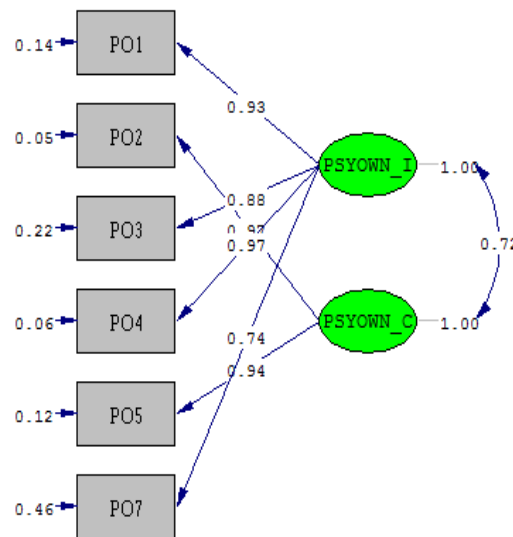
|     | Factor      |             |
|-----|-------------|-------------|
|     | 1           | 2           |
| PO1 | <b>.821</b> | .423        |
| PO2 | .331        | <b>.902</b> |
| PO3 | <b>.729</b> | .548        |
| PO4 | <b>.856</b> | .422        |
| PO5 | .301        | <b>.907</b> |
| PO6 | .328        | .495        |
| PO7 | <b>.849</b> | .205        |

**Table 3.38*****Structure matrix of Psychological Ownership Scale (After item 6 was removed)***

|     | Factor      |             |
|-----|-------------|-------------|
|     | 1           | 2           |
| PO1 | <b>.834</b> | .401        |
| PO2 | .352        | <b>.910</b> |
| PO3 | <b>.741</b> | .542        |
| PO4 | <b>.868</b> | .397        |
| PO5 | .322        | <b>.917</b> |
| PO7 | <b>.850</b> | .194        |

### 3.6.8.4 Re-evaluation of the measurement model

The graphical representation of the measurement model after the CFA was conducted on the two-factor model is presented in figure 3.11



Chi-Square=39.47, df=8, P-value=0.00000, RMSEA=0.141

**Figure 3.11: Measurement model of the Psych Own. Questionnaire after the EFA (Standardised Solution)**

CFA on the two-factor structure derived from the EFA results yielded significantly better results. Although the RMSEA was still above the .08 cut-off point, it was much lower than the value obtained in the first analysis. With regards to the incremental fit indices, the NNFI (.969) was marginally below the required level and the CFI (.979) exceeded the cut-off level. This indicated evidence of good fit. Moreover, the SRMR of .0356 further indicated a good fitting model. The completely standardised loadings ranged from .737 (item 7) to .974 (item 2).

**Table 3.39**

**The Goodness of Fit Statistics for the Psychological Ownership Scale**

| Model | X <sup>2</sup> | S-BX <sup>2</sup> | df | S-BX <sup>2</sup> /df | NNFI | CFI  | RMR  | SRMR  | RMSEA<br>(CI)            | P(close) |
|-------|----------------|-------------------|----|-----------------------|------|------|------|-------|--------------------------|----------|
|       | 39.850         | 39.468            | 8  | 4.934                 | .969 | .979 | .144 | .0356 | .141<br>(.0989;<br>.186) | .000393  |

Note: X<sup>2</sup>, Chi-square; S-BX<sup>2</sup>, Satorra-Bentler Scaled Chi-square; NNFI, non-normed fit index; CFI, comparative fit index; RMR, root mean square residuals; SRMR, standardised root mean residual; RMSEA, root mean square error of approximation \*p < 0.05.



### 3.7 CONCLUSION REGARDING PSYCHOMETRIC INTEGRITY OF THE MEASUREMENT INSTRUMENTS

The item analyses conducted on the range of scales and subscales used in this study achieved the results presented in table 3.40

**Table 3.40**

*A summary of the reliability results of the expanded learning potential questionnaire latent variable scales*

| Scale    | Sample Size | Number of items | Mean   | Standard Deviation | Cronbach Alpha |
|----------|-------------|-----------------|--------|--------------------|----------------|
| PA       | 199         | 10              | 34.45  | 7.376              | .883           |
| NA       | 199         | 10              | 40.77  | 6.616              | .836           |
| EWB      | 199         | 51              | 235.13 | 31.168             | .928           |
| PWBW     | 199         | 25              | 118.91 | 24.753             | .960           |
| HOPE     | 199         | 6               | 27.42  | 5.344              | .854           |
| OPT      | 199         | 6               | 26.27  | 5.002              | .708           |
| SELF-EFF | 199         | 6               | 28.70  | 5.620              | .895           |
| RES      | 199         | 6               | 28.43  | 4.285              | .726           |
| GRAT     | 199         | 6               | 37.52  | 4.950              | .787           |
| ENG      | 199         | 9               | 45.18  | 10.390             | .935           |
| POSS     | 199         | 8               | 40.44  | 11.769             | .926           |
| PSYOWN   | 199         | 6               | 27.72  | 11.589             | .921           |

*Note: PA=Positive Affect; NA=Negative Affect; EWB= Ryff's Psychological well-being questionnaire; PWBW = Psychological well-being at work scale; Hope=PsyCap Hope; Opt=PsyCap Optimism; Self-Eff=PsyCap Self-efficacy; Res=PsyCap Resilience; Grat=Gratitude Questionnaire-6; Eng=Utrecht Work Engagement Scale-9; POSS=Perceived Organisational Support Scale; PSYOWN=Psychological Ownership Questionnaire*

The item analyses results revealed that all of the scales that were used in this study obtained Cronbach alphas greater than 0.70, with nine out of the 12 achieving values in excess of 0.80. This provided evidence of satisfactory internal consistency of all the scales/subscales utilised in this study. Only four items from the composite questionnaire that contained all the scales and subscales for this study, were deleted and not included in any further analyses. The item analyses results suggested that three items were to be removed from the Ryff (1989) PWB Scale, one item from each of the subscales: Autonomy, Environmental Mastery and Purpose in Life. One item was removed from the Psychological Ownership questionnaire after the dimensionality analysis was conducted. The item was flagged in the item analyses and during the EFA it didn't load well on either of the two factors, resulting in the decision to delete the item from the final item pool.

For all the scales, except for the PANAS, Gratitude Questionnaire and Psychological Ownership Questionnaire, the results of the CFA were sufficient. For the remaining three

scales, dimensionality analyses were performed to determine the underlying factor structures. To strengthen the psychometric support of these scales, CFA analyses were again conducted on the structures derived from the EFA results. The CFA results of the various scales yielded adequate to good results.

In conclusion it can be said that the basket of evidence provided sufficient justification to use all of the scales in the subsequent analyses to represent the latent variables they were earmarked to reflect.

### **3.8 SUMMARY**

The purpose of this chapter was to address the rationale, aims and objectives of this research and set out the research hypotheses which were formulated in the literature review. An overview of the research design, sampling technique and statistical techniques were provided. This chapter concluded with an in-depth analysis of the measurement instruments. Chapter 4 will discuss the results in detail.

## CHAPTER 4 RESULTS

### 4.1 INTRODUCTION

The aim of this study was to depict the nomological network of latent variables (see figure 3.1) that explain variance in the underlying psychological processes of PWBW. This was done by investigating the respective relationships between the proposed constructs and its effects of Psychological Well-being at Work (PWBW).

Chapter 4 reports on the empirical evidence attained in this research. The sample will firstly be discussed, followed by the fit of the measurement model. The measurement model was evaluated in terms of its parameter estimates after which the structural model was evaluated in terms of its model fit. The beta and gamma matrices were investigated to establish whether the hypothesised paths were significant and modification indices were inspected to determine whether the inclusion of additional paths would lead to a better fitting model. All model modifications are described and the final structural model fit is discussed at the end of this chapter.

### 4.2 SAMPLE CHARACTERISTICS

Overall, 199 employees from various industries completed the composite questionnaire that was used for this research. The sample's demographics which relate the gender, ethnic group, age, demographic location and language are presented in table 4.2. From the table it is evident that almost two thirds (63.7%) of the sample comprised of females. A clear majority of the sample was White (89.5%). This was followed by a 7% representation of the Coloured group, whilst the remaining 4% was made up of the remaining ethnic groups (African, Asian and Indian). Given the current general population demographics for South Africa reported in table 4.1 (Statistics South Africa, 2013), it was clear that the demographics of the sample were not in line with the demographics of the general population of South Africa, which has obvious limitations in terms of the generalisability of the results obtained from this study. This is a result of the sample characteristics which were fairly homogenous (i.e. mostly white, fairly well educated females). This phenomenon could perhaps be explained by the data collection method utilised (*Facebook*) and that the "*Facebook* friends" of the researcher and her supervisor, closely resembled the profiles of the researcher and her supervisor (both white females, whom had both obtained post graduate qualifications). This phenomena can possibly be explained by the rule of similarity (Neimeyer & Mitchell, 1998) in which the theory states that if we can identify with another person by having certain

similarities, you will have more attraction towards that person. Therefore we tend to become friends with people that are similar to us. The above argument poses a plausible argument for the relative homogeneity of the sample characteristics. Additionally, “Facebook friends” tend to be people you have met in real life and therefore the majority of the sample will most probably share your geographical location, i.e. Western Cape.

Although sample homogeneity was a definite limitation of the study, the means of data collection also had two major advantages. A first major advantage is that it provided a platform to gather data from various industries and from numerous organisations. This would have been a major logistical challenge if pen and paper versions of the survey had to be distributed within a range of companies. Secondly, the fact that a large range of companies were represented in the sample has guarded the data against possible confounding variables, i.e. organisational culture, that could contaminate the results<sup>16</sup>.

**Table 4.1**

*Mid-year population estimates for South Africa by population group and sex, 2013*

| Population Group    | Male              |                      | Female            |                        | Total             |                       |
|---------------------|-------------------|----------------------|-------------------|------------------------|-------------------|-----------------------|
|                     | Number            | % of male population | Number            | % of female population | Number            | % of total population |
| <b>African</b>      | 20 607 800        | 79.8                 | 21 676 300        | 79.8                   | 42 284 100        | 79.8                  |
| <b>Coloured</b>     | 2 306 800         | 8.9                  | 2 459 400         | 9.1                    | 4 766 200         | 9.0                   |
| <b>Indian/Asian</b> | 669 200           | 2.6                  | 660 100           | 2.4                    | 1329 300          | 2.5                   |
| <b>White</b>        | 2 239 500         | 8.7                  | 2 362 900         | 8.7                    | 4 602 400         | 8.7                   |
| <b>Total</b>        | <b>25 823 300</b> | <b>100.0</b>         | <b>27 158 700</b> | <b>100.0</b>           | <b>52 982 000</b> | <b>100</b>            |

Seventy six percent of the participants were sourced from the Western Cape, followed by 13% that resided in Gauteng. The remaining portion of the sample was equally distributed across the other South African provinces. Afrikaans was reported to be the first language of the majority of the sample (84%), with English being the second most popular first language (14.5%). A reverse pattern was observed when the second language self-report demographic data was analysed.

<sup>16</sup> When data is gathered in only one organisation, the impact of organisational specific variables (e.g. organisational culture) is often underestimated. Including participants of lots of different companies in a sample, therefore, to a certain extent controls for such confounding variables.

Table 4.2

*Sample characteristics in terms of gender, race, age, location and language*

| <b>Gender</b>                |                  |                   |
|------------------------------|------------------|-------------------|
| <b>Category</b>              | <b>Frequency</b> | <b>Percentage</b> |
| Female                       | 127              | 63.8              |
| Male                         | 72               | 36.2              |
| <b>Race</b>                  |                  |                   |
| <b>Category</b>              | <b>Frequency</b> | <b>Percentage</b> |
| African / Black              | 3                | 1.5               |
| Asian                        | 1                | 0.5               |
| Caucasian / White            | 178              | 89.5              |
| Coloured                     | 14               | 7                 |
| Indian                       | 3                | 1.5               |
| <b>Age</b>                   |                  |                   |
| <b>Category</b>              | <b>Frequency</b> | <b>Percentage</b> |
| 20-29                        | 147              | 73.9              |
| 30-39                        | 33               | 16.6              |
| 40-49                        | 6                | 3                 |
| 50-59                        | 11               | 5.5               |
| 60+                          | 2                | 1                 |
| <b>Geographical Location</b> |                  |                   |
| <b>Category</b>              | <b>Frequency</b> | <b>Percentage</b> |
| Western Cape                 | 152              | 76                |
| Eastern Cape                 | 3                | 1.5               |
| Gauteng                      | 25               | 13                |
| Free state                   | 4                | 2                 |
| Kwazulu Natal                | 6                | 3                 |
| Limpopo                      | 2                | 1                 |
| Mapumalanga                  | 2                | 1                 |
| Northern Cape                | 2                | 1                 |
| North West                   | 3                | 1.5               |
| <b>First Language</b>        |                  |                   |
|                              | <b>Frequency</b> | <b>Percentage</b> |
| Afrikaans                    | 167              | 84                |
| English                      | 29               | 14.5              |
| Xhosa                        | 1                | 0.5               |
| Other                        | 2                | 1                 |
| <b>Second Language</b>       |                  |                   |
| <b>Category</b>              | <b>Frequency</b> | <b>Percentage</b> |
| Afrikaans                    | 30               | 15                |

|         |     |    |
|---------|-----|----|
| English | 167 | 84 |
| Xhosa   | 0   | 0  |
| Other   | 2   | 1  |

Table 4.3 describes the sample in terms of education, industry and length of service at the specific company. From the table it is evident that 87.5% of the sample had obtained some form of tertiary education. Almost half the sample (45.5%) held postgraduate qualifications. In comparison with the general tendency in the country, it was obvious that the participants of this study had more educational opportunities than the average person of the general population in South Africa. With regards to the different industries, the sample was more or less fairly equally spread across 17 different industries. A large proportion of the sample (78%) had been working in their current companies for four years or less.

**Table 4.3**

*Sample characteristics in terms of education, industry and years of service in organisation*

| HIGHEST QUALIFICATION   |           |            |
|-------------------------|-----------|------------|
| CATEGORY                | FREQUENCY | PERCENTAGE |
| Grade 10                | 1         | 0.5        |
| Grade 12/Matric         | 23        | 12         |
| Post Matric Certificate | 6         | 3          |
| Diploma                 | 32        | 16         |
| Undergraduate Degree    | 46        | 23         |
| Honours Degree          | 48        | 24         |
| Master's Degree         | 38        | 19         |
| Doctoral Degree         | 5         | 2.5        |
| INDUSTRY                |           |            |
| CATEGORY                | FREQUENCY | PERCENTAGE |
| Accounting              | 14        | 7          |
| Agriculture             | 6         | 3          |
| Construction            | 3         | 1.5        |
| Customer Services       | 7         | 3.5        |
| Design                  | 7         | 3.5        |
| Education               | 29        | 15         |
| Engineering             | 11        | 5.5        |
| Finance                 | 12        | 6          |
| Health                  | 6         | 3          |
| Human Resources         | 20        | 10         |
| Information Technology  | 5         | 2.5        |
| Legal                   | 3         | 1.5        |
| Logistics               | 7         | 3.5        |
| Marketing               | 17        | 8.5        |

| Media/Entertainment   | 7         | 3.5        |
|-----------------------|-----------|------------|
| Sales                 | 13        | 6.5        |
| Science               | 6         | 3          |
| Other                 | 25        | 13         |
| YEARS AT ORGANISATION |           |            |
| CATEGORY              | FREQUENCY | PERCENTAGE |
| 6-12 months           | 54        | 27         |
| 1-2 years             | 62        | 31         |
| 3-4 years             | 39        | 20         |
| 5-8 years             | 26        | 13         |
| 9-16 years            | 12        | 6          |
| 17-24 years           | 3         | 1.5        |
| +25 years             | 3         | 1.5        |

### 4.3 ITEM PARCELS

During the assessment of the measurement model and the structural model, item parcels were formed. Item parcels consist of indicator variables which are computed from the items of each scale or subscale. The alternative to utilising item parcels would be to use the individual items that comprise the scales or subscales. This, however, would have led to extensively comprehensive models in which a very large number of parameters would have to be estimated. By using item parcels, the number of parameters to be estimated is reduced. It is known that this procedure generally results in more reliable estimates. The idea of creating and using item parcels is not a new one – it was originally introduced by Cattell (1956), and further explored by Catell and Burdsal (1975). According to Hall, Snell and Foust (1999) item parcels may be preferred over individual items as indicators for a variety of reasons. For example, the composite-level indicators tend to be more reliable and normally distributed. In addition, some Monte Carlo research suggests that as the number of indicators per factor increases, there are accompanying decreases in the value of a number of commonly used fit indices (Williams & Holahan, 1994). This may occur due to the fact that as the number of indicators increases, there are potential for shared secondary influences and cross-loadings among the indicators. These sources of contamination are frequently not explicitly modelled, and thus contribute to overall lack of fit of the model. Thus, many researchers opt for an indicator structure that avoids this problem by using three or four indicators per latent construct rather than a larger number of indicators (Williams & Holahan, 1994).

In this study the Hedonic Well-being (HWB) item parcels were formed by dividing the items into the five groups suggested by the five factors that were extracted during the exploratory

factor analyses (EFA)<sup>17</sup>. Eudaimonic Well-being's (EWB) item parcels were formed by using the six different subscales of the Ryff's Psychological Well-being scale as parcels. Psychological Well-being at Work's (PWBW) parcels was also formed by grouping the items according to the five different subscales. For each of the four PsyCap constructs (Hope, Optimism, Self-efficacy and Resilience) two random item parcels were formed. The UWES-9's parcels were formed based on the three subscales (Vigour, Dedication and Absorption). For Perceived Organisational Support (POS) random parcels were formed and for Psychological Ownership, parcels were formed on the basis of the factor loadings after the EFA.

## 4.4 MEASUREMENT MODEL

The measurement model signifies the relationships between the various variables and their corresponding item parcel indicator variables. According to Diamantopolous and Siguaw (2000) the measurement model estimates provide information about the validities and reliabilities of the observed variables. To evaluate the fit of the measurement model confirmatory factor analysis (CFA) was conducted. The aim of the CFA was to determine whether the operationalisation of the item parcels/composites in terms of its latent variables was successful. Based on the fit indices produced by LISREL 8.8, the overall fit of the measurement model was evaluated. Measurement model fit refers to the extent to which the theoretical model is consistent with, or explains the data (Steyn, 2011).

### 4.4.1 Screening the Data

LISREL 8.8 (Jöreskog & Sörbom, 2002) was used to perform CFA on the measurement model of this PWBW structural model to determine the model fit. Robust maximum likelihood estimation was utilised to produce estimates due to the failure of the data to satisfy the multivariate normality assumption (skewness and kurtosis: 936.582,  $p < .05$ ).

**Table 4.4**

***Test of multivariate normality of the Measurement Model***

| Skewness |         |         | Kurtosis |         |         | Skewness and Kurtosis |             |
|----------|---------|---------|----------|---------|---------|-----------------------|-------------|
| Value    | Z-score | P-value | Value    | Z-score | P-value | Chi-Square            | P-Value     |
| 313.141  | 28.561  | .000    | 1310.658 | 13.070  | .000    | <b>936.582</b>        | <b>.000</b> |

<sup>17</sup> This was conducted as there is research evidence to suggest that the uni-dimensionality assumption of the parcels should not be violated. Therefore the EFA results (where available) were utilised to construct parcels.



#### **4.4.2 Measurement Model Fit**

The aim of the CFA was to determine whether the operationalisation of the item parcels in terms of its latent variables was successful. Good fit would be observed if the measurement model could successfully reproduce the observed covariance matrix, i.e. if the model fitted the data well, the item parcels loaded statistically significant on the latent variables they were assigned to reflect, and the completely standardised factor loadings exceeded .71 (Hair et al., 2006). The measurement model is visually presented in figure 4.1.

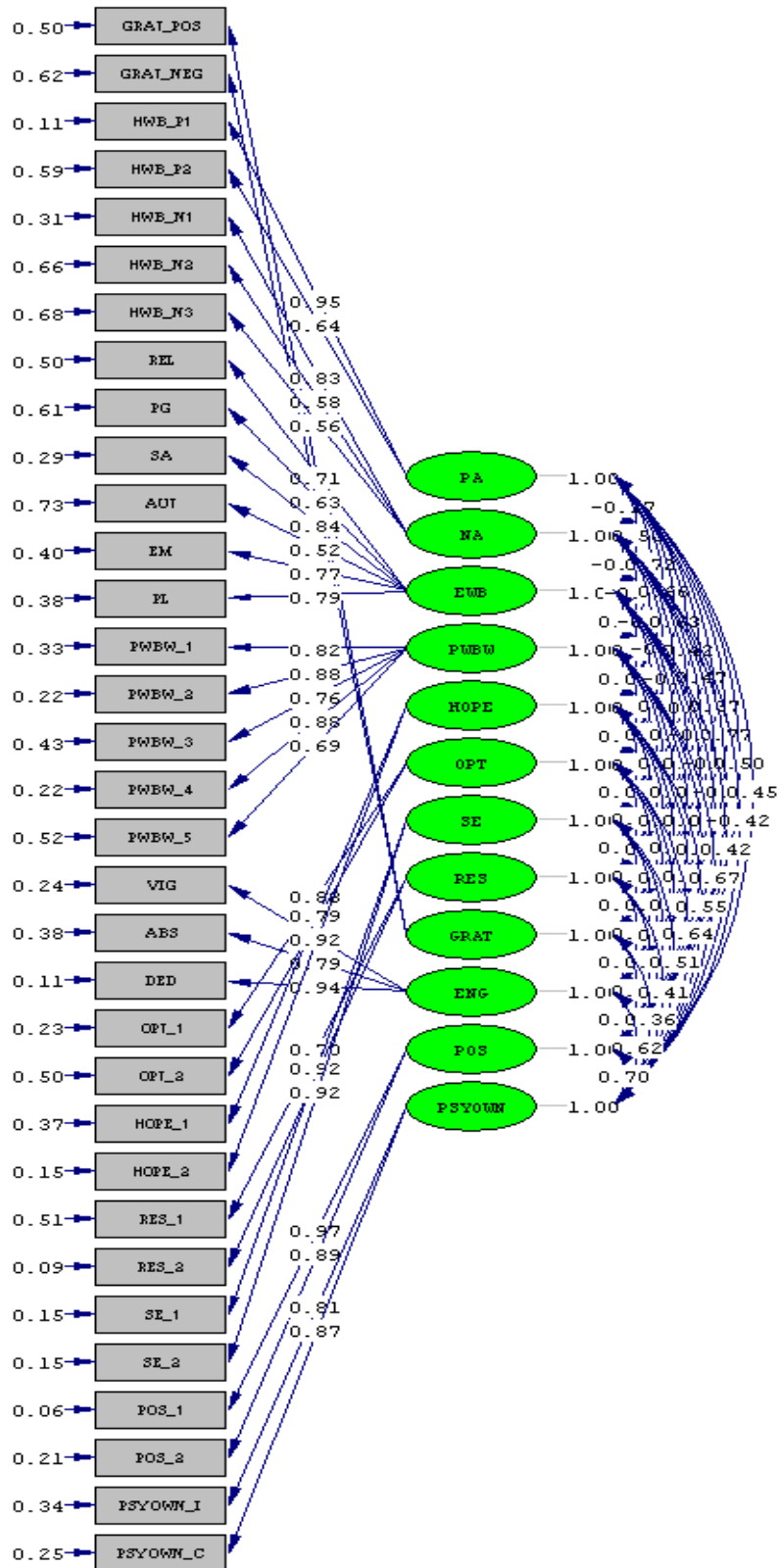


Figure 4.1 Representation of the fitted measurement model (standardised solution)

The purpose of assessing the overall fit indices of the model is to determine the degree to which the model is consistent with the empirical data at hand. There exists a wide range of goodness-of-fit (GOF) indices that have been developed to evaluate the model's overall fit. However, none of these indices are unambiguously superior to the rest in all conditions and specific indices have been shown to operate fairly differently under a range of conditions (Diamantopoulos & Siguaaw, 2000). The GOF indices obtained for the measurement model fit are presented in table 4.5.

**Table 4.5*****The Goodness of Fit for the measurement model CFA***

| Model | X <sup>2</sup> | S-BX <sup>2</sup> | df  | S-BX <sup>2</sup> /<br>df | NNFI | CFI  | RMR  | SRMR  | RMSEA<br>(CI)              | P(close) |
|-------|----------------|-------------------|-----|---------------------------|------|------|------|-------|----------------------------|----------|
|       | 967.183*       | 829.125*          | 429 | 1.93                      | .974 | .979 | .324 | .0605 | .0686<br>(.0616;<br>.0756) | .000     |

*Note: X<sup>2</sup>, Chi-square; S-BX<sup>2</sup>, Satorra-Bentler Scaled Chi-square; NNFI, non-normed fit index; CFI, comparative fit index; RMR, root mean square residuals; SRMR, standardised root mean residual; RMSEA, root mean square error of approximation \*p < 0.05.*

A Satorra Bentler Scaled chi-square value of 829.125 with 429 degrees of freedom, and p = .000 was obtained. The chi-square test statistics tests the null hypothesis that the model fits the population in an exact way, i.e. exact fit. The null hypothesis for exact fit was consequently rejected (p < 0.05). Moreover, the hypothesis for close fit was also rejected (p<sub>(close)</sub> < .05). Therefore, the model unfortunately did not obtain close fit. However, when examining the rest of the indices, the model showed good fit. According to the Hair et al., (2006) simulation studies (see table 3.2), in a sample with less than 250 people and a model with more than 30 observed variables (the guidelines which apply to this model) a RMSEA smaller than .08 indicate good fit. The RMSEA of .0686 thus showed good fit and was quite acceptable according to Hair et al., (2006)'s guidelines.

Both the incremental fit indices were well above the .92 recommended value (Hair et al., 2006; table 3.2). The NNFI with a value of .974 was comfortably above the .92 level, as well as the CFI (.979). The closer these values are to unity (1.00), the better the fit of the measurement model. However, Diamantopoulos and Siguaaw (2000) recommend that .90 provides a strong suggestion of a well-fitting model.

The standardised root mean residual (SRMR) is considered as a summary measure of standardised residuals, which represent the average difference between the elements of the sample covariance matrix and the fitted covariance matrix. Lower SRMR values indicate better fit and higher values symbolise worse fit. So, if the model fit is good, the fitted

residuals should be small in comparison to the enormity of the elements (Diamantopoulos & Siguaw, 2000). According to Hair et al., (2006) the SRMR should be below .09 where the number of observed variables is above 30. The SRMR of this model (.0605) was well below the .09 guideline, further indicating good model fit.

Overall, the goodness of fit indices indicated good fit. However, it was rather disappointing that the model did not obtain close fit. A possible explanation of this result can be found when investigating the measurement model's modification indices.

#### **4.4.2.2 Modification Indices**

The item parcels were created with the intention to reflect respondents' standing on specific latent variables. Although it is acknowledged that no item parcel will be a perfectly valid measure of the latent variable it was assigned to reflect, the item parcels were created with the belief that the systematic measurement error component of each item parcel does not have a common source. The intention was therefore that the measurement error terms should be uncorrelated. The measurement model reflected these intentions. In  $\Lambda_x$  each item parcel was allowed to load on only one latent variable. The other loadings were fixed to zero. In  $\Theta_\delta$  all off-diagonal elements were fixed to zero. Model modification indices are aimed at answering the question whether any of the currently fixed parameters, when freed in the model, would significantly improve the fit of the model. Modification indices (MI) show the extent to which the  $X^2$  fit statistic will decrease if a currently fixed parameter in the model is freed and the model re-estimated (Jöreskog & Sörbom, 2002). MI's with values larger than 6.64 is indicative of parameters that if set free, would improve the fit of the model significantly ( $p < .01$ ) (Theron, 2011).

The modification indices (tables 4.6 and 4.7) were evaluated with the intention to further evaluate the current fit of the model. The intention was, however, not to free any paths and re-evaluate the model fit. Modification index values greater than 6.64 are highlighted.

Table 4.6

*Modification Indices for the lambda-X matrix (Measurement Model)*

|               | PA            | NA            | EWB            | PWBW          | HOPE          | OPT           | SE             | RES            | GRAT          | ENG           | POS           | PO             |
|---------------|---------------|---------------|----------------|---------------|---------------|---------------|----------------|----------------|---------------|---------------|---------------|----------------|
| <b>GRAT_P</b> |               | <b>8.534</b>  |                |               |               |               |                |                |               |               |               |                |
| <b>GRAT_N</b> | 5.354         | 1.513         |                | <b>9.370</b>  | 5.027         |               | 2.199          | 2.872          |               | <b>8.797</b>  | .220          | 1.724          |
| <b>HWB_P1</b> |               | 1.150         | 1.559          |               | 3.178         |               | .919           |                | 1.684         | 1.596         | 4.418         | 1.723          |
| <b>HWB_P2</b> |               | 1.155         | 1.850          |               | <b>13.412</b> | 1.016         | .626           | <b>11.362</b>  | 3.149         |               | 2.447         | 2.916          |
| <b>HWB_N1</b> | <b>20.259</b> |               | 2.734          | <b>14.635</b> | .381          | 1.740         | 2.784          | 1.142          | 6.167         | <b>18.775</b> | 2.425         | 1.047          |
| <b>HWB_N2</b> | <b>15.355</b> |               | .016           | <b>12.592</b> | 1.738         | 4.604         | 1.632          | 1.540          | .036          | <b>13.849</b> | <b>14.486</b> | 5.900          |
| <b>HWB_3</b>  | 1.176         |               | <b>70.315</b>  | .248          | .878          | 5.222         | .892           | .007           | <b>8.278</b>  | .829          | <b>6.733</b>  | 3.951          |
| <b>REL</b>    | 6.114         | .094          |                | <b>7.728</b>  | <b>7.993</b>  | 3.284         | 1.897          | 3.161          | 1.923         | 5.205         | 1.375         | .706           |
| <b>PG</b>     | 3.161         | 2.863         |                | <b>24.042</b> | .297          |               | 1.284          | .086           |               | <b>11.727</b> | 2.237         | 3.422          |
| <b>SA</b>     | 5.186         | 1.013         |                | 2.254         | .019          | 4.674         | .779           | 2.877          | 1.258         | 2.860         | 2.832         | 3.382          |
| <b>AUT</b>    | 2.267         | 1.962         |                | .001          | 3.365         | <b>11.636</b> | <b>13.911</b>  | <b>10.715</b>  |               | 2.036         | 2.062         | 1.269          |
| <b>EM</b>     | .150          | 5.177         |                | 2.510         | 4.916         | .476          | .024           | 5.294          | 3.855         | 1.162         | .251          | .069           |
| <b>PL</b>     | 1.166         | <b>10.353</b> |                | .287          | .114          | .106          | .000           | .002           | 2.130         | 2.362         | .026          | .255           |
| <b>PWBW_1</b> |               | 2.358         | 1.278          |               |               |               | .635           | 2.243          | <b>7.259</b>  |               |               | .071           |
| <b>PWBW_2</b> | <b>8.878</b>  | <b>8.638</b>  | <b>9.224</b>   |               | 5.146         | 5.133         | <b>21.640</b>  | <b>17.502</b>  | <b>9.311</b>  | <b>12.035</b> | .995          | .480           |
| <b>PWBW_3</b> |               | 4.029         | <b>714.341</b> |               |               |               | <b>114.837</b> | <b>149.058</b> | <b>76.136</b> |               |               | <b>124.008</b> |
| <b>PWBW_4</b> | <b>6.867</b>  | 4.872         | 0.289          |               | .149          | 1.187         | .317           | .333           | .143          | 5.247         | <b>13.529</b> | 1.119          |
| <b>PWBW_5</b> |               | <b>11.808</b> |                |               |               |               |                |                |               |               |               |                |

Note: PA = Positive Affect; NA = Negative Affect; EWB = Eudaimonic Well-being; PWBW = Psychological well-being at work; HOPE = PsyCap Hope; OPT = PsyCap Optimism; SE = PsyCap Self-efficacy; RES = PsyCap Resilience; GRAT = Gratitude; ENG = Work Engagement; POS = Perceived Organisational Support; PO = Psychological Ownership; GRAT\_P = Gratitude Parcel 1; GRAT\_N = Gratitude Parcel 2; HWB\_P1 = PANAS Parcel 1; HWB\_P2 = PANAS Parcel 2; HWB\_N1 = PANAS Parcel 3; HWB\_N2 = PANAS Parcel 4; HWB\_N3 = PANAS Parcel 5; REL = Ryff's PWBS Parcel 1; PG = Ryff's PWBS Parcel 2; SA = Ryff's PWBS Parcel 3; AUT = Ryff's PWBS Parcel 4; EM = Ryff's PWBS Parcel 5; PL = Ryff's PWBS Parcel 6; PWBW\_1 = PWBW scale Parcel 1; PWBW\_2 = PWBW scale Parcel 2; PWBW\_3 = PWBW scale Parcel 3; PWBW\_4 = PWBW scale Parcel 4; PWBW\_5 = PWBW scale Parcel 5.

Table 4.7

Modification Indices for the lambda-X matrix (Measurement Model) (CONTINUED)

|                 | PA            | NA           | EWB           | PWBW  | HOPE  | OPT           | SE            | RES            | GRAT          | ENG   | POS   | PO            |
|-----------------|---------------|--------------|---------------|-------|-------|---------------|---------------|----------------|---------------|-------|-------|---------------|
| <b>VIG</b>      | 3.237         | 3.063        | 1.415         |       | 4.629 | <b>16.716</b> | 1.029         | 4.278          | .328          |       | 3.519 | <b>7.765</b>  |
| <b>DED</b>      |               | <b>7.546</b> | 1.868         |       |       |               | 7.909         | 2.002          | .033          |       | 5.611 | .049          |
| <b>ABS</b>      | .525          | .060         | .137          | .019  | 1.385 | 2.277         | 4.484         | 4.832          | .283          |       | .260  | <b>3.890</b>  |
| <b>OPT_1</b>    | .018          | 3.666        | 5.071         | .010  | .510  |               | 2.898         | .550           | 6.461         | .720  |       | <b>19.066</b> |
| <b>OPT_2</b>    | .058          | 4.291        |               |       |       |               | <b>27.627</b> |                |               |       |       | <b>7.463</b>  |
| <b>HOPE_1</b>   | <b>68.732</b> | .609         |               |       |       |               |               |                | <b>41.989</b> |       | 4.471 | .004          |
| <b>HOPE_2</b>   |               | .521         | <b>12.328</b> |       |       | 4.158         |               | <b>26.376</b>  | <b>10.731</b> |       | 3.857 | .002          |
| <b>RES_1</b>    | .008          | <b>7.936</b> | <b>11.295</b> | .742  |       | 5.955         |               |                | 2.688         | .055  | .974  | .001          |
| <b>RES_2</b>    |               | 4.365        |               |       |       |               |               |                |               |       | 1.262 | .001          |
| <b>SE_1</b>     | .388          | 3.527        | .136          | 1.503 | .736  | .887          |               | 1.817          | .331          | 1.602 | 1.024 | 4.285         |
| <b>SE_2</b>     | .410          | 3.844        | .219          | 2.049 | 6.180 | .000          |               | 2.150          | .349          | 1.885 | 1.230 | 4.761         |
| <b>POS_1</b>    | .025          | .066         | .372          |       |       | 4.069         | <b>13.677</b> | <b>117.423</b> |               |       |       | <b>18.002</b> |
| <b>POS_2</b>    | .012          | .067         | .168          | .652  | 3.661 | .887          | 4.347         | 3.640          | .031          | 1.081 |       | <b>7.465</b>  |
| <b>PSYOWN_1</b> | .591          | .179         | 1.676         | 2.757 | .685  | .000          | .008          | .010           | .757          | 1.371 | .410  |               |
| <b>PSYOWN_2</b> | .937          | .189         | 1.926         |       | 4.710 |               | .013          | .014           | .765          | 6.621 |       |               |

Note: PA = Positive Affect; NA = Negative Affect; EWB = Eudaimonic Well-being; PWBW = Psychological well-being at work; HOPE = PsyCap Hope; OPT = PsyCap Optimism; SE = PsyCap Self-efficacy; RES = PsyCap Resilience; GRAT = Gratitude; ENG = Work Engagement; POS = Perceived Organisational Support; PO = Psychological Ownership; VIG = UWES-9 Parcel 1; DED = UWES-9 Parcel 2; ABS = UWES-9 Parcel 3; OPT\_1 = Optimism Parcel 1; OPT\_2 = Optimism Parcel 2; HOPE\_1 = Hope Parcel 1; HOPE\_2 = Hope Parcel 2; RES\_1 = Resilience Parcel 1; RES\_2 = Resilience Parcel 2; SE\_1 = Self-efficacy Parcel 1; SE\_2 = Self-efficacy Parcel 2; POS\_1 = POSS Parcel 1; POS\_2 = POSS Parcel 2e; PSYOWN\_1 = Psychological Ownership Questionnaire Parcel 1; PSYOWN\_2 = Psychological Ownership Questionnaire Parcel 2.

Tables 4.6 and 4.7 revealed that 56 of the currently fixed elements in the  $\Lambda_x$ , if set free, would improve the fit of the model significantly ( $p > .01$ ). The lambda-X modification results suggest that these additional paths would significantly improve the fit of the model. The matrix thus suggested that 56 out of the 363 possible ways of modifying the model (15.4%) would result in significant improvements to the model fit. This percentage is sufficiently small and further comments favourably on the fit of the current model. However, it should be noted that one particular MI obtained a very large value. There was evidence to suggest that a cross-loading between one of the PWBW parcels on EWB would improve the measurement model fit significantly (MI=714.341). This made sense as the PWBW construct has been conceptualised to, “comprise of five primary Eudaimonic dimensions...” (Dagenais-Desmarais & Savoie, 2012, p.676). Hence, overlap between these two variables were expected to a certain degree. However, this cross-loading was not allowed in the subsequent analysis as the structure of the original observed measures of their intended latent traits were retained.

#### **4.4.2.2 Interpretation of the Measurement Model Parameter Estimates**

Taking the range of fit indices and the percentage large modification indices calculated for  $\Lambda_x$  into consideration, good measurement model fit was concluded. This permitted the interpretation of the measurement model parameter estimates. By examining the magnitude and the statistical significance of the slope of the regression of the observed variables on their respective latent variables, an indication of the validity of the measures can be obtained (Prinsloo, 2013). Therefore, if a measure is designed to provide a valid reflection of a specific latent variable, then the slope of the regression of  $X_i$ , the observed variable, on  $\xi_j$ , the respective latent variable, in the fitted measurement model has to be substantial and significant (Diamantopoulos & Siguaaw, 2000).

The unstandardized lambda-X matrices provide an indication of the average change expressed in the original scale units in the manifest variable associated with one unit change in the latent variable. The regression coefficients/loadings of the manifest variables on the latent variables are significant ( $p < .05$ ) if the value of the t-values exceed 1.96 in its absolute form, i.e.  $|1.96|$ . Significant indicator loadings provide validity evidence in favour of the item parcel indicators (Diamantopoulos & Siguaaw, 2000). Table 4.8 contains the unstandardised factor loading matrix for lambda-X.

**Table 4.8**

*The unstandardised factor loading matrix for Lambda –X matrix for the Measurement Model*

|               | PA                         | NA                         | EWB                        | PWBW | HOPE | OPT | SE | RES | GRAT | ENG | POS | PsyOwn |
|---------------|----------------------------|----------------------------|----------------------------|------|------|-----|----|-----|------|-----|-----|--------|
| <b>HWB_P1</b> | 4.118<br>(.285)<br>14.427* |                            |                            |      |      |     |    |     |      |     |     |        |
| <b>HWB_P2</b> | 2.481<br>(.316)<br>7.854*  |                            |                            |      |      |     |    |     |      |     |     |        |
| <b>HWB_N1</b> |                            | 2.816<br>(.267)<br>10.529* |                            |      |      |     |    |     |      |     |     |        |
| <b>HWB_N2</b> |                            | 1.970<br>(.263)<br>7.481*  |                            |      |      |     |    |     |      |     |     |        |
| <b>HWB_N3</b> |                            | 0.807<br>(.179)<br>4.505*  |                            |      |      |     |    |     |      |     |     |        |
| <b>REL</b>    |                            |                            | 5.171<br>(.425)<br>12.173* |      |      |     |    |     |      |     |     |        |
| <b>PG</b>     |                            |                            | 3.743<br>(.476)<br>7.865*  |      |      |     |    |     |      |     |     |        |
| <b>SA</b>     |                            |                            | 6.495<br>(.507)<br>12.819* |      |      |     |    |     |      |     |     |        |



|               |         |         |
|---------------|---------|---------|
| <b>AUT</b>    | 3.345   |         |
|               | (.540)  |         |
|               | 6.193*  |         |
| <b>EM</b>     | 5.247   |         |
|               | (.425)  |         |
|               | 12.344* |         |
| <b>PL</b>     | 5.703   |         |
|               | (.488)  |         |
|               | 11.679* |         |
| <b>PWBW_1</b> |         | 4.556   |
|               |         | (.444)  |
|               |         | 10.272* |
| <b>PWBW_2</b> |         | 6.104   |
|               |         | (.358)  |
|               |         | 17.055* |
| <b>PWBW_3</b> |         | 3.514   |
|               |         | (.409)  |
|               |         | 8.591*  |
| <b>PWBW_4</b> |         | 5.866   |
|               |         | (.392)  |
|               |         | 14.972* |
| <b>PWBW_5</b> |         | 3.586   |
|               |         | (.486)  |
|               |         | 7.388*  |
| <b>HOPE_1</b> |         | 2.007   |
|               |         | (.201)  |
|               |         | 10.007* |
| <b>HOPE_2</b> |         | 2.995   |

|        |         |         |         |        |
|--------|---------|---------|---------|--------|
|        | (.186)  |         |         |        |
|        | 15.858* |         |         |        |
| OPT_1  | 2.547   |         |         |        |
|        | (.176)  |         |         |        |
|        | 14.464* |         |         |        |
| OPT_2  | 1.876   |         |         |        |
|        | (.214)  |         |         |        |
|        | 8.748*  |         |         |        |
| SE_1   |         | 2.516   |         |        |
|        |         | (.203)  |         |        |
|        |         | 12.398* |         |        |
| SE_2   |         | 2.876   |         |        |
|        |         | (.230)  |         |        |
|        |         | 12.503* |         |        |
| RES_1  |         |         | 1.568   |        |
|        |         |         | (.164)  |        |
|        |         |         | 9.538*  |        |
| RES_2  |         |         | 2.337   |        |
|        |         |         | (.198)  |        |
|        |         |         | 11.808* |        |
| GRAT_P |         |         |         | 2.366  |
|        |         |         |         | (.348) |
|        |         |         |         | 6.792* |
| GRAT_N |         |         |         | 1.521  |
|        |         |         |         | (.249) |
|        |         |         |         | 6.109* |
| VIG    |         |         |         | 3.423  |
|        |         |         |         | (.225) |

|              |         |         |
|--------------|---------|---------|
|              | 15.217* |         |
| <b>DED</b>   | 2.774   |         |
|              | (.281)  |         |
|              | 9.887*  |         |
| <b>ABS</b>   | 3.667   |         |
|              | (.220)  |         |
|              | 16.683* |         |
| <b>POS_1</b> |         | 6.042   |
|              |         | (.307)  |
|              |         | 19.663* |
| <b>POS_2</b> |         | 5.305   |
|              |         | (.271)  |
|              |         | 19.555* |
| <b>PSY_I</b> |         | 6.095   |
|              |         | (.414)  |
|              |         | 14.719* |
| <b>PSY_C</b> |         | 3.334   |
|              |         | (.245)  |
|              |         | 13.609* |

Note: PA = Positive Affect; NA = Negative Affect; EWB = Eudaimonic Well-being; PWBW = Psychological well-being at work; HOPE = PsyCap Hope; OPT = PsyCap Optimism; SE = PsyCap Self-efficacy; RES = PsyCap Resilience; GRAT = Gratitude; ENG = Work Engagement; POS = Perceived Organisational Support; PO = Psychological Ownership; GRAT\_P = Gratitude Parcel 1; GRAT\_N = Gratitude Parcel 2; HWB\_P1 = PANAS Parcel 1; HWB\_P2 = PANAS Parcel 2; HWB\_N1 = PANAS Parcel 3; HWB\_N2 = PANAS Parcel 4; HWB\_N3 = PANAS Parcel 5; REL = Ryff's PWBS Parcel 1; PG = Ryff's PWBS Parcel 2; SA = Ryff's PWBS Parcel 3; AUT = Ryff's PWBS Parcel 4; EM = Ryff's PWBS Parcel 5; PL = Ryff's PWBS Parcel 6; PWBW\_1 = PWBW scale Parcel 1; PWBW\_2 = PWBW scale Parcel 2; PWBW\_3 = PWBW scale Parcel 3; PWBW\_4 = PWBW scale Parcel 4; PWBW\_5 = PWBW scale Parcel 5; VIG = UWES-9 Parcel 1; DED = UWES-9 Parcel 2; ABS = UWES-9 Parcel 3; OPT\_1 = Optimism Parcel 1; OPT\_2 = Optimism Parcel 2; HOPE\_1 = Hope Parcel 1; HOPE\_2 = Hope Parcel 2; RES\_1 = Resilience Parcel 1; RES\_2 = Resilience Parcel 2; SE\_1 = Self-efficacy Parcel 1; SE\_2 = Self-efficacy Parcel 2; POS\_1 = POSS Parcel 1; POS\_2 = POSS Parcel 2e; PSYOWN\_1 = Psychological Ownership Questionnaire Parcel 1; PSYOWN\_2 = Psychological Ownership Questionnaire Parcel 2; \*t-values > |1.96| indicates significant path coefficients, values in brackets represent standard error estimates.

All the indicator variables loaded significantly on the latent variables that they were designed to reflect. By solely relying on the unstandardised loadings and associated t-values, it may be difficult to compare the validity of different indicators measuring a particular construct (Diamantopoulos & Sigua, 2000). It is consequently recommended to also consider the completely standardised factor loading matrix. The completely standardised estimates indicate the average change in standard deviation units in the indicator variable associated with one standard deviation change in the latent variable to which it has been linked (Prinsloo, 2013). The factor loading estimates were considered to be satisfactory if the completely standardised factor loading estimates exceeded a stringent cut-off of .71 (Hair et al., 2006). Table 4.9 reveals that 25 of the 33 parcels obtained loadings greater than .71. However, 8 parcels fell below the stringent .71 cut-off value (HWB\_P2, HWB\_N2, HWB\_N3, PG, AUT, PWBW\_5, RES\_1 and GRAT\_NEG, indicated in bold in table 4.9). Based on these results, the identified item parcels could be regarded as problematic to some degree. The factor loadings of these eight item parcels on their designated latent variables were, however, not that excessively low to warrant serious concern (all above .50).

Table 4.9

*Completely standardised solution of factor loadings of the fitted measurement model*

| Constructs | PA          | NA          | EWB         | PWBW        | HOPE | OPT  | SE | RES | GRAT | ENG | POS | PO |
|------------|-------------|-------------|-------------|-------------|------|------|----|-----|------|-----|-----|----|
| HWB_P1     | .946        |             |             |             |      |      |    |     |      |     |     |    |
| HWB_P2     | <b>.640</b> |             |             |             |      |      |    |     |      |     |     |    |
| HWB_N1     |             | .828        |             |             |      |      |    |     |      |     |     |    |
| HWB_N2     |             | <b>.582</b> |             |             |      |      |    |     |      |     |     |    |
| HWB_N3     |             | <b>.563</b> |             |             |      |      |    |     |      |     |     |    |
| REL        |             |             | .707        |             |      |      |    |     |      |     |     |    |
| PG         |             |             | <b>.628</b> |             |      |      |    |     |      |     |     |    |
| SA         |             |             | .841        |             |      |      |    |     |      |     |     |    |
| AUT        |             |             | <b>.515</b> |             |      |      |    |     |      |     |     |    |
| EM         |             |             | .771        |             |      |      |    |     |      |     |     |    |
| PL         |             |             | .790        |             |      |      |    |     |      |     |     |    |
| PWBW_1     |             |             |             | .801        |      |      |    |     |      |     |     |    |
| PWBW_2     |             |             |             | .882        |      |      |    |     |      |     |     |    |
| PWBW_3     |             |             |             | .755        |      |      |    |     |      |     |     |    |
| PWBW_4     |             |             |             | .881        |      |      |    |     |      |     |     |    |
| PWBW_5     |             |             |             | <b>.692</b> |      |      |    |     |      |     |     |    |
| HOPE_1     |             |             |             |             | .791 |      |    |     |      |     |     |    |
| HOPE_2     |             |             |             |             | .922 |      |    |     |      |     |     |    |
| OPT_1      |             |             |             |             |      | .879 |    |     |      |     |     |    |
| OPT_2      |             |             |             |             |      | .706 |    |     |      |     |     |    |

|          |      |             |             |
|----------|------|-------------|-------------|
| SE_1     | .925 |             |             |
| SE_2     | .923 |             |             |
| RES_1    |      | <b>.701</b> |             |
| RES_2    |      | .953        |             |
| GRAT_POS |      |             | .707        |
| GRAT_NEG |      |             | <b>.615</b> |
| VIG      |      |             | .870        |
| ABS      |      |             | .787        |
| DED      |      |             | .942        |
| POS_1    |      |             | .972        |
| POS_2    |      |             | .887        |
| PSYOWN_I |      |             | .810        |
| PSYOWN_C |      |             | .867        |

Note: PA = Positive Affect; NA = Negative Affect; EWB = Eudaimonic Well-being; PWBW = Psychological well-being at work; HOPE = PsyCap Hope; OPT = PsyCap Optimism; SE = PsyCap Self-efficacy; RES = PsyCap Resilience; GRAT = Gratitude; ENG = Work Engagement; POS = Perceived Organisational Support; PO = Psychological Ownership; GRAT\_P = Gratitude Parcel 1; GRAT\_N = Gratitude Parcel 2; HWB\_P1 = PANAS Parcel 1; HWB\_P2 = PANAS Parcel 2; HWB\_N1 = PANAS Parcel 3; HWB\_N2 = PANAS Parcel 4; HWB\_N3 = PANAS Parcel 5; REL = Ryff's PWBS Parcel 1; PG = Ryff's PWBS Parcel 2; SA = Ryff's PWBS Parcel 3; AUT = Ryff's PWBS Parcel 4; EM Ryff's PWBS Parcel 5; PL = Ryff's PWBS Parcel 6; PWBW\_1 = PWBW scale Parcel 1; PWBW\_2 = PWBW scale Parcel 2; PWBW\_3 = PWBW scale Parcel 3; PWBW\_4 = PWBW scale Parcel 4; PWBW\_5 = PWBW scale Parcel 5; VIG = UWES-9 Parcel 1; DED = UWES-9 Parcel 2; ABS = UWES-9 Parcel 3; OPT\_1 = Optimism Parcel 1; OPT\_2 = Optimism Parcel 2; HOPE\_1 = Hope Parcel 1; HOPE\_2 = Hope Parcel 2; RES\_1 = Resilience Parcel 1; RES\_2 = Resilience Parcel 2; SE\_1 = Self-efficacy Parcel 1; SE\_2 = Self-efficacy Parcel 2; POS\_1 = POSS Parcel 1; POS\_2 = POSS Parcel 2e; PSYOWN\_1 = Psychological Ownership Questionnaire Parcel 1; PSYOWN\_2 = Psychological Ownership Questionnaire Parcel 2.

Table 4.10 contains the inter-correlation matrix of the latent variables. Some of the variables were highly inter-related. The latent variables included in this study were, however, expected to correlate to some degree. This was due to the fact that the twelve latent variables were conceptualised as qualitatively distinct, although all are constructs related to well-being. However, it is not ideal for these variables to correlate exceptionally high with each other. The results in table 4.10 suggest that all the inter-latent variable correlations were statistically significant ( $p < .05$ ), except for the two correlations in bold (PA and NA; NA and Gratitude). Correlations are considered excessively high if they exceed a value of .90. Only one correlation in the phi matrix is excessively high (PWBW and Work Engagement). Although there were some other inter-correlations between latent variables with a value exceeding .80, they didn't warrant too much concern.

Table 4.10

*Phi values of the fitted measurement model*

| Construct | PA          | NA          | EWB  | PWBW | HOPE | OPT  | SE   | RES  | GRAT | ENG  | POS  | PO   |
|-----------|-------------|-------------|------|------|------|------|------|------|------|------|------|------|
| PA        | 1.00        |             |      |      |      |      |      |      |      |      |      |      |
| NA        | <b>-.17</b> | 1.00        |      |      |      |      |      |      |      |      |      |      |
| EWB       | .50         | -.46        | 1.00 |      |      |      |      |      |      |      |      |      |
| PWBW      | .72         | -.44        | .67  | 1.00 |      |      |      |      |      |      |      |      |
| HOPE      | .67         | -.40        | .68  | .82  | 1.00 |      |      |      |      |      |      |      |
| OPT       | .63         | -.48        | .78  | .81  | .77  | 1.00 |      |      |      |      |      |      |
| SE        | .42         | -.29        | .65  | .62  | .81  | .66  | 1.00 |      |      |      |      |      |
| RES       | .47         | -.30        | .62  | .61  | .75  | .71  | .76  | 1.00 |      |      |      |      |
| GRAT      | .37         | <b>-.22</b> | .81  | .59  | .51  | .69  | .55  | .58  | 1.00 |      |      |      |
| ENG       | .77         | -.34        | .63  | .94  | .80  | .77  | .57  | .56  | .59  | 1.00 |      |      |
| POS       | .50         | -.40        | .51  | .78  | .55  | .76  | .44  | .35  | .45  | .66  | 1.00 |      |
| PO        | .45         | -.42        | .42  | .67  | .56  | .64  | .51  | .41  | .36  | .62  | .70  | 1.00 |

Note: PA = Positive Affect; NA = Negative Affect; EWB = Eudaimonic Well-being; PWBW = Psychological well-being at work; HOPE = PsyCap Hope; OPT = PsyCap Optimism; SE = PsyCap Self-efficacy; RES = PsyCap Resilience; GRAT = Gratitude; ENG = Work Engagement; POS = Perceived Organisational Support; PO = Psychological Ownership; Values in bold indicate values that were not significant.

Based on the results in this section it was concluded that sufficient merit for the measurement model existed, and that the operationalisation of the model was successful. It was therefore permissible to test the fit of the structural model to the data.

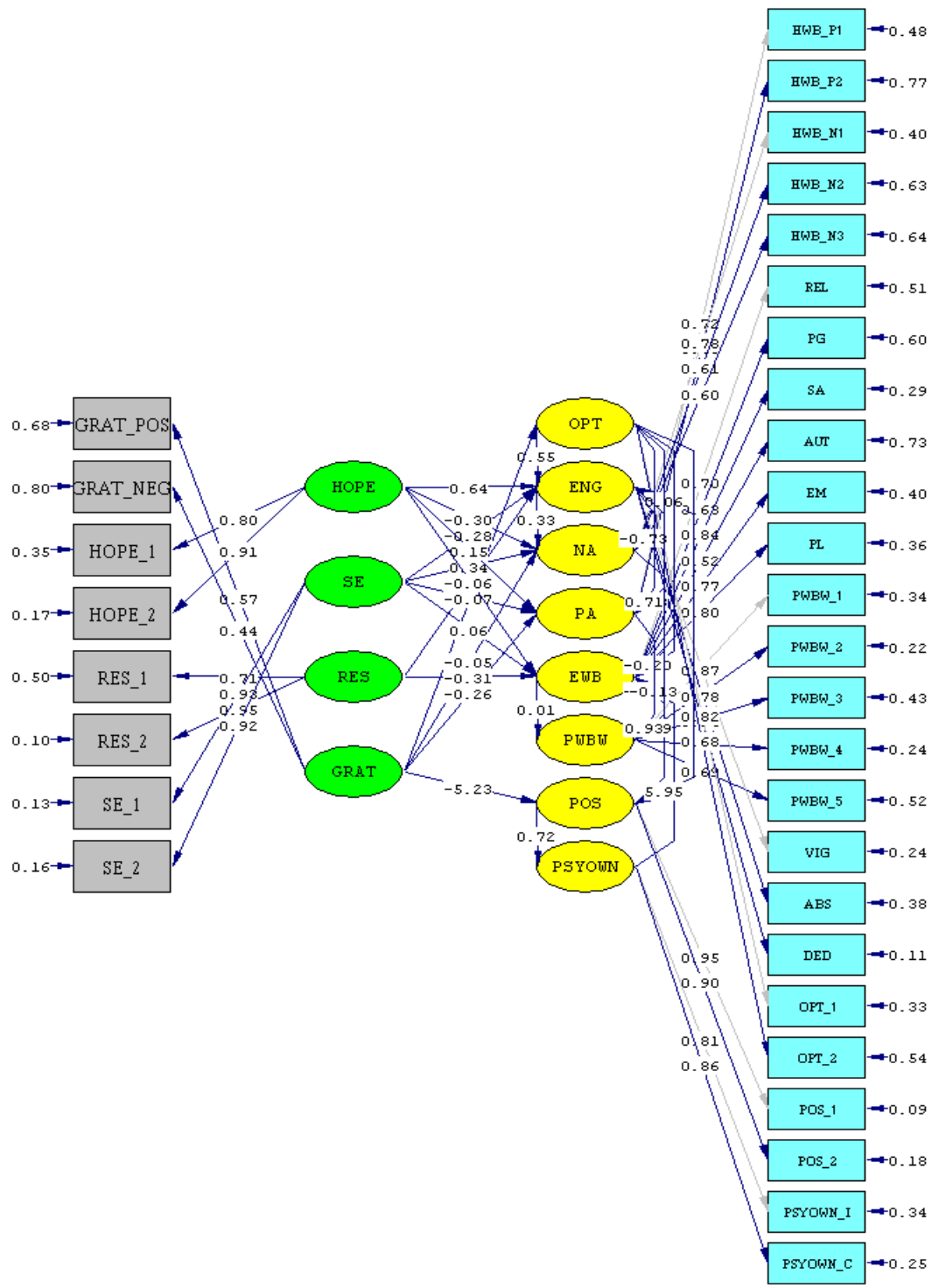
## 4.5 STRUCTURAL MODEL

### 4.5.1 Evaluating the fit of the Structural Model

The structural model is that element of the general model that imposes relations between latent variables and manifest variables that are not indicators of latent variables (Hoyle, 1995). The objective of the structural model is to justify the way in which the variables are correlated. The purpose is therefore to determine whether the hypotheses, which were culminated through the literature review, are supported by the data obtained from the sample (Diamantopolous & Siguaw, 2000). The *Steyn-Boers Structural Model of Psychological Well-being at Work* as proposed in chapter 3, figure 3.1, was tested by making use of structural equation modeling (SEM). LISREL 8.8 was used to evaluate the fit of the model.

#### 4.5.1.1 Fit of the structural model (Original form)

Figure 4.2 shows a representation of the fitted original structural model. The model's fit statistics are discussed thereafter.



**Figure 4.2: Fitted structural model (Standardised solution)**

The purpose of assessing the overall fit is to determine to what extent the model is consistent with empirical data gathered (Diamanopoulos & Sigauw, 2000). The GOF statistics of the original model is presented in table 4.11. Robust maximum likelihood was employed to derive the model estimates.

**Table 4.11*****The Goodness of fit statistics for the structural model (Original model)***

| Model | X <sup>2</sup> | S-BX <sup>2</sup> | df  | S-BX <sup>2</sup> /<br>df | NNFI | CFI  | RMR   | SRMR  | RMSEA<br>(CI)              | P(close) |
|-------|----------------|-------------------|-----|---------------------------|------|------|-------|-------|----------------------------|----------|
|       | 1097.573*      | 938.007*          | 460 | 2.039                     | .971 | .975 | 1.504 | .0684 | .0724<br>(.0658<br>;.0791) | .000     |

*Note: X<sup>2</sup>, Chi-square; S-BX<sup>2</sup>, Satorra-Bentler Scaled Chi-square; NNFI, non-normed fit index; CFI, comparative fit index; RMR, root mean square residuals; SRMR, standardised root mean residual; RMSEA, root mean square error of approximation \*p < 0.05.*

A Satorra-Bentler Chi-square with a value of 938.007 and 460 degrees of freedom ( $p = .000$ ) was achieved. The exact fit null hypothesis was rejected, and the p-value for close fit ( $RMSEA < .05$ ) was considered. It showed that the close fit null hypotheses should also be rejected ( $p < .05$ ). According to the benchmarks set through the Hair et al., (2006) simulation studies (see table 3.2), the RMSEA of .0724 indicated good model fit. The SRMR was well below the .90 cut-off value (Hair et al., 2006) (.0684) further substantiating the conclusion of good model fit. In addition, the NNFI and CFI (.971 and .975) were both well above .92. This showed that satisfactory comparative fit existed.

Overall, the interpretation of the selected GOF indices indicated that the proposed structural model was able to reproduce the observed covariance matrix to a degree of accuracy that warranted sufficient faith in the structural model and the derived parameter estimates to permit the interpretation of these estimates.

#### **4.5.1.2 Interpretation of structural model parameter estimates (original model)**

The unstandardised beta matrix, table 4.12, revealed that the following path specific hypotheses could not be rejected, and were therefore not corroborated: H<sub>04</sub>, H<sub>05</sub>, H<sub>012</sub>, H<sub>021</sub>, H<sub>023</sub>, H<sub>026</sub>, H<sub>028</sub>, H<sub>029</sub>, and H<sub>031</sub>. The path specific hypotheses H<sub>03</sub>, H<sub>09</sub>, H<sub>010</sub>, H<sub>011</sub>, H<sub>022</sub>, and H<sub>030</sub> were rejected in favour of the H<sub>a</sub> hypotheses, and were therefore corroborated. The original structural unstandardised beta matrix is presented in table 4.12.



Table 4.12

**Structural model unstandardised beta matrix (Original model)**

|               | OPT                        | ENG                       | NA                        | PA                       | EWB                    | PWBW | POS                       | PSYOWN                    |
|---------------|----------------------------|---------------------------|---------------------------|--------------------------|------------------------|------|---------------------------|---------------------------|
| <b>OPT</b>    |                            |                           |                           |                          |                        |      |                           |                           |
| <b>ENG</b>    | .551<br>(.307)<br>1.739    |                           |                           |                          |                        |      | .064<br>(.187)<br>.342    |                           |
| <b>NA</b>     | -.734<br>(.290)<br>-2.534* | .33<br>(.225)<br>1.482    |                           |                          |                        |      |                           |                           |
| <b>PA</b>     | .485<br>(.150)<br>3.225*   | .709<br>(.132)<br>5.379*  |                           |                          |                        |      |                           |                           |
| <b>EWB</b>    | 1.915<br>(.644)<br>2.975*  | -.195<br>(.215)<br>-0.910 |                           |                          |                        |      | -.709<br>(.363)<br>-1.956 | -.128<br>(.094)<br>-1.361 |
| <b>PWBW</b>   |                            |                           | -.089<br>(.055)<br>-1.615 | .926<br>(.136)<br>6.788* | .010<br>(.114)<br>.085 |      |                           |                           |
| <b>POS</b>    | 5.949<br>(9.475)<br>.628   |                           |                           |                          |                        |      |                           |                           |
| <b>PSYOWN</b> |                            |                           |                           |                          |                        |      | .724<br>(.071)<br>10.230* |                           |

Note: OPT = PsyCap Optimism; ENG = Work Engagement; NA = Negative Affect, PA = Positive Affect; EWB = Eudaimonic Well-being; PWBW = Psychological well-being at work; POS = Perceived Organisational Support; PSYOWN = Psychological Ownership. \**t*-values > |1.96| indicates significant path coefficients, values in brackets represent standard error estimates.

The six paths that received support included: PA positively influences PWBW ( $H_{03}$ ); Optimism positively influences PA ( $H_{09}$ ); Optimism negatively influences NA ( $H_{010}$ ); Optimism positively influences EWB ( $H_{011}$ ); Work Engagement positively influences PA ( $H_{022}$ ) and POS positively influence PsyOwn ( $H_{030}$ ). The beta matrix reflecting the statistical significance of the  $\beta_{ij}$  estimates revealed that nine of the 15 hypothesised paths between the endogenous latent variables were not supported while six of the 15 hypothesised paths between the endogenous latent variables were supported.

Table 4.13 shows the unstandardised gamma matrix. The following hypothesis could not be rejected and were therefore not corroborated:  $H_{06}$ ,  $H_{07}$ ,  $H_{08}$ ,  $H_{013}$ ,  $H_{014}$ ,  $H_{015}$ ,  $H_{016}$ ,  $H_{017}$ ,  $H_{019}$ ,  $H_{020}$ , and  $H_{024}$ . The hypothesis stating that Self-efficacy should have a positive influence on Work Engagement ( $H_{025}$ ) did exceed the critical value of |1.96|, but the results stated that the

relationship was negative. There is no theoretical justification for this negative path and therefore this hypothesis was not rejected in favour of the alternative hypothesis. The following two hypothesised relationships were rejected in favour of the alternative hypotheses, and were therefore corroborated: Gratitude positively influences Optimism ( $H_{018}$ ) and Hope positively influences Work Engagement ( $H_{027}$ ). The gamma matrix reflecting the statistical significance of the  $\gamma_{ij}$  estimates revealed that only two of the 14 hypothesised paths between the exogenous latent variables and the endogenous latent variables were supported, 11 were not supported and one's sign was not in accordance with the hypothesised direction of the relationship. Therefore, in total only eight of the 29 hypothesised paths in the original model were supported while 20 were not supported and one did not indicate the direction of the relationship, as was theorised.

Table 4.13

**Structural model unstandardised gamma matrix**

|        | HOPE                     | SE                         | RES                       | GRAT                       |
|--------|--------------------------|----------------------------|---------------------------|----------------------------|
| OPT    |                          |                            |                           | .980<br>(.073)<br>13.387*  |
| ENG    | .639<br>(.185)<br>3.448* | -.277<br>(.121)<br>-2.284* | -.120<br>(.120)<br>-1.003 |                            |
| NA     | -.301<br>(.308)<br>.977  | .335<br>(.239)<br>1.405    |                           | -.053<br>(.285)<br>-1.185  |
| PA     | .153<br>(.118)<br>1.294  | -.067<br>(.083)<br>-.805   |                           | -.260<br>(.186)<br>-1.394  |
| EWB    | -.057<br>(.289)<br>-.198 | .058<br>(.201)<br>.290     | -.314<br>(.203)<br>-1.543 |                            |
| PWBW   |                          |                            |                           |                            |
| POS    |                          |                            |                           | -5.225<br>(9.402)<br>-.556 |
| PSYOWN |                          |                            |                           |                            |

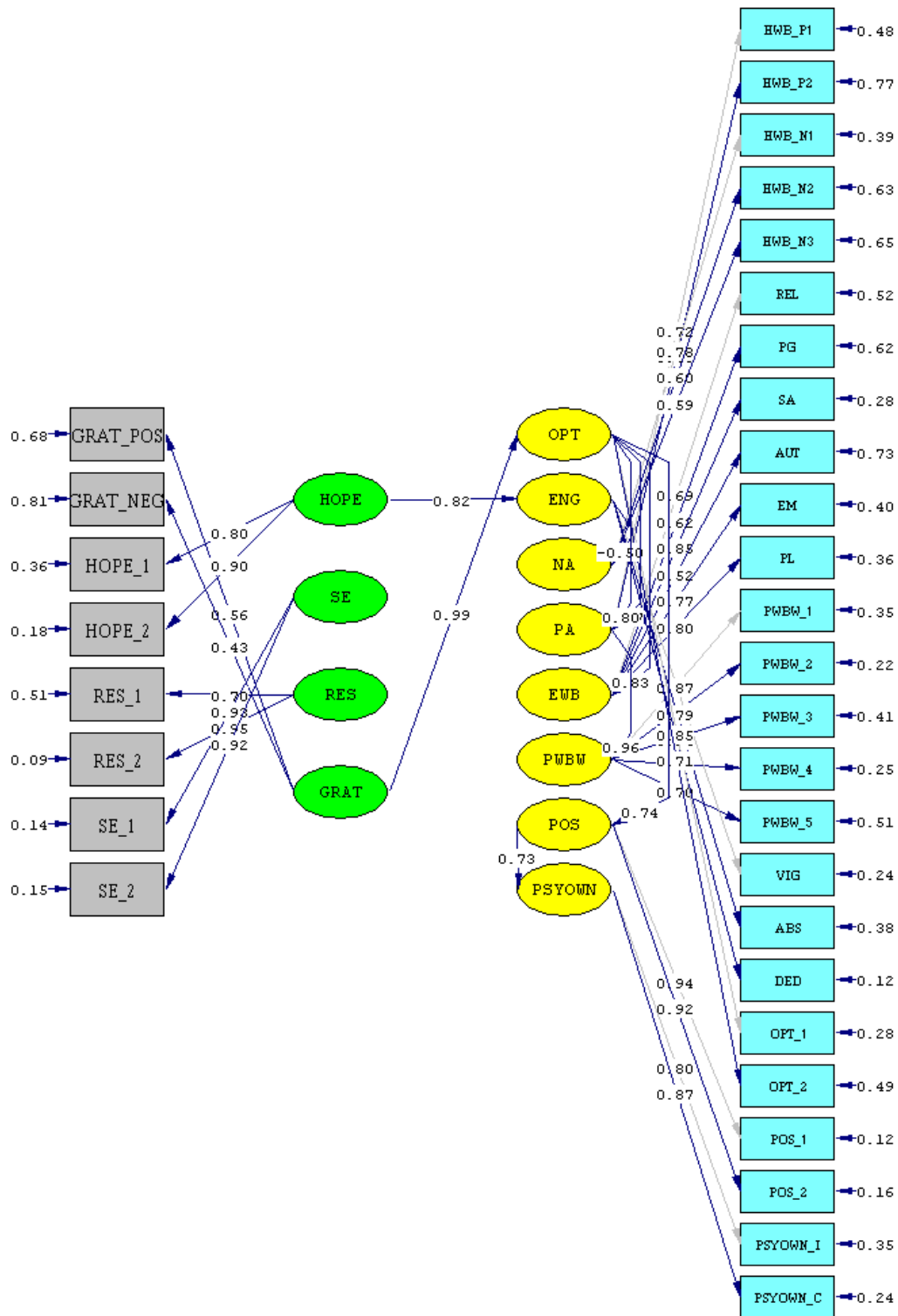
Note: HOPE = PsyCap Hope; SE = PsyCap Self-efficacy; RES = PsyCap Resilience; GRAT = Gratitude; OPT = PsyCap Optimism; ENG = Work Engagement; NA = Negative Affect, PA = Positive Affect; EWB = Eudaimonic Well-being; PWBW = Psychological well-being at work; POS = Perceived Organisational Support; PO = Psychological Ownership. \*t-values > 11.961 indicates significant path coefficients, values in brackets represent standard error estimates.

#### 4.5.2 Modification of Structural Model (A)

Based on these results, it was decided to first delete the 21 paths from the original model that were not statistically significant. The modified model (A) was subsequently fitted to the data.

#### 4.5.2.2 Fit of the modified structural model (Model A)

A visual representation of the modified structural model (A) is presented in figure 4.3. The fit statistics are contained in table 4.14.



Chi-Square=1066.28, df=480, P-value=0.00000, RMSEA=0.079

Figure 4.3: Representation of the structural model (Model A) (Standardised solution)

**Table 4.14****The Goodness of fit statistics for the modified structural model (Model A)**

| Model | $X^2$     | S-B $\chi^2$ | df  | S-B $\chi^2$ /<br>df | NNFI | CFI  | RMR   | SRMR  | RMSEA<br>(CI)              | P(close) |
|-------|-----------|--------------|-----|----------------------|------|------|-------|-------|----------------------------|----------|
|       | 1097.573* | 1066.280*    | 480 | 2.22                 | .966 | .969 | 1.945 | .0800 | .0785<br>(.0722;<br>.0849) | .000     |

Note:  $X^2$ , Chi-square; S-B $\chi^2$ , Satorra-Bentler Scaled Chi-square; NNFI, non-normed fit index; CFI, comparative fit index; RMR, root mean square residuals; SRMR, standardised root mean residual; RMSEA, root mean square error of approximation \* $p < 0.05$ .

The results revealed that the Satorra-Bentler Chi-square was 1066.280, with 480 degrees of freedom ( $p = .000$ ), which showed that the null hypothesis of exact fit was rejected. Moreover, close fit was not achieved ( $p$ -value of close fit  $< .05$ ). According to the Hair et al., (2006) guidelines, good fit could be concluded from the RMSEA value of .0785 and incremental fit indices which comfortably exceeded the .92 cut-off value (CFI = .969; NNFI = .966). However, the SRMR of .0800 was markedly higher than for the previous model. Given the basket of fit indices it could be concluded that good fit was still achieved according to the Hair et al., (2006) guidelines, however, the model fit was clearly not as good as the previous model.

Taking this into account, however, it could still be concluded that the modified hypothesised structural model was able to reproduce the observed covariance matrix to a reasonable degree of accuracy that warranted some faith in the modified structural model (model A) and the derived parameter estimates. The next step was to investigate the parameter estimates for gamma and beta, as well as the modification indices, calculated by LISREL, to determine if there was possible ways to improve the model's overall fit.

### 4.5.3 Parameter Estimates and Modifications suggested by Model A

Tables 4.15 and 4.16, respectively, show the unstandardised beta and gamma matrices derived for the modified model A. The tables indicate that all the paths that were retained from the original model in model A were supported (i.e. obtained  $t$ -values  $> |1.96|$  which indicates significant path coefficients).

**Table 4.15**  
**Structural model unstandardised beta matrix (Model A)**

|             | OPT             | ENG            | NA | PA             | EWB | PWBW | PSYOWN |
|-------------|-----------------|----------------|----|----------------|-----|------|--------|
| <b>OPT</b>  |                 |                |    |                |     |      |        |
| <b>ENG</b>  |                 |                |    |                |     |      |        |
| <b>NA</b>   | -.489<br>(.099) |                |    |                |     |      |        |
|             | -4.932*         |                |    |                |     |      |        |
| <b>PA</b>   | .289<br>(.053)  | .777<br>(.070) |    |                |     |      |        |
|             | 5.415*          | 11.037*        |    |                |     |      |        |
| <b>EWB</b>  | .820<br>(.094)  |                |    |                |     |      |        |
|             | 8.696*          |                |    |                |     |      |        |
| <b>PWBW</b> |                 |                |    | .961<br>(.105) |     |      |        |
|             |                 |                |    | 9.115*         |     |      |        |

*Note: OPT = PsyCap Optimism; ENG = Work Engagement; NA = Negative Affect, PA = Positive Affect; EWB = Eudaimonic Well-being; PWBW = Psychological well-being at work; PSYOWN = Psychological Ownership; \*t-values > 11.961 indicates significant path coefficients; values in brackets represent standard error estimates.*

**Table 4.16**  
**Structural model unstandardised gamma matrix (Model A)**

|               | POS            | HOPE           | SE | RES | GRAT            |
|---------------|----------------|----------------|----|-----|-----------------|
| <b>OPT</b>    |                |                |    |     | 1.050<br>(.073) |
|               |                |                |    |     | 14.297*         |
| <b>ENG</b>    |                | .822<br>(.074) |    |     |                 |
|               |                | 11.170*        |    |     |                 |
| <b>NA</b>     |                |                |    |     |                 |
| <b>EWB</b>    |                |                |    |     |                 |
| <b>PWBW</b>   |                |                |    |     |                 |
| <b>PSYOWN</b> | .722<br>(.072) |                |    |     |                 |
|               | 10.020*        |                |    |     |                 |

*Note: POS = Perceived Organisational Support; HOPE = PsyCap Hope; SE = PsyCap Self-efficacy; RES = PsyCap Resilience; GRAT = Gratitude; OPT = PsyCap Optimism; ENG = Work Engagement; NA = Negative Affect, PA = Positive Affect; EWB = Eudaimonic Well-being; PWBW = Psychological well-being at work; PO = Psychological Ownership. \*t-values > 11.961 indicates significant path coefficients; values in brackets represent standard error estimates.*

Given the fact that all the current paths were supported, it was important to determine whether any theoretically justifiable additional paths should be added to possibly improve the fit of the model. To inform this decision the modification indices calculated for the beta and gamma matrices (derived from the model A outputs) were inspected. Modification indices (MI) assist in identifying fixed parameters that if freed, would statistically significantly improve the fit of the model. This is determined by calculating the extent to which the  $X^2$  fit statistic decreases when each of the currently fixed parameters in the model is freed and the model re-estimated (Jöreskog & Sörbom, 1993). Structural parameters currently fixed to zero with modification index values greater than 6.64 are classified as parameters, that if set free, would improve the fit of the model significantly ( $p < .01$ ) (Van Heerden, 2013).

Parameters with high MI-values should only be freed if it makes sense in a theoretical manner to do so (Kelloway, 1998). Consequently, a very convincing theoretical argument should be formulated before it is decided to free the parameter and thereby include the path in the modified model (e.g. model B). The completely standardised expected change for the parameters should also be considered, as these suggest the extent to which it would change from its currently fixed value of zero in the completely standardised solution, if freed. The magnitude of the completely standardised expected change should be substantial enough to warrant freeing the parameter, and the sign of the completely expected change should in addition make sense in terms of the theoretical argument proposed in support of the suggested path (Jöreskog & Sörbom, 1993). If no convincing theoretical argument exists, nor the magnitude or sign is appropriate, then the parameter with the second highest MI-value should be considered. Due diligence was applied to ensure that any of the additional paths considered for inclusion were theoretically justifiable, and that the direction of the relationship, i.e. positive or negative, as suggested by the sign of the completely standardised expected change for the respective coefficient, was in accordance with the theoretical justification. If this was not the case, the path was not considered for inclusion in the modified model. The MI's (for model A) calculated for the beta matrix is presented in table 4.17 and those calculated for the gamma matrix are presented in table 4.18.

Table 4.17

**Modified (Model A) structural model modification indices for the beta matrix**

|        | OPT   | ENG    | NA    | PA     | EWB   | PWBW   | POS           | PSYOWN |
|--------|-------|--------|-------|--------|-------|--------|---------------|--------|
| OPT    |       |        |       |        |       |        |               | .149   |
| ENG    |       |        | 1.523 |        | 9.726 |        | <b>61.246</b> | 25.559 |
| NA     |       |        | 2.048 |        |       |        |               | 5.613  |
| PA     |       |        | .156  |        | 3.537 |        | 27.155        | 4.173  |
| EWB    |       | .002   | 1.728 | .003   |       | .143   | 12.541        | 6.607  |
| PWBW   |       |        | 5.278 |        | .069  |        | 39.326        | 9.349  |
| POS    |       | 19.775 | 1.571 | 21.865 | 9.875 | 37.748 |               | 1.801  |
| PSYOWN | 4.566 | 7.608  | 4.499 | 7.959  | .902  | 6.827  |               |        |

Note: OPT = PsyCap Optimism; ENG = Work Engagement; NA = Negative Affect; PA = Positive Affect; EWB = Eudaimonic Well-being; PWBW = Psychological well-being at work; POS = Perceived Organisational Support; PSYOWN = Psychological Ownership; the value in bold represents the MI with the highest value.

Table 4.18

**Modified (Model A) structural model modification indices for the gamma matrix**

|        | HOPE  | SE     | RES    | GRAT  |
|--------|-------|--------|--------|-------|
| OPT    |       |        |        |       |
| ENG    |       |        | 12.774 |       |
| NA     |       |        |        |       |
| PA     |       | 1.304  | .003   |       |
| EWB    |       | 16.244 | 4.721  |       |
| PWBW   |       | .036   | .000   |       |
| POS    | .071  | 2.351  | 19.939 |       |
| PSYOWN | 9.733 | 10.131 | 6.972  | 4.914 |

Note: HOPE = PsyCap Hope; SE = PsyCap Self-efficacy; RES = PsyCap Resilience; GRAT = Gratitude; OPT = PsyCap Optimism; ENG = Work Engagement; NA = Negative Affect; PA = Positive Affect; EWB = Eudaimonic Well-being; PWBW = Psychological well-being at work; POS = Perceived Organisational Support; PSYOWN = Psychological Ownership.

By examining the MI's it was clear that the highest MI was found in the beta-matrix. The parameter with the highest value (61.246) suggested that if a path should be added between Perceived Organisational Support (POS) and Work Engagement, the fit of the model would improve significantly. The completely standardised expected change for the beta coefficient was of sufficient magnitude (.690) and obtained a positive sign. This path was originally included in the model (H<sub>029</sub>), but at first it did not receive statistical support and was therefore deleted from the model. In the theorisation of this study, which led to the culmination of the research hypotheses, it was theorised that that the POS, Work Engagement link can be explained through the Job Demands-Resources Model (JD-R). According to Bakker and Demerouti, (2007) the JD-R divides the work environment into job demands and job resources. Job demands refer to organisational features that require sustained psychological effort, i.e. job insecurity or role ambiguity. Job resources refer to those organisational features that help one to achieve work goals, reduce job demands and stimulate personal growth, learning, and development. POS refers to employees' perception concerning the extent to which the organisation values their contribution and cares about their well-being (Eisenberger, et al., 1986). In this instance POS can act as a job resource that will lead to

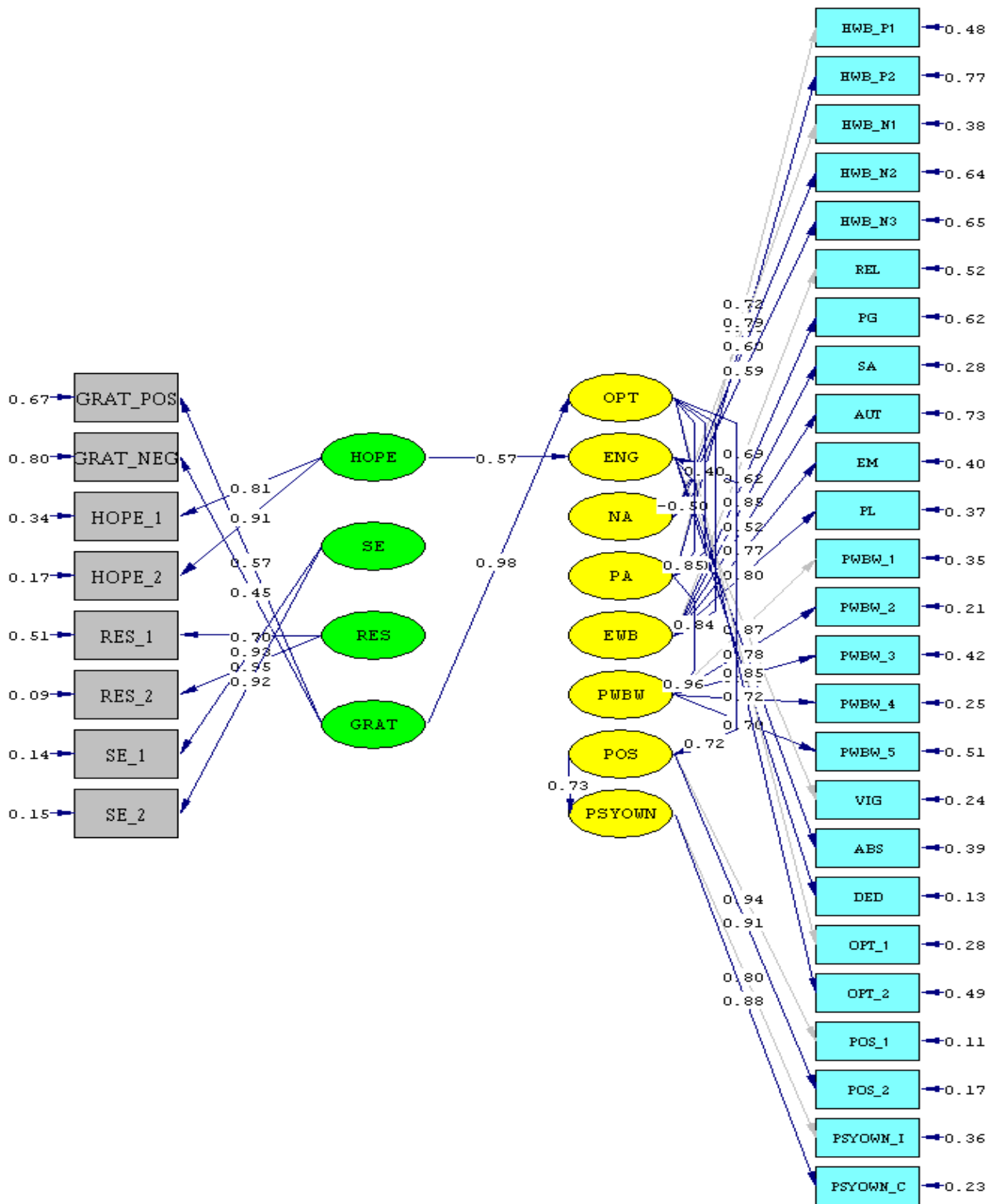
higher levels of Work Engagement. Work Engagement is thus the motivational process that is initiated through the job resource, i.e. POS. Furthermore, it can be argued that an underpinning of POS is social exchange theory, whereby workers tend to trade effort and dedication to a workplace for tangible incentives such as pay, but also for socio-emotional benefits such as esteem, approval and caring (Mael & Ashforth, 1992). The norm of reciprocity suggests that high levels of POS would engender concerns amongst employees for the welfare of the organisation as well as the achievement of its goals (Rhoades et al., 2001). It stands to reason then that employees who have higher levels of POS will also experience more feelings of Work Engagement and therefore exert the required effort to help the organisation achieve its stated objectives. Because this path was initially included through thorough theorisation, and given the current results, it was argued that it made theoretical sense to include the positive relationship between POS and Work Engagement in the subsequent modified (model B) structural model.

Therefore, all the current paths in the model were retained (as they were all supported) and the hypothesised path that shows a positive relationship between POS and Work Engagement were included in the next model. This additional path made theoretical sense, the magnitude of the expected change was satisfactory, and the sign of the expected change was in line with the theorised argument.

#### **4.5.3.1 Fit of the modified structural model (Model B)**

Figure 4.4 gives a visual representation of the modified structural model B and the fit statistics for this model are presented in table 4.19.





Chi-Square=1039.66, df=479, P-value=0.00000, RMSEA=0.077

Figure 4.4: Representation of the structural model (Model B) (Standardised solution)

**Table 4.19****The Goodness of fit statistics for the modified structural model (Model B)**

| Model | $\chi^2$  | S-B $\chi^2$ | df  | S-B $\chi^2/$<br>df | NNFI | CFI  | RMR   | SRMR  | RMSEA<br>(CI)              | P(close) |
|-------|-----------|--------------|-----|---------------------|------|------|-------|-------|----------------------------|----------|
|       | 1164.785* | 1039.657*    | 479 | 2.17                | .967 | .970 | 1.556 | .0700 | .0769<br>(.0705;<br>.0833) | .000     |

Note:  $\chi^2$ , Chi-square; S-B $\chi^2$ , Satorra-Bentler Scaled Chi-square; NNFI, non-normed fit index; CFI, comparative fit index; RMR, root mean square residuals; SRMR, standardised root mean residual; RMSEA, root mean square error of approximation \* $p < 0.05$ .

For this model the Satorra-Bentler Chi-square was 1039.657, with 479 degrees of freedom ( $p = .000$ ), which showed that the null hypothesis of exact fit was rejected. Moreover, close fit was not achieved ( $p$ -value of close fit  $< .05$ ). According to the Hair et al., (2006) guidelines, good fit could be concluded from the RMSEA value of .0769 and incremental fit indices which comfortably exceeded the .92 cut-off value (CFI = .970; NNFI = .967). The SRMR (.700) also fell comfortably below the .90 cut-off value. In this model, the Hair et al., (2006) guidelines were met and based on the slightly better RMSEA, CFI, NNFI and SRMR it could be concluded that this model obtained a slightly better fit than the previous model.

Therefore, the basket of GOF indices suggested that the proposed model was able to reproduce the observed covariance matrix to a degree of accuracy that warranted some faith in the structural model and the derived parameter estimates. The question, however, still remained whether there were ways to improve the fit of the model. For this reason, the unstandardised beta and gamma matrices, as well as the MI's were expected to determine if, and how, the fit could be improved.

#### 4.5.4 Parameter Estimates and Modifications suggested by Model B

Table 4.20 depicts the unstandardised beta matrix for model B. All the relationships hypothesised between the endogenous latent variables in the model were found to be statistically significant ( $t$ -values  $> |1.96|$ ), including the recently added path between POS and Work Engagement (indicated in bold).

**Table 4.20**

**Structural modified model (Model B) unstandardised beta matrix**

|               | OPT                        | ENG                       | NA | PA                       | EWB | PWBW | POS                             | PSYOWN |
|---------------|----------------------------|---------------------------|----|--------------------------|-----|------|---------------------------------|--------|
| <b>OPT</b>    |                            |                           |    |                          |     |      |                                 |        |
| <b>ENG</b>    |                            |                           |    |                          |     |      | .397<br>(.069)<br><b>5.767*</b> |        |
| <b>NA</b>     | -.502<br>(.101)<br>-4.985* |                           |    |                          |     |      |                                 |        |
| <b>PA</b>     | .198<br>(.062)<br>3.197*   | .850<br>(.082)<br>10.359* |    |                          |     |      |                                 |        |
| <b>EWB</b>    | .838<br>(.097)<br>8.602*   |                           |    |                          |     |      |                                 |        |
| <b>PWBW</b>   |                            |                           |    | .963<br>(.103)<br>9.337* |     |      |                                 |        |
| <b>POS</b>    | .725<br>(.060)<br>12.006*  |                           |    |                          |     |      |                                 |        |
| <b>PSYOWN</b> |                            |                           |    |                          |     |      | .729<br>(.075)<br>9.742*        |        |

Note: OPT = PsyCap Optimism; ENG = Work Engagement; NA = Negative Affect, PA = Positive Affect; EWB = Eudaimonic Well-being; PWBW = Psychological well-being at work; POS = Perceived Organisational Support; PSYOWN = Psychological Ownership; \*t-values > |1.96| indicates significant path coefficients, values in brackets represent standard error estimates; the value in bold represents the latest added MI.

The results depicted in table 4.21 for the unstandardised gamma matrix revealed similar results where all the hypothesised relationships were found to be statistically significant (*t-values* > |1.96|). All the previously included paths were therefore retained in the subsequent modified model (model C). The MI's for the beta matrix are presented in table 4.22 and the MI's for the gamma matrix in table 4.23.

**Table 4.21**

**Structural modified model (Model B) unstandardised gamma matrix**

|               | HOPE                     | SE | RES | GRAT                      |
|---------------|--------------------------|----|-----|---------------------------|
| <b>OPT</b>    |                          |    |     | .980<br>(.079)<br>12.352* |
| <b>ENG</b>    | .568<br>(.088)<br>6.453* |    |     |                           |
| <b>NA</b>     |                          |    |     |                           |
| <b>PA</b>     |                          |    |     |                           |
| <b>EWB</b>    |                          |    |     |                           |
| <b>PWBW</b>   |                          |    |     |                           |
| <b>POS</b>    |                          |    |     |                           |
| <b>PSYOWN</b> |                          |    |     |                           |

Note: HOPE = PsyCap Hope; SE = PsyCap Self-efficacy; RES = PsyCap Resilience; GRAT = Gratitude; OPT = PsyCap Optimism; ENG = Work Engagement; NA = Negative Affect, PA = Positive Affect; EWB = Eudaimonic Well-being; PWBW = Psychological well-being at work; POS = Perceived Organisational Support; PSYOWN = Psychological Ownership; \*t-values > |1.96| indicates significant path coefficients, values in brackets represent standard error estimates.

Table 4.22

**Modified structural model (Model B) modification indices for beta matrix**

|        | OPT   | ENG   | NA    | PA    | EWB   | PWBW  | POS           | PSYOWN |
|--------|-------|-------|-------|-------|-------|-------|---------------|--------|
| OPT    |       |       |       |       |       |       |               | .741   |
| ENG    |       |       | .092  |       | 2.664 |       |               | 1.974  |
| NA     |       |       |       |       |       |       |               | 6.063  |
| PA     |       |       | .198  |       |       |       | 17.170        | 1.805  |
| EWB    |       | .004  | 1.644 | .002  |       | .063  | 9.484         | 5.711  |
| PWBW   |       |       | 5.102 |       | .096  |       | <b>57.823</b> | 6.703  |
| POS    |       | .979  | 1.919 | 1.060 | 8.018 | .584  |               | 1.579  |
| PSYOWN | 3.916 | 8.376 | 4.438 | 8.803 | .849  | 7.444 |               |        |

Note: OPT = PsyCap Optimism; ENG = Work Engagement; NA = Negative Affect, PA = Positive Affect; EWB = Eudaimonic Well-being; PWBW = Psychological well-being at work; POS = Perceived Organisational Support; PSYOWN = Psychological Ownership; the value in bold represents the highest MI.

Table 4.23

**Modified structural model (Model B) modification indices for gamma matrix**

|        | HOPE  | SE     | RES    | GRAT  |
|--------|-------|--------|--------|-------|
| OPT    |       |        |        |       |
| ENG    |       |        |        |       |
| NA     |       |        |        |       |
| PA     |       | .706   | .442   |       |
| EWB    | 9.800 | 14.615 | 3.743  |       |
| PWBW   |       | .098   | .173   |       |
| POS    | .430  | 1.923  | 16.498 |       |
| PSYOWN | 9.558 | 1.446  | 7.145  | 4.481 |

Note: HOPE = PsyCap Hope; SE = PsyCap Self-efficacy; RES = PsyCap Resilience; GRAT = Gratitude; OPT = PsyCap Optimism; ENG = Work Engagement; NA = Negative Affect, PA = Positive Affect; EWB = Eudaimonic Well-being; PWBW = Psychological well-being at work; POS = Perceived Organisational Support; PSYOWN = Psychological Ownership

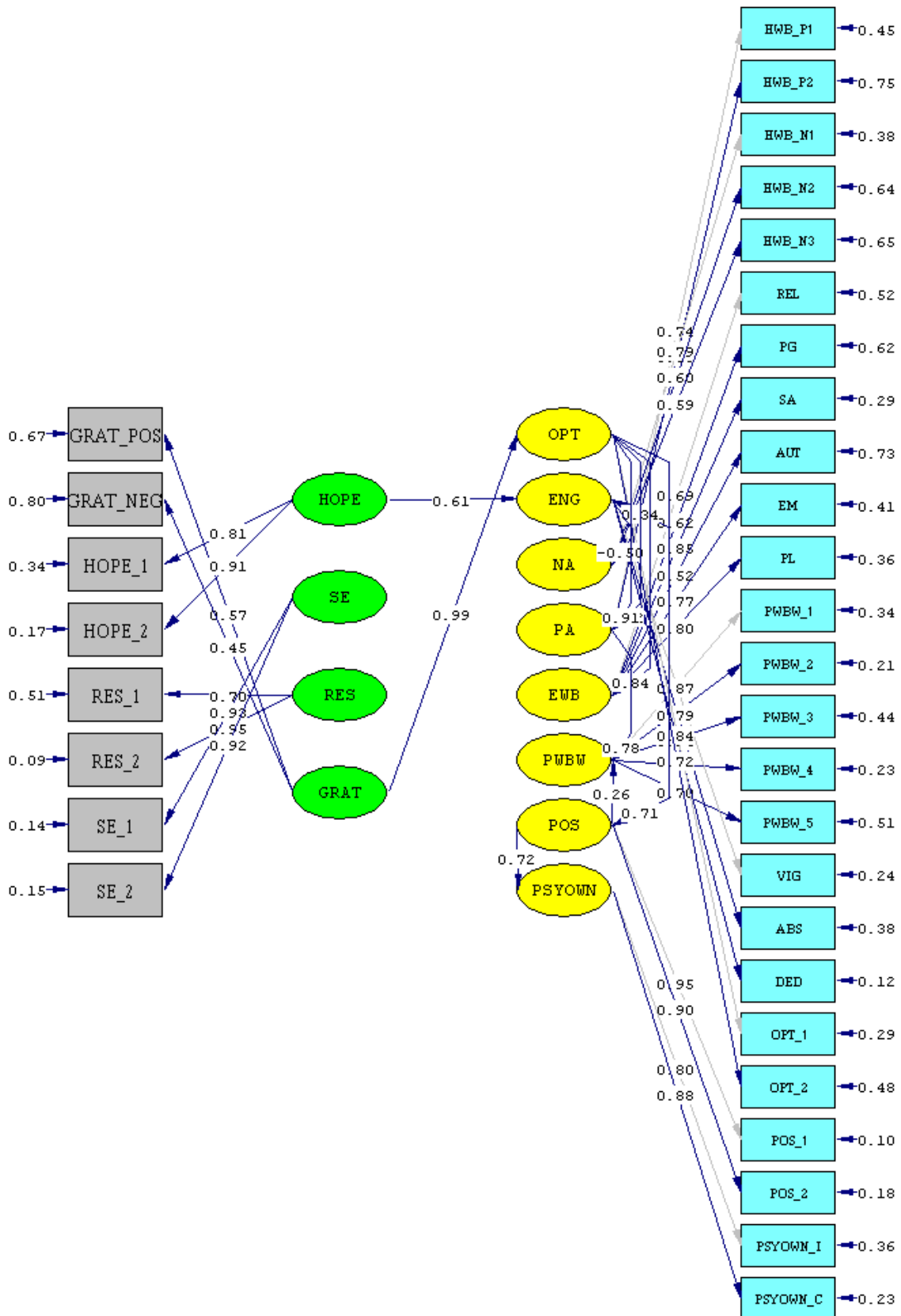
The parameter with the highest MI-value was found in the beta matrix. The highest MI-value was indicated for the path between POS and PWBW (57.823). This suggested that if this path would be added to the structural model, hypothesising the relationship between these two constructs, the fit of this model would improve significantly. The completely standardised expected change for the beta coefficient was .754 and it obtained a positive sign.

The question was therefore whether a theoretical justification could be provided to include this hypothesised path in the subsequent modified model. POS refers to employees' perception concerning the extent to which the organisation values their contribution and cares about their well-being (Eisenberger, et al., 1986). Employees regard the organisation as an important source of socio-emotional resources, where their needs such as respect, caring and tangible benefits such as wages and medical benefits are fulfilled. If employees perceive the organisation to have a high regard of them (i.e. the organisation values their contribution and cares about their well-being), it will help to meet the employees' needs for approval, esteem and affiliation. Such employees will most likely perceive justice and fairness, as they view positive evaluation by the organisation as an indication that increased

effort will be noted and rewarded. For this reason, employees will take an active interest in the regard with which they are held by their employer (Eisenberger, et al., 1997; Eisenberger et al. 1986; Rhoades & Eisenberger, 2002). These perceived feelings of justice and recognition could have a positive effect on their Psychological Well-being at Work. For example, it may lead them to be more immersed in their work and thereby lead to higher levels of well-being. The theoretical definition of PWBW can be defined by viewing the five subscales, namely Interpersonal Fit at Work, Thriving at Work, Feeling of Competency at work, Perceived Recognition and Desire for Involvement at Work (Dagenais-Desmarais & Savoie, 2012). It could, for example, be argued that if an employee perceives the organisation to value their contribution and recognise their input (higher POS), such an employee may find it easier to thrive at their work and feel competent, which will also lead to an increase desire to be even more involved. Such an employee (with higher levels of POS) may also find it easier to establish and maintain good interpersonal relationships at work (resulting in more Interpersonal Fit at Work). Therefore it was decided to add the hypothesised path that a positive relationship exists between POS and PWBW to the subsequent modified model, seeing that it made theoretical sense to do so, the magnitude of the expected change was satisfactory, and the sign of the expected change was in line with the theoretical argument. The modified model (model C) was subsequently fitted to the data.

#### **4.5.4.1 Fit of the modified Structural Model (C)**

The modified structural model C can be viewed in figure 4.5 and the fit indices are contained in table 4.24.



Chi-Square=1015.06, df=478, P-value=0.00000, RMSEA=0.075

Figure 4.5: Representation of the structural model (Model C) (Standardised solution)

**Table 4.24****The Goodness of fit statistics for the structural model (Model C)**

| Model | X <sup>2</sup> | S-BX <sup>2</sup> | df  | S-BX <sup>2</sup> /<br>df | NNFI | CFI  | RMR   | SRMR  | RMSEA<br>(CI)              | P(close) |
|-------|----------------|-------------------|-----|---------------------------|------|------|-------|-------|----------------------------|----------|
|       | 1143.562*      | 1015.059*         | 478 | 2.12                      | .969 | .972 | 1.500 | .0697 | .0753<br>(.0689;<br>.0818) | .000     |

Note: X<sup>2</sup>, Chi-square; S-BX<sup>2</sup>, Satorra-Bentler Scaled Chi-square; NNFI, non-normed fit index; CFI, comparative fit index; RMR, root mean square residuals; SRMR, standardised root mean residual; RMSEA, root mean square error of approximation \*p < 0.05.

The results revealed that a Satorra-Bentler Chi-square of 1015.059, with 478 degrees of freedom (p = .000) was obtained, indicating that the null hypothesis of exact fit was rejected. Moreover, close fit was not achieved (p-value of close fit < .05). According to the benchmarks set through the Hair et al., (2006) simulation studies (see table 3.2), the RMSEA of .0753 indicated good model fit. The SRMR (.0697) was well below the .90 cut-off value (Hair et al., 2006) further substantiating the conclusion of good model fit. In addition, the NNFI and CFI (.969 and .972) were both well above .92. The NNFI and the CFI obtained slightly lower values than in the previous model, whilst the SRMR and the RMSEA both improved (i.e. lower values). Therefore, these marginal changes indicated that the model obtained more or less similar fit than the previous one.

Given the evidence considered it was concluded that the proposed model was able to reproduce the observed covariance matrix to a degree of accuracy that warranted faith in the structural model and the derived parameter estimates. The unstandardised beta and gamma matrices, as well as the MI's were again investigated to determine if there were ways to improve the fit of the model.

#### 4.5.5 Parameter Estimates and Modifications suggested by Model C

The unstandardised beta matrix, presented in table 4.25, showed that the path between Optimism and PA were no longer significant. This path was therefore removed in the subsequent model. All the other paths were significant (*t-values* > |1.96|) and therefore supported. This included the path between POS and PWBW that was added into the current modified model (model C) (indicated in bold). The unstandardised gamma matrix, depicted in table 4.26, revealed that all these paths were significant and therefore no further paths were considered for deletion from this model. The MI-values for the beta matrix are presented in table 4.27, and the MI-values for the currently fixed gamma parameters are shown in table 4.28.

**Table 4.25**  
**Structural model (Model C) unstandardized beta matrix**

|               | OPT                               | ENG                             | NA | PA                              | EWB | PWBW | POS                              | PSYOWN |
|---------------|-----------------------------------|---------------------------------|----|---------------------------------|-----|------|----------------------------------|--------|
| <b>OPT</b>    |                                   |                                 |    |                                 |     |      |                                  |        |
| <b>ENG</b>    |                                   |                                 |    |                                 |     |      | .342<br>(.072)<br><b>4.723*</b>  |        |
| <b>NA</b>     | -.498<br>(.101)<br><b>-4.950*</b> |                                 |    |                                 |     |      |                                  |        |
| <b>PA</b>     | .116<br>(.073)<br>1.589           | .906<br>(.093)<br><b>9.790*</b> |    |                                 |     |      |                                  |        |
| <b>EWB</b>    | .845<br>(.097)<br><b>8.664*</b>   |                                 |    |                                 |     |      |                                  |        |
| <b>PWBW</b>   |                                   |                                 |    | .777<br>(.097)<br><b>8.013*</b> |     |      | .225<br>(.058)<br><b>4.431*</b>  |        |
| <b>POS</b>    | .709<br>(.060)<br><b>11.887*</b>  |                                 |    |                                 |     |      |                                  |        |
| <b>PSYOWN</b> |                                   |                                 |    |                                 |     |      | .723<br>(0.074)<br><b>9.837*</b> |        |

Note: OPT = PsyCap Optimism; ENG = Work Engagement; NA = Negative Affect, PA = Positive Affect; EWB = Eudaimonic Well-being; PWBW = Psychological well-being at work; POS = Perceived Organisational Support; PSYOWN = Psychological Ownership. \*t-values > 11.961 indicates significant path coefficients; values in brackets represent standard error estimate; the value in bold represents the latest added MI.

**Table 4.26**  
**Structural modified model (Model C) unstandardized gamma matrix**

|               | HOPE                            | SE | RES | GRAT                             |
|---------------|---------------------------------|----|-----|----------------------------------|
| <b>OPT</b>    |                                 |    |     | .989<br>(.080)<br><b>12.392*</b> |
| <b>ENG</b>    | .606<br>(.089)<br><b>6.817*</b> |    |     |                                  |
| <b>NA</b>     |                                 |    |     |                                  |
| <b>PA</b>     |                                 |    |     |                                  |
| <b>EWB</b>    |                                 |    |     |                                  |
| <b>PWBW</b>   |                                 |    |     |                                  |
| <b>POS</b>    |                                 |    |     |                                  |
| <b>PSYOWN</b> |                                 |    |     |                                  |

Note: HOPE = PsyCap Hope; SE = PsyCap Self-efficacy; RES = PsyCap Resilience; GRAT = Gratitude; OPT = PsyCap Optimism; ENG = Work Engagement; NA = Negative Affect, PA = Positive Affect; EWB = Eudaimonic Well-being; PWBW = Psychological well-being at work; POS = Perceived Organisational Support; PSYOWN = Psychological Ownership. \*t-values > 11.961 indicates significant path coefficients; values in brackets represent standard error estimates.



Table 4.27

**Modified structural model modification indices for beta matrix (Model C)**

|        | OPT   | ENG   | NA    | PA    | EWB   | PWBW  | POS   | PSYOWN |
|--------|-------|-------|-------|-------|-------|-------|-------|--------|
| OPT    |       |       |       |       |       |       |       | .496   |
| ENG    |       |       | .081  |       | 5.252 |       |       | 2.147  |
| NA     |       |       |       |       |       |       |       | 6.366  |
| PA     |       |       | .000  |       |       |       |       | .874   |
| EWB    |       | .003  | 1.633 | .009  |       | .426  | 7.485 | 5.131  |
| PWBW   |       |       | 3.975 |       |       |       |       | .028   |
| POS    |       | 1.634 | 2.669 | 1.728 | 6.252 | .987  |       | 1.728  |
| PSYOWN | 4.348 | 9.104 | 4.377 | 9.174 | 1.043 | 7.571 |       |        |

Note: OPT = PsyCap Optimism; ENG = Engagement; NA = Negative Affect, PA = Positive Affect; EWB = Eudaimonic Well-being; PWBW = Psychological well-being at work; POS = Perceived Organisational Support; PSYOWN = Psychological Ownership.

Table 4.28

**Modified structural model modification indices for gamma matrix (Model C)**

|        | HOPE  | SE            | RES           | GRAT   |
|--------|-------|---------------|---------------|--------|
| OPT    |       |               |               |        |
| ENG    |       |               |               |        |
| NA     |       |               |               |        |
| PA     |       |               | .053          | 10.679 |
| EWB    | 4.600 | <b>11.487</b> | 2.270         |        |
| PWBW   |       | 4.555         | 9.428         |        |
| POS    | .126  | 1.363         | <b>14.010</b> | 1.912  |
| PSYOWN | 9.976 | 10.695        | 7.403         | 4.359  |

Note: HOPE = PsyCap Hope; SE = PsyCap Self-efficacy; RES = PsyCap Resilience; GRAT = Gratitude; OPT = PsyCap Optimism; ENG = Work Engagement; NA = Negative Affect, PA = Positive Affect; EWB = Eudaimonic Well-being; PWBW = Psychological well-being at work; POS = Perceived Organisational Support; PSYOWN = Psychological Ownership; the values in bold represent the highest and second highest MI's.

The parameter with the highest MI-value resided in the gamma matrix (14.010), which indicated a path between Resilience and POS. The magnitude of the completely standardised expected change for the gamma coefficient was -0.390. It therefore suggested that Resilience has a negative relationship with POS. Therefore, the critical question that had to be asked was whether a negative relationship between these two latent variables made substantive theoretical sense.

Resilience has been defined as the positive psychological capacity to rebound, to bounce back from adversity, uncertainty, conflict, failure or even positive change, progress and increased responsibility (Luthans, 2002a). Individuals with high Resilience have the ability to cope and adapt more easily during risk and adversity (Masten, 2001; Masten & Reed, 2002). According to the suggestive MI, it would thus mean that individuals who have high levels of Resilience would perceive less organisational support, i.e. they would be less likely to perceive the organisation to value their contribution or to care about their well-being. From one viewpoint it could be argued that this make sense as Resilience is an inner strength. It

could therefore be said that individuals that have this inner strength, may not be so reliant on POS as such individuals would overcome adversity by harnessing their inner strength (Resilience) and not Perceived Organisational Support received from the organisation. For example, when barriers to well-being are present in the workplace (e.g. workplace stressors), the high Resilience individual may rely more on their inner strength to overcome this barrier than tapping into their beliefs regarding the perceived support received from the organisation. However, upon further consideration it was realised that a counter argument can also apply. Optimism and Resilience act in concert due to an underlying mechanism shared across each of the four PsyCap constructs that contribute to a motivational propensity to accomplish tasks and goals (Luthans et al., 2007b). Avey et al., (2010) argue that most research in the PsyCap field include areas that share a communal focus on positive, optimal human functioning. Individuals with higher levels of PsyCap use intentional efforts to produce creative ways of attaining goals. This suggests that if an individual is high in one psychological resource i.e. Resilience, they are often high on the others i.e. Optimism. Therefore, individuals high on Resilience will quite possibly also make internal, relative stable and global attributions regarding positive events (Optimism). It could therefore be argued that resilient employees will most probably have a positive mind-set and create resources to help them overcome difficult times. One of these resources may be perceived support from the organisation or even co-employees, hence, providing a reason to argue that Resilience and POS may be positively related. However, these are only possible arguments for the relationships between these variables. No empirical justification from previous research could be found to substantiate any of these claims. For this reason, as well as the ambiguity regarding the nature of relationship (whether positive or negative), it was decided to not include this path in the subsequent modified model.

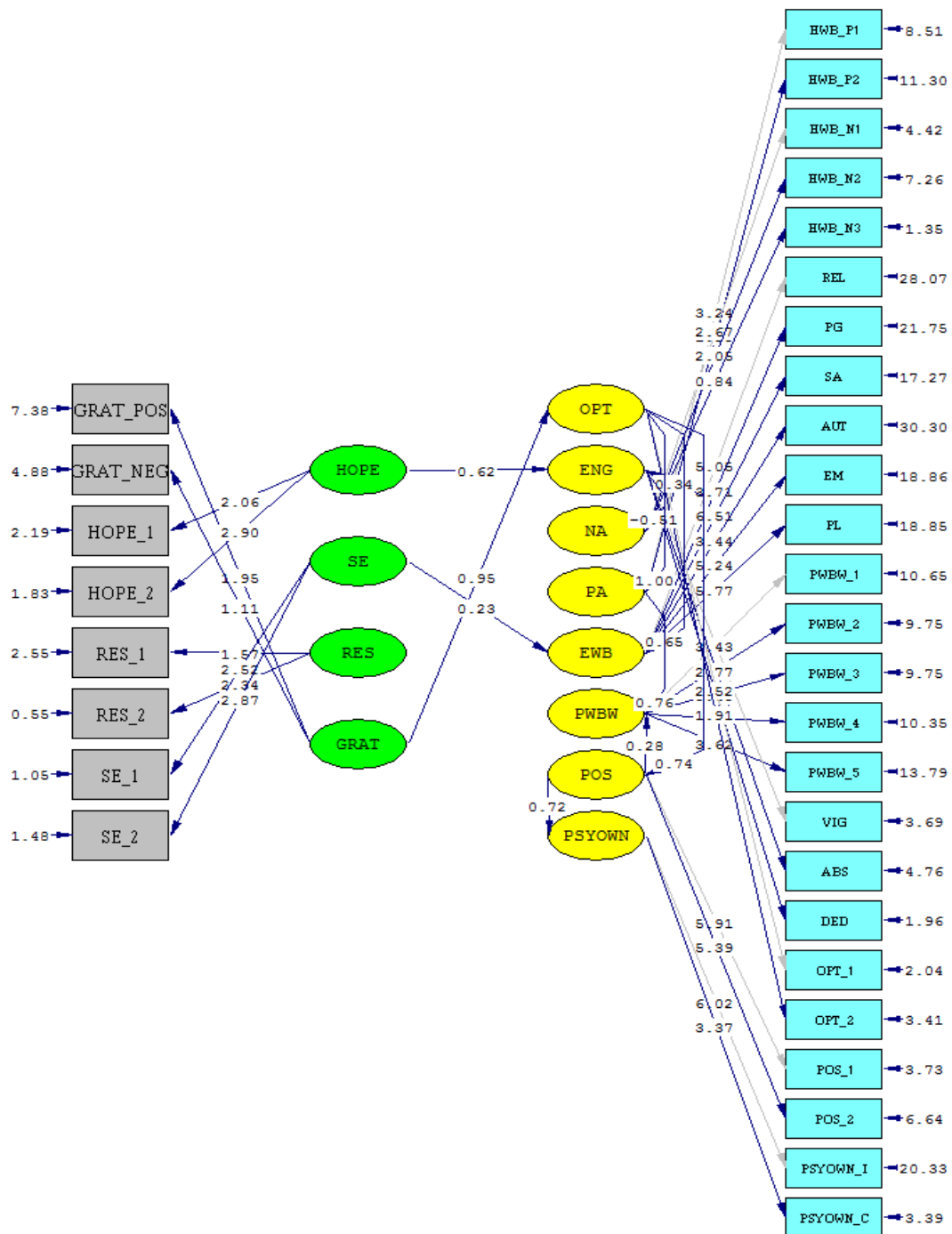
The next highest MI-value indicated that a path should be added between Self-efficacy and EWB. The magnitude of the completely standardised expected change for the gamma coefficient (.449) was substantial, and the sign was positive. This hypothesised path, that more Self-efficacy would result in better EWB, was also included in the original model ( $H_{013}$ ). It was argued that the ability of highly efficacious individuals to foster feelings of competence in particular domains, may accordingly lead them to flourish and expect similar, positive outcomes in future (Bandura, 1986). Hence, they may be better equipped to regulate their personal notions of perceived stress and strain (Bandura, 1997). Steyn (2011) stated that individuals high in Self-efficacy may exhibit better Psychological Well-being, simply because after having failed once, they will continue to persist in their efforts without being burdened by feelings of inadequacy and low self-worth that are often associated with a lack of mental

well-being. These efficacy beliefs are related to a state of eudaimonia in the sense that one is willing to commit the effort in order to enhance oneself in terms of work or life. Put differently, if one has the confidence to believe one can successfully accomplish a given task (Self-efficacy), one will be more motivated to engage in that task and come to a state where you thrive in it (EWB). Moreover, *Conservation of Resources* theory (Hobfoll, 1989) stipulates that individuals strive to obtain, retain, protect and foster resources, and that individuals with more resources (e.g. Self-efficacy) are less vulnerable to resource loss and more capable of organising resource gain (e.g. better well-being) (Hobfoll, 2001). According to the theory these resources include physical objects, personal characteristics (such as PsyCap), energies and conditions (Görgens-Ekermans & Herbert, 2013). For example, Culbertson, Fullagar and Mills (2010) have demonstrated that PsyCap, of which Self-efficacy is a dimension, is related to both Hedonic and Eudaimonic Well-being. For this reason, Self-efficacy was argued to have a positive relationship with EWB. Therefore, it made theoretical sense to include the path between Self-efficacy and EWB in the subsequent modified model.

Based on the presented results, it was decided to delete the statistically insignificant path between Optimism and Positive Affect (PA) and to add the hypothesised positive relationship between Self-efficacy and EWB into the subsequent modified model. The decision was based on the strength of the theoretical argument presented above, the fact that the magnitude of the expected change was satisfactory (.449), and that the sign of the expected change was in line with the theorised argument. The modified model (D) was fitted to the data.

#### **4. 5.5.1 Fit of the modified Structural Model (Model D)**

The modified structural model D is presented visually in figure 4.6. The fit statistics for this model are presented in table 4.29



Chi-Square=1017.34, df=478, P-value=0.00000, RMSEA=0.075

Figure 4.6: Representation of the structural model (Model D) (Standardised solution)

**Table 4.29****The Goodness of fit statistics for the structural model (Model D)**

| Model | X <sup>2</sup> | S-BX <sup>2</sup> | df  | S-BX <sup>2</sup> /<br>df | NNFI | CFI  | RMR   | SRMR  | RMSEA<br>(CI)              | P(close) |
|-------|----------------|-------------------|-----|---------------------------|------|------|-------|-------|----------------------------|----------|
|       | 1139.391*      | 1017.342*         | 478 | 2.13                      | .969 | .972 | 1.498 | .0697 | .0755<br>(.0691;<br>.0819) | .000     |

Note: X<sup>2</sup>, Chi-square; S-BX<sup>2</sup>, Satorra-Bentler Scaled Chi-square; NNFI, non-normed fit index; CFI, comparative fit index; RMR, root mean square residuals; SRMR, standardised root mean residual; RMSEA, root mean square error of approximation \*p < 0.05.

The results in table 4.29 show that the Satorra-Bentler Chi-square was 1017.342, with 478 degrees of freedom (p = .000). The null hypothesis of exact fit was therefore rejected. Moreover, close fit was not achieved (p-value of close fit < .05). According to the Hair et al., (2006) guidelines, the RMSEA of .0755 indicated good model fit. The SRMR (.0697) was well below the .90 cut-off value (Hair et al., 2006) further substantiating the conclusion of good model fit. In addition, the NNFI and CFI (.969 and .972) were both well above .92. Compared to the previous model, the NNFI, CFI and SRMR remained the same, but the RMSEA increased marginally. The results indicated that a similar fit was obtained than for the previous model.

The parameter estimates for beta and gamma, as well as the modification indices calculated by LISREL were explored to investigate further additional possible ways in which this model could be modified through either the deletion or addition of paths that may result in an improved fit.

#### 4.5.6 Parameter Estimates and Modifications suggested by Model D

From the unstandardised beta matrix presented in table 4.30 it was evident that none of the current paths between the endogenous latent variables included in the model should be deleted in the subsequent modified model. All the paths were supported and found to be statistically significant (*t-values* > |1.96).

Table 4.30

**Structural model (Model D) unstandardized beta matrix**

|               | OPT                        | ENG                       | NA | PA                       | EWB | PWBW | POS                      | PSYOWN |
|---------------|----------------------------|---------------------------|----|--------------------------|-----|------|--------------------------|--------|
| <b>OPT</b>    |                            |                           |    |                          |     |      |                          |        |
| <b>ENG</b>    |                            |                           |    |                          |     |      | .341<br>(.071)<br>4.807* |        |
| <b>NA</b>     | -.506<br>(.099)<br>-5.108* |                           |    |                          |     |      |                          |        |
| <b>PA</b>     |                            | .996<br>(.076)<br>13.186* |    |                          |     |      |                          |        |
| <b>EWB</b>    | .654<br>(.104)<br>6.277*   |                           |    |                          |     |      |                          |        |
| <b>PWBW</b>   |                            |                           |    | .759<br>(.093)<br>8.172* |     |      | .281<br>(.053)<br>5.286* |        |
| <b>POS</b>    | .738<br>(.061)<br>12.026*  |                           |    |                          |     |      |                          |        |
| <b>PSYOWN</b> |                            |                           |    |                          |     |      | .723<br>(.073)<br>2.467* |        |

Note: OPT = PsyCap Optimism; ENG = Work Engagement; NA = Negative Affect, PA = Positive Affect; EWB = Eudaimonic Well-being; PWBW = Psychological well-being at work; POS = Perceived Organisational Support; PSYOWN = Psychological Ownership. \**t*-values > 11.961 indicates significant path coefficients; values in brackets represent standard error estimates.

The unstandardised gamma matrix, depicted in table 4.31, shows that all the paths between the exogenous and endogenous latent variables were statistically significant (*t*-values > |1.96). This included the recently added path between Self-efficacy and EWB (indicated in bold). Consequently, all the current paths were retained in the subsequent modified model. Tables 4.32 and 4.33 contain the modification indices for the beta matrix and for the currently fixed gamma parameters.

Table 4.31

**Structural modified model (Model D) unstandardized gamma matrix**

|        | HOPE                     | SE                              | RES | GRAT                      |
|--------|--------------------------|---------------------------------|-----|---------------------------|
| OPT    |                          |                                 |     | .946<br>(.079)<br>11.933* |
| ENG    | .616<br>(.087)<br>7.042* |                                 |     |                           |
| NA     |                          |                                 |     |                           |
| PA     |                          |                                 |     |                           |
| EWB    |                          | .229<br>(.093)<br><b>2.467*</b> |     |                           |
| PWBW   |                          |                                 |     |                           |
| POS    |                          |                                 |     |                           |
| PSYOWN |                          |                                 |     |                           |

Note: HOPE = PsyCap Hope; SE = PsyCap Self-efficacy; RES = PsyCap Resilience; GRAT = Gratitude; OPT = PsyCap Optimism; ENG = Work Engagement; NA = Negative Affect, PA = Positive Affect; EWB = Eudaimonic Well-being; PWBW = Psychological well-being at work; POS = Perceived Organisational Support; PSYOWN = Psychological Ownership. \*t-values > 11.961 indicates significant path coefficients; values in brackets represent standard error estimates; the value in bold represents the latest added MI.

Table 4.32

**Modified structural model modification indices for beta matrix (Model D)**

|        | OPT   | ENG   | NA    | PA    | EWB   | PWBW  | POS   | PSYOWN |
|--------|-------|-------|-------|-------|-------|-------|-------|--------|
| OPT    |       |       |       |       |       |       |       | .213   |
| ENG    |       |       | .021  |       | 6.389 |       |       | 2.016  |
| NA     |       |       |       |       |       |       |       | 5.386  |
| PA     | 8.535 |       | .268  |       | 4.788 |       | 8.425 | .636   |
| EWB    |       | .347  | 2.651 | .392  |       | .002  | 4.260 | 4.793  |
| PWBW   |       |       | 4.985 |       | 6.239 |       |       | .027   |
| POS    |       | 1.556 | 1.875 | 1.708 | 4.251 | 1.286 |       | 1.634  |
| PSYOWN | 3.787 | 9.066 | 4.184 | 8.974 | 1.137 | 7.315 |       |        |

Note: OPT = PsyCap Optimism; ENG = Work Engagement; NA = Negative Affect, PA = Positive Affect; EWB = Eudaimonic Well-being; PWBW = Psychological well-being at work; POS = Perceived Organisational Support; PSYOWN = Psychological Ownership

Table 4.33

**Modified structural model modification indices for gamma matrix (Model D)**

|        | HOPE  | SE     | RES           | GRAT  |
|--------|-------|--------|---------------|-------|
| OPT    |       |        |               |       |
| ENG    |       |        |               |       |
| NA     |       | 1.947  | 3.918         |       |
| PA     |       | 1.773  | <b>12.836</b> |       |
| EWB    |       |        | .687          |       |
| PWBW   |       | 7.533  | 12.016        |       |
| POS    | .149  | .638   | 11.641        | 1.456 |
| PSYOWN | 9.945 | 10.346 | 7.216         | 5.136 |

Note: HOPE = ; SE = PsyCap Self-efficacy; RES = PsyCap Resilience; GRAT = Gratitude; OPT = PsyCap Optimism; ENG = Work Engagement; NA = Negative Affect, PA = Positive Affect; EWB = Eudaimonic Well-being; PWBW = Psychological well-being at work; POS = Perceived Organisational Support; PSYOWN = Psychological Ownership; the value in bold represents the highest MI.

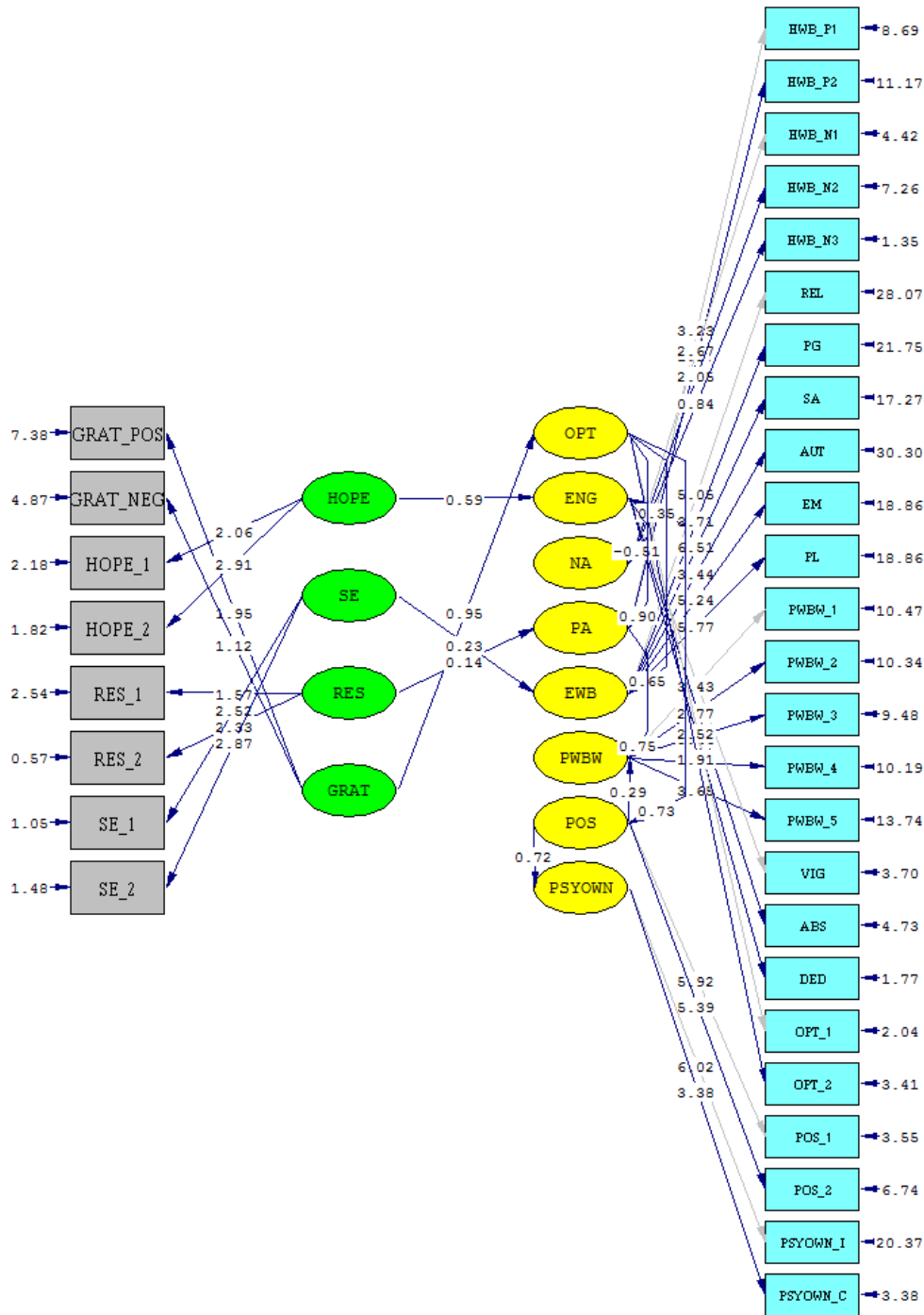
When evaluating the MI's, it was clear that highest MI was in the gamma matrix indicating that if a path would be included between Resilience and Positive Affect (PA), the model would improve significantly. The completely standardised expected change for the beta coefficient was of sufficient magnitude (.259) and obtained a positive sign. Again, the critical question was, whether it would make theoretical sense to include a positive relationship between Resilience and Positive Affect in the revised model. Resilience, the positive psychological capacity to rebound, to bounce back from adversity, uncertainty, conflict, failure or even positive change, progress and increased responsibility (Luthans, 2002a), is an inner psychological strength that individuals use when they are in a difficult or challenging situation. An argument is therefore proposed that if an individual has the ability to bounce back from adversities, positive emotions will result from this. According to Bonano and Keltner (1997) bereaved individuals who exhibited genuine laughs and smiles when speaking about a recent loss had better adjustment over several years of bereavement and also evoked more favourable responses in observers (Bonano & Keltner, 1997). Recently, Fredrickson et al., (2003) demonstrated that the links between measures of Resilience and adjustment following the 9/11 attacks were mediated by the experience of positive emotions (e.g. gratitude, interest, love). Therefore, Resilience could be linked to increased levels of PA.

The results presented and explained in this section warranted the inclusion of the positive hypothesised path between Resilience and PA in the modified structural model (model E). This path made substantial theoretical sense, the magnitude of the expected change was satisfactory (.259) and the sign of the expected change was in line with the theorised argument, i.e. positive. The results for model D further revealed that no existing paths should be deleted from this model. The modified model (model E) was fitted to the data.

#### **4.5.6.1 Fit of the modified structural model (Model E)**

Figure 4.7 gives a visual representation of the modified structural model E and the fit statistics for this model are presented in table 4.34.





Chi-Square=1011.14, df=477, P-value=0.00000, RMSEA=0.075

Figure 4.7: Representation of the structural model (Model E) (Standardised solution)

**Table 4.34****Goodness of Fit statistics for the modified model (Model E)**

| Model | X <sup>2</sup> | S-BX <sup>2</sup> | df  | S-BX <sup>2</sup> /<br>df | NNFI | CFI  | RMR   | SRMR  | RMSEA<br>(CI)              | P(close) |
|-------|----------------|-------------------|-----|---------------------------|------|------|-------|-------|----------------------------|----------|
|       | 1132.423*      | 1011.137*         | 477 | 2.120                     | .969 | .972 | 1.486 | .0690 | .0752<br>(.0688;<br>.0816) | .000     |

Note: X<sup>2</sup>, Chi-square; S-BX<sup>2</sup>, Satorra-Bentler Scaled Chi-square; NNFI, non-normed fit index; CFI, comparative fit index; RMR, root mean square residuals; SRMR, standardised root mean residual; RMSEA, root mean square error of approximation \*p < 0.05.

The Satorra-Bentler Chi-square was 1011.137, with 477 degrees of freedom (p = .000), which showed that the null hypothesis of exact fit was rejected. Close fit was still not achieved (p-value of close fit < .05). According to the Hair et al., (2006) guidelines, good fit could be concluded from the RMSEA value of .0752 and incremental fit indices which comfortably exceeded the .92 cut-off value (CFI = .972; NNFI = .969). The SRMR (.0690) was also comfortably below the .09 cut-off level. Given the basket of fit indices it could be concluded that good fit was achieved according to the Hair et al., (2006) guidelines. Compared to the previous model, the NNFI and CFI remained the same, but the SRMR and RMSEA both decreased slightly indicating that the model fit, although marginally, has improved somewhat.

Therefore, the basket of GOF indices suggested that the proposed model was able to reproduce the observed covariance matrix to a degree of accuracy that warranted some faith in the structural model and the derived parameter estimates. The question, however, still remained whether there were ways to improve the fit of the model. For this reason, the unstandardised beta and gamma matrices, as well as the MI's were inspected to determine if the fit could be improved.

#### 4.5.7 Parameter Estimates and Modifications suggested by Model E

The unstandardised beta matrix shown in table 4.35 illustrated that all the current paths in the model should be retained as all the hypothesised paths were found to be statistically significant (*t-values* > |1.96|) and were therefore supported. Table 4.36 depicts the unstandardised gamma matrix which shows that all of the freed gamma paths were statistically significant (*t-values* > |1.96|). The results also revealed that empirical support was found for the positive relationship between Resilience and Positive Affect (indicated in bold), which was added to this modified version of the model. The MI's for model E are presented in table 4.37 (beta matrix) and table 4.38 (gamma matrix).

Table 4.35

**Structural model (Model E) unstandardised beta matrix**

|               | OPT                        | ENG                       | NA | PA                       | EWB | PWBW | POS                      | PSYOWN |
|---------------|----------------------------|---------------------------|----|--------------------------|-----|------|--------------------------|--------|
| <b>OPT</b>    |                            |                           |    |                          |     |      |                          |        |
| <b>ENG</b>    |                            |                           |    |                          |     |      | .354<br>(.072)<br>4.937* |        |
| <b>NA</b>     | -.507<br>(.099)<br>-5.106* |                           |    |                          |     |      |                          |        |
| <b>PA</b>     |                            | .901<br>(.081)<br>11.191* |    |                          |     |      |                          |        |
| <b>EWB</b>    | .655<br>(.104)<br>6.274*   |                           |    |                          |     |      |                          |        |
| <b>PWBW</b>   |                            |                           |    | .753<br>(.090)<br>8.341* |     |      | .289<br>(.052)<br>5.584* |        |
| <b>POS</b>    | .735<br>(.061)<br>11.962*  |                           |    |                          |     |      |                          |        |
| <b>PSYOWN</b> |                            |                           |    |                          |     |      | .721<br>(.073)<br>9.931* |        |

Note: OPT = PsyCap Optimism; ENG = Work Engagement; NA = Negative Affect, PA = Positive Affect; EWB = Eudaimonic Well-being; PWBW = Psychological well-being at work; POS = Perceived Organisational Support; PO = Psychological Ownership. \*t-values > 11.961 indicates significant path coefficients; values in brackets represent standard error estimates.

Table 4.36

**Structural modified model (Model E) unstandardised gamma matrix**

|               | HOPE                     | SE                       | RES                             | GRAT                      |
|---------------|--------------------------|--------------------------|---------------------------------|---------------------------|
| <b>OPT</b>    |                          |                          |                                 | .946<br>(.079)<br>11.915* |
| <b>ENG</b>    | .592<br>(.088)<br>6.745* |                          |                                 |                           |
| <b>NA</b>     |                          |                          |                                 |                           |
| <b>PA</b>     |                          |                          | .138<br>(.059)<br><b>2.320*</b> |                           |
| <b>EWB</b>    |                          | .229<br>(.093)<br>2.470* |                                 |                           |
| <b>PWBW</b>   |                          |                          |                                 |                           |
| <b>POS</b>    |                          |                          |                                 |                           |
| <b>PSYOWN</b> |                          |                          |                                 |                           |

Note: HOPE = PsyCap Hope; SE = PsyCap Self-efficacy; RES = PsyCap Resilience; GRAT = Gratitude; OPT = PsyCap Optimism; ENG = Work Engagement; NA = Negative Affect, PA = Positive Affect; EWB = Eudaimonic Well-being; PWBW = Psychological well-being at work; POS = Perceived Organisational Support; PO = Psychological Ownership. \*t-values > 11.961 indicates significant path coefficients; values in brackets represent standard error estimates, the value in bold represents the latest added MI.

Table 4.37

**Modified structural model modification indices for beta matrix (Model E)**

|               | OPT   | ENG   | NA    | PA    | EWB   | PWBW  | POS   | PSYOWN |
|---------------|-------|-------|-------|-------|-------|-------|-------|--------|
| <b>OPT</b>    |       |       |       |       |       |       |       | .257   |
| <b>ENG</b>    |       |       | .023  |       | 5.475 |       |       | 2.001  |
| <b>NA</b>     |       | .015  |       |       |       |       |       | 5.342  |
| <b>PA</b>     | .001  |       | .050  |       | .882  |       | 4.732 | .763   |
| <b>EWB</b>    |       | .316  | 2.630 | .557  |       | .002  | 4.189 | 4.720  |
| <b>PWBW</b>   |       |       | 3.899 |       | 1.836 |       |       | .001   |
| <b>POS</b>    |       | 1.601 | 1.909 | 3.474 | 4.371 | 1.873 |       | 1.745  |
| <b>PSYOWN</b> | 4.035 | 8.910 | 4.282 | 9.839 | 1.284 | 7.837 |       |        |

Note: OPT = PsyCap Optimism; ENG = Work Engagement; NA = Negative Affect, PA = Positive Affect; EWB = Eudaimonic Well-being; PWBW = Psychological well-being at work; POS = Perceived Organisational Support; PSYOWN = Psychological Ownership.

Table 4.38

**Modified structural model modification indices for gamma matrix (Model E)**

|               | HOPE   | SE            | RES           | GRAT  |
|---------------|--------|---------------|---------------|-------|
| <b>OPT</b>    |        |               |               |       |
| <b>ENG</b>    |        |               |               |       |
| <b>NA</b>     |        | 1.898         | 3.845         |       |
| <b>PA</b>     |        | 5.010         |               |       |
| <b>EWB</b>    |        |               | 1.033         |       |
| <b>PWBW</b>   |        | 1.362         |               |       |
| <b>POS</b>    | .153   | .738          | <b>12.676</b> | 1.780 |
| <b>PSYOWN</b> | 10.245 | <b>10.773</b> | 7.743         | 5.423 |

Note: HOPE = PsyCap Hope; SE = PsyCap Self-efficacy; RES = PsyCap Resilience; GRAT = Gratitude; OPT = PsyCap Optimism; ENG = Work Engagement; NA = Negative Affect, PA = Positive Affect; EWB = Eudaimonic Well-being; PWBW = Psychological well-being at work; POS = Perceived Organisational Support; PSYOWN = Psychological Ownership

The parameter with the highest MI-value was the same one that emerged in a previous modified model's gamma matrix indicating that a path should be added between Resilience and POS. In this instance the magnitude for the completely standardised expected change for the gamma coefficient magnitude (-.329) was substantial and the sign was negative. Given the lack of previous empirical evidence to substantiate the inclusion of this path, as well as the ambiguous nature of the direction of the influence of Resilience on POS, it was decided, once again, not to include this path in the subsequent modified model.

The next highest MI-value indicated that a path should be added between Self-efficacy and Psychological Ownership. The completely standardised expected change for the gamma coefficient (.235) was positive. The critical question was whether it would make theoretical sense to include a positive relationship between Self-efficacy and Psychological Ownership in the revised model. According to Bandura (1977, 1986), Self-efficacy expectations is one's belief of being able to cope with specific tasks and situational demands. It is one's confidence in one's ability to mobilise the motivation, cognitive resources, and courses of

action necessary to execute a specific course of action within a given context (Stajkovic & Luthans, 1998). Individuals with high Self-efficacy beliefs have the ability to extend their motivation and effort to successfully accomplish their goals and persevere when faced with obstacles (Luthans & Youssef, 2004). On the other hand Psychological Ownership (PO) has earlier been defined as a sense of possession or more precisely, as a cognitive-affective construct defined as “the state in which individuals feel as though the target of ownership or a piece of that target is theirs” and reflects “an individual’s awareness, thoughts and beliefs regarding the target of ownership (Pierce, et al., 2003, p.86). Conventional wisdom suggests that people will take better care of, and strive to maintain and nurture the possessions they own. It is, therefore, argued here that those individuals who have the confidence to execute a given task will eventually developed ownership over the task. Such individuals may thus eventually end up to perceive the task as an extension of their identity. The argument further follows that if an employee has the necessary motivation, commitment and competence to do a certain task, they will identify with the task more easily and this identification process will lend itself to the formation of Psychological Ownership. It therefore seems plausible to argue that individuals whom show high levels of Self-efficacy would be more prone to show high levels of Psychological Ownership. Consequently, it seemed theoretically justifiable to include this path in the modified structural model (model F).

The results presented and explained in this section, therefore, warranted the inclusion of the positive hypothesised path between Self-efficacy and Psychological Ownership in the modified structural model (model F). This path made substantive theoretical sense, the magnitude of the expected change was satisfactory (.235) and the sign of the expected change was in line with the theorised argument, i.e. positive. The results for model E further revealed that no existing paths should be deleted from this model. The modified model (model F) was fitted to the data.

#### **4.5.7.1 Fit of the modified structural model (Model F)**

The modified structural model F can be viewed in figure 4.8. The fit statistics derived for this model is contained in table 4.39.

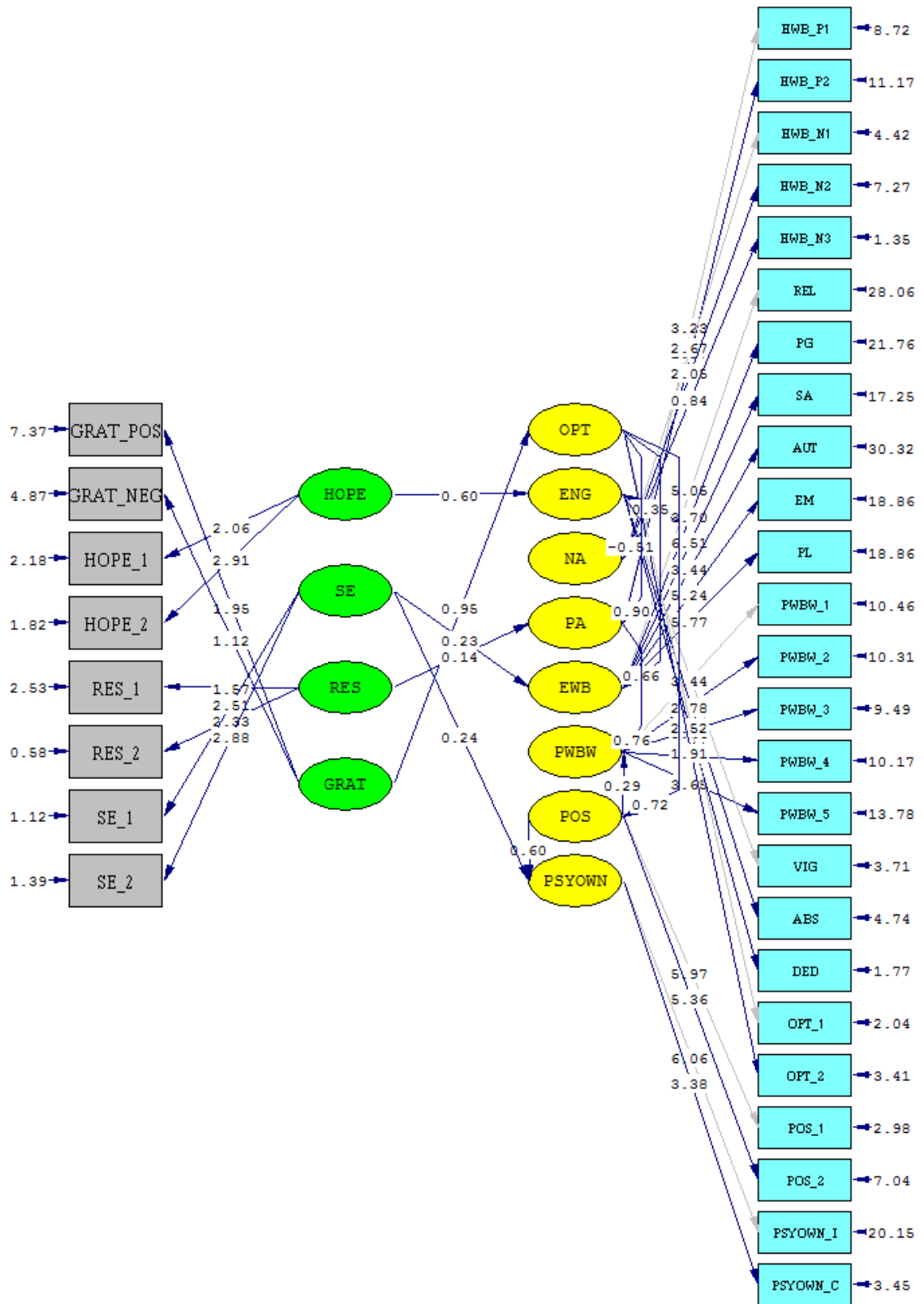


Figure 4.8: Representation of the structural model (Model F) (Standardised solution)

**Table 4.39****Goodness of Fit statistics for the modified model (Model F)**

| Model | $X^2$     | S-B $X^2$ | df  | S-B $X^2$ /<br>df | NNFI | CFI  | RMR   | SRMR  | RMSEA<br>(CI)              | P(close) |
|-------|-----------|-----------|-----|-------------------|------|------|-------|-------|----------------------------|----------|
|       | 1121.230* | 1002.779* | 476 | 2.107             | .969 | .972 | 1.483 | .0669 | .0748<br>(.0683;<br>.0812) | .000     |

Note:  $X^2$ , Chi-square; S-B $X^2$ , Satorra-Bentler Scaled Chi-square; NNFI, non-normed fit index; CFI, comparative fit index; RMR, root mean square residuals; SRMR, standardised root mean residual; RMSEA, root mean square error of approximation \* $p < 0.05$ .

The Satorra-Bentler Chi-square was 1002.779 with 476 degrees of freedom ( $p = .000$ ), which showed that the null hypothesis of exact fit was rejected. Moreover, close fit was not achieved ( $p$ -value of close fit  $< .05$ ). According to the Hair et al., (2006) guidelines, good fit could be concluded from the RMSEA value of .0748 and incremental fit indices which comfortably exceeded the .92 cut-off value (CFI = .972; NNFI = .969). The SRMR (.0669) was comfortably below the .09 cut-off level, although slightly higher than in the previous model fit results. Again, the NNFI and CFI remained the same as in the previous model, but the RMSEA decreased slightly, indicating improved model fit. Given the basket of fit indices it could be concluded that good fit was achieved according to the Hair et al., (2006) guidelines.

The results of the parameter estimates for beta and gamma, as well as the modification indices calculated by LISREL were explored to investigate additional possible ways in which this model could be modified through either the deletion or adding of additional paths that may result in an improved fit.

#### 4.5.8 Parameter Estimates and Modifications suggested by Model F

The unstandardised beta matrix shown in table 4.40 illustrated that all the current paths in the model should be retained as all the hypothesised paths were found to be statistically significant ( $t$ -values  $> |1.96|$ ). Table 4.41 depicts the unstandardised gamma matrix which shows that all of the freed gamma paths were statistically significant ( $t$ -values  $> |1.96|$ ). The results also revealed that empirical support was found for the positive relationship between Self-efficacy and Psychological Ownership (indicated in bold), which was added into this modified version of the model. The MI's for model E are presented in table 4.42 (beta matrix) and table 4.43 (gamma matrix).

**Table 4.40**  
**Structural model (Model F) unstandardized beta matrix**

|               | OPT                        | ENG                       | NA | PA                       | EWB | PWBW | POS                      | PSYOWN |
|---------------|----------------------------|---------------------------|----|--------------------------|-----|------|--------------------------|--------|
| <b>OPT</b>    |                            |                           |    |                          |     |      |                          |        |
| <b>ENG</b>    |                            |                           |    |                          |     |      | .348<br>(.071)<br>4.874* |        |
| <b>NA</b>     | -.506<br>(.099)<br>-5.099* |                           |    |                          |     |      |                          |        |
| <b>PA</b>     |                            | .899<br>(.080)<br>11.216* |    |                          |     |      |                          |        |
| <b>EWB</b>    | .656<br>(.104)<br>6.281*   |                           |    |                          |     |      |                          |        |
| <b>PWBW</b>   |                            |                           |    | .758<br>(.090)<br>8.382* |     |      | .285<br>(.051)<br>5.560* |        |
| <b>POS</b>    | .724<br>(.061)<br>11.781*  |                           |    |                          |     |      |                          |        |
| <b>PSYOWN</b> |                            |                           |    |                          |     |      | .601<br>(.077)<br>7.849* |        |

Note: OPT = PsyCap Optimism; ENG = Work Engagement; NA = Negative Affect, PA = Positive Affect; EWB = Eudaimonic Well-being; PWBW = Psychological well-being at work; POS = Perceived Organisational Support; PSYOWN = Psychological Ownership. \*t-values > |1.96| indicates significant path coefficients; values in brackets represent standard error estimates.

**Table 4.41**  
**Structural modified model (Model F) unstandardized gamma matrix**

|               | HOPE                     | SE                              | RES                       | GRAT                      |
|---------------|--------------------------|---------------------------------|---------------------------|---------------------------|
| <b>OPT</b>    |                          |                                 |                           | .946<br>(.080)<br>11.890* |
| <b>ENG</b>    | .600<br>(.088)<br>6.837* |                                 |                           |                           |
| <b>NA</b>     |                          |                                 | .0141<br>(.059)<br>2.385* |                           |
| <b>PA</b>     |                          |                                 |                           |                           |
| <b>EWB</b>    |                          | .228<br>(.093)<br>2.451*        |                           |                           |
| <b>PWBW</b>   |                          |                                 |                           |                           |
| <b>POS</b>    |                          |                                 |                           |                           |
| <b>PSYOWN</b> |                          | .237<br>(.072)<br><b>3.308*</b> |                           |                           |

Note: HOPE = PsyCap Hope; SE = PsyCap Self-efficacy; RES = PsyCap Resilience; GRAT = Gratitude; OPT = PsyCap Optimism; ENG = Work Engagement; NA = Negative Affect, PA = Positive Affect; EWB = Eudaimonic Well-being; PWBW = Psychological well-being at work; POS = Perceived Organisational Support; PSYOWN = Psychological Ownership. \*t-values > |1.96| indicates significant path coefficients; values in brackets represent standard error estimates, the value in bold represents the latest added MI.



Table 4.42

**Modified structural model modification indices for beta matrix (Model F)**

|        | OPT  | ENG   | NA    | PA    | EWB   | PWBW  | POS           | PSYOWN |
|--------|------|-------|-------|-------|-------|-------|---------------|--------|
| OPT    |      |       |       |       |       |       |               | 16.623 |
| ENG    |      |       | .020  |       | 5.790 |       |               | 1.854  |
| NA     |      | .000  |       |       |       |       | <b>42.674</b> | 7.423  |
| PA     | .001 |       | .059  |       | .931  |       | 3.289         | .804   |
| EWB    |      | .319  | 2.539 | .561  |       | .004  | 3.954         | 6.185  |
| PWBW   |      |       | 3.898 |       | 1.926 |       |               | .029   |
| POS    |      | 2.585 | 1.918 | 5.299 | 4.995 | 2.618 |               | .155   |
| PSYOWN | .026 | 3.753 | 2.644 | 3.626 | 1.267 | 2.711 |               |        |

Note: OPT = PsyCap Optimism; ENG = Work Engagement; NA = Negative Affect, PA = Positive Affect; EWB = Eudaimonic Well-being; PWBW = Psychological well-being at work; POS = Perceived Organisational Support; PSYOWN = Psychological Ownership.

Table 4.43

**Modified structural model modification indices for gamma matrix (Model F)**

|        | HOPE  | SE    | RES    | GRAT  |
|--------|-------|-------|--------|-------|
| OPT    |       |       |        |       |
| ENG    |       |       |        |       |
| NA     |       | 1.289 | 3.409  |       |
| PA     |       | 7.392 |        |       |
| EWB    |       |       | 1.177  |       |
| PWBW   |       | 2.577 |        |       |
| POS    | .429  | 1.259 | 14.915 | 5.300 |
| PSYOWN | 1.274 |       | .094   | .023  |

Note: HOPE = PsyCap Hope; SE = PsyCap Self-efficacy; RES = PsyCap Resilience; GRAT = Gratitude; OPT = PsyCap Optimism; ENG = Work Engagement; NA = Negative Affect, PA = Positive Affect; EWB = Eudaimonic Well-being; PWBW = Psychological well-being at work; POS = Perceived Organisational Support; PSYOWN = Psychological Ownership.

By examining the MI's it was clear that the highest MI was found in the beta-matrix. The parameter with the highest value (42.674) suggested that if a path should be added between Perceived Organisational Support (POS) and Negative Affect, the fit of the model would improve significantly. The completely standardised expected change for the beta coefficient was of sufficient magnitude (-4.077) and obtained a negative sign. From a theoretical point it made sense, as it could be argued that if individuals report experiencing higher levels of Perceived Organisational Support (POS), they will probably also report experiencing less negative emotions. It is therefore argued that if employees feel that organisations value and support them, they will most probably experience less negative feelings, such as being “distressed”, “scared”, “nervous” and “afraid”. These are negative feelings one could expect individuals to experience in a situation where they lack the necessary support system.

The results presented and explained in this section warranted the inclusion of the negative hypothesised path between POS and NA in the modified structural model (model G). This path made substantial theoretical sense, the magnitude of the expected change was satisfactory (-4.077) and the sign of the expected change was in line with the theorised

argument, i.e. negative. The results for model F further revealed that no existing paths should be deleted from this model. The modified model (model G) was fitted to the data.

#### 4.5.9.1 Fit of the modified structural model (Model G)

The fitted model can be viewed in figure 4.8. The fit indices can be viewed in table 4.44 which is followed by a more in-depth discussion thereof.

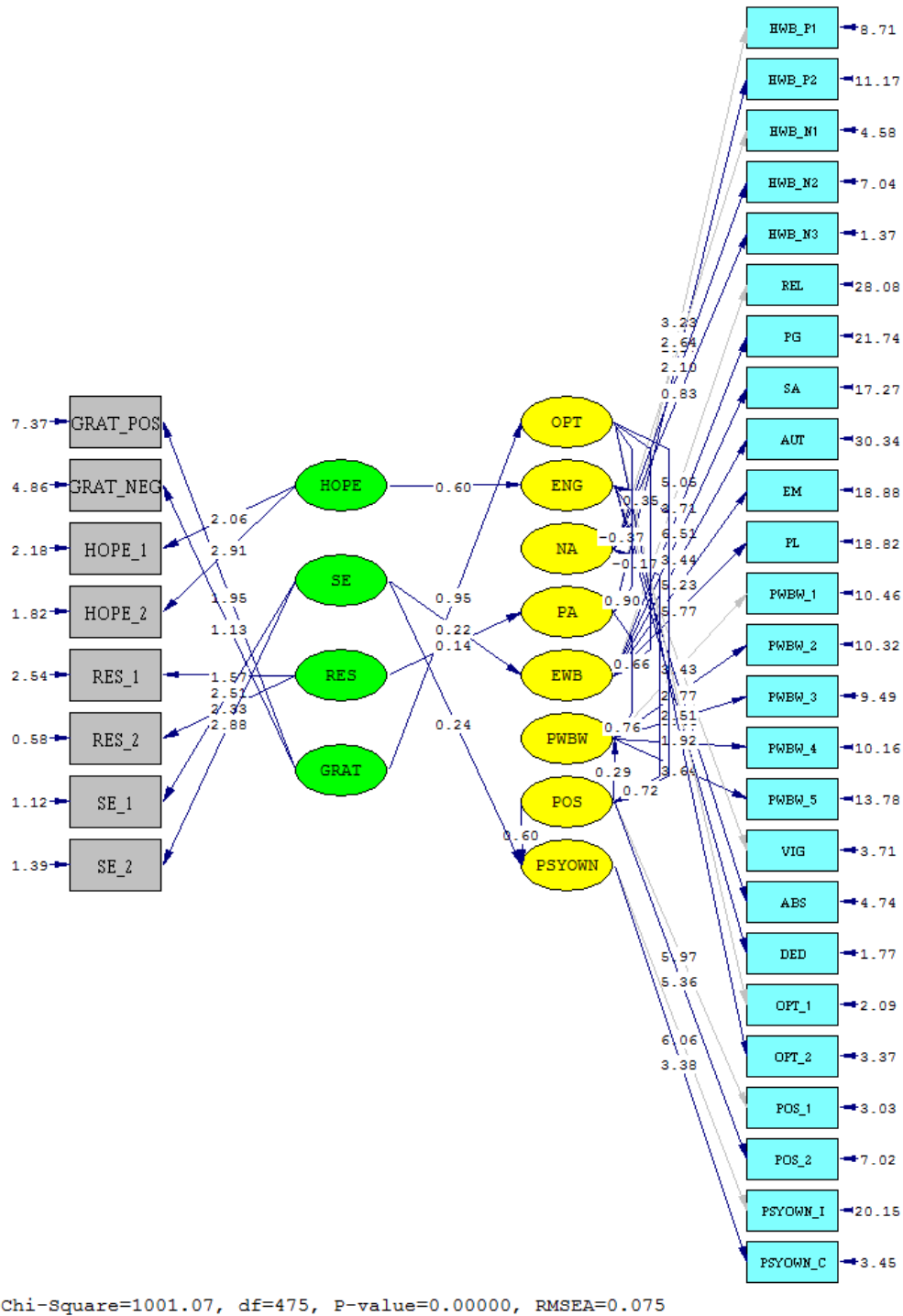


Figure 4.9: Representation of the structural model (Model G) (Standardised solution)

**Table 4.44****The Goodness of fit statistics for the structural model (Model G)**

| Model | X <sup>2</sup> | S-BX <sup>2</sup> | df  | S-BX <sup>2</sup> /<br>df | NNFI | CFI  | RMR   | SRMR  | RMSEA<br>(CI)              | P(close) |
|-------|----------------|-------------------|-----|---------------------------|------|------|-------|-------|----------------------------|----------|
|       | 1119.390       | 1001.070          | 475 | 2.108                     | .969 | .972 | 1.461 | .0660 | .0748<br>(.0683;<br>.0813) | .000     |

Note: X<sup>2</sup>, Chi-square; S-BX<sup>2</sup>, Satorra-Bentler Scaled Chi-square; NNFI, non-normed fit index; CFI, comparative fit index; RMR, root mean square residuals; SRMR, standardised root mean residual; RMSEA, root mean square error of approximation \*p < 0.05.

The results in table 4.44 show that the Satorra-Bentler Chi-square was 1001.070, with 475 degrees of freedom (p = .000). Hence, the null hypothesis of exact fit was rejected. The results further revealed that close fit was still not achieved (p-value of close fit < .05). The RMSEA of .0748 indicated good model fit (Hair et al., 2006). The SRMR (.0660) was well below the .90 cut-off value (Hair et al., 2006) further substantiating the conclusion of good model fit. In addition, the NNFI and CFI (.969 and .972) were both well above .92. This showed that satisfactory comparative fit existed. All the discussed fit indices remained the same as in the previous model, except for the SRMR, which decreased marginally, indicating a slightly improved model fit.

Given the evidence considered, it was concluded that the proposed model was able to reproduce the observed covariance matrix to a degree of accuracy that warranted faith in the structural model and the derived parameter estimates. The unstandardised beta and gamma matrices, as well as the MI's were again investigated to determine if there were ways to improve the fit of the model.

#### 4.5.9 Parameter Estimates and Modifications suggested by Model G

Unfortunately the unstandardised beta matrix portrayed in table 4.45 illustrated that the recently included path (POS negatively influences NA) was not empirically supported. All the other paths were significant (*t-values* > |1.96|). The unstandardised gamma matrix, depicted in table 4.46, revealed that all the paths were significant and therefore no further paths was considered for deletion from this model. The modification indices for the beta matrix are presented in table 4.47, and the MI-values for the currently fixed gamma parameters are shown in table 4.48.

**Table 4.45**  
**Structural model (Model G) unstandardised beta matrix**

|               | OPT                        | ENG                       | NA | PA                       | EWB | PWBW | POS                               | PSYOWN |
|---------------|----------------------------|---------------------------|----|--------------------------|-----|------|-----------------------------------|--------|
| <b>OPT</b>    |                            |                           |    |                          |     |      |                                   |        |
| <b>ENG</b>    |                            |                           |    |                          |     |      | .349<br>(.071)<br>4.893           |        |
| <b>NA</b>     | -.369<br>(.171)<br>-2.161* |                           |    |                          |     |      | -0.175<br>(.151)<br><b>-1.155</b> |        |
| <b>PA</b>     |                            | .899<br>(.080)<br>11.195* |    |                          |     |      |                                   |        |
| <b>EWB</b>    | .663<br>(.106)<br>6.267*   |                           |    |                          |     |      |                                   |        |
| <b>PWBW</b>   |                            |                           |    | .757<br>(.090)<br>8.373* |     |      | .286<br>(.051)<br>5.591*          |        |
| <b>POS</b>    | .717<br>(.061)<br>11.751*  |                           |    |                          |     |      |                                   |        |
| <b>PSYOWN</b> |                            |                           |    |                          |     |      | .602<br>(.076)<br>7.921*          |        |

Note: OPT = PsyCap Optimism; ENG = Work Engagement; NA = Negative Affect, PA = Positive Affect; EWB = Eudaimonic Well-being; PWBW = Psychological well-being at work; POS = Perceived Organisational Support; PSYOWN = Psychological Ownership; \*t-values > 11.961 indicates significant path coefficients, values in brackets represent standard error estimates, the value in bold represents the latest added MI.

**Table 4.46**  
**Structural modified model (Model G) unstandardised gamma matrix**

|               | HOPE                     | SE                       | RES                      | GRAT                      |
|---------------|--------------------------|--------------------------|--------------------------|---------------------------|
| <b>OPT</b>    |                          |                          |                          | .952<br>(.079)<br>12.024* |
| <b>ENG</b>    | .601<br>(.088)<br>6.845* |                          |                          |                           |
| <b>NA</b>     |                          |                          |                          |                           |
| <b>PA</b>     |                          |                          | .142<br>(.059)<br>2.388* |                           |
| <b>EWB</b>    |                          | .220<br>(.094)<br>2.334* |                          |                           |
| <b>PWBW</b>   |                          |                          |                          |                           |
| <b>POS</b>    |                          |                          |                          |                           |
| <b>PSYOWN</b> |                          | .236<br>(.071)<br>3.309* |                          |                           |

Note: HOPE = PsyCap Hope; SE = PsyCap Self-efficacy; RES = PsyCap Resilience; GRAT = Gratitude; OPT = PsyCap Optimism; ENG = Work Engagement; NA = Negative Affect, PA = Positive Affect; EWB = Eudaimonic Well-being; PWBW = Psychological well-being at work; POS = Perceived Organisational Support; PSYOWN = Psychological Ownership. \*t-values > 11.961 indicates significant path coefficients; values in brackets represent standard error estimates.

Table 4.47

**Modified structural model modification indices for beta matrix (Model G)**

|        | OPT  | ENG   | NA    | PA    | EWB   | PWBW  | POS   | PSYOWN        |
|--------|------|-------|-------|-------|-------|-------|-------|---------------|
| OPT    |      |       |       |       |       |       |       | <b>15.763</b> |
| ENG    |      |       | .021  |       | 6.116 |       |       | 1.806         |
| NA     |      | .195  |       | .502  |       |       |       | 3.422         |
| PA     | .000 |       | .034  |       | .902  |       | 3.453 | .0849         |
| EWB    |      | .285  | 2.931 | .497  |       | .005  | 3.537 | 5.863         |
| PWBW   |      |       | 3.984 |       | 1.841 |       |       | .018          |
| POS    |      | 2.456 |       | 5.236 | 4.303 | 2.558 |       | .103          |
| PSYOWN | .006 | 3.667 | 2.550 | 3.532 | 1.312 | 1.613 |       |               |

Note: OPT = PsyCap Optimism; ENG = Work Engagement; NA = Negative Affect, PA = Positive Affect; EWB = Eudaimonic Well-being; PWBW = Psychological well-being at work; POS = Perceived Organisational Support; PO = Psychological Ownership; the value in bold represents the highest MI.

Table 4.48

**Modified structural model modification indices for gamma matrix (Model G)**

|        | HOPE  | SE           | RES           | GRAT  |
|--------|-------|--------------|---------------|-------|
| OPT    |       |              |               |       |
| ENG    |       |              |               |       |
| NA     |       | .821         | .839          |       |
| PA     |       | <b>7.233</b> |               |       |
| EWB    |       |              | .798          |       |
| PWBW   |       | 2.561        |               |       |
| POS    | .237  | 1.080        | <b>14.326</b> | 6.164 |
| PSYOWN | 1.207 |              | .0909         | .005  |

Note: HOPE = PsyCap Hope; SE = PsyCap Self-efficacy; RES = PsyCap Resilience; GRAT = Gratitude; OPT = PsyCap Optimism; ENG = Work Engagement; NA = Negative Affect, PA = Positive Affect; EWB = Eudaimonic Well-being; PWBW = Psychological well-being at work; POS = Perceived Organisational Support; PO = Psychological Ownership; the values in bold represents the highest and second highest MI.

The parameter with the highest MI-value was found in the beta matrix. This MI suggests that if a path should be added between Psychological Ownership (PO) and Optimism the model's fit would improve significantly. In this instance the magnitude for the completely standardised expected change for the beta coefficient (1.070) was substantial and the sign was positive. The question thus existed whether a theoretical argument exists that would justify the inclusion of the path between Psychological Ownership and Optimism. Optimism was defined in this study as a generalised expectancy that one will experience good outcomes in life. Psychological Ownership (PO), a cognitive-affective construct, has been defined as "the state in which individuals feel as though the target of ownership or a piece of that target is theirs" and reflects "an individual's awareness, thoughts and beliefs regarding the target of ownership" (Pierce, et al., 2003, p.86). When individuals have high levels of PO, it can be expected that they will have a generalised expectancy to experience good outcomes which is the definition of Optimism (Scheier & Carver, 1993). COR theory (Hobfoll, 1989) would also apply here in the sense that ownership is a positive resource which will lead to the attainment of other possible resources, i.e. Optimism. On the other hand, a path from

Optimism to PO would also make theoretical sense as it could be argued that people who would expect positive things to happen to them may experience more enduring positive states and thereby be more involved and immersed by their work and consequently develop a sense of ownership. It was decided that neither of these arguments outweigh the other or were strong enough to justify the inclusion of this path.

The next highest MI-value indicated a path which previously emerged, indicating that a path between Resilience and POS should be added into the model. In this instance the magnitude for the completely standardised expected change for the gamma coefficient (-.369) was substantial and the sign was, once again, negative. Given the lack of previous empirical evidence and ambiguity regarding the positive or negative association between these variables to substantiate the inclusion of this path, it was decided, once again, not to include this path in the subsequent modified model.

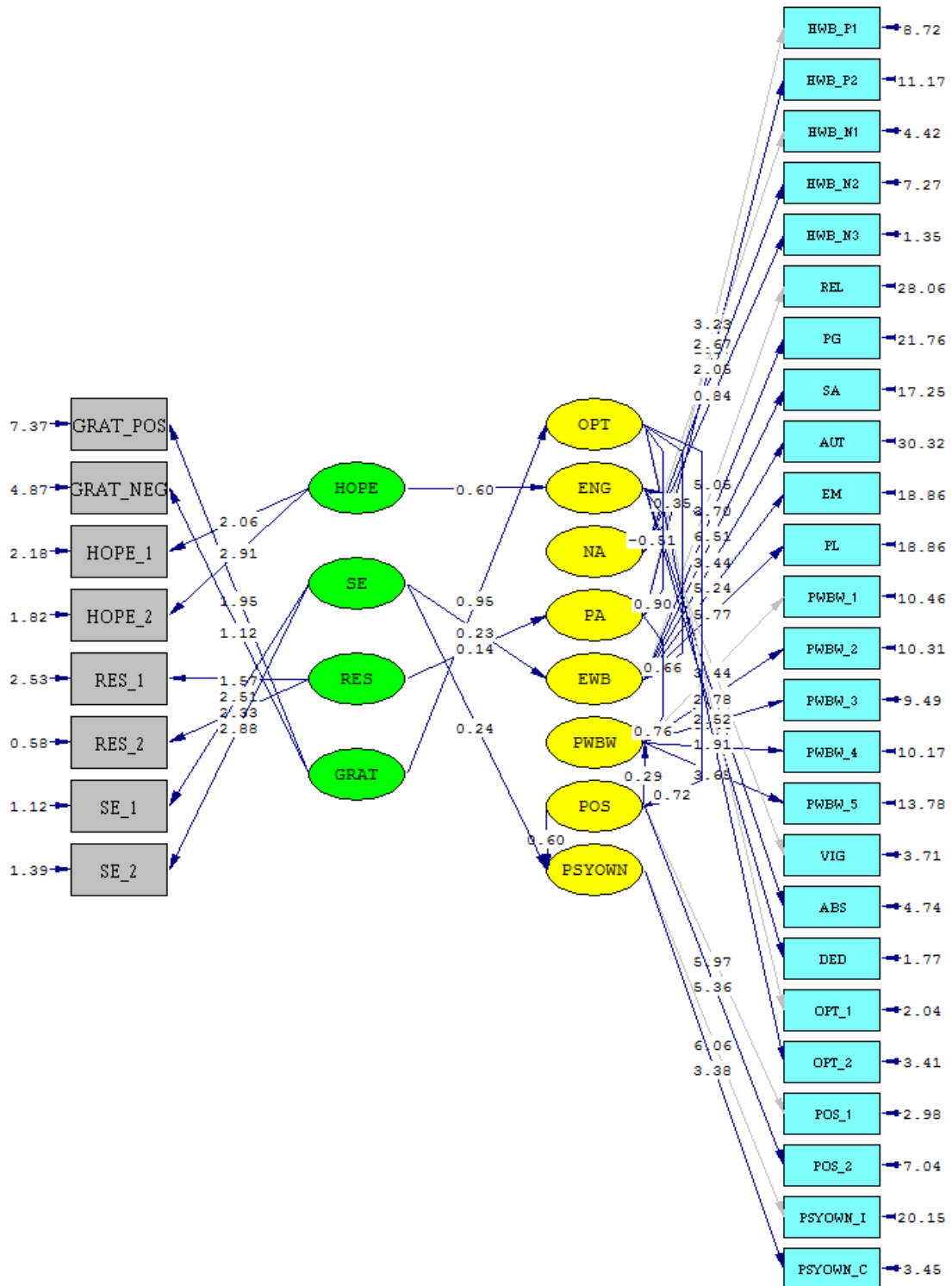
Inspection of the remaining modification indices revealed that only one value was larger than 6.64. Theron (2011) states that MI's with values larger than 6.64 is indicative of parameters that if set free, would improve the fit of the model significantly ( $p < .01$ ). This MI indicated that when a path is included between Self-efficacy and Positive Affect (PA), the model would improve significantly. However, the completely standardised expected change for the gamma coefficient (-5.48) was negative. A positive relationship between Self-efficacy and PA was originally included in the model ( $H_{015}$ ). From a theoretical point of view a negative path would not make sense and no empirical information could be found to justify an argument in support of this path. It was decided not to include the path in the model.

Based on the presented results, it was decided to delete the statistically insignificant path between Perceived Organisational Support (POS) and Negative Affect (NA). The modified model (H) was fitted to the data. This was the final modified model.

## **4.6 ASSESSING THE OVERALL GOODNESS-OF-FIT OF THE FINAL MODIFIED STRUCTURAL MODEL (MODEL H)**

### **4.6.1 Overall fit statistics**

An admissible final solution of the parameter estimates for the modified model was obtained after 170 iterations. The completely standardised LISREL structural model is shown in figure 4.10. The fit indices produced by LISREL, to provide a final assessment of the overall fit of the model, are presented in table 4.49.



Chi-Square=1002.78, df=476, P-value=0.00000, RMSEA=0.075

Figure 4.10: Representation of the structural model (Final model) (Standardised solution)

**Table 4.49*****The Goodness of fit statistics for the structural model (Final model)***

| Model | X <sup>2</sup> | S-BX <sup>2</sup> | df  | S-BX <sup>2</sup> /<br>df | NNFI | CFI  | RMR   | SRMR  | RMSEA<br>(CI)              | P(close) |
|-------|----------------|-------------------|-----|---------------------------|------|------|-------|-------|----------------------------|----------|
|       | 1121.230*      | 1002.779*         | 476 | 2.107                     | .969 | .972 | 1.483 | .0669 | .0748<br>(.0683;<br>.0812) | .000     |

*Note: X<sup>2</sup>, Chi-square; S-BX<sup>2</sup>, Satorra-Bentler Scaled Chi-square; NNFI, non-normed fit index; CFI, comparative fit index; RMR, root mean square residuals; SRMR, standardised root mean residual; RMSEA, root mean square error of approximation \*p < 0.05.*

Table 4.49 revealed that this model achieved a Satorra-Bentler Chi-square value of 1002.779 ( $p = .000$ ). This meant that the null hypothesis of exact fit was rejected ( $H_0$ : RMSEA=0). However, it is generally known that the assumption made by the exact fit null hypothesis constitutes a rather ambitious unrealistic position (Brown & Cudeck, 1993). In addition, a test of close fit (in contrast to exact fit) is performed by LISREL by testing  $H_0$ : RMSEA  $\leq$  .05 against  $H_a$ : RMSEA  $>$  .05. That is, if a p-value for close fit  $>0.05$  is obtained, close fit has been achieved. The results revealed that the model did not obtain close fit.

The 90 percent confidence interval for RMSEA (.0683; .0812) was narrow and its upper bound fell only marginally above the critical cut-off value of .08 (Hair et al., 2006). Hence, although the model did not obtain close fit, there was still evidence for reasonable to good fit. Based on these results, it was concluded that the model provided a plausible explanation and a fairly close reproduction of the observed covariance matrix.

The comparative fit indices presented in table 4.49 illustrated a non-normed fit index value of .969 and a comparative fit index value of .972, which are both well above .92. This showed that satisfactory comparative fit existed.

The standardised root mean residual (SRMR) is regarded as a summary measure of standardised residuals, which represent the average difference between the elements of the sample covariance matrix and the fitted covariance matrix. The model produced a SRMR of .0669, which was below the .09 recommended value (Hair et al., 2006). This was therefore regarded as satisfactory, and thus emphasised the acceptability of the fit achieved by the structural model.

Further information on the model parameter estimates are given in tables 4.50 and 4.51. All the loadings in the completely standardised beta and gamma coefficient matrices were significant.



**Table 4.50**  
**Completely standardised beta coefficients (Final Model)**

|        | OPT   | ENG  | NA | PA   | EWB | PWBW | POS  | PSYOWN |
|--------|-------|------|----|------|-----|------|------|--------|
| OPT    |       |      |    |      |     |      |      |        |
| ENG    |       |      |    |      |     |      | .348 |        |
| NA     | -.506 |      |    |      |     |      |      |        |
| PA     |       | .899 |    |      |     |      |      |        |
| EWB    | .656  |      |    |      |     |      |      |        |
| PWBW   |       |      |    | .758 |     |      | .285 |        |
| POS    | .724  |      |    |      |     |      |      |        |
| PSYOWN |       |      |    |      |     |      |      | .601   |

Note: OPT = PsyCap Optimism; ENG = Enga Work gement; NA = Negative Affect, PA = Positive Affect; EWB = Eudaimonic Well-being; PWBW = Psychological well-being at work; POS = Perceived Organisational Support; PSYOWN = Psychological Ownership

**Table 4.51**  
**Completely standardised gamma coefficients (Final Model)**

|        | HOPE | SE   | RES  | GRAT |
|--------|------|------|------|------|
| OPT    |      |      |      | .946 |
| ENG    | .600 |      |      |      |
| NA     |      |      |      |      |
| PA     |      |      | .141 |      |
| EWB    |      | .228 |      |      |
| PWBW   |      |      |      |      |
| POS    |      |      |      |      |
| PSYOWN |      | .237 |      |      |

Note: HOPE = ; PsyCap Hope; SE = PsyCap Self-efficacy; RES = PsyCap Resilience; GRAT = Gratitude; OPT = PsyCap Optimism; ENG = Work Engagement; NA = Negative Affect, PA = Positive Affect; EWB = Eudaimonic Well-being; PWBW = Psychological well-being at work; POS = Perceived Organisational Support; PSYOWN = Psychological Ownership

The original hypotheses that received support in the final model included: PA positively influences PWBW (H<sub>03</sub>), Optimism negatively influences NA (H<sub>010</sub>), Optimism positively influence EWB (H<sub>011</sub>), Optimism positively influences POS (H<sub>012</sub>), Self-efficacy positively influences EWB (H<sub>013</sub>), Gratitude positively influences Optimism (H<sub>018</sub>), Work Engagement positively influences PA (H<sub>022</sub>), Hope positively influences Work Engagement (H<sub>027</sub>), POS positively influences EWB (H<sub>029</sub>) and POS positively influences Psychological Ownership (H<sub>030</sub>). Based on the modification indices three additional paths were included and received support in the final modified model. These paths included: POS positively influences PWBW, Self-efficacy positively influences Psychological Ownership, and Resilience positively influences Positive Affect.

Figure 4.11 indicates the parameter estimates for all the hypothesised paths in the final version (Model H) of the structural model that was fitted to the data. Of the 28 original hypotheses, 10 were maintained and three new paths were added. Although the majority of the paths were removed, the final model is satisfactory in that it supports the main argument of this study.

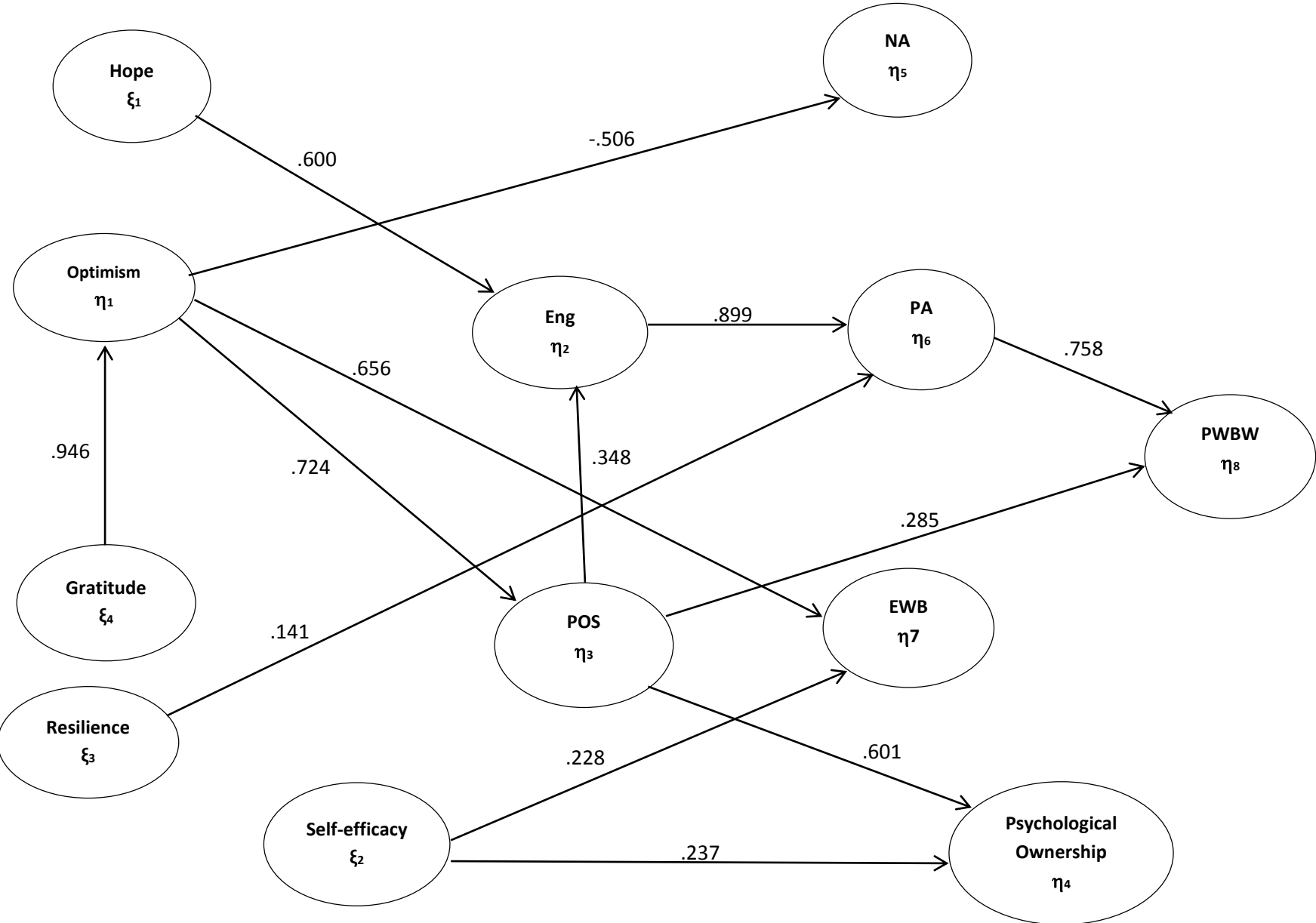


Figure 4.11: Steyn-Boers structural model of psychological well-being at work

## **4.5 SUMMARY**

The purpose of this chapter was to discuss the research results obtained in this study. The analyses of the data were discussed, which included the steps that were followed to derive the final modified structural model. In the final chapter of this thesis the results will be discussed, as well as the limitations of the study and recommendations for future research.

## CHAPTER 5 DISCUSSION AND CONCLUSION

### 5.1 INTRODUCTION

The research findings of this study were presented in chapter 4. In this final chapter of the thesis, an overview of the study will firstly be provided. This will be followed by a discussion of the results. The main limitations of the study will also be addressed, accompanied by recommendations for future research in this particular field. The chapter will conclude with the implications that the findings in this study could have for practitioners in the I/O Psychology field.

### 5.2 BACKGROUND OF THIS STUDY

The focus of well-being has shifted in recent years from minimising the incidences of work performance pathology, to focusing more on actively promoting employee well-being. The aim of this approach is to ensure the optimal functioning of employees and to motivate them to strive towards self-actualisation. The approach has thus shifted away from a “fix what’s wrong” approach to developing a more “build what’s right” approach (Seligman, 2003). Donaldson and Ko (2010) stated that this is the reason that the business world needs to turn to positive psychology which can help them deal more effectively with human flourishing and human strengths. It is argued here that positive psychology and POB should be applied in organisations to develop a pro-active approach to well-being in the workplace.

The well-being of employees is not a random occurrence, but rather a complex phenomenon. Any attempt to influence or change employee well-being should be grounded in a firm understanding of the complexity of the well-being phenomenon. This presupposes an understanding of the nomological network of the latent variables which characterises the person and the perceived environment in which they operate.

Steyn (2011) developed a *Salutogenic Model of Occupational Well-being* in an attempt to depict how positive psychology variables can be combined in a dynamic depiction of the nomological net of variables underlying the phenomenon of Occupational Well-being. The Steyn (2011) study was grounded in the POS paradigm. The rationale for her study was that state-like Optimism and Self-efficacy will have a significant and direct positive effect on perceived Psychological Health. The relationships between Optimism (measured with the Life Orientation Test-Revised; Scheier, et al., 1994), Self-efficacy (measured with the General Self-efficacy Scale; Sherer, et al., 1982) and Occupational Health (measured with

the GHQ-28; Goldberg, 1972); and an adapted version of Diener et al., (1985) Satisfaction with Life Scale, was furthermore hypothesised to be reinforced through indirect associations that act through a combination of Work Engagement (measured with the Utrecht Work Engagement Scale, Schaufeli & Bakker, 2003) and Organisational Commitment (measured with the Organisational Commitment Questionnaire, Mowday, et al., 1979). The Steyn (2011) study thus proposed that those individuals who are optimistic and self-efficacious would experience higher levels of Occupational Well-being (defined as Psychological Health and Satisfaction with Work-Life) than people who are lower on these constructs. It was argued that this was due to their ability to foster positive expectations about the future and their heightened sense of Commitment and Engagement (meaning) facilitated by their higher levels of Optimism and Self-efficacy.

This current study was a first adaptation to the Steyn (2011) model. The adaption and expansion was motivated by certain limitations posed by the Steyn (2011) study. These limitations included that Occupational Well-being was defined very narrowly in the Steyn (2011) study, the results, further, revealed no significant link existed between Self-efficacy and any of the other included constructs in the model, and that Organisational Commitment had a very strong link with Work Engagement, which resulted in the decision to omit the construct (Organisational Commitment) from this study. Moreover, the current study focused on well-being from a positive perspective and defined it in a more holistic sense by firstly defining well-being in a context-free manner and then evaluating it in the context of work. As positive resources play such an important role in establishing well-being, the study further had a more comprehensive focus on the various positive psychological resources and their interplay on each other and their contribution to higher levels of well-being.

The aim of the current study was to depict the nomological network of latent variables that explain variance in the underlying psychological processes of PWBW. SWB was contextualised within the workplace by Dagenais-Desmarais and Savoie (2012) with the development of the Index of Psychological Well-being at Work (IPWBW). PWBW is defined as “a construct describing an individual’s subjective positive experience at work, and comprise of five primary Eudaimonic dimensions, namely Interpersonal Fit at Work, Thriving at Work, Feeling of Competency at Work, Perceived Recognition at Work, and Desire for Involvement at Work” (Dagenais-Desmarais & Savoie, 2012, p. 676). Hence, this construct was included in the adapted Steyn (2011) model, providing a contemporary and contextualised view of SWB in the workplace. The ultimate goal of being able to explain variance in PWBW would be to gain a more clear understanding of the complexity of the nomological net of variables that could help explain the phenomenon of PWBW. Such

knowledge of the complexity of the well-being phenomenon could then be used to influence the well-being of employees by developing the antecedents of well-being (e.g. PsyCap) or by managing elements of the work environment. Therefore, such information should assist HR and line management to rationally and purposefully affect the well-being and subsequent work behaviour of employees. Psychological health and well-being can then further become a strategic driver of talent attraction, retention, as well as individual and organisational performance excellence.

As PWBW is context (i.e. work) specific, a broader understanding of well-being was firstly introduced in this study, by defining SWB in a context-free manner. It was argued that SWB would be an important antecedent to domain specific well-being (PWBW) in this study. Subjective well-being was separated into Hedonic (maximising pleasure and minimising pain) and Eudaimonic (expression of virtue – doing what is worth doing) components. Rather than focusing on either one of these views on SWB, Ryan and Deci (2001) as well as other researchers (Keys, et al., 2002; Keyes & Magyar-Moe, 2003; Lent, 2004), have suggested that it could be optimal to consider SWB as constituting of both these two constructs, since each perspective sheds a different light on the construct of SWB.

Psychological Capital, i.e. PsyCap, was defined as an individual's positive psychological state of development and include Self-efficacy (having confidence to take on and put in the necessary effort to succeed at challenging tasks); Optimism (making a positive attribution about succeeding now and in the future); Hope (persevering towards goals and, when necessary, redirecting paths to goals) and Resilience (when beset by problems and adversity, sustaining and bouncing back and even beyond to attain success) (Luthans, et al., 2007c). Steyn (2011) included Self-efficacy and Optimism in the *Salutogenic Model of Occupational Well-being*. Although the Steyn (2011) study didn't find any support for Self-efficacy, it was decided to retain the construct and to investigate the Self-efficacy – Well-being path to determine whether there does exist a link between these variables. Optimism was also retained to determine if previous findings could be replicated. The model was further elaborated by the inclusion of Hope and Resilience. It was argued that positive psychological capital will have a significant and direct positive impact on employees' SWB, thereby affecting their Psychological Well-being in the Workplace. These PsyCap constructs are thus personal resources that individuals could use to buffer against stress and strain and thereby further lead to increased well-being.

It was further argued in this study that Gratitude (i.e. a generalised tendency to recognise and respond with grateful emotion to the roles of other people's benevolence in the positive

outcomes that one obtains) may lead to higher levels of well-being within an individual (McCullough et al., 2002). Hence, the model was further elaborated with the inclusion of Gratitude in the nomological net of variables explaining PWBW. As argued in the Steyn (2011) model, Work Engagement, which is a positive, fulfilling, work-related state of mind characterised by Vigour, Dedication and Absorption (Schaufeli & Bakker, 2001), can be a product of the expanded repertoire of positive emotions resulting from the PsyCap variables and Gratitude, when the *Broaden-and-Build* theory is applied. Therefore Work Engagement was retained in the current model.

POS was introduced as a construct explaining employees' perceptions regarding the extent to which the organisation values their contribution and cares about their well-being (Eisenberger et al., 1986). POS is fostered by conditions such as fair treatment and supervisory support, and can also be seen as a resource that employees can draw from when dealing with stressful and demanding situations. It was argued that positive emotions, experienced by those individuals with high PsyCap levels, should translate into better interpersonal relationships and thereby further establishing a support system which will contribute to an increased perception of organisational support. The inclusion of POS could further be explained by Hobfoll's (1989) COR theory which stipulates that individuals strive to obtain, retain, protect and foster resources. POS can thus be seen as a resource that will lead to the accumulation of other resources. Hobfoll (1989) has stated that those individuals who have more resources are less vulnerable to resource loss and more capable of resource gain. The *Resource Investment* principle further stipulates that people must invest in resources in order to protect against resource loss, recover from losses and ultimately gain additional resources (Hobfoll, 2002). Therefore it can be argued that POS would assist with the protection of resource losses and in the attainment of additional resources. It was further argued that POS would influence Work Engagement (directly), EWB (directly and indirectly through Work Engagement; and HWB (i.e. indirectly through Work Engagement, resulting in less NA and more PA). These influences would take place through the heightened positive state experienced when good interpersonal relationships translate into emotional and instrumental support in the workplace. POS will thus lead to higher levels of well-being mainly by the higher levels of Work Engagement caused by the support. Employees would thus want to organisation to reach their goals and therefore they will be more Dedicated, which is a core dimension of Work Engagement. Together with an established support system, it was argued that Psychological Ownership (i.e. the authority to make decisions and complete a whole task) should empower and motivate employees to excel in the work environment. This should further translate into better Eudaimonic Well-

being, ultimately resulting in better PWBW (Dagenais-Desmarais & Savoie, 2012). Thus, it was proposed that hopeful, optimistic, self-efficacious, resilient employees whom show Gratitude and are engaged in their work; perceive organisational support and have Psychological Ownership of their jobs, will experience greater levels of PWBW, mediated through better EWB and HWB (as a combination of more PA and less NA).

The purpose of the arguments presented in this study was to build on the Steyn (2011) model, and further elaborate on the findings by Steyn (2011) with regards to well-being in the workplace. The focus was to attempt to obtain a closer approximation of the nomological net of variables that may explain well-being in the workplace in light of notions on optimal functioning and personal flourishing. The Positive Organisational Behavior (POB) paradigm, together with Fredrickson's (2002) *Broaden-and-Build theory* and the *Conservation of Resource Theory* (COR; Hobfoll, (1989) were used to formulate the framework of positive traits and affective states that was posited to influence the individual experience of well-being. The effect that the above-mentioned constructs have on PWBW in the workplace was (i.e. *Steyn-Boers Structural Model of Psychological Well-being at Work*) proposed and investigated, which intended to explain the inherent connection and working of the constructs in relation to each other, in order to attempt to explicate the complexity that underlies Psychological Well-being in the workplace.

## 5.3 DISCUSSION OF RESULTS

### 5.3.1 Measurement Model

After item analyses were conducted on all the measurement instruments, CFA was performed to test how well the measured variables represent a smaller number of constructs. Where the interrelationships amongst a set of variables were unclear, EFA was performed. EFA was thus used to identify the reasons for the poor fitting CFA results.

Following this, the fit of the measurement model of the structural model was analysed to determine the extent to which the indicator variables successfully operationalised the various latent variables in the structural model. The overall goodness-of-fit (GOF) was tested via LISREL 8.8 by making use of structural equation modelling (SEM). The GOF statistics were interpreted and it was clear that the model did not have a close fit, but that the selection of indices that were interpreted indicated at least a reasonable to good fitting model. According to Lance and Vandenberg (2009) it is imperative to realise that the final composite model (which consists of measurement and structural components) that it tested, is composed of independent additive non-centrality chi-squares – one for the measurement model and one



for the structural model. That is, the structural model is nested within the measurement model. Therefore, it has been argued that “it is often the case that the measurement component of latent variable models fits well and contributes a high proportion of the total degrees of freedom (i.e. the total number of restrictions imposed). In such cases, the result is often a well-fitting composite model that masks a poor fitting structural model” (Lance and Vandenberg, 2009, p. 175). Hence, for the purposes of this research an inverse argument could be applied. It may, therefore, be argued that a reasonable / good fitting measurement model, where no close fit has been obtained (as in this study), may be masking the obtained result of an reasonable fitting composite model (evidenced by the structural model GOF indices), when in reality very good fit (evidenced in close fit results) of the structural model components should have been obtained. This may be the case in this research study. This was empirically investigated through the calculation of the RMSEA of the structural model component, when the RMSEA of the composite and measurement models have been taken into account. To conduct this calculation a macro was devised. The factors that were utilised to achieve the decomposition are listed in table 5.1. The result of the RMSEA for the structural model component clearly pointed to the fact that it could reasonably be concluded that the reasonable measurement model fit may be masking possibly good fitting structural model components (evidenced in the small RMSEA obtained for the structural model component). However, further replication of the measurement model / structural model on another sample should be conducted to clarify the current results.

**Table 5.1**

***Decomposition of composite model into measure and structural model components***

| Hypot  | S-B $\chi^2$ | X <sup>2</sup> | df  | cd    | SD<br>S-B $\chi^2$ | Prob<br>S-B $\chi^2$ Diff | Prob<br>Scaled<br>S-B $\chi^2$ Diff | Prob X <sup>2</sup> Diff | F0        | RMSEA |
|--------|--------------|----------------|-----|-------|--------------------|---------------------------|-------------------------------------|--------------------------|-----------|-------|
| Comp   | 1002.77<br>9 | 1121.23        | 476 |       |                    |                           |                                     |                          | 2.6<br>61 | .0748 |
| Meas   | 829.125      | 967.183        | 429 |       |                    |                           |                                     |                          | 2.0<br>21 | .0686 |
| Struct | 173.654      | 154.047        | 47  | .6765 | 227.727            | 2.04162E-<br>16           | 1.52629E-<br>25                     | 2.6049E-13               |           | .0062 |

*Note: Hypot = Hypothesis; S-BX<sup>2</sup>, Satorra-Bentler Scaled Chi-square; X<sup>2</sup>, Normal Theory Chi-square; df, degrees of freedom; cd, divider in the Scaled Satorra-Bentler chi-square statistic S-B $\chi^2$  Diff, Scaled Difference in Satorra-Bentler Chi Square; Prob S-B $\chi^2$  Diff, Probability Sarorra-Bentler Chi Square difference; Prob S-B $\chi^2$  Diff, Probability Normal Theory Chi Square Difference; F0, population discrepancy function; RMSEA, root mean square residuals; Comp, Comprehensive Model; Meas, Measurement Model; Struct, Structural Model.*

However, given this limitation, it was concluded that sufficient evidence existed that the operationalisation of the measurement model was reasonably successful and hence the structural model was fitted to the data.

### 5.3.2 Structural Model

The original proposed *Steyn-Boers Structural Model of Psychological Well-being at Work* (figure 3.1) was fitted to the data and the initial fit was reasonable to good (as interpreted by the Hair et al., 2006 guidelines). The unstandardised beta and gamma matrices, however, revealed that 20 of the 29 original paths were not supported. Moreover, the direction of the result for one of the significant paths (negative), namely the relationship between Self-efficacy and Work Engagement ( $H_{025}$ ), were not in accordance with the hypothesised effect (positive). No theoretical argument justified this negative relationship and it was decided to remove this path together with the 20 insignificant paths. The remaining eight paths that were retained in the first modification of the structural model included: PA positively influences PWBW ( $H_{03}$ ); Optimism positively influences PA ( $H_{09}$ ); Optimism negatively influences NA ( $H_{010}$ ); Optimism positively influences EWB ( $H_{011}$ ); Gratitude positively influences Optimism ( $H_{018}$ ); Work Engagement positively influences PA ( $H_{022}$ ); Hope positively influences Work Engagement ( $H_{027}$ ) and POS positively influences Psychological Ownership ( $H_{030}$ ).

After the first modification (i.e. deletion of all the non-significant paths, as well as the Self-efficacy, Work Engagement relationship), the fit of the structural model (model A) was subsequently re-evaluated. The fit results, although still reasonably well, were slightly poorer than the original model's statistics. However, all the paths were found to be significant and therefore supported. The modification indices (MI's) for the beta matrix contained the parameter with the largest MI-value, suggesting that a relationship should be added depicting the positive influence of Perceived Organisational Support (POS) on Work Engagement. This was one of the original hypotheses which were previously deleted due to a lack of support (in the original model). As it was already theorised that this path should be included, it was found theoretically justifiable to include this path in the modified structural model (B).

The GOF results for model B, differed marginally from the results of model A, still indicating reasonable to good fit. The gamma and beta matrices revealed that support was obtained for all the included paths, whilst the modification indices suggested that the structural model could be further expanded to improve the fit of the model. The parameter with the highest MI-value was for the influence of POS on PWBW. This hypothesis was not initially included

in the theorisation of the original model paths, but made theoretical sense (arguments presented in section 4.5.4 of chapter 4). Therefore, this path was included in the next model.

The modified structural model (model C) yet again obtained marginally better fit than model B, as was evident from the GOF indices. The model parameters were investigated to establish whether it could be justified to add paths and thereby improve the fit even more. The unstandardised beta matrix indicated that a path that had received support up to this point, namely the path between Positive Affect (PA) and Optimism, was no longer significant. This path was thus deleted in the subsequent model. The modification indices revealed that the fit would improve if a path indicating a negative relationship between Resilience and POS was added into the model. At first, inclusion of the path was considered as it made theoretical sense to some extent. It was first argued that if employees are resilient, they may rely on their own inner strength and may unconsciously perceive the organisation not to be supportive, as this will encourage them to be more Resilient. However, upon further consideration it was realised that a counter argument could apply. That is, it could be argued that resilient employees will most probably have a positive mind-set<sup>18</sup> and create resources to help them overcome difficult times. One of these resources may be perceived support from the organisation or even co-employees, hence, providing a reason to argue that Resilience and POS may be positively related. Therefore due to lack of other empirical evidence and the ambiguity of the direction of the relationship (positive or negative) for this path, it was decided not to include this path in the model. The second highest modification index revealed that if a path would be included between Self-efficacy and EWB, the fit of the model would improve. This path was included in the original model and therefore the original theorisation (presented in section 4.5.5) warranted the justification to include the path in the modified model.

The fit of the revised model (model D) was re-evaluated and found to be fairly similar to the previous model (i.e. still reasonable / good fit). The modification indices revealed that the fit would improve further if a path indicating a positive relationship between Resilience and PA was added to the model. This hypothesis was not included in the theorisation of the original model paths as Resilience was seen to rather be a predictor of EWB, given that EWB is typically experienced when facing with challenges or goal attainment (Ryan & Deci, 2001). However, a theoretical argument was proposed (arguments presented in section 4.5.6 of chapter 4), that justified the inclusion of the path in the subsequent model.

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<sup>18</sup> This argument is supported by the positive manifold of correlations observed in all studies on the PsyCap sub-dimensions (e.g. Gorgens-Ekermans & Herbert, 2013) which indicates that as one of the sub-dimensions (e.g. Resilience) increases, so do the others (e.g. Optimism).

The fit of the revised model (model E) was re-evaluated and again, found to be fairly similar to the previous model as evidenced from the GOF indices. All the included paths were supported and found to be statistically significant. The parameter with the highest MI-value was the same one that emerged in a previous modified model's gamma matrix, indicating that a negative path should be added between Resilience and POS. Given the lack of previous empirical evidence to substantiate the inclusion of this path it was decided, once again, not to include this path in the subsequent modified model. The next highest MI-value in the gamma matrix (for model E) was investigated revealing that a path should be added between Self-efficacy and Psychological Ownership. To theoretically justify the inclusion of the path it was argued that individuals who have the confidence to execute a given task (Self-efficacy) will be more prone to eventually developed ownership over the task. Such individuals will thus come to perceive the task as an extension of their identity (Pierce et al., 2003). The argument further followed that if an employee has the necessary motivation and competence to do a certain task, they will identify with the task and this identification process will lend itself to the formation of Psychological Ownership. It was concluded that the argument made substantial theoretical sense and the path was included in the subsequent model (model F).

The fit of the revised model (model F) was re-evaluated and obtained marginally better fit than model E, as evidenced in the GOF indices. All the included paths were supported and found to be statistically significant. The parameter with the highest value suggested that if a path should be added between Perceived Organisational Support (POS) and Negative Affect, the fit of the model would improve significantly. From a theoretical point this path made substantial sense (arguments presented in section 4.5.8 of chapter 4). The path was thus included in the modified structural model (model G).

For model G, the beta matrix revealed that support was not obtained for the recently included path between POS and NA. The path thus had to be removed. The parameter with the highest MI-value indicated that a path should be added between Psychological Ownership and Optimism. In this study, Optimism was defined as a generalised expectancy that one will experience good outcomes in life. Psychological Ownership (PO) has been described as "the state in which individuals feel as though the target of ownership or a piece of that target is theirs" and reflects "an individual's awareness, thoughts and beliefs regarding the target of Ownership (Pierce, et al., 2003, p.86). At first it was argued that it would make sense to include a path between Psychological Ownership and Optimism based on the COR theory. Ownership would thus be seen as a resource that would allow for the accumulation of other resources i.e. Optimism. On the other hand it was also argued that

Optimism could be a predictor for PO as people who would expect positive things to happen to them will experience an enduring positive state and thereby easily develop a sense of ownership. However, given the lack of empirical evidence to substantiate the inclusion of this path, as well as the ambiguity of the direction of influence, it was decided not to include this path in a revised model. The next highest MI-value indicated a possible path that had previously emerged, suggesting a negative relationship between Resilience and POS. Given the lack of previous empirical evidence to substantiate the inclusion of this path, it was decided, once again, not to include this path in the subsequent modified model. By evaluating the remaining modification indices, it was evident that only one value was larger than 6.64. This MI indicated that a negative path should be included between Self-efficacy and PA. A path between Self-efficacy and PA was originally included in the model ( $H_{015}$ ); however, the hypothesis was that the constructs should be positively related. From a theoretical point of view a negative path did not make sense as no logical reasoned argument, or previous empirical information could be found to justify the inclusion of this path. It was decided not to include this path in the subsequent model. Therefore, the statistically insignificant path between Perceived Organisational Support (POS) and Negative Affect (NA) were deleted and it was concluded that the subsequent model would be the final model. The modified model (H) was fitted to the data. A visual representation of the final model can be seen in figure 5.1.

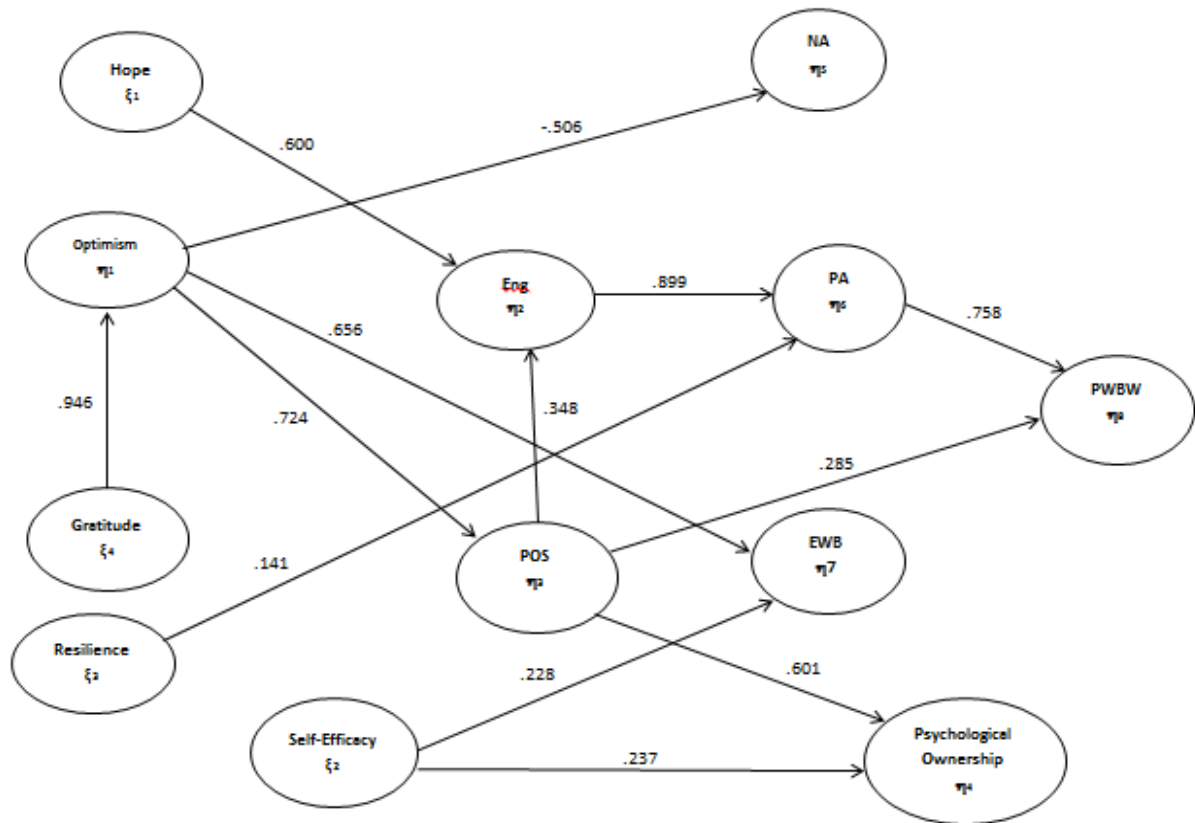


Figure 5.1: Final adapted and tested *Steyn-Boers structural model of psychological well-being at work*

### 5.3.3 Main Findings

The results of the final structural model indicated that a multitude of positive psychological resources play a role in Psychological Well-being at Work. The effect of these resources (e.g. Optimism), in most cases, were mediated by other resources (POS) to explain PWBW. The structural model, therefore, attempted to provide a first overview of the nature of the direct and indirect relationships between the set of variables that were included in this study, to explain variance in PWBW. However, it was initially proposed that Subjective Well-being defined as both HWB and EWB, will mostly be influenced directly by positive psychological resources (Hope, Optimism, Self-efficacy, Resilience, Gratitude), as well as Work Engagement, POS and Psychological Ownership and thereby lead to higher levels of PWBW. Although the results provided some support for these direct relationships it was evident that in most cases, the indirect effects of psychological resources on well-being were mediated by other factors (e.g. Work Engagement, POS). Moreover, the final model provided useful knowledge on the fact that different positive psychological resources predict different aspects of well-being. For example, whilst Optimism were shown to affect HWB and EWB (directly), Hope and Resilience were shown to be antecedents of only HWB (either

directly and indirectly), whilst Self-efficacy predicted only EWB. The main results will be discussed in this section.

### 5.3.3.1 Psychological Well-being at Work

It was initially hypothesised that both SWB components (i.e. EWB as well as PA and NA) would directly influence PWBW. However, given the conceptual overlap between EWB and the Eudaimonic dimensions of PWBW, it was expected that EWB would be a stronger predictor of PWBW than the Hedonic well-being components. Dagenais-Desmarais and Savoie (2012) confirmed that the PWBW construct carry a strong Eudaimonic connotation with themes like congruence and self-realization.

The results of the current study revealed that PA was a significant contributor to PWBW, but not EWB. The lack of support for the EWB-PSWB path was surprising, as strong empirical support for this relationship was anticipated. Dagenais-Desmarais and Savoie (2012), however, found similar results in their analysis regarding the relationships between PWBW, EWB and HWB. In their study it was firstly found that PA correlated the strongest with PWBW (.526), while NA had a slightly less strong correlation of .357 with PWBW. Secondly, it was determined that when EWB, PA and NA were put in a regression analysis to determine PWBW, PA was a stronger predictor than EWB (both were significant) and NA was not a significant predictor at all. These results correspond with the results in the current study as (1) NA was not a significant predictor of PWBW when PA was also included in the model, which is similar to what Dagenais-Desmarais and Savoie (2012) found and (2) EWB is a weaker predictor of PWBW than PA. This was replicated, to a certain extent, in the current study, as EWB did not emerge as a significant predictor of PWBW. In this study, PA emerged as the strongest direct predictor of PWBW, which was also found in the Dagenais-Desmarais and Savoie (2012) study.

The strong link between PA and PWBW can be accounted for by applying Fredrickson *Broaden-and-Build theory* (Fredrickson & Joiner, 2002), where positive emotions broaden a person's thought-action repertoire, encouraging them to discover novel lines of thought or action. A key, incidental outcome of these broadened mind-sets is an increase in personal resources: as individuals discover new ideas and actions, they build their resources. Experiments have also shown that positive emotions produce patterns of thought that are notably unusual, flexible, creative and receptive (Isen, 1987). In more general terms, positive emotions "enlarge" the cognitive context, an effect linked to increases in brain dopamine. Therefore, it could be argued that an increase in PA will lead employees to experience more PWBW as the upward spiral will assist them to accumulate more resources, which will result

in them experiencing Interpersonal Fit at work, Thriving at Work, Feeling of Competency at Work, Perceived Recognition at Work and a Desire for Involvement at Work.

POS emerged as a second direct predictor for PWBW, with a completely standardised beta coefficient of .285. The path between POS and PWBW was not included in the initial proposed model. However, the support received for the path in the final model highlighted the importance of the antecedent role of POS in the experience of PWBW. Employees regard the organisation as an important source of socio-emotional resources, such as respect, caring and tangible benefits i.e. wages and medical benefits. According to Eisenberger et al., (1986) employees' needs for approval, esteem and affiliation would be satisfied if employees perceive the organisation to care about them. This will lead employees to want to give back to the organisation and thereby take an active interest in the regard with which they are held by the employer (Eisenberger, et al., 1997; Eisenberger et al. 1986; Rhoades & Eisenberger, 2002). Therefore, when employees experience POS the results suggest that more PWBW would be experienced. For example, such individuals may experience an elevated Desire for Involvement at Work, i.e. will to involve oneself in the organisation and to contribute to its good functioning and success; and possibly more Perceived Recognition at Work, i.e. perception of being appreciated within the organisation for one's work and one's personhood (Dagenais-Desmarais & Savoie, 2012). A further possible explanation for the path lies within the notion that receiving social support is a phenomenon embedded in the broader context of an individual's supportive exchange relationships (Väänänen, Buunk, Kivimaki, Pentti & Vahtera, 2005). Research based on this explanation has focused on the degree of balance between receiving and giving support, suggesting that the effectiveness of receiving social support is perceived as reciprocal (i.e., receiving and giving equal amounts of support) or either under-reciprocating (i.e. giving more support than receiving) or over-reciprocating (i.e., receiving more support than giving) (Rook, 1987). Therefore, drawn from COR theory, it could be argued that receiving organisational support will be associated with better well-being to the extent that it is received in the context of an exchange pattern that maximises the resource gain while minimising the resource loss associated with being a recipient. COR theory proposes that people's well-being (e.g. PWBW) is dependent upon their sense of access to resources (e.g. POS) within their environment (Hobfoll, 1989).

Hope and Optimism emerged as indirect predictors of PWBW. The path of Hope on PWBW was mediated through Work Engagement and PA, whilst the path of Optimism on PWBW was mediated through POS, as well as the Work Engagement, PA path. These findings, again, can be explained by the *Broaden-and-Build* theory as the individuals who have



positive resources will use it to expand their momentary thought-action repertoires and build their enduring personal resources, which according to Fredrickson (2001) will range from physical and intellectual resources to social and psychological resources. In addition, induced positive emotions increase one's preferences for variety and broaden one's arrays of acceptable behavioural options. In this sense it could be said that the individual high on Hope and Optimism, will use these resources to build other enduring personal resources, where POS can be seen as a social resource and Work Engagement as a psychological resource. These enduring psychological resources will lead to increased levels of PWBW, either directly or through increased experiences of PA.

Apart from the PsyCap resources, it was originally also hypothesised that Work Engagement, POS and PO would all affect PWBW through EWB. For example it was argued that a healthy culture of caring and respect in an organisation, i.e. POS, will have a beneficial effect on feelings of justice and recognition leading to increased psychological well-being. It was furthermore argued that POS could be linked to certain EWB dimensions, in that if employees perceive support from the organisation they will feel more confident and thereby become more independent, leading to increased levels of Autonomy. POS would then, further, indirectly, through EWB, influence PWBW in the sense that it contributes to, for example, Desire for Involvement at Work, i.e. will to involve oneself in the organisation and to contribute to its good functioning and success. Therefore, it was proposed that POS would influence PWBW through the mediator, EWB. The results revealed that POS directly influenced PWBW. It could be argued that this may be, partially, accounted for by the absence of support for the EWB, PWBW relationship in the current model.

Similar arguments were put forth for Work Engagement and Psychological Ownership and their relationships with EWB and PWBW. Unfortunately, no empirical support was found for any of these paths. It was rather disappointing that the Psychological Ownership, EWB relationship did not receive support, as it suggests that Psychological Ownership is not directly related to EWB. The arguments for this relationship entailed that the feelings of ownership should create a sense of responsibility which will lead employees to "to do what is right and virtuous" and to allow them to discover "meaning and self-actualisation (Ryna and Deci, 2001). Psychological Ownership could, furthermore, be linked to some of Ryff's EWB dimensions, such as Purpose in Life, in that the work would acquire existential significance or purpose that trigger active participation. A possible explanation for why the PO, well-being relationship did not receive substantial support could be the fact that PO is not an antecedent of well-being, but rather a dimension of well-being in itself. This can be argued by the fact that the target of PO, i.e. the job or task at hand, becomes more than the object

or the idea itself, it becomes part of the extended self. From a psychological perspective, possessions play a vital role within the identity of people (Pierce et al., 2001). Feelings of ownership generates a positive and enriching effect (Formanek, 1991). It enhances our sense of identity and belonging, which, according to Seligman (1991) has a positive impact on our well-being. Accordingly, it could be argued that PO is possibly an end state in itself comprising a unique dimension of well-being. This argument should be explored in future studies.

### **5.3.3.2 Hedonic Well-being**

The Hedonic approach to well-being utilised in this study was fairly similar to the Diener et al., (1999) definition of SWB, stating that it comprises of high Positive Affect, low Negative Affect and life satisfaction. In this study it was hypothesised that those constructs that would have a positive effect on PA, would at the same time have a negative effect on NA. This was, however, not the case.

The results suggested that it did not make theoretical sense to argue that those constructs that would lead to an increase in PA will also lead to a decrease in NA (Hope, Optimism, Self-efficacy and Gratitude). Hope, for example had an indirect effect on PA through Work Engagement, but no effect on NA. Optimism had a direct negative effect on NA, and only an indirect effect on PA though POS and Work Engagement. Gratitude had an indirect effect on NA through Optimism, as well as an indirect effect on PA through Optimism, POS and Work Engagement. Resilience, although it was hypothesised that it would not affect HWB, emerged as a direct predictor of PA. A possible explanation of these results is perhaps embedded in the nature of the PA and NA constructs. It has been argued that PA and NA are not the opposing ends of one continuum, but in fact two fairly separate constructs. This claim has been substantiated by investigating the correlation between these two constructs. Petrie et al., (2012) revealed that the two scales (PA and NA) are minimally correlated with each other ( $r = -.05$  to  $-.35$ ), suggesting that they indeed measure separate constructs. Therefore it could be argued, in hindsight, that both would have a different set of antecedents, as evidenced through the results obtained in this study. These results, therefore, provided valuable insights into the nature of the predictors of the two different components of HWB included in this study.

The final structural model results revealed that Work Engagement was a very strong direct predictor of PA, with a completely standardised beta coefficient of .899. Bakker (2009) revealed in a study that PA is correlated with high levels of activation such as Work Engagement. Therefore, it could be argued that the positive emotions underlying Work

Engagement will most probably lead to elevated levels of PA (Bakker, 2009). Taking the core definitions and subscales of Work Engagement into account, it would make sense that Work Engagement is one of the predictors of PA. Work Engagement, according to Schaufeli and Bakker (2001) is a positive, fulfilling, work-related state of mind that can be characterised by Vigour, Dedication and Absorption. It is a persistent and pervasive affective-cognitive state that is not focused on any particular object, event, individual or behaviour. It was further defined as a desirable condition with organisational purpose which suggests involvement, commitment, passion, enthusiasm, focused effort, and energy (Schaufeli & Bakker, 2001). The PANAS was used to measure PA. Some of the words that reflected PA were “interested”, “enthusiastic”, “alert”, “inspired” and “attentive” (Wastson et al., 1988). What could be deduced from the results is that Work Engagement’s underlying positive, full-filling component will lead to an increase in the experience of PA.

Resilience was the other direct predictor of PA. Resilience was defined as the positive psychological capacity to rebound, to bounce back from adversity, uncertainty, conflict, failure or even positive change, progress and increased responsibility (Luthans, 2002a). It is thus an inner psychological strength that individuals use when they are in a difficult or challenging situation. Although this path between Resilience and PA was not included in the original model, the modification indices revealed that this path should be added into the model. In hindsight it could be argued that if an individual has the ability to bounce back from adversities, positive emotions would most probably result from this. Support for this argument was, for example, found in research evidence that suggest when bereaved individuals exhibit genuine laughs speaking about their sadness, they show better adjustment (Bonanno & Keltner, 1997). Fredrickson et al., (2003) demonstrated that the links between measures of Resilience and adjustment following the 9/11 attacks were mediated by the experience of positive emotions (e.g. gratitude, interest, love). Fredrickson (2000) states that one way people experiences positive emotions in the face of adversity is by finding positive meaning in ordinary events and within the adversity itself. The link between Resilience and PA can also be explained by COR theory (Hobfoll, 1989). In this sense, individuals with more Resilience (resource), seems to report more PA (resource), which then influence their PWBW. It can also be explained by the *Broaden-and-Build theory* (Fredrickson, 2001) where Resilience will broaden attention and cognition which could enable flexible and creative thinking leading to increased PA.

The results revealed that Hope and POS had direct effects on Work Engagement (.600 and .348). Therefore, the psychological resources of Hope and POS indirectly affected PA with Work Engagement as a mediator in this relationship. Hope has been defined by Snyder

(2002, p.250) as “a positive motivational state that is based on an interactively derived sense of successful (a) agency (a sense of willpower, or determination to begin and maintain the effort needed to achieve goals) and (b) pathways (a sense of waypower, or belief in one’s ability to generate successful plans and alternatives when obstacles are met in order to achieve goals).” Work Engagement is assumed by many authors to be the opposite of burnout (e.g. Maslach & Leiter, 1997; Schaufeli & Bakker, 2001). Maslach and Leiter (1997) assumed that Work Engagement is characterised by energy, involvement and efficacy which are considered the direct opposites of the three burnout dimensions exhaustion, cynicism and lack of professional efficacy, respectively. Bakker et al., (2003) describes in the Job-Demand Resource model that although these two constructs are highly negatively correlated, they are evoked by two distinct processes, named energetic process and motivational process, which stem from demands and resources inherent in every job. The energetic process refers to the negative demanding aspects of work that employees may sometimes experience as so strenuous and depleting that they lead to stress, and eventually to burnout (Demerouti et al.,2001). These negative demands can be any physical, psychological, social or organisational aspect of the job that requires physiological or psychological effort on behalf of the employee. The demands, which are job and role specific, are hence associated with a certain level of costs. When these costs become too high and in the absence of balancing resources, employees cannot cope with them and, as a consequence, they wear out (Demerouti et al., 2001). This results in burnout and can reduce employee Work Engagement. Every job has certain resources, whether physical, psychological, and organisational, that aid employees to carry out their work and that are intrinsically fulfilling and rewarding, creating a motivational process (Schaufeli & Bakker, 2004). Based on the results found in this study, it is argued here that Hope is one such psychological resource. The results suggest that Hope may help counterbalance the job demands and help employees to cope with the occasionally consuming aspects of their work, thereby buffering against the negative effect of demands on well-being and the costs associated with them. Consequently, as empirical research suggests, job related resources (i.e. Hope) are positively associated with employee Work Engagement and help prevent burnout (Schaufeli & Bakker, 2004; Hakanen, et al., 2006). Hope can thus be viewed as a psychological resource that leads to an increased level of Work Engagement and thereby increase the well-being of employees.

Perceived Organisational Support (POS) refers to employees’ perception concerning the extent to which the organisation values their contribution and cares about their well-being (Eisenberger, et al., 1986). The norm of reciprocity is a key in the POS theory suggesting

that employees who receive favourable treatment from their organisation (increased POS) would feel an obligation that they should care about the organisation's benefits and contribute to the achievement of organisational goals (Gouldner, 1960). Väänänen et al., (2005) state that this reciprocal relationship should have a degree of balance between receiving and giving support. Hereby suggesting that as the support goes up, the effort will also go up. The result of the direct effect of POS on Work Engagement obtained in this study would seem to suggest that employees that report high levels of POS, that would therefore also experience higher levels of perceived appreciation from fellow colleagues and the organisation, would report higher Work Engagement levels. These higher levels of Work Engagement would ultimately influence SWB, by elevating the levels of PA experienced.

The results further revealed that Optimism affected PA indirectly through POS and Work Engagement. A similar finding was reported in the Steyn (2011) study. Steyn (2011) found that Optimism had an effect on Psychological Health and Satisfaction with Work Life, mediated through Work Engagement. However, Steyn (2011) used the General Health Questionnaire (GHQ; Goldberg, 1972) to measure Psychological Health, and the Satisfaction with Life Scale (Diener, et al., 1985), adapted to the Satisfaction with Work-Life scale to measure Satisfaction with Work-Life. The four subscales of the General Health Questionnaire measure the degree of somatic symptoms, anxiety and insomnia, social dysfunction and severe depression (Goldberg & Hillier, 1979). The scale, therefore, measures the absence of pathologies and do not measure the positive side of well-being. The adapted Satisfaction with Work-Life scale did, however, measure the positive side of experienced well-being in the work environment, but cannot be equated to the PA subscale of the PANAS which tap into positive emotions. Hence, the indirect effect of Optimism on well-being found in this study was only a partial replication of the Steyn (2011) results, given that well-being was defined differently in the two studies.

Negative Affect (NA) as the second component of HWB included in this study, was, on the other hand, only influenced directly by Optimism and indirectly through Gratitude. Neither Work Engagement nor POS that affected PA was found to predict NA. According to Watson and Clark (1984) high-NA is characterised by subjective distress and unpleasurable engagement. PsyCap Optimism is defined as an attributional style and refers to making internal, relatively stable and global attributions regarding positive events, such as global achievement, and external, relatively unstable and specific causes for negative events (Seligman, 1990). Therefore, these results suggests that an optimistic attributional style may result in less experienced negative emotions and feelings such as guilt, being scared, hostility, irritability and being afraid. It would, therefore, seem that an optimistic mind-set may

thus act as a resource or buffer “protecting” the individual from such negative emotions. In addition to the hypothesis that Optimism would directly affect NA, for which support was found in this study, it was also initially argued that Optimism would directly affect PA. The current results provided no support for this hypothesis. However, Optimism did affect PA indirectly through a combination of mediators (i.e. POS and Work Engagement). This suggests that Optimism is an important psychological resource that acts to affect various other resources, which ultimately act to increase levels of SWB. This can be explained by COR theory, which states that having one major resource (in this case Optimism) is typically linked with having others (Work Engagement / POS, and ultimately better well-being) (Hobfoll, 1989). The results, however, point to the fact that Optimism was the only psychological resource that affected NA. This is an interesting finding, which suggests that from all the psychological resources included in the model (e.g. the other PsyCap variables, Gratitude), Optimism was the only one that affected *both* components of HWB. This reiterates the central role of Optimism – also found in the Steyn (2011) study – in the nomological net of variables (included in these two studies) that explain well-being in the workplace. This is in line with other research which has duly recognised the central role that Optimism play in the establishment of a sense of personal well-being. Steyn (2011), for example, noted that the most noticeable research area is where Optimism has been associated with a reduced risk of depression (Alloy, Abrahamson, Whitehouse, Hogan, Panzarella & Rose as cited in Steyn, 2011) and been shown to buffer against stressful life events as a result of the effect of positive coping mechanisms (Ellicott, Hammen, Gitlin, Brown & Jamieson as cited in Steyn, 2011).

Gratitude, which is viewed as mainly an affective state, was defined as a generalised tendency to recognise and respond with grateful emotions to the roles of other people’s benevolence in the positive outcomes that one obtains (McCullough, et al., 2002). The results revealed that Gratitude directly predicted Optimism. This could again be explained by the *Broaden-and-Build* theory (Fredrickson 2002) where people with many positive emotions i.e. Gratitude will expand their repertoire to generate other positive emotions i.e. Optimism. It can further be linked to the *Resource Investment principle* which forms part of the COR theory (Hobfoll, 2001) stipulating that people must invest in resources in order to protect against resource loss and gain additional resources. Therefore, individuals with greater resources (e.g. Gratitude) are capable of attaining even more resources (i.e. being optimistic). Hence it may be concluded that the generalised tendency to recognise and respond with grateful emotions would thus foster the development of an optimistic mind-set and thereby enhance SWB through decreasing experienced NA. The magnitude of the

standardised beta coefficient (.946), however, could raise some questions regarding the discriminant validity of the nature of the Gratitude and Optimism variables, that should be investigated in future studies.

### **5.3.3.3 Eudaimonic Well-being**

Ryff and Singer (1998) described Eudaimonic Well-being (EWB) as the idea of striving towards excellence, based on one's own unique potential. It is further defined as the ultimate level of functioning and is referred to in terms of optimal functioning, meaning and self-actualisation (Ryan & Deci, 2000). According to this approach true EWB derives from personal growth and actively doing what is right and virtuous. Waterman (1993) suggests that eudaimonia occurs when people's life activities are most congruent or meshing with deeply held values and are holistically or fully engaged. The six subscales included in the EWB measure utilised in this study included Positive Relations with Others, Autonomy, Environmental Mastery, Self-Acceptance, Personal Growth and Purpose in Life. It was initially hypothesised that the four PsyCap variables, as well as Work Engagement, POS and PO would all directly influence EWB. These hypotheses were generated through the literature review (chapter 2). However, the results revealed that EWB was only influenced directly by Optimism (.656) and Self-efficacy (.228). Moreover, an indirect effect of Gratitude on EWB was evident through the mediating effect of Optimism. Optimism, as stated by Steyn (2011) may also equip individuals with improved cognitive, coping and contextual resources, and is therefore conducive to Psychological Health, i.e. EWB in the current study. Optimism can enhance EWB due to the fact that optimistic people are more achievement oriented in the tasks they execute, feel easy in taking decisions and find better solutions in handling problems (Powers & Bendall, 2004). They also generally believe people and events are inherently good so that most situations will work out for the best (Powers & Bendall, 2004). The achievement orientation of these individuals could lead to a sense of mastery and competence in managing their environments (i.e. the Environmental Mastery component of EWB). Their ability to more easily make decisions will possibly lead to an increase in Autonomy (another component of EWB), i.e. being self-determined and independent (Ryff, 1989) and thereby making decisions without being pressured by social forces. Lastly, their belief that people are inherently good could lead to higher levels of Positive Relations with Others (another component of EWB) where they form warm satisfying relationships with others and are concerned about others' welfare (Ryff, 1989).

In this study PsyCap Self-efficacy was defined as one's belief of being able to cope with specific tasks and situational demands. It is generally regarded as the basis of human agency because of its central role in the self-regulation of motivation through goal challenges

and outcome beliefs. Bandura (1986) further postulates that Self-efficacy operates as a cognitive mechanism through which perceived controllability reduces stress reaction. Based on the results of this study, it can be concluded that the central role of self-regulation and motivation, together with confidence being embedded in the Self-efficacy construct, will lead to the elevation of EWB. For example, the self-regulation and motivation embedded within Self-efficacy might lead the individual to make effective use of surrounding opportunities and should enhance a sense of mastery and competence in managing the environment (i.e. the Environmental Mastery component of EWB) (Ryff, 1989). It could further lead to Autonomy as the self-regulation might lead to independence. Individuals might also develop a positive attitude toward the self; acknowledge and accept multiple aspects of self-including good and bad qualities i.e., Self-Acceptance (another component of EWB). Self-efficacy equip individuals with the confidence that they can utilise the necessary skills for coping with stress, engage in self-regulation and mobilising the resources required to meet situational demands (Chen et al., 2001). The direct effect of Self-efficacy on EWB (.228) was not strong, but nevertheless, received sufficient statistical support in this research. This is an important finding in this study, as Steyn (2011) included the construct in her study, but did not find any support for the effect of SE on well-being. The nature of the results in this study suggests that SE predicts a different type of well-being. i.e., EWB, which was not included in the Steyn (2011) study. EWB is the motivational component of well-being which is described by Ryan and Deci (2000) as the ultimate level of functioning in terms of optimal functioning meaning and self-actualisation. Therefore, the lack of results regarding the effect of SE on well-being in the Steyn (2011) study is partially accounted for in this study. In addition, the knowledge that SE does in fact affect EWB allows for a closer approximation of the reality of which latent variables explain variance in the underlying psychological processes of PWBW.

#### **5.3.3.4 Structural Model of Psychological Well-being at Work**

Set within the Positive Organisational Behaviour (POB) paradigm, this study attempted to explicate the arguments that motivated the adaption and expansion of the original Steyn (2011) *Salutogenic Model of Occupational Well-being*, into the *Steyn-Boers Structural Model of Psychological Well-being at Work*. A nomological net of contributing variables was therefore proposed and investigated in order to attempt to explicate the complexity that underlies PWBW.

Drawing from Fredrickson's *Broaden-and-Build* theory (1998), it was argued that the constructs mentioned in this study (Hope, Optimism, Self-efficacy, Resilience, Gratitude, Work Engagement, POS and Psychological Ownership) on their own, as well as in conjunction with each other, are rooted in a framework that may elicit positive emotions to



establish and maintain durable, long-term well-being (PA, NA, EWB and ultimately PWBW). Positive emotions can transform organisations because they expand upon people's routine modes of thinking, and in doing so, make organisational members more adaptable, accommodating, empathic and creative, amongst others (Steyn, 2011). Tugade and Fredrickson (2004), for example, found that positive emotions may fuel psychological resilience, build psychological resilience and trigger upward spirals toward enhanced emotional well-being. The theory makes a bolder prediction that experiences of positive emotions might also, over time, build psychological resilience and not just reflect it (Fredrickson, 2004). Furthermore, the complementary upward spiral which occurs through the experience of positive emotions and broadened thinking is argued to influence one another reciprocally, leading to substantial increases in emotional well-being over time (Fredrickson & Joiner, 2002; Fredrickson, 2004; Garland et al., 2010). To the extent that organisational outcomes are dependent on these individual-level attributes, positive emotions encountered within organisations may also improve organisational performance and functioning. Over time, such broadening is argued to build stronger organisational associations, improved organisational climates and cultures, and exceptional organisational outcomes (Fredrickson, 2004). Fredrickson (2000) further argue that in the exploration to find ways of developing positive emotions, it should be noted that emotions cannot be directly instilled.

Based on the findings presented above, certain fundamental inferences can be made from the results of this study. A first inference is that reasonable to good / fair model fit was obtained. This comments on the extent to which the compilation of the model was empirically validated<sup>19</sup>. That is, the complexity of PWBW can, to a certain extent, be explained in terms of the chosen variables and the supported paths between them, implied by the final structural model. This does not, however, affirm the non-existence of other variables that may possibly aid in the understanding of the intricacies that underlie an attempt to account for variance in PWBW.

Secondly, the significant paths in the model divulge important information regarding the psychological resources believed to exert the greatest influence on Psychological Well-being within the workplace. PA and POS were the only two direct predictors of PWBW, with PA being the strongest predictor. Many of the other variables (Hope, Work Engagement, PA,

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<sup>19</sup> It needs to be emphasised, however, that the model, modified through the modification indices, cannot strictly claim to be an empirical model. At most, it serves to generate hypotheses which need to be tested with a new sample.

Gratitude, Optimism, POS and Resilience) had indirect influences on PWBW. The chain of variables that influence PWBW is thus a complex one, and cannot be reduced to a few simple linear explanations.

A third conclusion from the results is that different positive psychological resources have different effects on different dimensions of well-being. Optimism has direct effects on NA and EWB, with an indirect effect on PA through POS and Work Engagement. Hope was found to have an indirect effect on PA through Work Engagement. Self-efficacy directly predicted EWB and none of the Hedonic components of well-being, whilst Resilience had a direct positive effect on PA, but not on EWB as was initially hypothesised. Work Engagement was found to be a significant predictor of PA. Work Engagement was influenced directly by Hope and POS and indirectly by Gratitude, Optimism and POS. This central role of Work Engagement in well-being suggests that organisational interventions geared towards increasing Work Engagement may hold a manifold of positive outcomes for employees' well-being. Steyn (2011) also found support for the central role of Work Engagement in well-being, in her study.

Fourthly, the results suggest that by fostering supportive conditions at work, i.e. POS, well-being and Work Engagement will be affected in a positive way. The environment in which an employee works can thus add to the positive working experience and the wellness of the employee within the workplace. The last important inference that can be made from the results is that although Psychological Ownership played an important role in the structural model, the results revealed that it did not affect well-being as defined in this study. A possible explanation was proposed stating that PO is possibly not an antecedent of well-being, but rather a dimension in itself in that the feeling of ownership itself plays a vital role in an individual's well-being.

It can be concluded that all of the constructs (Hope, Optimism, Self-efficacy, Resilience, Gratitude, Work Engagement and POS), except for Psychological Ownership, played a significant role in the structural model, in that it directly and indirectly determined whether an employee would experience well-being (HWB, EWB and PWBW) in the workplace or not. Additionally, these constructs were shown to influence each other in a complex manner.

## **5.4 LIMITATIONS OF THIS STUDY**

This study had several limitations which could have affected the overall results and conclusions about the specific constructs. Although some of the limitations have been

mentioned throughout the chapters, the most important issues will be emphasised in more depth in this section.

One of the most obvious limitations is the fact that all the data was collected by means of self-report measuring instruments. According to Babbie and Mouton (2002), this way of data collection is very often used in social science research, but nevertheless, it poses a few disadvantages. Firstly, the problem of common method variance exists, in that the inferences made by the researcher, i.e. the correlation and causal relationships between the variables in question, may be artificially inflated. Secondly, self-report data can be prone to response biases from the respondents. One such response bias that is very common is social desirable responding. This type of bias influence the results of studies, as respondents tend to create a more favourable view of themselves by over-reporting admirable attitudes and behaviours and under-report attitudes and behaviours that they view as less socially acceptable (Zammuner & Galli, 2005). Another common response bias is acquiescence bias which occurs when a respondent is in agreement with all statements (Foxcroft & Roodt, 2009). This study relied solely on self-report measures and the results should be interpreted in terms of this (possible) limitation.

Another limitation related to the original factor structures of three of the instruments that were utilised in this research. The CFA results for the PANAS, the Gratitude Questionnaire and Psychological Ownership Questionnaire showed evidence of different factor structures obtained in the current sample, than what was originally hypothesised by the developers of the instruments. The dimensionality analysis of the PANAS showed that five factors could be extracted from the scale. The content of the five factors were investigated to determine whether the five factors would make theoretical sense. However, no meaningful subthemes could be established for the five extracted factors. As an alternative an EFA was conducted where a two factor solution was forced to the data. This explanation made theoretically more sense as the factor structure was the same as the factor structure of the PANAS. With regards to the Gratitude Questionnaire (initially proposed to be a uni-dimensional construct), the positive worded items loaded on one factor and the negatively worded items loaded on another factor. The results of the Psychological Ownership Questionnaire (also initially proposed to be a uni-dimensional construct) revealed the items worded in terms of an individualistic ownership (e.g. This is MY company), loaded on one factor and the items worded in terms of a collectivistic approach (e.g. This is OUR company) loaded on another factor. These results influenced the validity of these measures to a certain extent.

With regards to the sample and data collection, some definite advantages and disadvantages can be acknowledged. Making use of *Facebook* as a platform to collect data on a topic such as well-being was beneficial. It allowed the researcher to tap into a pool of possible participants from various industries and occupations, which would not easily have been executed by another data collection method. This variety that was obtained further allowed for less uncontaminated inferences, as the data was not uniformly tainted by organisational specific factors, such as culture or specific leadership styles embedded within companies. It could, therefore be argued that the data collection method allowed for more valid inferences for this universal construct, that is important in all organisations. It also had the benefit of accumulating a relative large sample in a short period of time. Unfortunately, there were also certain disadvantages. Due to the demographics of the researchers, a very specific pool of participants was invited to take part in this study. The sample, therefore, was restricted in terms of age, geographical residency, level of education and native languages. The sample is thus not a good representation of the general population in South Africa, which one would ideally want in a research study like this.

Another limitation relates to the absence of any results regarding the Psychological Ownership (PO), well-being relationship in this study. It was argued that PO would have a strong influence on employees' EWB. The argument that was put forth was that individuals will evaluate a target more favourable when they own it (Nesselroade et al., 1999). Similarly those possessions closely integrated with the self tend to be more positively valenced. Individuals that experience PO will experience the target (i.e. work) as an extension of the self and therefore feel a sense of responsibility towards the target object (Van Dyne & Pierce, 2004). Hence, PO towards a target object has psychological and emotional consequences. According to Formanek (1991), experiencing feelings of ownership produce a positive and uplifting effect that makes owned objects to be more attractive and favourable. In context, feelings of ownership are naturally pleasure producing because possession can result from self-enhancing biases, individual effort, controllability, and approval and acceptance from others (Pierce, et al., 2003). Feelings of possessions will furthermore create a sense of responsibility (Van Dyne & Pierce, 2004). It was therefore argued that when employees feel a sense of PO or possession toward the organisation, work acquires existential significance that triggers active participation leading to increased EWB. The argument, unfortunately, did not stand the test. It was, however, argued that a possible explanation could be that the PO is not an antecedent of well-being, but rather a possible dimension thereof. The positive and uplifting feeling one feels when experiencing ownership

(Formanek, 1991) could thus a possible additional dimension of well-being. This result should be further researched in future studies.

Furthermore, there were certain challenges regarding the operationalisation of the PO construct that could have influenced the results. Various participants contacted the researcher to indicate they do not fully comprehend the scale, indicating low face validity. An alternative would have been to use *The Measure of Psychological Ownership in Organisations*, developed by Avey et al., (2009). These authors define Psychological Ownership in terms of Preventive- and Promotive Psychological Ownership. Preventive Psychological Ownership is characterised as territoriality. Therefore, when individuals develop Preventive Psychological Ownership over objects in the organisation including physical, informational and social objects, they may seek to mark those possessions as belonging exclusively to themselves. In addition, if individuals anticipate infringement on their targets of ownership, they may engage in protective territoriality to maintain levels of ownership and to communicate ownership to potential threats (Avey et al., 2009). Promotive Psychological Ownership, on the other hand, is promotive in nature and comprises four distinct, yet related dimensions, namely Self-efficacy, accountability, sense of belongingness and self-identity (Avey & Avolio 2009). Although this scale was identified and considered for operationalising the PO construct in this study, it was decided to not use the scale, due to certain reasons. Firstly, the preventive dimension is defined in a negative way. Psychological Ownership was included in this study as a possible predictor of well-being. The territoriality that is included in Avey et al., (2009) measure of Psychological Ownership hold the premise that there is a negative, possessive element embedded in the construct. It was argued, for the purposes of this study, that this negativity would not foster conditions for increased well-being. A further objection was that Self-efficacy is included as a dimension of Promotive Psychological Ownership. Self-efficacy was already included in the proposed structural model as one of the PsyCap constructs. Both the *Measure of Psychological Ownership in Organisations* and the PCQ-24 were developed by the same authors, i.e. Avey and Avolio. However, the conceptual distinction of Self-efficacy as a dimension of both these constructs (PO and PsyCap) was not clear. It was argued, therefore, that if an effect for Self-efficacy would be found, it might have been because the same construct was measured (by both the instruments), instead of Self-efficacy actually being a true antecedent of Psychological Ownership. Therefore, it was decided not to use the *Measure of Psychological Ownership in Organisations* to measure PO in this study.

Another limitation of this study could be attributed to the relatively small sample size. This, together with the fairly homogenous nature of the sample, restricts the generalisability of the

results to larger populations. A greater degree of confidence can be placed in the results of studies with large sample sizes (Steyn, 2011).

Finally, some authors would argue that the four PsyCap constructs (Hope, Optimism, Self-efficacy and Resilience) should rather have been included as a higher-order construct (i.e. a total PsyCap score) in the structural model. The PsyCap construct, developed by Luthans and colleagues (Luthans, 2002; Luthans & Youssef, 2004; Luthans et al., 2007) as consisting of the four PsyCap resources of Hope, Optimism, Self-efficacy and Resilience, have been empirically determined to be a higher-order core construct embedded within the four sub-dimensions. This higher-order construct thus reflects the shared variance between the four first-order constructs. Although there are various advantages and disadvantages for the two options (using the four dimensions of PsyCap separately, or the higher-order construct), it is argued here that the greatest advantage for including the four PsyCap dimensions separately into the model was to obtain a better understanding of the relationships between the four PsyCap constructs and the different dimensions of well-being.

## **5.6 IMPLICATIONS FOR PRACTICE**

Wright (2003) has argued that the mission of POB must include the pursuit of employee happiness as a viable goal in itself. On the other hand, Zwetsloot and Pot (2004) state that employee well-being is a business value that is of strategic importance and should be viewed as an investment and not an expense. Based on these two-perspectives an integrated business value model of employee well-being should be used that constitutes a win-win situation for both the organisation and its employees.

The importance of the present study is condensed in the knowledge that there are necessary antecedents to the management of Psychological Well-being at Work. Hence, it is suggested that organisations consider the following broad categories to increase the well-being of employees: (1) create intervention programmes to develop positive psychological capacities such as Hope, Optimism, Self-efficacy, Resilience and Gratitude, and (2) develop an organisational culture and environment that fosters a supportive atmosphere. According to the results obtained in this research these initiatives should increase the levels of Work Engagement, Psychological Ownership and more importantly, Psychological Well-being at work. Dagenais-Desmarais and Savoie (2012) suggested that in order to increase PWBW, HR should create interventions that improve job design (based on the model introduced by Hackman and Oldham (1976)), that reinforce social relationships at work, that recognise individual and team contributions, that set challenging performance objectives, and that

develop employee competence. These interventions are very likely to generate an optimal working experience.

Luthans and Youssef (2004) argue that a sustainable competitive advantage can best be accomplished through context-specific, cumulative, renewable, thus hard-to-imitate factors and propose that such advantage can be gained through investing, leveraging, developing, and managing Psychological Capital (PsyCap). Published research on PsyCap has further indicated that it is related to multiple performance outcomes in the workplace, lower employee absenteeism, less employee cynicism and intention to quit, and higher job satisfaction (Luthans et al., 2007). Besides this positive relationship that PsyCap has with desired employee outcomes, there are also conceptual (Luthans et al., 2006; Luthans et al., 2007c) and empirical evidence that PsyCap can be developed. As these constructs are defined in terms of being state-like, PsyCap has been developed by short training sessions in both classroom and field settings, as well as electronically through the internet (Luthans, et al., 2007c). Research has also found PsyCap can be enhanced by a supportive work climate. Although the empirical research on PsyCap is still emerging, human resource managers in general can at least be confident that at this stage of the research, PsyCap has a strong and significant relationship with established desirable outcomes, especially employee performance (Avey, Reichard, Luthans & Mhatre, 2011). It is therefore concluded that drawing from the emerging repertoire of positive psychologically-based interventions, the development of these constructs may yield substantial returns for organisations. Organisations are beginning to recognise that positive psychology concepts can help them meet their challenges in today's turbulent, unpredicted environment. Organisations should thus take full advantage of developing these positive constructs.

## **5.5 RECOMMENDATIONS FOR FUTURE RESEARCH**

The above discussion evidently stresses the need for continued research in this domain. From the literature review it became evident that exploring the identified constructs requires rigorous quantitative research, in order to further this knowledge domain within the organisational sciences, specifically within the South African context.

In this study the various positive psychological resources obtained significant relationships with the various components of well-being. It is therefore possible that those relationships may hold true for future studies using a larger sample. As the social media as means of data collection was very valuable, it would be recommended that it is also replicated in future studies. However, it is recommended that researchers experiment with other forms of social media, for example *LinkedIn*. This website specifically caters for people in the formal job

sector, stating that they are “*The world’s largest professional network*” (za.linkedin.com). They thus possibly offer higher credibility in terms of access to an appropriate participant pool, than *Facebook*.

Future research could focus on including other positive psychological constructs in the nomological of variables to explain variance in PWBW. To expand on the spiritual dimension of well-being, Spirituality or Forgiveness can be included. Forgiveness is defined as an increase in pro-social motivation toward another so that there is 1) less desire to avoid the transgressing person and to harm or seek revenge toward that individual, and 2), increased desire to act positively toward the transgressing person (McCullough, Hoyt, Larsen, Koenig & Thoreson, 2000). Wisdom is another construct that can be fruitfully applied in follow-up studies. It can be defined as the “power of judging rightly and following the soundest course of action, based on knowledge experience, and understanding” (Webster’s New World College Dictionary, 1997, p. 1533).

It is recommended that in future studies the model should be elaborated by including certain job characteristics that could play a role in influencing well-being at work. By including the interaction between personal resources and workplace factors, a more complete picture of variables that influence well-being in the workplace will be created. This would be in line with the JD-R model stating that there are certain demands and resources that are in interaction with one another (Schaufeli & Bakker, 2004). When demands are too high it can reduce an employee’s Work Engagement. The resources (physical, psychological, social and organisational) counterbalance the job demands and help employees to cope with the challenges thereby buffering against the negative effects of job demands (Schaufeli & Bakker, 2004). Therefore, by including other resources, but also job demand components in upcoming studies, the complex interplay of variables that underlie variance in Psychological Well-being at Work can be further unravelled.

## **5.7 CONCLUSION**

The aim of this study was to depict the nomological network of latent variables that explain variance in the underlying psychological processes of PWBW. Although certain limitations have been revealed, the study has shown valuable insight into the complexity of the nomological net that underlies PWBW.

The Positive Organisational Behavior (POB) paradigm, together with Fredrickson’s (2002) *Broaden-and-Build theory* and the COR theory (Hobfoll, 1989) were used to formulate the framework of positive traits and affective states that was posited to influence the individual



experience of well-being. All of the constructs (Hope, Optimism, Self-efficacy, Resilience, Gratitude, Work Engagement and POS), apart from Psychological Ownership played a significant role in the structural model, in that it directly and/or indirectly determined whether an employee would experience well-being (HWB, EWB and PWBW) or not. Additionally, these constructs were shown to influence each other in a complex manner.

Future studies should be geared to explore ways that organisations can intervene to increase the levels of employees' well-being in order for organisations to obtain a competitive edge and sustainable growth.

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**Addendum A: Consent form attached to Research Questionnaire**



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**CONSENT TO PARTICIPATE IN RESEARCH: SUBORDINATES**

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**EMPIRICAL EVALUATION OF THE STEYN-BOERS STRUCTURAL MODEL OF  
PSYCHOLOGICAL WELL-BEING AT WORK**

You are asked to participate in a research study conducted by Miss Maritsa Boers from the Industrial Psychology Department at Stellenbosch University. The results obtained will contribute to the completion of a Masters of Commerce degree in Industrial Psychology. The results of this study will contribute to the completion of the component of this postgraduate programme. You are selected as a possible participant in this study because you can give valuable input to the data gathering process of this study.

**1. PURPOSE OF THE STUDY**

Steyn (2011) developed a structural model of occupational well-being in an attempt to depict how positive psychology variables can be combined in a dynamic depiction of the nomological net of variables underlying the phenomenon of occupational well-being. As a first adaption to the Steyn (2011) model, this study will focus on explicating the nomological net of variables underlying subjective well-being (SWB) and psychological well-being at work (PWBW), as two contemporary constructs well integrated into the occupational well-being literature. The proposed study will consequently draw from the Positive Organisational Behaviour (POB) paradigm to explicate the arguments that motivated the adaption and expansion of the original Steyn (2011) salutogenic model of (occupational) well-being, into the Steyn-Boers structural model of psychological well-being at work.

**2. PROCEDURE**

If you volunteer to participate in this study, you will be asked to evaluate yourself by means of filling out a composite questionnaire. There are no right or wrong responses; we are

merely interested in how you view yourself. The completion of the composite questionnaire will take place in your own time and comfort as you will be able to access it online, and would require approximately 20 minutes of your time.

### **3. POTENTIAL RISKS AND DISCOMFORTS**

This is a relatively risk-free study. The only potential risks and/or discomforts that could result from participating in this study include the time that is required to fill out the questionnaire and the potential discomfort of having to evaluate yourself. You may experience some discomfort, for example, when you reflect on your personal happiness and well-being levels, as you may realise that you are not as happy as you perhaps want to be. If you experience any severe emotional distress during the completion of the questionnaire, please be advised that you have the right to discontinue participation at any stage. The data will only be utilised for research purposes and no consequences, positive or negative, will result from the findings.

### **4. POTENTIAL BENEFITS TO SUBJECTS AND/OR TO SOCIETY**

Participation in this study has no direct benefit to the individual participant. The benefits of such knowledge will be focused on helping organisations to develop human resource practices designed to ensure the development of employees' strength and positive personal resources through appropriate training initiatives as well as through the establishment of a corporate culture of positive well-being.

### **5. PAYMENT FOR PARTICIPATION**

No payment will be made to participants for taking part in this study. As a token of our appreciation for your effort to participate in this study, you will be granted an opportunity to stand a chance to win a gift voucher to the amount of R1000 from a well-known outdoor shop. To be eligible for the draw of the prize you would have to enter your e-mail address into a required field in the questionnaire. This will have some consequences for your anonymity in this study. Section 6 will explain these consequences.

### **6. CONFIDENTIALITY AND ANONYMITY**

Anonymity will be maintained by means of a coding procedure as the online survey will generate a unique code when you complete the questionnaire. You will not have to fill in your name on the questionnaire; hence your responses will be anonymous. Please note,

however, that if you want to be entered into the draw for the gift voucher, your identity will be revealed when you enter your e-mail address into the required field in the questionnaire. Therefore, although anonymity will be forfeited in such a case, note that all data will be kept confidential and will only be utilised for the purposes of this study. The results of this study will be published in the form of an academic thesis and academic peer-reviewed article in an academic journal and confidentiality of all data will be maintained at all times.

## 7. PARTICIPATION AND WITHDRAWAL

You may withdraw your consent at any time and discontinue participation without penalty. The investigator may withdraw you from this research if circumstances arise which warrant doing so.

## 8. IDENTIFICATION OF INVESTIGATORS

If you have any questions or concerns about the research, please feel free to contact Maritsa Boers ([15236498@sun.ac.za](mailto:15236498@sun.ac.za) / 082 455 4146) or Dr G Görgens ([ekermans@sun.ac.za](mailto:ekermans@sun.ac.za) / 021 808 3596). Please note that the researchers are directly responsible for the collecting of the data from the participant. This data collection activity should not be viewed as a *Facebook* initiative.

## 9. RIGHTS OF RESEARCH SUBJECTS

You may withdraw your consent at any time and discontinue participation without penalty. You are not waiving any legal claims, rights or remedies because of your participation in this research study. If you have questions regarding your rights as a research subject, contact Ms Maléne Fouché [[mfouche@sun.ac.za](mailto:mfouche@sun.ac.za); 021 808 4622] at the Division for Research Development, Stellenbosch University.

### CONSENT FORM (please tick the appropriate box):

I hereby consent to voluntarily participate in this study. I agree that my data may be integrated into a summary of the results of all the questionnaires without identifying me personally.

I don't want to participate in this study.



