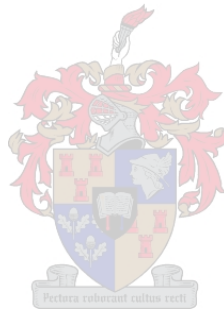


**THE RELATIONSHIP BETWEEN AUTHENTIC LEADERSHIP, OPTIMISM,
SELF-EFFICACY AND WORK ENGAGEMENT: AN EXPLORATORY STUDY**

By

SHAYNE ROUX



**Thesis presented in partial fulfilment of the requirements for the degree
Master of Commerce (Industrial Psychology) at Stellenbosch University**

Supervisor: Dr Z Dannhauser

March 2010

DECLARATION

By submitting this dissertation electronically, I declare that the entirety of the work contained therein is my own, original work, that I am the owner of the copyright thereof (unless to the extent explicitly otherwise stated) and that I have not previously in its entirety or in part submitted it for obtaining any qualification.

March 2010

DEDICATION

Dearest Mom,
I dedicate this thesis to you,
Thank you for your sincerely appreciated love,
Your optimism, bravery, courage and kindness are such an inspiration.
I love you!

ABSTRACT

This study was rooted in the emerging positive psychology paradigm of a positive approach to organisational behaviour. The assumption of this study was that certain variables influence work engagement, and it was therefore important to gain an understanding of these antecedents of work engagement. The aim of the study was to investigate the respective relationships that exist between the positive organisational psychological constructs, namely authentic leadership, optimism, self-efficacy and the influence of these variables on work engagement. A study to obtain more clarity about these aspects was therefore planned and executed. Based on the literature, a model depicting a sequential process of interrelationships amongst the constructs was proposed in the study. Both survey and statistical modeling methodologies were employed to guide the investigation.

In order to conduct this survey research, an electronic web-based questionnaire was used as the method of data gathering. The questionnaire was programmed and posted for a period of three weeks on the portal of the company where the survey was conducted. A total of 781 e-questionnaires were sent out to the employees working in the particular organisation (a large liquor producing company). A total of 407 ($n=407$) respondents who work in this company and participated in the study completed four questionnaires – comprising of one composite questionnaire they had to respond to electronically. The four questionnaires constituting the composite questionnaire to obtain the responses from the 407 employees, were the Authentic Leadership Questionnaire (ALQ), Life Orientation Test Revised (LOT-R), General Self-Efficacy Scale (GSES) and the Utrecht Work Engagement Scale (UWES). Confirmatory factor analysis was conducted to evaluate the proposed theoretical structure of each of the constructs. Exploratory factor analysis was only conducted to investigate the reasons where a poor fit was obtained from the confirmatory factor analysis. The results of a Pearson correlation analysis, stepwise multiple regression analysis, and the soft approach to structural equation modeling (SEM), indicated significant relationships between authentic leadership and work engagement, authentic leadership and optimism, optimism and self-efficacy, and self-efficacy and work engagement. Relationships between the constructs authentic leadership and self-efficacy, and optimism and work engagement, were found to be not significant.

With the unique combined positive psychology variables included in this study, the study can be seen as making a contribution to the existing theory and literature by explicating the findings with regard to the interrelationships between authentic leadership, optimism, self-efficacy and work engagement. However, referring back to the literature this study was an attempt to help further some of the emerging positive psychology constructs. It should therefore be seen as investigative in nature and much more follow-up research in this domain is deemed necessary. This study made recommendations for future research, as well as interventions regarding the development of authentic leadership and positive psychological capacities.

OPSOMMING

Die huidige studie is gebaseer op die nuwe positiewe sielkunde paradigma, meer spesifiek positiewe organisasiegedrag. Die aanname van die studie was dat sekere veranderlikes werkstoewyding beïnvloed. Dit was dus belangrik om insig te verwerf rakende die invloed van sekere voorspellers van werkstoewyding. Die huidige studie het ten doel gehad om die verwantskappe tussen veranderlikes binne positiewe organisasiegedrag, naamlik outentieke leierskap, optimisme, selfbekwaamheid, en die invloed van hierdie veranderlikes op werkstoewyding te ondersoek. 'n Studie om meer duidelikheid oor hierdie aspekte te verkry is dus beplan en uitgevoer. Op grond van die literatuur is 'n model voorgestel wat 'n logiese en opeenvolgende volgorde daarstel van hoe die verskillende konstrakte aan mekaar verwant is. Sowel opname- asook statistiese modelleringsmetodiek is in hierdie studie gebruik.

Data vir hierdie opnamenavorsing is versamel deur middel van 'n elektroniese webgebaseerde-vraelys. Die vraelys is geprogrammeer en vir 'n tydperk van drie weke op die portaal van die organisasie geplaas waar die opname gedoen is. 'n Totaal van 781 e-vraelyste is uitgestuur na die werknemers wat in hierdie spesifieke organisasie werk ('n groot drankvervaardigingsmaatskappy). 'n Totaal van 407 ($n=407$) respondente wat in die betrokke organisasie werk en aan hierdie studie deelgeneem het, moes vier vraelyste – wat deel uitgemaak het van een saamgestelde vraelys – elektronies voltooi. Die vier vraelyste wat deel uitgemaak het van die saamgestelde vraelys en gedien het om die 407 werknemers se menings mee te verkry, het bestaan uit die Authentic Leadership Questionnaire (ALQ), Life Orientation Test Revised (LOT-R), General Self-Efficacy Scale (GSES), en die Utrecht Work Engagement Scale (UWES). Bevestigende faktorontleding was gebruik om die onderliggende teoretiese struktuur van al die konstrakte te evalueer. Waar 'n swak passing verkry was gedurende bevestigende faktorontleding, is verkennende faktorontleding gebruik om die oorsaak te identifiseer. Die resultate van die Pearson-korrelasie analise, stapsgewyse meervoudige regressie analise, en die sagte benadering tot struktuurvergelykings-modellering (SVM), het aangedui dat daar beduidende verwantskappe tussen outentieke leierskap en werkstoewyding, outentieke leierskap en optimisme, optimisme en selfbekwaamheid, en selfbekwaamheid en werkstoewyding bestaan. Daar is egter geen beduidende verwantskappe tussen die

konstruke outentieke leierskap en selfbekwaamheid, en optimisme en selfbekwaamheid gevind nie.

Gegewe die unieke kombinasie van positiewe sielkunde konstruke wat in hierdie studie ingesluit is, kan daar gesê word dat hierdie studie 'n bydrae maak ten opsigte van die bestaande teorie deur lig te werp op die verwantskappe tussen outentieke leierskap, optimisme, selfbekwaamheid en werkstoewyding. Dog, deur weer na die literatuur te verwys is dit belangrik om te benadruk dat hierdie studie beskou behoort te word as 'n poging om die "nuwe" ontluikende positiewe sielkunde konstruke verder te help uitbou. Juis om hierdie rede behoort die studie as ondersoekend van aard geïnterpreteer te word en is veel verdere en opvolg-navorsing in hierdie gebied van onskatbare belang. Die studie maak aanbevelings vir verdere navorsing asook intervensies rakende die ontwikkeling van outentieke leierskap en positiewe sielkundige bevoegdhede.

ACKNOWLEDGEMENTS

I would like to express my sincerest gratitude to the following for their commitment, guidance and support.

Almighty God, for all my blessings.

My family, my mother Dawn Roux, and my brother Phildon Roux, for your unwavering love, support and always believing in me.

Dr Zani Dannhauser, my study leader, for your sincerely appreciated guidance and assistance during the course of my research.

Professor Martin Kidd, for your invaluable statistical guidance and assistance in my study.

Dr Rene Nel, my internship supervising psychologist, for your ongoing support, passion and interest in my academic endeavours.

Dr Petrus Nel, for your sincerely appreciated voluntary guidance, assistance and continuous support.

Marcelle de Vries, for all your sincerely appreciated support and assistance.

Joanne Torrance, for your much appreciated assistance and support.

The Corporate Development Director and employees of the organisation, for allowing me the privilege of conducting my research in a world-class company.

My friends and work colleagues, for your support during the completion of my thesis.

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CHAPTER 1: THE PROBLEM AND ITS SETTING

1.1 Introduction

This chapter provides a general introduction to the context of the study, exploring the postulated relationship between authentic leadership, optimism, self-efficacy and work engagement. The chapter begins by setting the context for the study through an exploration of the field of positive organisational scholarship in which the study is set. This is followed by the objectives and aims of the study. Finally the benefits of the study are identified and an outline of the remainder of the thesis is presented.

1.2 Setting the context for the study

The practice of leadership has existed for thousands of years and research efforts have been undertaken to better understand leadership in organisations for well over 50 years (Bass, 1990). Leaders and leadership matter. Effective leaders are associated with successful work teams, high morale, and peak levels of performance; ineffective leaders are associated with dissatisfaction, low commitment, and failing performance (Avolio & Bass, 2002; Bass, 1998; 1999; Collins, 2001a, 2001b; Day, Zaccaro, & Halpin, 2004).

Authenticity, or more precisely the lack thereof, – lies near the heart of the crisis of confidence in contemporary corporate leadership. The kind of leadership that can restore confidence comes from individuals who are true to themselves, and whose transparency “positively transforms or develops associates into leaders themselves” (Luthans & Avolio, 2003, p. 243). The core of authenticity is “to know, accept, and remain true to oneself” (Avolio, Gardner, Walumbwa, Luthans, & May, 2004, p. 402). Thus according to Avolio et al. (2004, pp. 403-404), authentic leaders are:

Those individuals who are deeply aware of how they think and behave and perceived by others as being aware of their own and others’ values/moral perspective, knowledge, and strengths; aware of the context in which they operate; and who are confident, hopeful, optimistic, resilient, and high on moral character.

This above-mentioned view on leadership constitutes the foundation of the authentic leadership notion.

Positive Organisational Scholarship (POS) is a new development in the Organisational Behaviour domain. According to Cameron, Dutton, and Quinn (2003), POS is largely concerned with the investigation of positive outcomes, processes and attributes of organisations and their employees. Contrary to traditional organisational studies, POS studies focus on employees' strengths and psychological capabilities, instead of their weaknesses and/or inhibiting factors. Within the emerging positive psychology movement, and concomitant with the positive organisational behaviour/scholarship field, (Luthans, 2001; 2002a, b; Luthans & Jensen, 2001) the notion of authentic leadership fits with the positive approach to leadership or PAL, as advocated by Luthans, Luthans, Hodgetts, and Luthans (2002) and Peterson and Luthans (2003).

According to Friedman (2005), traditional approaches are no longer sufficient in today's paradigm, the "flat-world" competitive environment. Work in today's organisations is becoming more fluid and less bound by space and time due to information technology and globalization. In this new environment, the rules and boundaries of the playing field for organisational leaders and employees alike are undergoing paradigmatic change. Meeting the challenge of effectively managing human resources requires new thinking and new approaches. Simply concentrating and accumulating more of the traditional resources once considered vital for organisational success have proven insufficient for attaining sustainable sources of competitive advantage. Examples of such traditional resources include economic and financial capital, advanced technology, and proprietary information. Competitive strategies that rely on raising entry barriers are also no longer effective in creating sources of distinct advantage that can be sustained over the long run (Luthans, Youssef, & Avolio, 2007).

Luthans and Youssef (2004) argue that now, sustainable competitive advantage can best be accomplished through context-specific, cumulative, renewable, thus hard-to-imitate factors, even given the continued presence of traditional material resources. Avolio and Luthans (2006) suggest that the need to develop authentic leadership has never been greater, nor have the opportunities ever been available to do so.

The assumption for this study is that certain variables influence work engagement, and, it is therefore important to gain an understanding of these antecedents of work engagement.

The study aims to investigate the respective relationships that exist between the positive organisational psychological constructs, namely authentic leadership, optimism, self-efficacy and the influence of these variables on work engagement.

1.3 Theoretical framework of this research

Authentic leadership, optimism, self-efficacy and work engagement have been identified as constructs that can be included in the positive organisational behaviour approach. Although these constructs still warrant further research and validation, it is important to determine the possible relationship between the constructs in order to understand how to effectively develop and implement possible interventions that will enhance the levels of employee work engagement in organisations.

1.4 Defining the constructs

1.4.1 Definitions of authentic leadership

As is the case with all leadership studies and leadership definitions, despite the vast amount of work done on it, a precise and specifically pin-pointed definition of leadership still seems to be evasive in nature, let alone attempting this with authentic leadership. Authentic leadership in organisations is defined in general as a process that draws from both positive psychological capacities and a highly developed organisational context, which results in both greater self-awareness and self-regulated positive behaviours on the part of leaders and associates, fostering positive self-development. The authentic leader does not try to coerce or even rationally persuade associates, but rather the leader's authentic values, beliefs, and behaviours serve to model the development of associates (Luthans & Avolio, 2003). According to Terez (2007), this leadership ethic of the authentic leader refers to striving towards "power with them" (shared power) versus "power over them" (individualised and ulterior motive driven power).

Consistent with Avolio and colleagues (e.g., Avolio, Luthans, & Walumba, 2004; Luthans & Avolio, 2003; May, Chan, Hodges, & Avolio, 2003), authentic leadership is considered as a root construct which can incorporate transformational and ethical leadership. As noted with transformational leadership (Avolio, 1999), authentic leaders can be directive or participative, and could even be authoritarian. The behavioural style per sé is not what

necessarily differentiates the authentic from the inauthentic leader. Authentic leaders act in accordance with deep personal values and convictions, to build the credibility, respect and trust of followers by encouraging diverse view points and building networks of collaborative relationships with followers, thereby leading in such a way that followers recognise as authentic. As this process cascades to followers, they may also start operating in a similar manner, portraying to leaders, colleagues, customers, and other interested stakeholders their true/real authenticity, which over time may become a basis for the organisation's culture (Avolio et al.,2004).

George (2003) posits that authentic leaders genuinely desire to serve others through their leadership, are more interested in empowering the people they lead to make a difference, and are as guided by qualities of the heart, passion and compassion, as they are by qualities of the mind. Accordingly, Luthans and Avolio (2003) note that authentic leaders recognise and value individual differences and have the ability and motivation to identify people's talents and help them build those talents into strengths. This in turn ties to the notion of building and expanding positive organisational behaviour, as referred to earlier.

1.4.1.1 Operational definition of authentic leadership

Walumbwa, Avolio, Gardner, Wernsing and Peterson (2008, p. 4) modified Luthans and Avolio's (2003) initial definition of authentic leadership to advance a refined definition that more fully reflects the underlying dimensions of the construct posited by Gardner, Avolio, Luthans, May and Walumbwa (2005) and Ilies et al. (2005). Specifically, authentic leadership is defined as "a pattern of leader behaviour that draws upon and promotes both positive psychological capacities and a positive ethical climate, to foster greater self-awareness, an internalised moral perspective, balanced processing of information, and relational transparency on the part of leaders working with followers, fostering positive self-development". For the purposes of this study, this modified definition of authentic leadership will be utilised.

1.5 Definitions of optimism

Seligman (1990) defines optimism as making an internal, relatively stable, and global attribution regarding positive events, such as goal achievement, and an external relatively unstable, and specific cause for negative events like a failed attempt of reaching a goal. To

avoid the criticism of false optimism, positive organisational behaviour (POB) tends to emphasize realistic optimism (Luthans, 2002b, Luthans, Youssef, & Avolio, 2007; Schneider, 2001). In other words, optimism is not based on an unchecked process that has no realistic assessment. This realistic optimism as a state (as opposed to a dispositional trait), includes an objective assessment of what one can accomplish in a specific situation, given the available resources at the time. Seligman (2002) found that optimism was significantly and positively related to the performance of insurance agents. In addition, in a study of Chinese factory workers (Luthans, Avolio, Walumbwa, & Li, 2005), found optimism to have a significant relationship with rated performance. Youssef and Luthans' (2007) study found employees' optimism to be related to their performance, satisfaction and happiness.

According to Gabris, Maclin, and Ihrke (1998), optimism introduces one to the belief, or at least the hope, that through the responsible use of knowledge and reason, mankind can improve existing conditions. Rather than accept the *status quo* as the best of all possible worlds, the optimistic approach asks how can things be improved or made better? More fundamentally, the optimistic approach allows, if not encourages, one to take control of one's social and material destiny. Conversely to this approach, is organisational scepticism. It seems within reason that most organisations fall somewhere between these two extremes of organisational scepticism and optimism.

Moreover, Wrosch, and Scheier (2003) indicate that as opposed to the attributional approach to optimism, dispositional optimism does not differentiate the basis of expectation, i.e. not establishing whether a person would for example hold positive expectations about the future because s/he is efficacious or because s/he is lucky.

1.5.1 Operational definition of optimism

Scheier and Carver (1985) define dispositional optimism as a general expectation of experiences throughout one's life. Dispositional optimism can be defined as a person's positive outlook towards life events (Ebert, Tucker, & Roth, 2002; Scheier, Carver, & Bridges, 1994). Optimists believe that good outcomes will occur in life and can therefore appraise stressful events more positively and mobilise their resources to take direct action

in response to a stressor. For the purposes of this study, Scheier et al.'s (1994) definition of optimism will be utilised.

1.5.1.1 The importance of optimism in examining authentic leadership

According to Kouzes and Posner (1998) leaders are change agents who challenge the *status quo*, rock the boat, and are intrigued by adaptive puzzles posed by organisational environments (or internal processes within organisations). Importantly, optimistic leaders feel they can frame solutions to puzzles and subsequently influence the success of the organisation in moving toward preferred outcomes. Obstacles, instead of becoming a source of despondency, are often seen as opportunities for doing something new. To be successful, leaders need to become skilled in several competencies. Kouzes and Posner (1998) succinctly summarise these as follows:

- Challenging the process: searching for opportunities, taking risks;
- Inspiring a shared vision: envisioning the future, enlisting others;
- Enabling others to act: fostering collaboration, strengthening others;
- Modeling the way: setting examples, planning small wins; and
- Encouraging the heart: recognising individual contributions, celebrating accomplishments.

According to Gardner and Schermerhorn (2004), one of the important tasks of the authentic leader is to raise optimism. In his wide-spread and influential books, *Learned Optimism* (1990) and *Authentic Happiness* (2002), psychologist Martin Seligman describes the powerful effects that an optimistic versus pessimistic explanatory style can exert on one's life. Optimists tend to attribute their successes to internal, stable and global causes, such as their own abilities: they identify external, unstable, and specific causes for failure. Optimists expect to encounter continuous success in the future. They also tend to experience positive emotional states such as pride, happiness, satisfaction and enthusiasm, while their more pessimistic counterparts report higher levels of passivity and depression. Finally they enjoy a host of positive outcomes, including higher levels of motivation, perseverance, and achievement resulting in academic, political, athletic, and/or occupational success, physical and mental health.

Research supports that leaders who are positive are also more authentic and effective (Avolio & Luthans, 2006; Luthans, Norman, & Hughes, 2006). Staw and Barsade (1993) report on research evidence that leaders who think positively are not only more effective interpersonally but also have higher quality of decision making skills, including the superior ability to collect and use more information and act on situational contingencies. On the contrary, negativity has been shown to be related with various performance-inhibiting mechanisms, such as memory decay (Judge & Ilies, 2004).

Law, Wong and Mobley (1998) provided a conceptual framework for determining how multi-dimensional constructs can relate to a core factor. The “latent model” that Law et al. (1998) describe refers to what Luthans et al. (2007) refer to as psychological capital (PsyCap) in having specified a higher-level core construct that underlies the four dimensions of hope, resilience, optimism and efficacy. The higher order core construct of PsyCap represents the commonality among the four component dimensions, and has both conceptual (Luthans & Youssef, 2004; Luthans et al., 2007) and empirical (Luthans, Avolio, Avey, & Norman, 2006) support. PsyCap can be viewed as “who you are” and “what you can become in terms of positive development” (Avolio & Luthans, 2006) and is differentiated from human capital (“what you know”), social capital (“who you know”), and financial capital (“what you have”) (Luthans & Youssef, 2004).

PsyCap has been specifically defined by Luthans et al. (2007, p. 3) as:

an individual’s positive psychological state of development that is characterised by (1) having confidence (self-efficacy) to take on and put in the necessary effort to succeed at challenging tasks; (2) making a positive attribution (optimism) about succeeding now and in the future; (3) persevering toward goals and, when necessary, redirecting paths to goals (hope) in order to succeed; and (4) when beset by problems and adversity, sustaining and bouncing back and even beyond (resiliency) to attain success.

With regard to authentic leadership, PsyCap optimism contributes to, and is the result of, the strong foundation of self-awareness (Avolio & Luthans, 2006; Luthans & Avolio, 2003; Luthans, Norman, & Hughes, 2006). The self-awareness of authentic leaders draws its accuracy and objectivity from multi-source feedback, which is motivated by the authentic leader’s genuine desire for sustainable improvement and transparent trust-building.

Moreover, authentic leaders' capacity for self-regulation is conducive to adaptation, responsiveness, and continuous self-development, which are highly consistent with PsyCap optimism (Avolio & Luthans, 2006; Luthans & Avolio, 2003; Luthans et al., 2006).

Organisational leaders with a high level of PsyCap optimism are risk-takers, but since they are realistic and flexible, they tend to take only calculated and necessary risks. They know that their role is to be agents of change (Luthans et al., 2007). They dare to dream for themselves, their associates and their organisations. They then enthusiastically pursue their dreams as they inspire, motivate and involve their associates. Additionally, leaders with high PsyCap optimism would have a good handle on their capacities and vulnerabilities, as well as those of their followers and are self-aware and have greater locus of control levels. Their PsyCap optimism motivates them to develop and improve themselves and their followers. According to Luthans et al. (2007) leaders with high PsyCap optimism do not resort to blame-shifting and shallow impression-management techniques in order to take credit for more than what their efforts have warranted or to avoid responsibility or accountability. They are secure in their positive outlook and have realistic, accurate knowledge of their own and their followers' accomplishments.

Leaders with high PysCap optimism emphasize the development of their followers. They take pride in the success of their followers rather than envying them and trying to take credit for their accomplishments, as if they were their own. Most importantly, as these effective leaders develop their associates, they help them build their own realistic, flexible optimism. Rather than doing everything and making all of the decisions for them, high PsyCap optimistic leaders enable, empower, delegate and trust their followers to achieve the desired outcomes. They equip their people with the necessary knowledge, skills, abilities, and motivation not only to succeed but also to make personal, permanent, and pervasive attributions of their own (Luthans et al., 2007). Schneider (2001) suggests three perspectives that leaders can adopt that are particularly applicable in developing realistic optimism in the workplace: (1) leniency for the past (2) appreciation for the present; and (3) opportunity seeking for the future.

Moreover, Likert (1967) provides even further support for the optimistic leadership approach by documenting how employees clearly prefer the more consultative, participative

management systems. Perrow (1986) criticizes the validity of Likert's research questions, but even if some of these are "loaded" as Perrow suspects, the research still supports the basic contention that more optimistic managerial models increase performance (Hackman & Oldham, 1990; Likert, 1967).

1.6 Definitions of self-efficacy

Self-efficacy is best understood in the context of *social cognitive theory* – an approach to understanding human cognition, action motivation, and emotion that assumes we are active shapers, rather than simply passive reactors to our environments (Bandura, 1986, 1997). Bandura (1997) referred to the probability that people estimate that they can take on a particular task as an estimate of their self-efficacy. According to theory and research by Bandura (1989), self-efficacy makes a difference to how people think, feel, and act. 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).

Bandura (1997, p. 3) defines self-efficacy as "beliefs in one's capabilities to organise and execute the courses of action required to produce given attainments." Self-efficacy can be viewed as a concept of perceived competence (Bandura, 1997). However, Bosscher and Smit (1998) argue that numerous experiences of failure and success in various domains of an individual's life may also be important to understand how an individual may generate general beliefs about self-efficacy. Generalised self-efficacy is defined by Judge, Erez, Bono, and Thoreson (2002, p. 96) as a "judgement of how well one can perform across a variety of situations." General self-efficacy is therefore a motivational state because it involves the individual's beliefs regarding his/her abilities to perform and succeed at tasks across different situations (Kanfer & Heggestad, 1997).

It is therefore possible to distinguish between specific self-efficacy (SSE) (which is task specific) and general self-efficacy (GSE) (which is global in nature). However, both have self-confidence as the basis of self-evaluation. "The importance of the GSE construct to organisational research lies in its ability to (a) predict SSE across situations and tasks, (b) predict general and comprehensive performance criteria, and (c) buffer against the debilitating effects of adverse experiences on subsequent SSE" (Chen, Gully, & Eden,

2001, p. 67). Based on Chen and colleagues' opinion (2001), it is thus possible to state that general self-efficacy is able to predict performance on specific situations. Therefore, an individual's general perception of confidence spills over to specific situations and the associated levels of confidence (Chen et al., 2001). The latter provides support for the inclusion of general self-efficacy in their study and its ability to predict specific performance related confidence (Chen et al., 2001).

Moreover, according to Luthans et al. (2007) PsyCap efficacy is deeply based on Bandura's (1986, 1997, 2001) social cognitive theory, which includes his five identified cognitive processes that are vital constituents of the efficacy equation; symbolizing, forethought, observation, self-regulation, and self-reflection. Drawing from Bandura's (1986, 1997) extensive theory and research, PsyCap efficacy (or, simply, confidence) can be defined as "one's conviction (or confidence) about his or her abilities to mobilize the motivation, cognitive resources, and courses of action needed to successfully execute a specific task within a given context" (Stajkovic & Luthans, 1998b, p. 66). Although Bandura (1997) sparingly uses the term confidence and most efficacy theorists tend to treat confidence as conceptually subordinate to efficacy, especially in positive psychology, the terms are used interchangeably (Maddux, 2002).

However, when used in the more applied domain of sports or business performance, confidence is the commonly used term (e.g., Kanter, 2004). For the purposes of this study, the author has chosen to use the two terms interchangeably to reflect the rich theoretical and research bases of self-efficacy (e.g., Bandura, 1997) and the more applied orientation associated with confidence (e.g., Kanter, 2004). Whether one uses efficacy or confidence in the definition above, it is important to emphasize the link to one's belief. Self-efficacious people are distinguished by five important characteristics. They:

- (1) set high goals for themselves and self-select into difficult tasks;
- (2) welcome and thrive on challenge(s);
- (3) are highly self-motivated;
- (4) invest the necessary effort to accomplish their goals;
- (5) persevere when faced with obstacles.

These five characteristics equip high efficacy individuals with the capacity to develop independently and perform effectively, even with little external input for extended periods of time. People with high PsyCap efficacy do not wait for challenging goals to be set for them, which is often referred to as “discrepancy reduction” (Luthans et al., 2007). On the contrary, they create their own discrepancies by continuously challenging themselves with higher self-set goals and by seeking and voluntarily opting for difficult tasks (Luthans et al., 2007). Self-doubt, scepticism, negative feedback, social criticism, obstacles and setbacks, and even repeated failure, which can be devastating for people with low efficacy, have little impact on efficacious individuals (Bandura & Locke, 2003).

As posited by Eden and Sulimani (2002), the *means efficacy* construct was introduced to refer to the belief one has in the utility of the equipment, techniques, and procedures available for performing a task. All other things being equal, if employees believe they have the best equipment and techniques to do their work, they will perform at higher levels. Although relatively new, recent experimental studies by Eden and colleagues (e.g., Eden & Granat-Flowmin, 2000; Eden & Sulimani, 2002) provide support for means efficacy as a way of producing significant performance improvements independent of the effects of raising levels of self-efficacy.

1.6.1 Operational definition of self-efficacy

Self-efficacy theory has proposed that all forms of psychotherapy and behavioral change operate through a common mechanism: the alteration of the individual's expectations of personal mastery and success (Bandura, 1977, 1982). According to this theory, two types of expectancies exert powerful influences on behaviour: outcome expectancies, the belief that certain behaviours will lead to certain outcomes; and self-efficacy expectancy, the belief that one can successfully perform the behaviour in question (Sherer, Maddux, & Rogers, 1982). For the purposes of this study Sherer et al.'s (1982) definition will be utilised.

1.6.1.1 The importance of self-efficacy in examining authentic leadership

There have been a number of attempts to conceptually (Luthans, Luthans, Hodgetts, & Luthans, 2002, McCormick, 2001) and through research (Chemers, Watson, & May, 2000; Chen & Bliese, 2002, Walumbwa, Lawler, Avolio, Wang, & Shi, 2005) link self-efficacy and

leadership. Since self-efficacy is supported by theory and research to be a psychological state (as apposed to a fixed trait) and thus open to development (Bandura, 1997, 2000; Luthans, 2002a, 2002b; Maddux, 2002; Karl, O'Leary-Kelly, & Martocchio, 1993; Martocchio, 1994; Martocchchio & Judge, 1997; Strajkovic & Luthans, 1998a, 1998b), Avolio and Walumbwa (2006), propose that authentic leader behaviour can play a significant role in developing self-efficacy and subsequently performance over time.

In line with Eagly and Chaiken's (1993); Snyder and Lopez's (2002) view on verbal persuasion, Maddux (2002) also supports the notion that efficacy beliefs are influenced by what others say to us about what they believe one can or cannot do. He identifies two interacting factors that can contribute to self-efficacy with leadership implications: (1) the development of the capacity for symbolic thought and the responsiveness and, (2) supportiveness of the social context in which leaders and followers are embedded over time. In this regard, the capacity for unencumbered symbolic thought would certainly relate to what may be termed deep self-awareness. Such a positive ethical and engaged climate is parallel to what could be considered a supportive social context.

Avolio and Luthans (2006); Luthans and Avolio (2003); Luthans et al. (2006) propose that PsyCap efficacy can lead to an upward spiral of confidence and veritable performance. The potential for upward spirals and contagion effects of PsyCap self-efficacy provides considerable development implications for both leaders and followers. Avolio and Luthans (2006) posit that if PsyCap self-efficacy can cascade down to their followers, then investments in authentic leadership development (ALD), which incorporates the development of leader's PsyCap self-efficacy as well as the leader's development of their own followers, are likely to yield exponential returns that far exceed conservative estimates.

The unwarranted assumptions of bottom-line-oriented decision-makers that human resource investments are not worth their while, are being consistently challenged in today's business environment (Pfeffer, 1998), and PsyCap self-efficacy presents researchers and practitioners with yet another contribution to the increasing evidence supporting the vital role of human resources in creating sustainable competitive advantage.

Moreover, as confidence is likely to enhance employees' ability to perform independently, various leadership-style contingencies are likely to surface. For example, it is possible that PsyCap self-efficacy may act as a leadership substitute (e.g., Kerr & Jermier, 1978), which may threaten inauthentic, power-focused leaders from developing their followers' PsyCap self-efficacy. Mediating and moderating factors (e.g., task complexity, degree of diversity) in organisational structure and culture should therefore also be considered in order to account more fully for the salient role of organisational leaders in nurturing versus inhibiting the development of PsyCap self-efficacy in their followers.

Recent psychology and organisational behaviour research related to training and performance suggests that both optimism (Schulman, 1999) and self-efficacy (Karl, O'Leary-Kelly, & Martocchio, 1993) can be enhanced, increased, and nurtured with appropriate coaching.

1.7 Definitions of work engagement

The concept of work engagement is relevant for organisations for various reasons. Firstly, work engagement is related to job satisfaction, organisational commitment and low turnover intention (May, Gilson, & Harter, 2004; Schaufeli & Bakker, 2004). Secondly, work engagement is related to personal initiative and learning (Sonnetag, 2003). Therefore research regarding the psychological foundations of work engagement could enable researchers and practitioners to understand and predict why some employees psychologically identify with their jobs while others do not.

Macey and Schneider (2008) postulate that numerous definitions of work engagement can be derived from practice – and research driven literature. Common to these definitions is the notion that work engagement is a desirable condition, has an organisational purpose, and connotes involvement, commitment, passion, enthusiasm, focused effort, and energy, so it has both attitudinal and behavioural components. To this end, Erickson (2005) explains that the antecedents of such attitudes and behaviours are located in conditions under which people work, and consequences are thought to be of value to organisational effectiveness.

Although seemingly compelling on the surface, the meaning of work engagement is rather unclear. In large part, this can be attributed to the “bottom-up” manner in which the engagement notion has quickly evolved within the practitioner community. This is not an unfamiliar stage in the incremental evolution of an applied psychological construct. Macey and Schneider (2008) posit that engagement is a concept with a sparse and diverse theoretical and empirically demonstrated nomological network – and that the relationships among potential antecedents and consequences of engagement, as well as the components of engagement have not been rigorously conceptualised and even less studied. The question remains as to whether engagement is a unique concept or merely a repackaging of other constructs. Kelly (1927) refers to this as the “Jangle Fallacy.”

Confusion around engagement exists because engagement is used by some to refer to a specific construct (e.g., involvement, initiative, sportsmanship, altruism) with unique attributes and by others as a performance construct defined as exceeding some typical level of performance (Macey & Schneider, 2008). For example, Wellins and Concelman (2005a, p. 1) suggest that engagement is “the illusive force that motivates employees to higher (or lower) levels of performance.” Colbert, Mount, Harter, Witt, and Barrick (2004, p. 603) define engagement in terms of a “high internal motivational state.” Similarly, Dvir, Eden, Avolio and Shamir (2002, p. 737) define *active engagement* in terms of “high levels of activity, initiative, and responsibility.” One can therefore see engagement being defined both attitudinally and behaviourally. Harter, Schmidt and Keyes (2003, p. 269) definition of employee engagement “refers to the individual’s involvement and satisfaction with as well as enthusiasm for work”.

According to Maslach and Leiter (1997), engagement is characterised by energy, involvement and efficacy. Engaged individuals are assumed to have a sense of energetic and effective connection with their work activities, and they see themselves as able to deal completely with the demands of work. Work engagement is not a momentary specific state, but a more persistent and pervasive affective-cognitive state that is not focused on a particular object, event, individual or behaviour (Schaufeli, Salanova, Gonzáles-Romá, & Bakker, 2002a).

Moreover, in social sciences literature, engagement is most closely associated with the existing constructs of job involvement (Brown, 1996) and flow (Csikszentmihalyi, 1990). Job involvement is defined as the degree to which the job situation is central to the person and his/her identity (Lawler & Hall, 1970). Thus, job involvement results from cognitive judgement about the needs-satisfying abilities of the job. Jobs, in this view, are linked to one's self image (May et al., 2004). Engagement differs from job involvement in that it is concerned more with the way in which the individual pursues his/her self during the performance of his/her job. Furthermore, engagement entails the active use of emotions and behaviours, in addition to cognitions. Engagement may therefore be thought of as an antecedent to job involvement, since individuals who experience deep engagement in their working roles should begin to identify with their jobs.

Csikszentmihalyi (1990) postulates that flow is the holistic sensation people feel when they act in total involvement. It is the state in which there is little distinction between the self and environment. Although both engagement and flow have self-employment underpinnings (Kahn, 1990), engagement differs from flow in that the latter has been conceptualised and measured primarily as cognitive involvement with an activity and represents a unique "ceiling" experience of total cognitive absorption. Kahn (1990, p. 694) defines engagement as "the harnessing of organisation members' selves to their work roles [by which they] employ and express themselves physically, cognitively and emotionally during role performances". According to Kahn (1990), engaged employees become physically involved in their tasks, cognitively alert, and emotionally connected to others when performing their jobs.

Roberts and Davenport (2002) define work engagement as a person's involvement in his or her job. Individuals who are highly engaged in their jobs identify personally with the job and are motivated by the work itself. They tend to work harder and more productively than others and are more likely to produce the results their customers and organisations want. Engaged employees report that their jobs make good use of their skills and abilities, are challenging and stimulating, and provide them with a sense of personal accomplishment.

Work engagement is also conceptualised as the positive antithesis of burnout (Maslach, Schaufeli, & Leiter, 2001). Engagement is characterised by vigour, dedication, absorption –

whereas the three opposite dimensions of burnout, are exhaustion, cynicism and inefficacy. Rather than a momentary and specific state, engagement refers to a more persistent and pervasive affective-cognitive state that is not focused on any particular object, event, individual or behaviour (Schaufeli & Bakker, 2001).

According to Macey and Schneider (2008) engagement comprises a complex nomological network encompassing trait, state, and behavioural constructs, as well as the work and organisational conditions that might facilitate state and behavioural engagement. Although engagement may at best fit with what Law, Wong and Mobley (1998) describe as a model of a multidimensional construct; Macey and Schneider (2008) view engagement as not only a set of constructs, but also as tightly integrated and interrelated in known ways, comprising clearly identifiable constructs and relationships to a common outcome.

1.7.1 Operational definition of work engagement

According to Schaufeli et al. (2002a), engagement can succinctly be defined as a positive, fulfilling, and work-related state of mind that is characterised by *vigour*, *dedication* and *absorption*. *Vigour* is characterised by high levels of energy and mental resilience while working, the willingness to invest effort in one's work, and persistence in the face of difficulties. This energy can also relate to the level of mental effort or mental strength that individuals can put into doing something. *Dedication* is characterised by a sense of significance, enthusiasm, inspiration, pride and challenge. It refers to the emotional side of work engagement and the willingness of people to expend considerable time and effort into doing something meaningful. *Absorption* is characterised by concentration and being happily engrossed in one's work, so that time passes quickly and one has difficulties in detaching oneself from work. Absorption, the third dimension of work engagement, refers to the cognitive aspect where individuals are fully focused on something and experience a high level of concentration while performing a task. For the purposes of this study Schaufeli et al.'s (2002a) definition of work engagement will be utilised.

1.7.1.1 The importance of work engagement in examining authentic leadership

Considerable research supports the value of authentic leadership behaviour in a positive organisational context, by suggesting that when associates are treated in a fair and caring manner, they are more committed, to engage in positive attitudes, and this in turn leads to

trust in the leader and the system as a whole (Cropanzano & Greenberg, 1997; Dirks & Ferrin, 2001, 2002; Rhoades, Eisenberg, & Arneli, 2001; Zaheer, McEvily, & Perrone, 1998).

Avolio and Walumbwa (2006) argue that the role of an engaged organisational culture/climate is one of the most relevant positive contextual factors for the authentic leadership process. Specifically, these authors propose environments that provide open access to information, resources, support, and equal opportunity for everyone to learn and develop, and empower and also enable leaders and their associates to accomplish their work. This suggests that for the self and followers to be effective, organisational leaders must provide an inclusive organisational climate that enables themselves and followers to continually learn and grow.

Luthans and Avolio (2003) posit that authentic leaders, through processes of personal and social identification, enhance positive emotions in followers (hope, trust, optimism), which impact follower work attitudes (commitment, engagement) resulting in follower behaviours that increase performance (more effort, fewer withdrawal behaviours).

Work engagement has been recognised as providing positive outcomes in terms of work wellness for several reasons. Firstly, work engagement is a positive experience in itself (Schaufeli, Martinez, Marques Pinto, Salanova, & Bakker, 2002b). Secondly, it is related to good health and positive work effect (Demerouti, Bakker, De Jonge, Janssen, & Schaufeli, 2001; Rothbard, 2001). Thirdly, work engagement helps individuals derive benefits from stressful work (Britt, Adler, & Bartone, 2001). Fourthly, work engagement is positively related to work commitment (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001). It is also proposed to affect employee performance (Kahn, 1990).

It is thus important for authentic leaders to cultivate work engagement, given that disengagement, or alienation, is central to the problem of employees' lack of commitment and motivation. Meaningless work is often associated with apathy and detachment from one's work (Thomas & Velthouse, 1990). Under such conditions, individuals are thought to become estranged from their "selves" (Seeman, 1972) and restoration of meaning in work is regarded as fostering an employee's motivation and attachment to work. Thus, there are

practical as well as humanistic reasons why authentic leaders should be concerned with employees' engagement levels regarding their work.

1.8 Research objectives

1.8.1 The reason for, and contribution of, investigating the relationship between authentic leadership behaviour, optimism, self-efficacy, and work engagement

Although there has been considerable attention focused on the topic of authentic leadership in recent years, empirical research on authentic leadership has been limited. One possible explanation of this shortage of research is the inherent difficulty in measuring authentic leadership behaviour (Cooper, Scandura, & Schriesheim, 2005).

Given recent attention being paid to the role that leaders play in follower engagement at work, and suggestions that engagement at work is best enhanced when employees feel that they are supported, recognised and developed by their managers (Harter, Schmidt, & Hayes, 2002) may be especially timely and relevant to organisations. Moreover, given the spate of high-profile unethical cases of leadership, the authentic leadership may prove to be a useful means of providing early evidence to identify those leaders who may not always adhere to the highest ethical and moral principles in terms of their decisions, actions and behaviours. Such data could be used as the basis for recommending further leadership development, or for more closely monitoring of the leaders to avoid ethical meltdowns in organisations (Walumbwa et al., 2008).

The above discussion evidently stresses the importance of authentic leadership, and as such the relationship between authentic leadership, optimism, self-efficacy and work engagement may cast substantial insights on the development of authentic leadership behaviours. It becomes evident that exploring the identified constructs requires rigorous quantitative and qualitative research, but especially quantitative research to further the study field of authentic leadership.

This research is expected to contribute to the existing understanding of authentic leadership in general, and specifically in terms of the following:

- No previous research study, investigating these specific constructs, has been conducted in South Africa.
- Positive organisational psychological constructs have not yet been integrated to understand authentic leadership and its influence on work engagement. Previous research only investigated the various variables separately.
- Especially quantitative methodologies have been lacking in previous research on authentic leadership. The current research will study authentic leadership from a quantitative perspective.
- A realistic workplace environment will be used to determine the impact of authentic leadership behaviour on the specified variables.

The present study therefore aimed to investigate the respective relationships that exist between the discussed constructs. A proposed theoretical model, integrating the relationships between the constructs, will be tested in the statistical analysis. The study attempted to validate this model by investigating the relationships between the constructs. The aim of this study can thus be described as follows:

1.8.2 Conceptual aim of the study

This study aimed to investigate the respective relationships that exist between the positive organisational psychological constructs, namely authentic leadership, optimism, self-efficacy and the influence of these variables on work engagement.

1.8.3 Operational aim of the study

Operationally the aim of this study was to determine whether a model of sequential relationships among the constructs, namely authentic leadership, optimism, self-efficacy and work engagement, within the realm of positive organisational behaviour (POB), can be built successfully. The operational aim subsequently led to the formulation of the research questions for the study, stated at the end of Chapter 2.

The constructs evaluated in this study have not previously been integrated into one study and therefore it could contribute to the field of POB. Given the specific POB approach and limited research pertaining to the unique combination of constructs as utilised in this study, this study was largely exploratory in nature.

1.9 Study outline

Chapter 2 focuses on a review of the current literature on each of the respective constructs used in the study, namely authentic leadership, optimism, self-efficacy and work engagement. The chapter also includes cited research on the inclusion of each of these constructs in the study of authentic leadership. Previous research conducted on these constructs and possible relationships between the respective constructs are also discussed. Finally, the research propositions are stated and the theoretical model of the study is outlined.

Chapter 3 describes the methodology employed in this study, which includes confirmatory and exploratory factor analysis, correlation analysis, multiple regression analysis and structural equation modeling through the use of partial least squares path modeling. The results of the quantitative data analyses, including the obtained factor structures for each of respective constructs, are presented in Chapter 4.

The interpretation and discussion of the research findings and their link to the research propositions are presented in Chapter 5. Finally, limitations of the study and suggestions for intervention and future research are discussed.

1.10 Summary

The positive organisational scholarship movement is largely concerned with the investigation of positive outcomes, processes and attributes of organisations and their employees. Contrary to traditional organisational studies, POS studies focus on employees' strengths and psychological capabilities, instead of their weaknesses and/or inhibiting factors. POS represents an expanded perspective that includes instrumental concerns of "goodness" and positive human potential. POS is distinguished from traditional organisational studies in that it seeks to understand what represents and approaches the best of the human condition. Authentic leadership, optimism, self-efficacy and work engagement have been identified as constructs that can be included in the positive organisational scholarship approach. This study aims to first and foremost explore and investigate the relationship between these respective constructs and as a result offer possible suggestions for the development of successful authentic leadership interventions for implementation in organisations.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

This chapter provides a review of the current literature on each of the respective constructs used in this study, namely authentic leadership, optimism, self-efficacy and work engagement. The history and notion of the constructs are elucidated. Relationships between the constructs that have been found in previous research are also highlighted. The chapter concludes with the research propositions and the theoretical model for this study.

2.2 The history and notion of authentic leadership

According to Cameron et al. (2003), the history of the concept of personal authenticity can be traced back to ancient Greek philosophy as revealed in expressions such as (“Know thyself” and “To thine own self be true”), through twentieth century modernism (with its ideals of self-direction, trustworthiness, and consistency), and then on to post-modernistic questioning of whether authenticity can even exist in the current era of multiplicity. Similar to other psychological constructs, most attention has been devoted to the *lack* of authentic self-behaviour (e.g., being deceitful, dishonest, manipulative, phony, and conniving). Descriptive words for authentic leadership as a positive construct, include *genuine, reliable, trustworthy, real, hopeful, resilient* and *veritable*. According to Harter (2002) many positive psychologists regard this authenticity as both *owning* one’s personal experiences (thoughts, emotions, or beliefs, “the real me inside”) and *acting* in accord with the true self (behaving and expressing what you really think and believe).

Cameron et al. (2003) are of the opinion that the above meaning of authenticity best depicts the type of positive leadership needed in contemporary times, where the environment is dramatically changing, where the rules that have guided how organisations operate no longer work, and where the best leaders will be transparent with their intentions, having a seamless link between their espoused values, actions and behaviours. Theoretically Mischel (1973) referred to such dynamic situations as representing a “weak context”, since there are no clear set of guidelines, rules, or direction for action. In such contexts, new rules are created to address the ambiguities and lack of clarity confronting a work unit, organisation, community, or entire society. In weak contexts, people are more vulnerable and as such, they are unsure what direction to pursue. It is in these situations,

that the most profoundly positive *and* unfortunately negative (Conger, 1990; Luthans, Peterson, & Ibrayeva, 1998) leadership takes root.

According to Howell (1992), without authentic leadership, the dynamics that are created by charismatic leaders in weak situations run the risk of being self-centered, and destructive to one group to benefit another. Indeed, throughout history and up to present times (e.g., Hitler, Stalin, Pol Pot, Papa Doc Duvalier, Milosevic, or Saddam Hussein), such inauthentic leaders, have taken advantage of crises for their own self-gain (Howell & Avolio, 1992). Luthans and Avolio (2003) suggest that authentic leadership best represents the confluence of positive organisational behaviour (POB) (Luthans, 2002a, 2002b), transformational/full-range leadership (FRL), or high-end of FRL (Avolio, 1999), and work on ethical and moral perspective-taking capacity and development (Schulman, 2002), which is at the core of what drives transformational leadership (Avolio & Gibbons, 1988; Kegan, 1982; Kuhnert & Lewis, 1987).

2.2.1 Previous research and models of authentic leadership

Previous research has identified various variables influencing authentic leadership. Their importance in understanding authentic leadership is discussed in the following section.

Avolio, Gardner, Walumbwa and May (2004) were the first to make a formal statement of authentic leadership by proposing a theoretical model that draws from positive organisational behaviour, trust, recent work on leadership and emotions, and identity theories to describe the processes by which authentic leaders exert their influence on follower attitudes such as job satisfaction and commitment and behaviours such as job performance. Follower outcomes in their model are performance, extra effort and withdrawal behaviours (i.e. turnover, absenteeism, and tardiness). This model draws on the theories of identification (e.g. Pratt, 1998), emotions (e.g. Ashforth & Humphrey, 1995; Dasborough & Ashkanasy, 2000), social identity and self-categorization (e.g. Ashforth & Mael, 1989; Hogg & Terry, 2000), transformational/charismatic leadership (e.g. Bass & Avolio, 1994) and positive psychology and positive organisational behaviour (e.g. Cameron et al., 2003).

According to Shamir and Eilam (2005), authentic leadership is viewed as being based on the leader's self-concept: Thus his or her self-knowledge, self-concept clarity, self-accordance and person-role-merger, and on the extent to which the leader's self-concept is ultimately expressed in his or her behaviour. These authors offer a life-story approach to the development of leaders and argue that authentic leadership rests heavily on the self-relevant meanings the leader attaches to his or her life experiences, and those meanings are captured in the leader's life-story. Therefore the construction of a life-story is a major element in the development of authentic leaders. Shamir and Eilam (2005) emphasize that the life-story provides followers with a major source of information on which to base their judgements about their leader's authenticity.

Contemporary leadership theory and practice describes authenticity in relation to self-awareness of one's fundamental values and purpose, and attributes the motivational effects of leadership to the consistency of leader's values and behaviours and the concordance of their values with those of followers. Drawing from the hermeneutic philosophy, Sparrowe (2005) offers a different perspective on authenticity in leadership that is based on the framework of the *narrative self*. This framework suggests that authenticity is neither achieved by self-awareness, nor by one's inner values or purpose, but instead is emergent from the narrative process in which others play a constructive role in the self.

Michie and Gooty (2005) developed an alternative approach to the role of emotions in leadership which incorporates current theory from both the emotion and positive psychology literatures. Rather than focusing on the detrimental effects of affective responses, this approach suggests that frequent experiences of positive other-directed emotions motivate leaders to act on their other-directed values (Oakley, 1992). For this reason Michie and Gooty (2005) argue that self-transcendent values and positive other-directed emotions are important determinants of authentic leadership.

In line with Michie and Gooty (2005), Dasborough and Ashkanasy (2000) proposed a model of authentic leadership based on follower attributions and emotional reactions, where authentic leadership is manifested in the perception that the leader's influence is grounded in moral behaviour and intentions. The model is defined in terms of followers' positive and negative emotional reactions following attributions of the leader's intentions.

The resulting 2x2 model has four cells. The “unpleasantness” condition (high negative effect, low positive effect) or “refusal” in the leadership context, is associated with inauthentic leadership, while the “pleasantness” condition (high positive effect, low negative effect) or “zealous” in the leadership context, is associated with authentic leadership.

Eagly (2005) argues that much more is required of leaders than merely transparently conveying and acting on their values. Achieving relational and visible authenticity requires that followers accord leaders the legitimacy to promote a set of values on behalf of the community. Only under such conditions can leaders elicit the personal and social identification of followers that can enhance the success of a group, organisation or society. This author (Eagly, 2005) provides evidence that obtaining this identification is more challenging for female than male leaders and more generally for members of outsider groups that have traditionally not had access to particular leadership roles.

Klenke (2004; 2005) proposed a model of authentic leadership that integrated contextual, cognitive, affective, conative, and spiritual elements. Similar to the previously discussed models, her model treats the self as a critical aspect of authentic leadership; however, in addition to including self-esteem and self-efficacy (Ilies, Morgeson, & Nahrgang, 2005), self-awareness and self regulation, i.e. motivation (Avolio & Gardner, 2005). Klenke’s model (2005) explicitly incorporates a spiritual motivation component as a determinant of authentic leadership.

Research conducted by Eigel and Kuhnert (2005) with 21 top executives, identified a measurable characteristic that highly effective leaders have in common, namely: Leadership Development Level (or LDL). LDL’s are developmental levels of maturity that shape the mental and moral capacities of the leader. While the highest LDL’s are associated with authentic leadership, the theory behind LDL’s focuses on the leader’s developmental understanding of his or her world, and how that understanding differs at each LDL. In this way, LDL describes the process by which leaders become authentic leaders.

Avolio and Walumbwa (2006) proposed a multifaceted model that redefines the role of strategic HR leadership and to understand the connections between authentic HR

leadership and sustainable organisational performance. These authors argue that to build enduring organisations and motivate employees to provide superior customer service and create sustainable value for their organisations, HR leaders are required to know themselves, to lead with integrity and demand conformance to higher ethical values.

Yammarino, Dione, Schriesheim and Dansereau (2008) explicated and integrated authentic leadership and positive organisational behaviour using a meso, multi-level perspective. Essentially viewed in terms of multi-levels of analysis, authentic leadership promotes various “primary” multi-level criteria and outcomes of positive organisational behaviour (e.g. optimism, self-efficacy of individual leaders and followers, group and team efficacy (shared), and collective efficacy (organisation culture) that, in turn, enhances various multi-level “secondary” criteria and outcomes of performance. (e.g. individual, group/team and organisation outcomes). Direct effects of authentic leadership on performance at multi-levels of analysis also are plausible.

Authenticity can and should therefore best be understood in context, and context implies action (Payne, 1996). In a study by Peunte, Crous, and Venter (2007) authentic leadership in particular was explored in terms of the actions of former mayor of New York City, Rudolph Giuliani, who displayed authentic leadership in action during the aftermath of the World Trade Centre attacks. Authentic leadership development tends to be triggered by a negative event (as in the case of 9/11 for Giuliani, for example). The aim of their study was to explore the potential of Appreciative Inquiry (AI) - as affirmative mode of action research - as a positive trigger event for authentic leadership development.

In line with Peunte et al. (2007), Kolditz and Brazil (2005) argue that in dangerous settings, leaders' optimism, hope, and resilience are especially valued, and therefore authentic leaders will assert a particularly powerful influence in such settings. This view links to Mischel's (1973) theory referred to as situations representing a “weak context”, where there are no clear guidelines for leadership action.

Moreover, Douglas, Ferris, and Perrewé (2005), examined the important role of leader political skill in authentic leadership. These authors see leader political skill as an essential component in the study of authentic leadership, because politically skilled leaders inspire

trust, confidence, and authenticity as mechanisms to incur follower motivation, commitment, and productive work behaviour. Similarly, it is apparent that Douglas et al.'s (2005) view further supports the contextual notion of leadership posited by Mischel's (1973) theory.

From a social cognitive lens, Chan, Hannah, and Gardner (2005), propose that authenticity is an emergent property of key processes and components of the self-system. These authors examined how leader's authenticity positively affects intra- and interpersonal leadership processes. Therefore Chan et al. (2005) argue that authenticity in leaders is an important leadership multiplier, and is foundational in producing a virtuous cycle of performance and learning for leaders, followers and organisations.

According to Hannah, Lester, and Vogelgesang (2005), authentic leadership is defined in large part by evidence of morality in the leadership influence process. A highly developed moral leader is expected to act in concert with his/her self concept, to achieve higher levels of agency (exercise of control over a leader's moral environment) to make the "right" and "ethical" decisions. Moral leadership is developed through a highly developed self-concept, and supported by heightened abilities of meta-cognitive and emotional regulation. These cognitive structures and abilities help leaders to activate moral solutions cross-situationally during leadership episodes. These authors posit that a leader who is perceived by followers as morally authentic, and imbued by altruism and virtuousness, will be afforded greater influence and have increased positive effects on followers and organisations.

Yalokwu (2008) presented a model of the development process of authentic leadership and spiritual capital. Rather than viewing authentic leadership and spiritual capital as fixed points of reference or destinations, they are regarded as dynamic concepts which in themselves constitute a systematic journey. So authentic leadership and spiritual capital are organic dynamic constructs. The model consists of nine sequential steps, i.e. divine/birth gifts, self awareness, internal restlessness and motivation, hunger for service and contribution, formulation of strategy, emergence of spiritually minded leader, development of quality management and leadership, successful and effective organisation.

Gardner, Avolio, Luthans et al. (2005) proposed a self-based model of the development process for authentic leadership and followership. The model proposes that a key factor contributing towards the development of authentic leadership is the self-awareness of the leader, which includes his/her values, emotions, identity, and goals. Increased self awareness is a critical development factor for the authentic leaders (Avolio & Gardner, 2005; Luthans & Avolio, 2003).

In line with the above-mentioned authors, Ilies, Morgeson and Nahrgang (2005) proposed a model of authentic leader and follower development that focuses on the elements of authenticity and the processes whereby authentic leadership contributes to the eudaemonic well-being of leaders and followers. These authors argue that authenticity as an introspective yet relational concept has substantial implications for leadership processes influencing not only leaders' well-being, but also impacting the follower's well-being and self-concept.

Gardner and Schermerhorn (2004) suggest that true authenticity in leadership requires the maturity to give up self-centred preoccupations with the efforts and failure of others. It means freeing oneself of the presumption that a leader's primary task is to somehow motivate others. It means accepting that the leader's primary role is to value and support human talent in a high performance context.

2.3 The variable of optimism

2.3.1 Antecedents of optimism

Specifically, research on twins suggests that optimism is subject to genetic influence (Plowmin, Scheier, Bergemen, Pedersen, Nesselroade, & McClearn, 1992). The question remains whether optimism is *itself* heritable, or whether it displays heritability because of its relation to other aspects of temperament. Optimism relates both to neuroticism and to extraversion, and both are known to be genetically influenced. Although optimism is distinguishable from these temperaments (Scheier et al., 1994), it may be that the observed heritability of optimism reflects these associations.

Another potential influence on people's outlook on life is early childhood experience. For example, in discussing personality development, Erikson (1968) held that infants who experience the social world as predictable, develop a sense of "basic trust," whereas those who experience the world as unpredictable develop a sense of "basic mistrust". These qualities are not all that different from the general sense of optimism and pessimism. Similarly, attachment theorists, hold that some infants are securely attached in their relationships, while others are not (Ainsworth, Blehar, Waters, & Wall, 1978; Bowlby, 1988). This has also been extended to discussions of adult attachments (Hazan & Shaver, 1994). This suggests that optimism may derive in part from the early childhood experience of secure attachment (Snyder, 1994).

Optimism as an explanatory style attributes positive events to personal, permanent, and pervasive causes and interprets negative events in terms of external, temporary, and situation specific factors. Conversely, a pessimistic explanatory style would interpret positive events with external, temporary, and situation-specific attributes and explain negative events in terms of personal, permanent, and pervasive causes (Seligman, 1990). Based on this widely recognised definitional framework, optimists take credit for the positive events in their lives. They view the causes of these desirable events as being within their power and control. Similarly when experiencing negative events, optimistic people attribute the causes to be external, temporary and specific to the situation. In contrast, the attributional causes that pessimists use tend to be temporary and specific to the situation, and thus they believe that positive events have little chance of happening again (Seligman, 1990). There is a seemingly clear link between Seligman's (1990) view of optimism as an explanatory style and the crux of attribution theory. Attribution theory posits that people continually formulate intuitive causal hypotheses so that they can understand and predict events that transpire (Heider, 1958).

A further potential approach to optimism relies on the assumption that people's expectancies for the future derive from their view of the causes of events in the past (Peterson & Seligman, 1984; Seligman, 1990). If explanations for past failures focus on causes that are stable, the person's expectancy for the future in the same domain will be for negative outcomes, because the cause is seen as relatively permanent, and thus likely to remain in that negative force.

2.4 The variable of self-efficacy

2.4.1 Antecedents of self-efficacy

According to Bandura (1997), the early development of self-efficacy is influenced primarily by two interacting factors. First it is 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. The development of a sense of personal agency begins in infancy and 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.

Second, the development of efficacy beliefs is influenced by the responsiveness of environments, especially social environments, to the infant's or child's attempts at manipulation and control. Environments that are responsive to the child's actions facilitate the development of efficacy beliefs, whereas nonresponsive environments retard 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, vicarious experiences, imaginal experiences, verbal persuasion and physiological and emotional states (Bandura, 1997). These five sources are briefly elaborated on below.

Performance experiences

According to Bandura (1997) own attempts to control the environment are the most powerful source of self-efficacy information. Successful attempts at control that one attributes to one's own efforts will strengthen self-efficacy for that behaviour or domain. Perceptions of failure at control attempts usually diminish self-efficacy.

Vicarious experiences

Self-efficacy beliefs are influenced by one's observations of the behaviour of others and the consequences of those behaviours. This information is used to form expectancies about one's behaviour and its consequences, depending primarily on the belief that one is similar to the person being observed. Vicarious experiences generally have weaker effects on self-efficacy expectancy than performance experiences (Bandura, 1997).

Imaginal experiences

According to Williams (as cited in Snyder & Lopez, 2002) one can influence self-efficacy beliefs by imagining oneself or others behaving effectively or ineffectively in hypothetical situations. Such images may be derived from actual or vicarious experiences with situations similar to the one anticipated, or they may be induced by verbal persuasion.

Verbal persuasion

Efficacy beliefs are influenced by what others say to one, regarding what they believe one can or cannot do. The potency of verbal persuasion as a source of self-efficacy expectancies will be influenced by such factors as the expertness, trustworthiness, and attractiveness of the source, as suggested by decades of research on verbal persuasion and attitude change (e.g., Eagly & Chaiken, 1993, Snyder & Lopez, 2002). Verbal persuasion is a less potent source of enduring change in self-efficacy expectancy than performance experiences and vicarious experiences.

Physiological and emotional states

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 (e.g., Bandura, 1986, 1997).

According to theory and research, self-efficacy makes a difference in how people feel, think and act (Bandura, 1997). In terms of feeling, a low sense of self-efficacy is associated with depression, anxiety, and helplessness. Persons with low self-efficacy also have low self-esteem, and they harbour pessimistic thoughts about their accomplishments and personal development. In terms of thinking, a strong sense of competence facilitates cognitive processes and performance in a variety of settings including the quality of decision-making and academic achievement. Self-efficacy has an influence on preparing action because self-related cognitions are a major ingredient in the motivation process. Self-efficacy levels can enhance or impede motivation. People with high self-efficacy choose to perform more challenging tasks (Bandura, 1997). They set themselves higher goals and stick to them. Actions are pre-shaped in thought, and people anticipate either optimistic or pessimistic scenarios in line with their level of self-efficacy. Once an action has been taken, highly self-

efficacious people invest more effort and persist longer than those low in self-efficacy. When setbacks occur, they recover more quickly and maintain commitment to their goals. High self-efficacy also allows people to select challenges to explore their environment, or create new ones.

2.5 The variable of work engagement

2.5.1 Antecedents of work engagement

According to Ryan and Deci (2000), providing employees with optimal challenges, feedback and freedom in their work, creates intrinsic motivation and increases their work engagement. Positive feedback seems to enhance work engagement levels, whereas negative feedback diminishes it. Employees will be more engaged in their work if they regard their work as challenging and have the freedom to be independent in their work tasks. Roberts and Davenport (2002) found that career development, identification with the organisation and a rewarding work environment also increase the work engagement levels of employees. Employees will be more engaged if the organisation provides them with opportunities to enhance their skills and abilities, and to manage their careers. When individuals identify with the organisation, they share in its success and are proud to deliver quality work – be it products (goods) and/or service.

According to the self-determination theory of Deci and Ryan (1985), work contexts that support psychological autonomy, competence and relatedness enhance well-being and increase intrinsic motivation (Ryan & Frederick, 1997). The intrinsic motivational potential is also supported by the Job Characteristics Theory (JCT) of Hackman and Oldham (1980). According to the JCT, every job has a specific motivational role that depends on the presence of five core job characteristics: skill variety, task identity, task significance, autonomy and feedback. According to the Effort-Recovery Model of Meijman and Mulder (1998), job resources may also play an extrinsic motivational role through work environments that offer many resources and foster the willingness to dedicate one's efforts and abilities to the work task.

Macey and Schneider's (2008) model of employee engagement suggests that engagement as a disposition (i.e. trait engagement) can be regarded as an inclination or orientation to

experience the world from a particular vantage point (e.g. positive affectivity characterised by feelings of enthusiasm) and that this trait engagement, gets reflected in psychological state engagement. Macey and Schneider (2008) conceptualise psychological state engagement as an antecedent of behavioural engagement, which they define in terms of discretionary effort (e.g. Erickson, 2005; Towers-Perrin, 2003) or a specific form of in-role or extra-role effort behaviour.

In line with Deci and Ryan (1985); Ryan and Frederick (1997); Hackman and Oldham (1980); Meijman and Mulder (1998), Macey and Schneider's (2008) model show that conditions of the workplace have both direct and indirect effects on state and behavioural engagement such as the nature of the work (e.g., challenge, variety) and the nature of leadership (especially transformational leadership). For example, that work has direct effects on state engagement (e.g., Hackman & Oldham, 1980) and indirect effects as a boundary condition (moderator) of the relationship between trait and state engagement.

With regard to leadership, Macey and Schneider's (2008) model, it shows this to have a direct effect on trust and an indirect effect through the creation of trust on behavioural engagement (e.g., Kahn, 1990; McGregor, 1960). Behavioural engagement, has numerous facets to it and is simultaneously organisational citizenship behaviour (OCB), role expansion, proactive behaviour, and demonstrating personal initiative, all strategically focussed in the service of organisational objects.

2.6 Conclusions and theoretical support based on the literature review

From the preceding discussion on the respective constructs, it is apparent that authenticity in leadership is an increasingly common topic of discussion in both the academic (Luthans & Avolio, 2003) and applied literatures (e.g. George, 2003). Avolio and colleagues (Avolio & Gardner, 2005; Avolio, Gardner, Walumbwa, Luthans, & May, 2004; Gardner et al., 2005; Luthans & Avolio, 2003) have recognised the emergence of authentic leadership as a root construct of leadership. This means that nearly any style of leadership may operate on this construct. Therefore, an authentic leader can be transformational, transactional, directive or participative, and be defined as an authentic leader.

Kernis (2003, p. 13) defined authenticity as “unobstructed operation of one’s true, or core, self in one’s daily enterprise.” Four underlying components comprise authenticity in the Kernis’s model. These have been recast by Gardner et al. (2005) as (1) self awareness (2) balanced information processing, (3) authentic behaviour, and (4) relational transparency. All four are essential to the study of authentic leadership.

In gaining a better understanding of authentic leadership and the nature of the construct, it is also imperative to examine the correlates of authentic leadership within the positive organisational behaviour framework. Understanding the relationship between authentic leadership and different possible correlates will contribute to understanding how authentic leadership is developed and implemented within an organisation and whether there are factors that need to precede the authentic leadership development intervention. A substantial amount of practical guidance for companies and individuals, supported by solid theoretical research, is needed to develop authentic leadership competencies in organisations.

Based on the discussed theoretical foundation, instrumentation and conclusions regarding the literature review, specific research questions were used to guide the study. These are discussed in the following section.

2.7 The research problem

Kerlinger (1992) posits the importance of defining propositions as speculative statements about the relation between two or more variables, arguing that propositions (a) are the working instruments of theory, (b) can be tested and shown to be probably true or probably false, and (c) are powerful tools for the advancement of knowledge. Kerlinger and Lee (2000) argue that there are two primary criteria for good propositions: (a) propositions/hypotheses are statements about the relationships between variables, and (b) propositions/hypotheses carry clear implications for testing the stated relations. In order to provide the theoretical basis for the proposed research questions and propositions, a discussion of the theoretical support found in the literature was presented in the preceding section.

The following research problem was identified:

If a manager is perceived to have a high level of authentic leadership, then it could possibly contribute to increased levels of optimism, self-efficacy and work engagement. This argument led to the formulation of the research questions and propositions for the present study outlined below:

Research question 1:

What is the relationship between the variables authentic leadership, optimism, self-efficacy and work engagement? (Propositions 1-7).

Research question 2:

Can a valid model of the sequential relationships among the combinations of variables, namely authentic leadership, optimism, self-efficacy and work engagement, within the realm of positive organisational psychology, be built? (Proposition 8).

2.8 Research propositions

In order to answer the research questions developed for this study, eight propositions were formulated that had to be tested. A correlational research design was used so that sequential relationships in the identified constructs could be determined. In addition to identifying the relationships, it becomes possible to understand the dynamic relationships between the constructs. In accordance with the aim of the study and the findings of previous research, the proposed relationships were believed to exist between the constructs.

As discussed in the previous sections, the following research propositions were formulated and used to empirically investigate the research questions.

Proposition 1: A significant positive relationship exists between *authentic leadership* behaviours and *optimism*.

Proposition 2: A significant positive relationship exists between *authentic leadership* behaviours and *self-efficacy*.

Proposition 3: A significant positive relationship exists between the *authentic leadership* behaviours measured by the *Authentic Leadership Questionnaire (ALQ)* and the characteristics of *work engagement* measured by the *Utrecht Work Engagement Scale (UWES)*.

Proposition 4: A significant positive relationship exists between *optimism* and *self-efficacy*.

Proposition 5: A significant positive relationship exists between *optimism* and the level of *work engagement*.

Proposition 6: A significant positive relationship exists between *self-efficacy* and the level of *work engagement*.

Proposition 7: Each of the identified variables will contribute separately to a significant proportion of variance in *work engagement*.

Proposition 8: The proposed conceptual model describing the relationships between authentic leadership, optimism, self-efficacy, and work engagement, will produce a good fit with the data, outlined in Figure 1.

In addition to guiding the research methodology in the current study, the eight propositions also determined the data analysis techniques used. Appropriate data analysis methods to evaluate each of these propositions are discussed in Chapter 3.

2.9 Summary

The history, notion and models of the authentic leadership construct, including the antecedents of the optimism, self-efficacy and work engagement constructs were discussed in this chapter. Emphasis was placed on research postulating that relationships will be found between the respective variables in the positive organisation behaviour field.

The variables that were researched and explored in this study are authentic leadership, optimism, self-efficacy and work engagement. The conceptual argument states that

relationships exist between these variables. The relationship between the variables were also analysed with regard to antecedence and effects. This information will support the development of an effective intervention to develop authentic leadership. It is proposed that authentic leadership, optimism and self-efficacy will lead to increased levels of work engagement as illustrated in Figure 2.1.

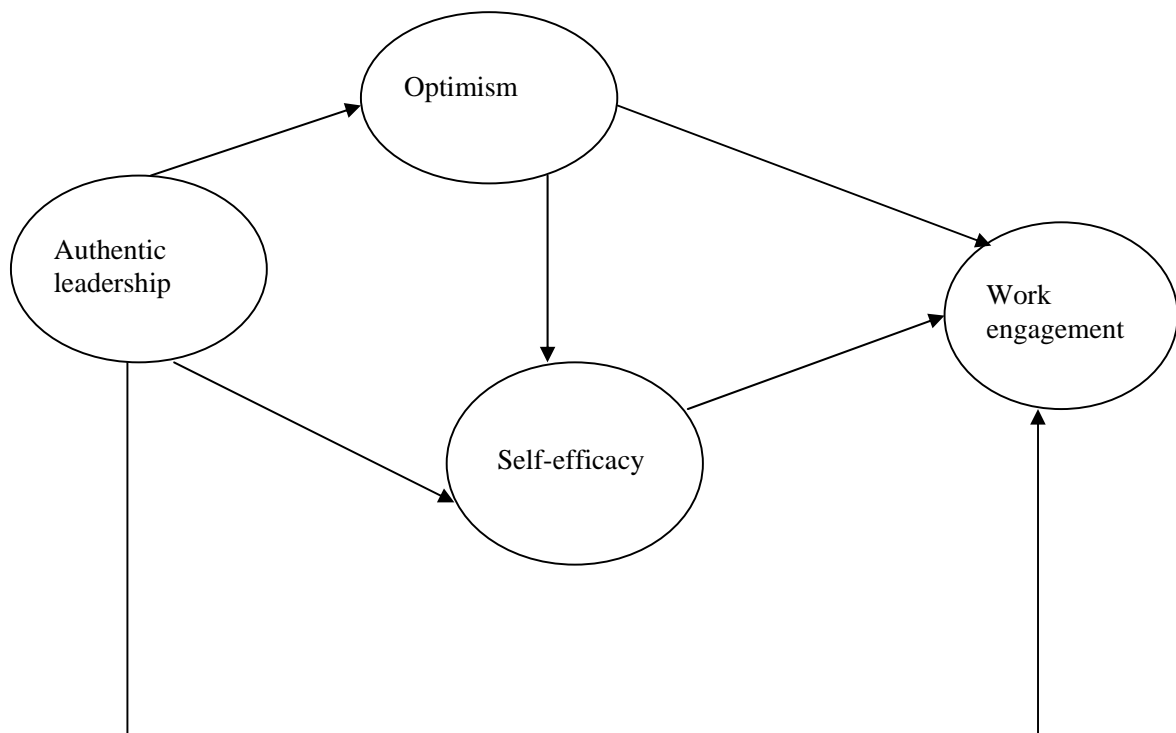


Figure 2.1: Theoretical model integrating the relationships between authentic leadership, optimism, self-efficacy, and work engagement.

CHAPTER 3: METHODOLOGY

3.1 Introduction

This study is guided by the research aim of investigating whether relationships exist between the following positive organisational psychological constructs: authentic leadership, optimism, self-efficacy and work engagement experienced by respondents. To provide an answer to this research problem, the research questions were developed to guide the study (see 2.7). To systematically provide answers to the research questions, an appropriate research design is required. In this chapter, the research design, research methodology, and statistical techniques used to evaluate the research propositions stated in 2.8 are discussed. The sample design as well as the data collection procedures and different measuring instruments are also discussed. The sample characteristics are also reported on in this chapter.

3.2 Overview and research design

The choice of a research design is governed by the research problem and research questions of a given study. The research questions are derived from the literature review and suggest the most appropriate methodology to answer the research problem.

3.2.1 Reason for choosing research design and methodology

The purpose of the chosen research design is to ensure that accurate empirical evidence is obtained that can be interpreted to determine if the eight research propositions set for this study can be confidently accepted or rejected. In order to evaluate the propositions, a mainly quantitative research approach was employed, making use of multiple measures. In order to investigate the correlations between the various variables, the research method took the form of a correlative *ex post facto design*. According to Babbie and Mouton (2001), this type of study involves the observance of the independent and dependent variables across individuals to establish the extent to which they co-vary. This approach offers strong support to the structural equations model theory that is used to (a) test the validity of theories about sequential relationships between two or more variables that have been studied in a correlational research design and (b) determine the combination of variables that predict a particular variable (Kerlinger, 1992).

This research design enables the empirical collection of the data from a large sample of respondents. One approach to collect empirical information is through the use of a survey from a large enough sample. In addition to empirical evidence obtained, the research design must also enable the statistical evaluation and statistical modeling of these identified constructs. This is primarily done by using statistical modeling studies. The research design must also make possible the evaluation of a theoretical model's ability to predict the dependent variable.

It can be suggested that a combination of a survey and a statistical modeling study (Babbie, 1998; Kerlinger & Lee, 2000; Mouton, 2001; Newman, 1997) is the most appropriate research design to evaluate the propositions discussed in 2.8. The characteristics of these two types of studies are briefly discussed below.

3.2.1.1 Survey research

In order to provide an answer to the research questions and the resultant propositions, a survey methodology, making use of standardised measuring instruments, was followed. Primary data was collected through standardised questionnaires that allows for numerical manipulation. Survey research entails the administration of questionnaires to a sample of respondents that form part of a larger population in order to discover the relative incidence, distribution, and interrelations of sociological and psychological variables (Kerlinger & Lee, 2000). Surveys take various forms, including mail, self-administered, face-to-face and telephone surveys and can be utilised for descriptive, exploratory and explanatory research.

The self-administered survey form (in which respondents independently complete questionnaires) was the method employed in this study. This method is only appropriate when the population under study is adequately literate, a requirement that was set to all respondents. The newest innovations in self-administered questionnaires make use of the computer. The respondent receives the computerised self-administered questionnaire (CSAQ) via email and runs the software which asks questions and accepts the respondent's answers. Following this, the respondent returns the data file (Babbie & Mouton, 2001). Nicholls, Baker and Martin (1997) report that such techniques are more

efficient than conventional techniques, and do not appear to result in a reduction of data quality.

This method holds certain advantages: (a) it makes the analysis of large datasets possible through the use of computer technology, (b) it is relatively inexpensive and concise, enabling quick completion, (c) it minimises interviewer bias and is largely accurate, (d) it allows for anonymous and honest responses from respondents, and (e) minimises or even eliminates the problem of missing values in a data set. Some disadvantages of survey research include: (a) the possible low response rate to the survey and a chance for significant response bias, (b) the researcher's lack of control over the conditions accompanying questionnaire completion, (c) receiving incomplete questionnaires, and (d) the researcher's lack of observation with regard to how respondents react towards questions and the research setting (Babbie & Mouton, 2001; Newman, 1997; Kerlinger & Lee, 2000). Due to the assumption that survey studies employ statistical techniques, it is appropriate to elaborate on statistical modeling studies in the following section.

3.2.1.2 Statistical modeling studies

Although survey studies provide a broad overview of the phenomenon being studied, it lacks the ability to evaluate the theoretical models developed through a literature review. To overcome this limitation, statistical modeling studies must also be combined with survey studies. The theoretical model is developed through a process of theorising about the process as observed in previous research studies. Data collected through the use of survey studies is used to quantitatively validate the theoretical model. Most often multivariate statistical analyses are used to evaluate and validate theoretical models. These analyses include multiple regression analysis and structural equation modeling (Kerlinger & Lee, 2000; Mouton, 2001). Multiple regression and structural equation modeling are discussed later in this section.

Both survey and statistical modeling studies have in common the use of survey data based on a sample. This highlights the importance of choosing a sample that is appropriate for the study with regard to sample size, level of education and other prerequisites of the specific study. The importance of sampling and the sampling design used for this study is elaborated on in the next section.

3.3 Sample design and participants

The aim of sampling is to obtain a representative indication regarding a sample's opinions and attitudes regarding the phenomenon being studied which is reflective of the total population (Kerlinger & Lee, 2000; Mouton, 2001; Newman, 1997). Authentic leadership research in a realistic setting requires an appropriate population that is representative of authentic leadership behaviour. The population of this study is defined in the following section.

3.3.1 Research participants

The research was conducted at a large liquor producing company which employs over 4000 people. The Company defines itself as being in the "social lubricant business", and understands that consumers are "seeking stimulation" rather than the purely functional aspect of thirst quenching. This company is a South African business and international sales are currently primarily achieved by exporting to agents who sell its products on the company's behalf in overseas countries. The strategic focus for the company is therefore to identify opportunities that will enable it to establish a strong global footprint, while at the same time defending and growing its domestic base and being a truly great South African Company. Headline earnings grew 20,9%, achieving compound annual growth of 24,1% over a seven year period. The company's culture consists of their:

- VISION: Delighted customers globally
- MISSION: A great company rooted in South Africa, crafting leading liquor brands for people to enjoy globally
- VALUES: A sense of ownership, performance-driven culture, respect for the individual, entrepreneurial spirit, customer service orientation, global mindset orientation.

For validation purposes, Babbie and Mouton (2001) recommend that the psychometric battery used in a study must be administered to a relatively large sample (approximately 100 subjects, depending on the number of tests or instruments in the battery). The sample included 407 respondents that were identified to take part in the survey. This number of subjects would be sufficient to arrive at credible results (Jöreskog & Sörbom, 1999). For

the purpose of this study for identifying the leadership role, line-managers were regarded as being in the leadership role. Respondents evaluated the perceived authentic leadership behaviours of their line manager and their own perceived levels of optimism and self-efficacy, and how this ultimately affects their work engagement.

In terms of size and composition, this sample is adequate for use in the present study. The sample attempted to be evenly spread between female and male, as well as diverse ethnical respondents. The minimum education level represented was a completed diploma or undergraduate degree.

A deliberately chosen sample was drawn. The reason for this was mainly due to the large size of this organisation, with widespread functions and a very diverse workforce. When a sample is constituted in this manner, the researcher can however at best hope that the relevant characteristics of the population will be present in the sample in approximately the same way they are present in the population, making the sampling variability predictable (Kerlinger & Lee, 2000) whilst allowing the researcher to generalise from those observations to the wider population (Babbie, 1998). Based on the sample, the researcher attempted to draw conclusions that can be generalised to others in the organisation.

3.3.2 Defining the sample

The sample used for the study is defined as follows: Individuals within the selected private sector organisation having an adequate level of literacy (holding at least a diploma or undergraduate degree) and having a direct reporting relationship in the organisation. The methods for obtaining respondents from the sample that represent the population are briefly discussed below.

3.3.3 Sample of participants

The characteristics of the sample of respondents who completed the survey questionnaires are described in this section. Their characteristics are provided in terms of the following variables: ethnic group, gender, age and tenure in current position.

Regarding ethnic group, the largest proportion of respondents were White, 306 (75%), followed by Black, 45 (11%), Coloured, 43 (11%), and Indian, 13 (3%).

The sample consisted of 196 (48%) female respondents and 211 (52%) males, indicating a majority of male respondents.

The sample consisted of the following age categories, 75 (18%) in the 18-30 age category, 185 (45%) in the 31-40 age category, 93 (23%) in the age 41-50 category, 51 (13%) in the 51-60 age category, and 3 (1%) in the 61-65 age category.

The tenure in their current position reflected 255 (63%) in the 0-5 year category, 93 (23%) in the 6-10 year category, 27 (7%) in the 11-15 year category, 20 (5%) in the 16-20 year category, 6 (1%) in the 21-25 year category, 5 (1%) in the 26-30 year category, and 1(0%) in the 31-35 year category.

3.3.4 General sample comments

After originally distributing 781 questionnaires to the population, a total of 407 candidates with usable responses were included in the sample. The study yielded a satisfactory response rate of 52%. The sample was representative of the population in which the psychometric instruments were used. Thus, in terms of size and composition, this sample is adequate for use in this exploratory study. Every effort was made to ensure demographical representation of the population.

3.4 Measuring instruments

Measuring the identified variables requires the use of standardised measuring instruments to operationalise each variable. Four questionnaires were identified through the literature review as being reliable, valid, and applicable to this study. A general discussion of each questionnaire's properties in terms of content, structure, and psychometric features, as presented in the literature, follows.

3.4.1 Authentic leadership

Authentic leadership behaviour was measured in this study by making use of the Authentic Leadership Questionnaire (ALQ), developed by Avolio, Gardner and Walumbwa (2007). The Authentic Leadership Questionnaire (ALQ) is a theory-driven leadership survey instrument designed to measure the components that have been conceptualised as

comprising authentic leadership. The four dimensions are *self awareness, relational transparency, balanced processing and internalised moral perspective*. The definitions for these dimensions are highlighted below:

Self-awareness refers to demonstrating an understanding of how one derives and makes meaning of the world and how that meaning making process impacts the way one views himself or herself over time. It also refers to showing an understanding of one's strengths and weaknesses and the multifaceted nature of the self, which includes gaining insight into the self through exposure to others, and being cognisant of one's impact on other people (Kernis, 2003).

Relational transparency refers to presenting one's authentic self (as opposed to a fake or distorted self) to others. Such behaviour promotes trust through disclosures that involve openly sharing information and expressions of one's true thoughts and feelings while trying to minimize displays of inappropriate emotions (Kernis, 2003).

Balanced processing refers to leaders who show that they objectively analyse all relevant data before coming to a decision. Such leaders also solicit views that challenge their deeply held positions (Gardner, et al., 2005).

Finally, *internalised moral perspective* refers to an internalised and integrated form of self-regulation (Ryan & Deci, 2003). This sort of self-regulation is guided by internal individualised moral standards and values versus group, organisational, and societal pressures, and it results in expressed decision making and behaviour that is consistent with these internalised values (Avolio & Gardner, 2005; Gardner, et al., 2005).

The four scales comprising the ALQ address the following questions:

- Self Awareness: To what degree is the leader aware of his or her strengths, limitations, how others see him or her and how the leader impacts others?
- Relational Transparency: To what degree does the leader reinforce a level of openness with others that provides them with an opportunity to be forthcoming with ideas, challenges and opinions?

- Ethical/Moral: To what degree does the leader set a high standard for moral and ethical conduct?
- Balanced processing: To what degree does the leader solicit sufficient opinions and viewpoints prior to making important decisions?

Self-awareness consists of 4 items, relational transparency of 5 items, internalised moral perspective of 4 items, and balanced processing of 3 items. Each of the dimensions were measured using a 5-point Likert scale ranging from 0 (*not at all*) to 4 (*frequently*).

Walumbwa et al. (2008) conducted a confirmatory factor analysis of the ALQ using two independent samples from the United States and the People's Republic of China. The US sample consisted of 224 full-time employees from a large high-tech manufacturer who rated their immediate supervisors on authentic leadership behaviours. The Chinese sample consisted of 212 full-time employees from a large state-owned company located in Beijing.

Using the 224 employees from the United States, the fit of the three different factor structures were compared. The first was a one-factor model, in which all 16 items were indicative of one larger authentic leadership factor. The second was a first-order factor model in which items were allowed to load onto their respective factors (i.e., self-awareness, relational transparency, internalised moral perspective, and balanced processing) and the factors allowed to correlate with each other. The third was a second-order factor model in which items were loaded onto their respective factors and the four factors loading on a second-order latent authentic leadership factor. The third (i.e. second-order) model is mathematically equivalent to the second (first-order) model (Bollen, 1989). However if tenable, the second order factor model is preferable because it allows for the covariation among first-order factors by accounting for corrected errors that are very common in first order confirmatory factor analysis (Gerbing & Anderson, 1984).

For the US sample, a one-factor model (all 16 items), with the following fit statistics were found: $\chi^2= 356.78$; $df= 102$; CFI= 0.91 and RMSEA= 0.11. For the first-order factor model, $\chi^2= 272.65$; $df= 96$; CFI= 0.94 and RMSEA= 0.09. For the second-order factor model, $\chi^2= 234.70$; $df= 98$; CFI= 0.97 and RMSEA= 0.05.

For the Chinese sample, a one-factor model (all 16 items), with the following fit statistics were found: $\chi^2= 249.79$; $df= 102$; CFI= 0.9 and RMSEA= 0.09. For the first-order factor model, $\chi^2= 208.71$; $df= 96$; CFI= 0.93 and RMSEA= 0.08. For the second-order factor model, $\chi^2= 107.03$; $df= 98$; CFI= 0.95 and RMSEA= 0.06.

For the purposes of the current study, only the rater version was utilised, as respondents were requested to evaluate their line-manager's perceived authentic leadership behaviour. Examples of items measuring authentic leadership are provided in Table 3.1.

Table 3.1: Examples of ALQ items

Item	My leader:
1	Says exactly what he or she means
3	Encourages everyone to speak their mind
6	Demonstrates beliefs that are consistent with actions
8	Asks you to take positions that support your core values
11	Analyses relevant data before coming to a decision
16	Shows he or she understands how specific actions impact others

3.4.2 Optimism

Scheier and Carver (1985) originally developed the Life Orientation Test (LOT) as a measure of optimism. The LOT is a self-report measure that consists of eight items. Of the eight included items, four are phrased in a positive way ("In uncertain times, I usually expect the best", "I always look on the bright side of things", "I'm always optimistic about my future", "I'm a believer in the idea that every cloud has a silver lining") and four in a negative way ("If something can go wrong for me, it will", "I hardly ever expect things to go my way", "Things never work out the way I want them to", "I rarely count on good things happening to me"). The negatively phrased items are reversed before scoring. Responses are made on 5-point Likert intensity scales with response options ranging from 0 (*strongly disagree*) to 4 (*strongly agree*). Scheier and Carver (1985) reported a Cronbach alpha of 0.76 and a test-retest correlation of 0.79 over a 4-week period.

Scheier, Carver and Bridges (1994) have revised the LOT by deleting two positive items that according to these researchers assess generalised coping more than outcome

expectancies. To balance the number of positive versus negative items for separate scoring, a negative item was deleted and a new positive item was added. As a result, the revised version LOT-R consists of three positive, three negative, and four filler items. Exploratory factor analysis of the LOT-R produced a single factor that had a mean factor loading of 0.69 and explained 48.1% of variance (Scheier et al., 1994). Confirmatory factor analysis further indicated that a single-factor solution was superior to a two-factor one. In addition, the revised test was shown to have acceptable reliability and validity indices (Scheier et al., 1994). Based on a sample of 204 college students, Harju and Bolen (1998) obtained a Cronbach alpha coefficient of 0.75 on the LOT-R.

For the purposes of this study the LOT-R was utilised, as respondents were requested to evaluate their own levels of optimism. Examples of items measuring optimism are provided in Table 3.2.

Table 3.2: Examples of LOT-R items

Item number	Item
1	In uncertain times, I usually expect the best
3	If something can go wrong for me it will
6	It's important for me to keep busy
7	I hardly ever expect things to go my way
9	I rarely count on good things happening to me
10	Overall, I expect more good things to happen to me than bad

3.4.3 Self-efficacy

Sherer, Maddux, Mercandante, Prentice-Dunn, Jacobs and Rogers (1982) developed a 17-item General Self-Efficacy Scale (GSES) to measure “a general set of expectations that the individual carries into new situations” (p. 664). The GSES has been the most widely used GSE measure. The afore-mentioned authors found more than 200 published studies that have used or cited the GSES. Although the GSES was originally developed for clinical and personality research, it has also been used in applied organisational settings. The evidence with regard to the reliability and validity of the GSES in organisational studies is summarised below.

The internal consistency reliability for the GSES in organisational research has been moderate to high ($\alpha = 0.76$ to 0.89) (e.g. Cable & Judge, 1994; Earley & Lituchy, 1991; Gardner & Pierce, 1998; Riggs & Knight, 1994; Schaubroeck & Merritt, 1997; Smith & Foti, 1998). Using the Hebrew version of the GSES, Eden and colleagues (Dvir, Eden, & Banjo, 1995; Eden & Aviram, 1993; Eden & Kinnar, 1991; Eden & Zuk, 1995) have obtained similar coefficients alpha in Israeli samples.

A large-scale German field research project with 3 514 high-school students and 302 teachers has provided evidence for validity of the GSE scale (Schwarzer & Jerusalem, 1999). For the group of students, general self-efficacy correlated 0.49 with optimism and 0.45 with the perception of challenge in stressful situations. For the teachers, high correlations were obtained with proactive coping (0.55), self-regulation (0.58), and procrastination (-0.56). Moreover, there was a substantial relationship to all three dimensions of teacher burnout (emotional exhaustion -0.47 , depersonalisation -0.44 , and lack of accomplishment -0.75). Similar evidence for validity was found for teachers in Hong Kong (Schwarzer, Schmitz, & Tang, 2000).

For the purposes of this study the GSES was utilised, as respondents were requested to evaluate their own levels of general self-efficacy. Examples of items measuring general self-efficacy are provided in Table 3.3.

Table 3.3: Examples of GSES items

Item number	Item
1	When I make plans, I am certain I can make them work
2	One of my problems is that I cannot get down to work when I should
4	If something looks complicated, I will not even bother to try it
11	When unexpected problems occur, I don't handle them very well
15	I am a self-reliant person
17	I do not seem capable of dealing with most problems that come up in my life

The general self-efficacy measure (GSES) utilised a 5-point Likert intensity scale. The scale had the following anchors: (0) strongly disagree, (1) disagree, (2) neutral, (3) agree, (4) strongly agree.

3.4.4 Work engagement

The Utrecht Work Engagement Scale (UWES) was developed by Schaufeli and Bakker (2003). This 17-item questionnaire is arranged along a seven-point Likert frequency scale ranging from 0 (*never*) to 6 (*daily*). The UWES has three sub-scales, namely *vigour* (6 items) *dedication* (5 items), and *absorption* (6 items). Vigour is assessed by six items that refer to high levels of energy and resilience, the willingness to invest effort, not being easily fatigued, and persistence in the face of difficulties. Dedication is assessed by five items that refer to deriving a sense of significance from one's work, feeling enthusiastic and proud about one's job, and feeling inspired and challenged by it. Absorption is measured by six items that refer to being totally and happily immersed in one's work and having difficulties detaching oneself from it so that time passes quickly and one forgets everything else that is around.

Examples relating to the three dimensions are the following: "I am bursting with energy in my work" (*vigour*); "I find my work full of meaning and purpose" (*dedication*); and "When I am working, I forget everything around me" (*absorption*). High levels of vigour, dedication and absorption point to an individual who experiences a high level of work engagement. Regarding internal consistency, Cronbach coefficients have been determined between 0.68 and 0.91 (Schaufeli et al., 2002a).

The results of psychometric analyses from the UWES can be summarised as follows:

Factorial validity - Confirmatory factor analyses show that the hypothesised three-factor structure of the UWES is superior to the one-factor model and fits well to the data of various samples from The Netherlands, Spain and Portugal (Salanova, Schaufeli, Llorens, Pieró & Grau, 2001; Schaufeli et al., 2002a; Schaufeli et al., 2002b ; Schaufeli, Taris, & Van Rhenen, 2003). However, there is one exception, using exploratory factor analysis, Sonnentag (2003) did not find a clear three-factor structure and consequently decided to

use the total-score on the UWES as a measure for work engagement, i.e. a uni-dimensional factor structure.

Inter-correlations - Although, according to confirmatory factor analyses the UWES seems to have a three-dimensional structure, these three dimensions are closely related. Correlations between the three scales usually exceed 0.65 (e.g., Demerouti et al., 2001; Salanova et al., 2001; Schaufeli et al., 2002a), whereas correlations between the latent variables range from about 0.80 to about 0.90 (Salanova et al., 2001; Schaufeli et al., 2002a).

Cross-national invariance - The factor structure of the slightly adapted student version of the UWES is largely invariant across samples from Spain, The Netherlands and Portugal (Schaufeli et al., 2002b). Detailed analyses showed that the loadings of maximum three items differed significantly between the samples of the three countries.

Internal consistency - The internal consistency of the three scales of the UWES is considered generally as good. That is, in all cases values of Cronbach's alpha are equal to or exceed the critical value of 0.70 (Nunnally & Bernstein, 1984). Usually values of Cronbach's alpha for the scales range between 0.80 and 0.90 (Salanova et al., 2001; Salanova, Grau, Llorens, & Schaufeli, 2001; Demerouti et al., 2001; Montgomery, Peeters, Schaufeli, & Den Ouden, 2003; Salanova, Bresó, & Schaufeli, 2003; Schaufeli, Taris, & Van Rhenen, 2003; Salanova, Carrero, Pinazo, & Schaufeli, 2003; Schaufeli & Bakker, 2004).

Stability - Scores on the UWES are relatively stable across time. Two-year stability coefficients for vigour, dedication and absorption are 0.30, 0.36, and 0.46, respectively (Bakker, Euwema, & Van Dierendonck, 2003).

For the purposes of this study the UWES was utilised, as respondents were requested to evaluate their own levels of work engagement. Examples of items measuring work engagement are provided in Table 3.4.

Table 3.4: Examples of UWES items

Item number	Item
1	At my work, I feel bursting with energy
3	Time flies when I am working
7	My job inspires me
13	To me my job is challenging
15	At my job I am very resilient, mentally
17	At my work I always persevere, even when things do not go well

With a clear understanding of how the constructs were operationalised, the following section focuses on the procedure for data collection.

3.5 Data collection procedure

The sampling method employed for this study was non-probability sampling, more specifically availability sampling (Babbie & Mouton, 2001) in which the researcher makes use of the available subjects. This sampling technique was chosen due to the constraints of gathering data in a private sector organisation, where the researcher did not have direct access to the candidates.

The study followed an electronic approach in distributing the questionnaires. The survey consisted of four sections that had to be completed by members of the sample. Instructions were provided on the first page of the questionnaire to ensure respondents of confidentiality regarding their identities as well as explaining the reason for conducting this study. The respondents completed the questionnaire over a period of approximately three weeks and submitted their responses electronically directly to the survey data repository. Access to this population was gained through the e-mail addresses of respondents.

In order to lower contamination, control was exercised by means of the following:

- A research website was established. Each participant was sent, via their e-mail, a link with the on-line feedback survey, comprising of the four instruments. Delivering a survey electronically did not change the basics. Asking for opinions creates expectations of action (and that the company will make the results available in some

form). There were many advantages to conducting the survey electronically. Since the data can be analysed with great speed, the respondents and organisation will receive a summary of the findings in electronic format. There is no cost for printing or postage, and no waste of paper. Electronic surveys do pose some problems, however. First, respondents must have access to e-mail. Less obvious is the non-anonymous nature of e-mail.

- Surveys were announced in advance by the researcher within the company, partly because many people delete messages from people they do not recognise. For this study, the Corporate Development Director agreed to the sending out of such an email message to participants. This announcement addressed anonymity, the goals of the questionnaire and the importance of the response and the researcher's e-mail address from which the questionnaires were sent. A follow-up message increases the response rate (Zatz, 2000). However, such a message was short and stressed the importance of responding.
- Respondents had to complete the entire questionnaire on their own. Respondents were given the opportunity to complete the questionnaires during working hours, whenever they had the time to work on it.
- Participants were guaranteed complete confidentiality and anonymity.

Thus, the methodological approach to the research study was essentially quantitative in nature, making use of electronic survey data collection.

3.6 Data analysis

The choice of data analysis technique is dependent on the type of research questions the study is aiming to answer. As previously stated, this study's research questions are guided by several propositions, each focussing on a specific purpose associated with scientific research. In general, data analysis techniques focus on relationships, significance of group membership, and structure (Field, 2005; Hair, Black, Babin, Anderson, & Tatham, 2006).

The data in this study was analysed by means of quantitative techniques. The following sections elaborate on the various data analysis techniques that were employed to test the various propositions. These include factor analysis, Pearson product-moment correlation analysis, multiple regression analysis, and structural equation modeling (e.g. partial least squares path modeling).

3.6.1 Determining the underlying structures of the constructs

One of the aims of this study was to determine the underlying structure associated with each of the measured constructs. Data obtained from the respondents were used to confirm factor structures and evaluate internal consistency.

Confirmatory factor analysis (CFA) was utilised to confirm the observed structure of the constructs and where necessary, exploratory factor analysis was utilised to explore the data and gain information on how many factors were needed to best represent the data. With exploratory factor analysis (EFA), all measured variables are related to every other factor by a factor loading estimate (Hair et al., 2006).

The following sections focus on the two major approaches to factor analysis, namely confirmatory factor analysis (CFA) and exploratory factor analysis (EFA).

3.6.1.1 Confirmatory factor analysis

To evaluate the quality of the measurements in terms of the data obtained (i.e. measurement models), confirmatory factor analysis must be conducted. The latter procedure is discussed in the following section.

Confirmatory factor analysis is 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. In CFA, the researcher must specify the number of factors that exist within a set of variables and also which factor each variable will load highly on before results can be computed. This information is obtained from the EFA or theory, and therefore the CFA serves to confirm the observed structure of the constructs. Structural equation modeling is then used to test how

well the researcher's *a priori* pattern of factor loadings fits the actual data. Therefore, CFA assists researchers to either reject or accept their preconceived theory.

Confirmatory factor analysis is particularly useful in a deductive reasoning process. Specific hypothesis testing is possible when using CFA. With CFA, it is possible to test the hypothesis that two factors versus only one factor (or any other numeric combination) underlie a set of data. Another use of CFA is to assess the equivalence of parts of the basic factor model within a given data set. It is also important to determine whether the results of a factor analysis are similar across demographic groups. Confirmatory factor analysis permits tests of invariance – that is, the equivalence of factor structure, loadings, uniqueness- across different groups (e.g., ethnic, gender, cultural) of individuals (Salkind, 2007, p. 245). However, in this study, this was not the emphasis.

Confirmatory factor analysis has greater flexibility in control than exploratory factor analysis. With CFA, some factors may be specified as *oblique* (correlated with one another) whereas others are specified to be *orthogonal* (uncorrelated with one another). Within a single EFA, the factors are interpreted as either oblique or orthogonal but not a combination of the two. In addition, CFA allows the researcher to flexibly impose additional constraints subject to theory (e.g., allowing correlated uniqueness). However, a benefit of EFA is that no such theoretical constraints or specifications are needed. Therefore if none exist, then EFA may be a better choice (Salkind, 2007).

The purpose of carrying out confirmatory factor analysis (CFA) was to provide statistical evidence on whether each of the identified variables is adequately defined in terms of the common variance among the indicators (i.e. items) in a measurement model (MacKenzie, Podsakoff, & Jarvis, 2005).

In this study, CFA was used to confirm the factor structure of each of the variables and to provide a confirmatory test of the measurement theory (authentic leadership, optimism, self-efficacy and work engagement). This involved constructing a model of relationships that are tested by the measurement theory. The measurement theory specifies a series of relationships that suggest how measured variables represent a latent construct that is not measured directly. Once the researcher uses measurement theory to specify a *priori* the

number of factors as well as which variables load on these factors, a measurement model will be operationalised (Hair et al., 2006). Only once this is done and the factor structure is accepted with confidence, can the researcher continue to evaluate the research questions.

Once the measurement models have been specified, the next step is to determine how the measurement model will be estimated. In the present study, the method of estimation used in CFA and structural equation modeling was robust diagonally weighted least squares, also called generalised least squares. The least squares method is widely used to find or estimate the numerical values of parameters to fit a function to a set of data and to characterise the statistical properties of estimates. Its simpler version is called ordinary least squares (OLS), and a more sophisticated version is called weighted least squares (WLS), which often performs better than OLS because it can modulate the importance of each observation in the final solution (Harper, 1974-1976). Robust WLS approach allows for a combination of binary ordered polytomous and continuous outcome variables and allows for multi-group analysis (Muthén, 1984).

After the measurement model has been specified and the parameters have been estimated, the following step is the assessment of the validity of each of the measurement models using a number of goodness-of-fit statistics, including Satorra-Bentler chi-square (S-B χ^2), goodness-of-fit index (GFI), standardised root mean square residual (SRMR), root mean square error of approximation (RMSEA), normed fit index (NFI), and comparative fit index (CFI).

The following section explores the variables used in conducting confirmatory factor analysis of each of the measurement models for the constructs.

3.6.1.2 Variables in CFA

There are several identified constructs used in this study. However, these constructs are measured through several indicators (i.e. items in a questionnaire). Thus, latent variables are equivalent to the identified variables used in the study. The indicator variables (also known as manifest/observed variables) are equivalent to the items or parcels that are used to measure these constructs (Tabachnick & Fidell, 2001).

3.6.1.3 Evaluating the measurement models through confirmatory factor analysis

In evaluating the goodness-of-fit for the constructs used in the current study, several approximate fit indices may be consulted. Hence, the degree to which the observed matrix fits the sample matrix is determined through goodness-of-fit tests, discussed in the following section.

3.6.1.3.1 Goodness-of-fit statistics

Goodness-of-fit indices are numerical indices that evaluate how well the model accounts for the data. These indices can be compared for a series of models with increasing number of common factors. The appropriate number of factors is determined by fitting a model in which a model with one less factor demonstrates substantially poorer fit and a model with one more factor provides little improvement in fit (Fletcher, 2007).

Several goodness-of-fit statistics were used to determine the validity of the measurement models in the current study. For the purposes of this study, only the following goodness-of-fit statistics are discussed, as they are the most widely reported and used fit statistics (Byrne, 1998; Hair et al., 2006): Satorra-Bentler chi-square (S-B χ^2), goodness-of-fit index (GFI), standardised root mean square residual (SRMR), root mean square error of approximation (RMSEA), normed fit index (NFI), and comparative fit index (CFI). Each of these fit statistics are discussed briefly below.

a) Satorra-Bentler scaled chi-square (S-B χ^2)

A family of scaling corrections aimed to improve the chi-square approximation of goodness-of-fit test statistics in small samples, large models and nonnormal data was proposed by Satorra and Bentler (1994). The Satorra-Bentler scaled chi-square is used when robust estimation techniques are employed. The reason why robust estimation techniques are used is when data deviates from the normal distribution. If the data departs markedly from multivariate normality, the Satorra-Bentler scaled chi square statistic (S-B χ^2) should be used to provide an improved estimate of the fit of a model (Satorra & Bentler, 2001).

b) Goodness-of-fit index (GFI)

The goodness-of-fit index was an early attempt to produce a fit statistic that is less sensitive to sample size. The possible range of GFI values are 0 to 1, with higher values indicating

better fit (Hair et al., 2006). It is suggested that values higher than 0.9 are indicative of acceptable model fit (Bentler & Bonett, 1980).

c) 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). An arbitrary cut-off of between 0.05 and 0.08 can be suggested for SRMR (Hair et al., 2006).

d) 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, as with SRMR, values below 0.10 for the RMSEA are indicative of acceptable fit, with values below 0.05 suggesting a very good fit (Hair et al., 2006).

e) Comparative fit index (CFI) and normed fit index (NFI)

A general guideline for the interpretation of the CFI and NFI is that values of 0.90 and higher indicate satisfactory fit between the postulated model and empirical data (Hair et al., 2006).

3.6.1.3.2 Comparison of groups

In order to increase the robustness of the CFA, a comparison of groups and cross-validation was done for the optimism construct (reason to be discussed later). This indicates the degree to which one sample produces the same results as another sample (Hair et al., 2006). In other words, cross-validation of a structural equation model refers to the ability of the model to be equivalent across two or more random samples from the same population.

In the current study, the sample (n=407) was randomly divided into two groups in order to determine the cross-validation within the sample. Loose cross-validation was employed to determine the fit of the revised optimism construct.

In loose cross-validation, the same CFA model used with the original sample is imposed on the validation sample. A CFA is then conducted using only the validation sample. If the CFA fits the original sample well, there is evidence of cross-validation. It is important to note that for this method both samples will have the same number of degrees of freedom because the same factor structure is used. In this method, no comparison of fit is made (Hair et al., 2006).

The following section focuses on the second major approach to factor analysis, namely exploratory factor analysis.

3.6.2 Exploratory factor analysis

In those instances where confirmatory factor analysis results suggest a poor fit between the observed data and the theoretical model, exploratory factor analysis was used to identify the reasons for the poor fitting results.

Typically, the goal of exploratory factor analysis (EFA) is to let the data determine the interrelationships among a set of variables. Although a researcher using EFA may have a theory relating the variables to one another, there are relatively few restrictions on the basic factor model in an EFA. First, the EFA is useful in data reduction when interrelationships among variables are not specified beforehand. A second benefit of EFA is the ability to detect a general factor. Thirdly, EFA is particularly useful in scale or test development because it allows the researcher to determine the dimensionality of the test and detect cross-loadings (correlations of variables with more than one factor (Fletcher, 2007).

Item analysis consists of exploratory factor analysis as well as reliability analysis. An item analysis was conducted on the scales that were used for data gathering. The purpose of item analysis was twofold, namely to determine acceptable factor loadings, and to investigate reliability and inter-item correlations. In determining acceptable factor loadings the general rule used is that factors have to have a loading of ≥ 0.3 to be accepted (Hair et al., 2006). In the event of a two-factor (or more) structure, items are also analysed for possible cross-loadings. In the case of the latter, items may be removed to provide a simple structure.

The purpose of investigating reliability and inter-item correlations is to ascertain which of the items in a scale, if any, have a negative effect on the overall reliability of the scale due to their inclusion in the particular scale. If a significant improvement in overall scale reliability occurs as a result of excluding a particular item, such item is also excluded from the subsequent factor analysis. Exploratory factor analysis is conducted when there are no explicit expectations regarding the number and nature of the underlying factors in each of the constructs (Hair et al., 2006).

In order to conduct exploratory factor analysis on the identified variables in question, the following steps are proposed (Field, 2005; Grimm & Yarnold, 1995; Hair et al., 2006; Kerlinger & Lee, 2000): (a) deciding which method of extraction should be used to extract the factors, (b) identifying the most appropriate method of rotating the factors, (c) determining how many factors can be extracted, and (d) determining how factor scores must be computed if factor scores are of interest.

3.6.2.1 Determining the number of factors to be extracted

Before determining how many factors can be extracted, it is important to first determine if the identified construct can be factor analysed. This was done by calculating both the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and the Bartlett's test of sphericity.

The KMO can be calculated for individual and multiple variables and represents the ratio of the squared correlation between variables to the squared partial correlation between variables. The KMO statistic varies between 0 and 1. A value of 0 indicates that the sum of partial correlations is large relative to the sum of correlations, indicating diffusion in the pattern of correlations, thereby deeming factor analysis inappropriate. A value close to 1 indicates that patterns of correlations are relatively compact and therefore factor analysis should present distinct and reliable factors. The cut-off value that will be utilised in this study is 0.3 (Hair et al., 2006).

Another method of determining the appropriateness of factor analysis examines the entire correlation matrix. The Bartlett test of sphericity is one such measure as it is a test for the

presence of correlations among the variables. It examines the correlations among all variables and assesses whether, collectively, significant intercorrelations exist (Hair et al., 2006). Significance is measured at the 0.05 level.

The factor analysis method employed to extract factors in the present research study was principal components analysis. Principle components analysis considers the total variance and derives factors that contain small proportions of unique variance and, in some instances, error variance. However, the first few factors do not contain enough unique or error variance to distort the overall factor structure. Specifically, with component analysis, unities are inserted in the diagonal of the correlation matrix, so that the full variance is brought into the factor matrix (Hair et al., 2006).

Rather than arbitrarily constraining the factor rotation to an orthogonal solution, the oblique rotation identifies the extent to which each of the factors are correlated. The oblique rotation assumes that the extracted factors are correlated (Hair et al., 2006). This method is deemed suitable “if the ultimate goal of the factor analysis is to obtain several theoretically meaningful factors or constructs” (Hair et al., 2006, p.110). Conclusions drawn from this method are restricted to the sample collected and generalisation of the results can be achieved only if analysis using different samples reveals the same factor structure (Field, 2005).

In deciding whether a factor in the factor analysis is statistically important enough to extract from the data for interpretation purposes, the decision is made on the eigenvalue associated with the factor. The eigenvalue (or Kaiser’s criterion) is based on the idea of retaining factors with associated eigenvalues greater than 1. The scree plot is consulted in the decision of extraction by looking at the point of inflection of the curve. However, previous research has identified parallel analysis as a more accurate method of estimating the number of factors to be extracted (Fletcher, 2007).

The following section focuses on the parallel analysis method of estimating the number of factors to be extracted that was utilised in this study.

3.6.2.2 Parallel analysis

Parallel analysis involves comparing eigenvalues obtained from the data with eigenvalues that would be expected from random data with an equivalent number of variables and equivalent sample size. The number of factors retained is equivalent to the number of eigenvalues expected from the random data (Fletcher, 2007).

For example, when focussing on the Life Orientation Test Revised, if the original data set consists of 407 observations, then a series of random data matrices of this size (407 x 6) would be generated, and eigenvalues would be computed for the correlation matrices for the original data and for each of the original data sets. The reason for the 6 items is that The LOT-R consist of 6 items. The eigenvalues derived from the actual data are then compared to the eigenvalues derived from the random data. In Horn's (1965) original description of this procedure, the mean eigenvalues from the random data served as the comparison baseline, whereas a currently recommended practice is to use eigenvalues that correspond to the desired percentile (typically the 95th) of the distribution of random data eigen values (Cota, Longman, Holden, Fekken, & Xinaris, 1993; and Glorfeld, 1995. Factors or components are retained as long as the i th eigenvalue from the actual data is greater than the i th eigenvalue from the random data.

3.6.3 Determining the degree of relationship between variables

In Chapter 2, eight research propositions (1-8) were identified suggesting statistical analysis techniques that can determine the relationships among the measured constructs. These propositions focus on both the descriptive and predictive purpose of research, and they all focus on the question of relationships between variables.

Two of the most appropriate data analysis techniques that can be employed in evaluating these propositions are bivariate r and multiple R (Bless & Higson-Smith, 2000; Field, 2005; Hair et al., 2006; Kerlinger & Lee, 2000). Both of these techniques are discussed below.

3.6.3.1 Correlation (Bivariate r)

The Pearson product-moment correlation coefficient is a standardised measure of the strength of the relationship between variables. It can take any value from -1 (as one variable changes, the other changes in the opposite direction by the same amount),

through 0 (as one variable changes the other doesn't change at all), to +1 (as one variable changes, the other changes in the same direction by the same amount) (Field, 2005).

3.6.3.1.1 Magnitude of r (Guilford's informal interpretations)

To evaluate the strength of a statistically significant relationship, it is useful to have a guide to interpret the strength of the identified correlation. Guilford (cited in Tredoux et al., 2002) provides a useful reference to interpret statistical significant relationships among variables. Thus, although a correlation may be statistically significant, it must still be evaluated in the context of its associated strength and value to the research. Guilford's informal interpretations of the magnitude of r are presented in the table below.

Table 3.5 Guilford's informal interpretations of the magnitude of r

Value of r (+ or -)	Informal interpretation
< 0.2	Slight; almost no relationship
0.2 – 0.4	Low correlation; definite but small relationship
0.4 – 0.7	Moderate correlation; substantial relationship
0.7 – 0.9	High correlation; strong relationship
0.9 – 1.0	Very high correlation; very dependable relationship

The following section elaborates on multiple regression analysis (i.e. multiple R) to evaluate which independent variables contribute significantly to the variance in the dependent variable.

3.6.3.1.2 General guidelines for interpreting reliability coefficients

Nunnally's (1967) guidelines were used to determine levels of reliability for the scales and sub-scales and are indicated in Table 3.6 below.

Table 3.6 General guidelines for interpreting reliability coefficients

Reliability coefficient value	Interpretation
0.90 and above	excellent
0.80 - 0.89	good
0.70 - 0.79	adequate
below 0.70	may have limited applicability

3.6.4 Multiple regression analysis

Regression analysis is the name for a family of techniques that attempts to predict one variable (an outcome or dependent variable) from another variable, or set of variables (the predictor or independent variables). Each of the parameters in the regression analysis can have a standard error associated with it, and hence a confidence interval can be calculated for each parameter with a p-value. Regression generalizes to a case with multiple predictor variables, referred to as multiple regression. The advantage and power of multiple regression is that it enables the researcher to estimate the effect of each variable, controlling for the other variables. That is, it estimates what the slope would be if all other variables were controlled (Salkind, 2007).

Multiple regression analysis, a form of general linear modeling, is a multivariate statistical technique that is used in this study to examine the relationship between a single dependent variable (work engagement) and set of independent variables (authentic leadership, optimism, self-efficacy). With its broad applicability, multiple regression has been used for many purposes. This application falls broadly within two groups, namely prediction and explanation. Prediction involves the extent to which the regression variate (one or more independent variables) can predict the dependent variable. Explanation examines the magnitude, sign and statistical significance of the regression coefficients (the amount of change in the dependent variable for a one unit change in the independent variable) for each independent variable and attempts to develop a substantive or theoretical reason for the effects of the independent variables (Hair et al., 2006).

The result of the multiple regression analysis for this study will be discussed in Chapter 4. The results of the multiple regression will assist in predicting the impact of the independent variables on the dependent variable.

The following sections elaborate on structural equation modeling (SEM) and in particular the partial least squares path modeling approach specifically utilised in the present study.

3.6.5 Structural equation modeling (SEM)

Structural equation modeling (SEM) is a general term that describes a large number of statistical models used to evaluate the consistency of substantive theories with empirical data. It represents an extension of general linear modeling procedures such as analysis of variance and multiple regression. SEM can be used to study the relationship between latent constructs that are indicated by multiple measures and is applicable to experimental or non-experimental data and to cross-sectional or longitudinal data (Salkind, 2007).

There are two approaches to SEM. The first approach emphasises the testing of a theory and is known as covariance based SEM (hard-based modeling). In contrast, the second approach to SEM is known as soft modeling which is a variance-based approach to SEM (e.g. partial least squares modeling). The purpose of this soft modeling approach is prediction (Henseler et al., 2009).

Structural equation modeling is used to test a theory or for prediction. SEM can examine a series of dependence relationships simultaneously and is therefore particularly useful in testing theories that contain multiple equations involving dependence relationships. SEM estimates a series of separate, but interdependent, multiple regression equations simultaneously by specifying the structural model used by the statistical programme. SEM therefore combines both multiple regression and CFA (MacCallum & Austin, 2000).

3.6.5.1 Evaluating the structural component of SEM through Partial Least Squares Modeling (PLS)

Confirmatory factor analysis was utilised to evaluate the measurement component of the proposed structural model. In order to evaluate the structural model, it was decided to use the soft modeling approach to SEM. The soft modeling approach involves the use of Partial Least Squares (PLS) in contrast to the hard modeling approach to SEM, which makes use of maximum likelihood. The rationale for choosing the PLS approach to SEM is highlighted below.

PLS models are formally defined by two sets of linear equations: the inner model and the outer model. The inner model specifies the relationships between unobserved or latent variables, whereas the outer model specifies the relationships between a latent variable

and its observed or manifest variables (Henseler et al., 2009). The inner model in PLS is similar to the measurement model used in the hard-based modeling approach and the outer model is similar to the structural model used in the hard-based modeling approach.

Partial least squares (PLS), is a family of alternating least squares algorithms, or “prescriptions” which extend principal component and canonical correlation analysis. The method was designed by Wold (1974,1982,1985) for the analysis of high dimensional data in a low-structure environment and has undergone various extensions and modifications. PLS, a variance-based technique has been used by a growing number of researchers from various disciplines such as strategic management (e.g., Hulland, 1999), management information systems (e.g., Dibbern, Goles, Hirschheim, & Jayatilaka, 2004), e-business (e.g., Pavlou & Chai, 2002), organisational behaviour (e.g., Higgins, Duxbury, & Irving, 1992), marketing (e.g., Reinartz, Krafft, & Hoyer, 2004), and consumer behaviour (e.g., Fornell & Robinson, 1983).

3.6.5.1.1 Motivation for using PLS modeling

- The most important motivations for using PLS modeling are exploration and prediction, as PLS path modeling is recommended in an early stage of theoretical development in order to test and validate exploratory models. Another powerful feature of PLS path modeling is that it is suitable for prediction-oriented research. Thereby, this methodology assists researchers who focus on the explanation of endogenous constructs (Henseler et al., 2009).

The characteristics researchers regard as relevant for the above-mentioned prediction-oriented research can be summarised as follows.

- PLS delivers latent variable scores, i.e. proxies of the constructs, which are measured by one or several indicators (manifest variables).
- PLS path modeling avoids small sample size problems and can therefore be applied in some situations when other methods cannot.
- PLS path modeling can estimate very complex models with many latent and manifest variables (i.e. saturation problem of covariance based SEM).

- PLS path modeling has less stringent assumptions about the distribution of variables and error terms.
- PLS can handle both reflective and formative models (Henseler et al., 2009).

It is noteworthy that PLS path modeling does not have less stringent assumptions about the representativeness of the sample than does covariance based structural equation modeling (Henseler et al., 2009). A rule of thumb for robust PLS path modeling estimations suggests that sample size be equal to the larger of the following (Barclay, Higgins, & Thompson, 1995): (1) ten times the number of indicators, or (2) ten times the largest structural paths directed at a particular construct in the inner path model. Chin and Newsted (1999) presented a Monte Carlo simulation study on PLS with small samples. They found that the PLS path modeling approach can provide information about the appropriateness of indicators at sample size as low as 20. This study confirms the consistency at large on loading estimates with increased number of observations and numbers of manifest variables per measurement model.

3.6.5.1.2 Methodological characteristics

PLS modeling is rooted in four genuine characteristics:

- (1) Instead of solely drawing on the common reflective mode, the PLS path modeling algorithm allows the unrestricted computation of cause-effect relationship models that employ both reflective and formative measurement models (Diamantopoulos & Winklhofer, 2001).
- (2) PLS can be used to estimate path models when sample sizes are small (Chin & Newsted, 1999).
- (3) PLS path models can be very complex (i.e. consist of many latent and manifest variables) without leading to estimation problems (Wold, 1985). PLS modeling is methodologically advantageous to covariance-based structural equation modeling (SBSEM) whenever improper or non-convergent results are likely to occur (i.e. Krijnen, Dijkstra, & Gill, 1998). Furthermore, with more complex models, the number of latent and manifest variables may be high in relation to the number of observations.

- (4) PLS path modeling can be used when distributions are highly skewed (Bagozzi, 1994), or the independence of observations is not assured, because, as Fornell (1982, p. 443) has argued, “there are no distributional requirements.”

3.6.5.1.3 Bootstrapping

The nonparametric bootstrap (Davison & Hinkley, 2003; Efron & Tibshirani, 1993) procedure was used in PLS path modeling to provide confidence intervals for all parameter estimates, building the basis for statistical inference. In general, the bootstrap technique provides an estimate of the shape, spread, and bias of the sampling distribution of a specific statistic. Bootstrapping treats the observed sample as if it represents the population. The PLS results for all bootstrap samples provide the mean value and standard error for each path model coefficient. This information permits a student's *t*-test to be performed for the significance of the path model relationships. Chin (1998) proposes using the following test statistic for PLS:

$$t_{\text{emp}} = \frac{w}{\text{se}(w)}$$

whereby t_{emp} represents the empirical *t*-value, w the original PLS estimate of a certain path coefficient, and $\text{se}(w)$ its bootstrapping standard error. If a confidence interval for an estimated path coefficient w does not include zero, the hypothesis that w equals zero is rejected.

3.6.5.1.4 Evaluation of PLS path model results

PLS path modeling does not provide for any global goodness-of-fit criterion. As a consequence, Chin (1998) has put forward a catalogue of criteria to assess partial model structures. A systematic application of these criteria is a two-step process, encompassing (1) the assessment of the outer model and (2) the assessment of the inner model. Figure 3.1 depicts the two-step process. At the beginning of the two-step process, model assessment focuses on the measurement models. A systematic evaluation of PLS estimates reveals the measurement model reliability and validity according to certain criteria that are associated with formative and reflective outer models. It only makes sense to evaluate the inner path model estimates when the calculated latent variable scores show evidence of sufficient reliability and validity.

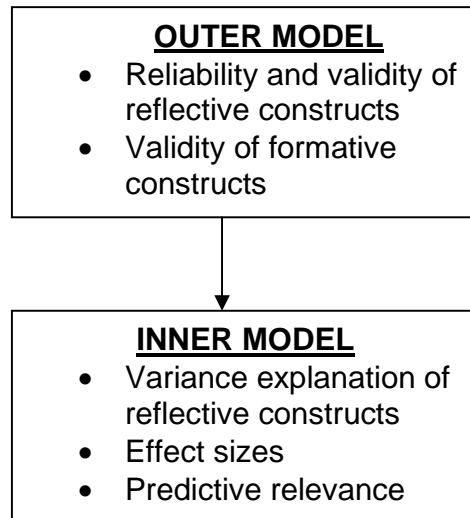


Figure 3.1: A two-step process of PLS path model assessment

3.7 Summary

In this chapter, an overview of the methodology used for this study was provided. The methodology included both survey and statistical modeling research. The measuring instruments and their psychometric properties were discussed. Emphasis was placed on using both confirmatory and exploratory factor analysis to identify and verify interpretable and understandable factor structures associated with each of the measured constructs.

The techniques used for data analysis, including correlation analysis and multiple regression analysis, were also discussed. The chapter also provided support for the use of structural equation modeling and in particular partial least squares path modeling in evaluating the theoretical model depicting the relationships between the constructs that are investigated in this study.

In Chapter 4, the results of data analyses conducted using the methodology explained in this chapter will be presented. Emphasis will be placed on determining the factor structure of each of the measured constructs, statistically describing the correlations between the measured constructs (emphasising Pearson's r), statistically explaining the modeling of the relationship between the constructs (emphasising structural equations modeling, e.g. the partial least squares path modeling approach) as well as statistically predicting the

sequential relationship between the constructs (emphasising both multiple regression analysis and PLS path modeling).

CHAPTER 4: PRESENTATION OF RESEARCH RESULTS

4.1 Introduction

The statistical results applicable to the research aim, the research questions and the propositions stated in Chapter 2 are presented in this chapter. Thus, the first section of the chapter reports on the confirmatory and exploratory factor analyses. The second section of the chapter reports on the statistical results of the relationships between the constructs. In the final section, an attempt is made to determine the sequential relationships between the constructs. These results will be interpreted in Chapter 5 in a similar sequence.

The distribution of the data for the sample used in this research will be discussed in the following section:

4.2 Results of the confirmatory factor analysis performed on each of the identified constructs

The information obtained for the CFA of the measurement models of each of the constructs is presented in Table 4.1, where factor structures are portrayed.

Table 4.1: Confirmatory factor analysis of the measurement models

Variable	Factor Structure	Reliability	S-B χ^2	df	RMSEA	SRMR	NFI	GFI	CFI
Authentic leadership	Self-awareness	$\alpha = 0.85$	367.02	98	0.082 (0.073; 0.091)	0.055	0.97	0.99	0.98
	Relational Transparency	$\alpha = 0.77$							
	Balanced Processing	$\alpha = 0.69$							
	Internalised Moral Perspective	$\alpha = 0.83$							
	Total Scale (All items)	$\alpha = 0.92$							
Optimism		Total Scale (All items) $\alpha = 0.68$	58.75	9	0.12 (0.089; 0.15)	0.082	0.92	0.98	0.93

General Self- efficacy	Single Factor	Total Scale (All items) $\alpha = 0.87$	301.20	119	0.051 (0.044; 0.058)	0.055	0.98	0.99	0.99
Work engagement	Vigour Dedication Absorption	$\alpha = 0.80$ $\alpha = 0.89$ $\alpha = 0.77$ Total Scale (All items) $\alpha = 0.92$	495.40	116	0.090 (0.082; 0.098)	0.073	0.96	0.99	0.97

From Table 4.1, it is clear that the majority of the measured constructs provide acceptable levels of fit in relation to the proposed theoretical structures. This is evident in acceptable levels of fit that are in line with suggested guidelines (Hu & Bentler, 1999). Notable however, is the fit obtained for the Life Orientation Test Revised (measuring optimism). The RMSEA value is above the acceptable level of between 0.08 and 0.10 (Hu & Bentler, 1999). In order to investigate the reasons for this poor fit, exploratory factor analysis was conducted. The results of the latter are presented in 4.5.

4.3 Correlations between the latent variables of the various constructs

The correlations between the latent variables of the various constructs are presented in the following section.

Table 4.2 below reflects the correlations between the authentic leadership latent variables.

Table 4.2: Correlations between authentic leadership latent variables

	Balanced processing	Internalised moral perspective	Self-awareness	Transparency
Balanced processing	1.00			
Internalised moral perspective	0.74	1.00		
Self-awareness	0.92	0.76	1.00	
Transparency	0.79	0.84	0.85	1.00

From the above table it is evident that the four latent variables are significantly correlated with one another.

Table 4.3 below reflects the correlations between the work engagement latent variables.

Table 4.3: Correlations between work engagement latent variables

	Absorption	Dedication	Vigour
Absorption	1.00		
Dedication	0.82	1.00	
Vigour	0.90	0.94	1.00

From the above table it is clear that the three latent variables are significantly correlated with one another.

Table 4.4 below reflects the correlations between the optimism latent variables.

Table 4.4: Correlations between optimism latent variables

	Optimism	Pessimism
Optimism	1.00	
Pessimism	0.66	1.00

From the above table is evident that the two latent variables are significantly correlated with each other.

On the basis of the uninterpretable results for the original three-dimensional structure of general self-efficacy, a uni-dimensional measurement model was tested. Due to the fact that general self-efficacy is suggested to be uni-dimensional, there are no correlations between the latent variables to report.

4.4 Item analysis

Due to the fact that the purpose of this study is to determine the relationships amongst the various constructs, as well as predicting work engagement using these constructs, the overall reliability of the scale is also of importance.

The following section reports on the item analysis results for each of the items of the authentic leadership construct. Both inter-item correlations and reliability are reported in Table 4.5 below.

Table 4.5: Item analysis for Authentic Leadership (Total Scale)

Items	Scale mean if item deleted	Scale variance if item deleted	Correlated item-total correlation	Cronbach's alpha coefficient if item deleted
leader1	39.81	113.03	0.58	0.92
leader2	40.35	106.98	0.69	0.91
leader3	40.05	108.64	0.66	0.92
leader4	40.09	112.09	0.56	0.92
leader5	40.62	114.24	0.41	0.92
leader6	40.07	109.47	0.70	0.91
leader7	39.86	112.48	0.60	0.92
leader8	40.11	110.54	0.64	0.92
leader9	39.98	111.58	0.59	0.92
leader10	40.62	112.48	0.51	0.92
leader11	39.73	113.52	0.54	0.92
leader12	40.16	108.17	0.70	0.91
leader13	40.32	108.00	0.65	0.92
leader14	40.75	108.95	0.67	0.91
leader15	40.44	107.10	0.76	0.91
leader16	40.24	107.76	0.70	0.91

All the items in the authentic leadership measurement provide excellent levels of reliability. In the current study, the 16-item authentic leadership measuring instrument has an overall reliability coefficient of 0.92.

The following section reports on the item analysis results for each of the items of the optimism construct. Both inter-item correlations and reliability are reported in Table 4.6 below.

Table 4.6: Item analysis for Optimism (Total Scale)

Items	Scale mean if item deleted	Scale variance if item deleted	Correlated item-total correlation	Cronbach's alpha coefficient if item deleted
optim1	14.29	8.88	0.20	0.70

optim3_r	14.42	7.56	0.43	0.62
optim4	14.13	8.37	0.34	0.66
optim7_r	14.36	7.39	0.52	0.59
optim9_r	14.43	6.91	0.55	0.58
optim10	13.98	8.39	0.42	0.63

Item 1 in the optimism measurement has adequate reliability, and items 3, 4, 7, 9 and 10, may have limited applicability. The 6-item optimism measuring instrument has an overall reliability coefficient of 0.68. There are three reverse-scored items for the total scale consisting of 6 items.

The following section reports on the item analysis results for each of the items of the general self-efficacy construct. Both inter-item correlations and reliability are reported in Table 4.7 below.

Table 4.7: Item analysis for General Self-Efficacy (Total Scale)

Items	Scale mean if item deleted	Scale variance if item deleted	Correlated item-total correlation	Cronbach's alpha coefficient if item deleted
effic1	48.77	53.41	0.47	0.87
effic2(reversed)	49.16	50.69	0.47	0.87
effic3	48.83	53.24	0.39	0.87
effic4(reversed)	48.91	52.44	0.43	0.87
effic5(reversed)	48.81	50.44	0.58	0.87
effic6(reversed)	49.12	49.37	0.60	0.86
effic7(reversed)	48.78	51.02	0.65	0.86
effic8	49.13	51.34	0.51	0.87
effic9	49.08	52.31	0.43	0.87
effic10(reversed)	48.89	51.47	0.58	0.86
effic11(reversed)	49.07	51.69	0.50	0.87
effic12(reversed)	48.82	51.11	0.58	0.86
effic13	49.01	52.56	0.41	0.87
effic14(reversed)	49.13	50.16	0.48	0.87
effic15	48.94	52.62	0.37	0.87
effic16(reversed)	48.61	50.70	0.67	0.86
effic17(reversed)	48.59	52.38	0.49	0.86

All the items in the general self-efficacy measurement provide good levels of reliability. The 17-item general self-efficacy measuring instrument has an overall reliability coefficient of 0.87.

The following section reports on the item analysis results for each of the items of the work engagement construct. Both inter-item correlations and reliability are reported in Table 4.8 below.

Table 4.8: Item analysis for Work Engagement (Total Scale)

Items	Scale mean if item deleted	Scale variance if item deleted	Correlated item-total correlation	Cronbach's alpha coefficient if item deleted
work1	71.13	181.31	0.61	0.91
work2	70.86	178.37	0.69	0.91
work3	70.27	185.69	0.57	0.91
work4	70.96	179.42	0.69	0.91
work5	70.69	175.65	0.77	0.91
work6	71.35	182.89	0.43	0.92
work7	71.22	172.03	0.80	0.91
work8	71.14	175.88	0.66	0.91
work9	70.38	185.26	0.64	0.91
work10	70.18	184.90	0.61	0.91
work11	70.97	179.78	0.63	0.91
work12	70.60	184.19	0.55	0.91
work13	71.11	174.41	0.70	0.91
work14	71.34	180.31	0.56	0.91
work15	71.00	183.52	0.51	0.91
work16	71.91	181.03	0.43	0.92
work17	70.52	186.05	0.53	0.91

All the items in the work engagement measurement provide excellent levels of reliability. The 17-item work engagement measuring instrument has an overall reliability coefficient of 0.92.

Although the constructs of authentic leadership, general self-efficacy and work engagement had acceptable levels of fit, see Table 4.1, the original conceptualisation as suggested by the authors of the LOT-R (Scheier et al., 1994), did not provide evidence of a good fit.

In order to identify the possible reasons for this poor fit, exploratory factor analysis was conducted to remove if necessary, poor performing items as well as identifying a more appropriate factor structure.

4.5 EFA of the construct optimism as measured by the LOT-R

The following section reports on the results regarding the factor structure of the instrument that was used to measure the construct optimism applicable to the current sample.

Due to the fact that the uni-dimensional structure suggested by the authors of the LOT-R resulted in a poor fit with the data, exploratory factor analysis was conducted. The KMO index and the Bartlett's test of sphericity were calculated and yielded values of 0.714 and a chi-square value of 239.577 ($df= 15$, $p= 0.000$) respectively. This was regarded as proof that exploratory factor analysis (EFA) could be carried out on the responses to the revised Life Orientation Test (Field, 2005).

The sample of 407 respondents was randomly split into two groups. The EFA was conducted using the first random sample. The results obtained from the first random sample were then tested through confirmatory factor analysis on the second random sample.

Results obtained through parallel analysis (Horn, 1965) resulted in the evaluation of two possible factors. These results are presented in the following section. A graphical presentation of parallel analysis can be seen in Figure 4.1: Scree-plot: Optimism as measured by the LOT-R.

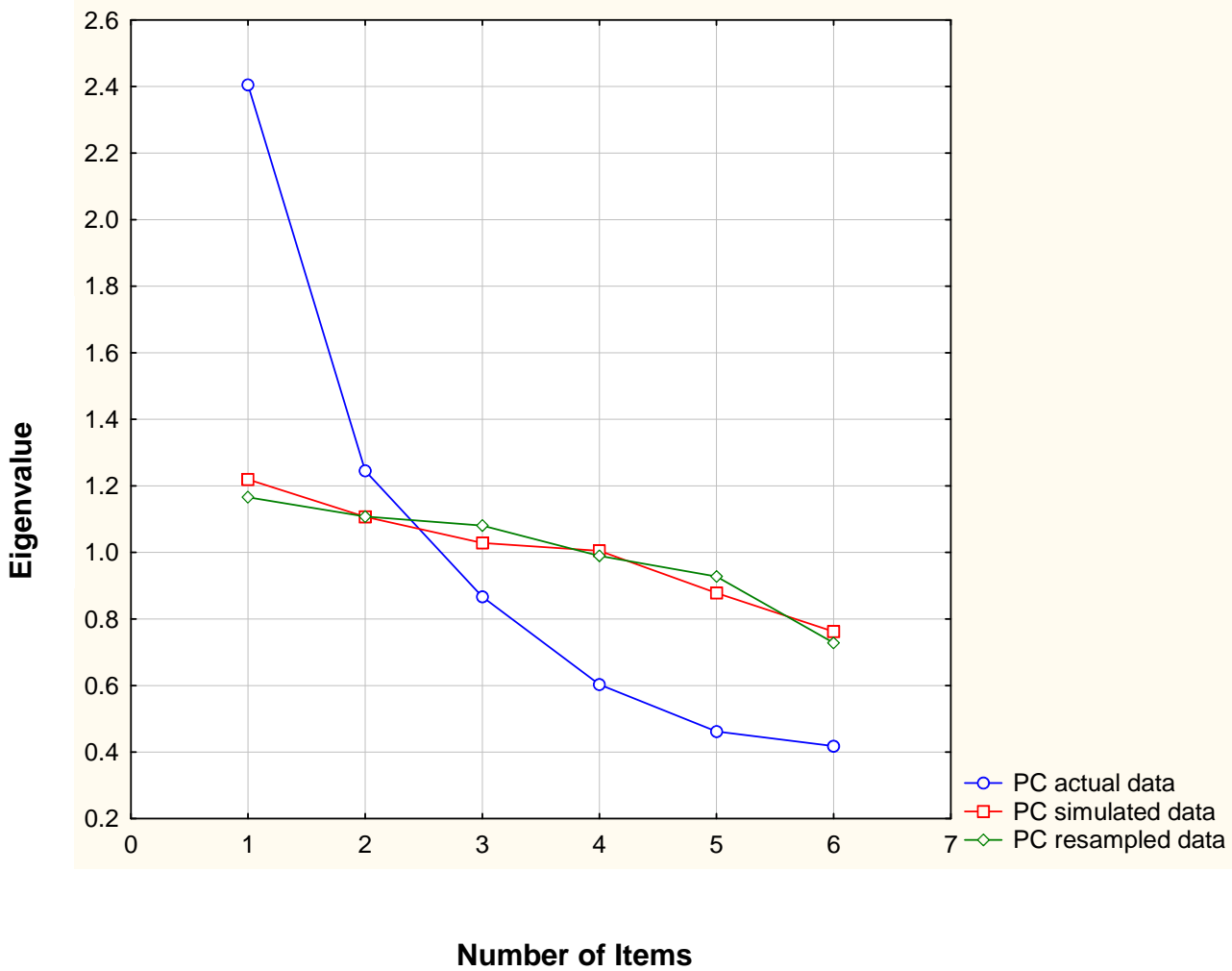


Figure 4.1 Scree-plot: Optimism as measured by the LOT-R

The procedure followed to conduct parallel analysis was described in Chapter 3. In summary, the eigenvalues obtained from the random data set is compared to the eigenvalues obtained from the original data set. From the above scree plot it is clear that there are two possible factors to be extracted when comparing the eigenvalues from both the random dataset and the observed dataset. On the basis of this latter result, exploratory factor analysis was conducted on a two-factor solution to the Life Orientation Test Revised. The original Life Orientation Test Revised consists of 10 items of which four are filler items, thus in essence consisting of 6 pivotal questions.

The results of the two-factor solution are reported in Table 4.9 below.

Table 4.9: Optimism: Two-factor solution

Items	Factor 1	Factor 2
optim1		0.37
optim3_r	0.69	
optim4		0.70
optim7_r	0.65	
optim9_r	0.72	
optim10		0.66

From Table 4.9 above, it is clear that items 3, 7 and 9 load significantly on factor 1, while items, 1, 4 and 10 load significantly on factor 2.

Table 4.10 below reveals the new two-dimensional structure of the optimism measure.

Table 4.10: CFA of LOT-R (New Structure)

Factor Structure	Reliability	S-B χ^2	df	RMSEA	SRMR	NFI	GFI	CFI
Factor 1: Optimism	$\alpha = 0.50$	16.58	8	0.073	0.056	0.95	0.99	0.98
Factor 2: Pessimism	$\alpha = 0.73$							

In comparison with Table 4.1, the above new two-dimensional structure provides a much better fit than the original one-factor solution.

Before analysing the structural model proposed in the current study, the following section will investigate the relationships amongst the various constructs.

4.6 Results of Pearson correlation analysis

The Pearson product-moment correlation coefficient is a standardised measure of the strength of the relationship between variables and was used in this study to determine the strength of the relationship between the constructs authentic leadership, optimism, self-efficacy and work engagement. The structures identified and confirmed through

confirmatory factor analysis are used in the analysis of the correlations. The correlations between the constructs are summarised in Table 4.11, using their total scores.

Table 4.11: Correlation matrix of the various constructs

	1	2	3	4
1. Authentic leadership	1.00			
2. Optimism	0.19 (p=0.00)	1.00		
3. General Self-efficacy	0.14 (p=0.01)	0.42 (p=0.00)	1.00	
4. Work engagement	0.26 (p=0.00)	0.28 (p=0.00)	0.45 (p=0.00)	1.00

From the above table it is clear that the constructs are all significantly correlated with each other. It is noteworthy that the dependent variable (work engagement) is significantly correlated with all the independent variables, authentic leadership, optimism and general self-efficacy.

Although the independent variables are all significantly related to the dependent variable, it is still unclear as to their contribution to the explanation of any change in work engagement. In order to determine whether each of the independent variables contribute significantly to the prediction (i.e. variance) of work engagement, multiple regression analysis is called for.

In the following section, the results of analyses done to determine if any of the constructs are significant predictors of others are presented.

4.7 Results of multiple regression analysis

The results of the multiple regression analysis is presented in this section. These results will assist in predicting work engagement.

The regression model includes authentic leadership, optimism, and self-efficacy as the predictors (independent variables), and work engagement as the criterion (dependent variable). The results of the multiple regression analysis are explicated in Table 4.12 below.

Table 4.12: Multiple regression model summary (dependent variable; work engagement)

R= .50054859 R ² = .25054889 Adjusted R ² = .24496985 p<0.0000 Std.Error of estimate: 12.391			
	β	Standard error of β	p-value
Intercept			0.00
Authentic leadership	0.19	0.04	0.00
Optimism	0.07	0.05	0.14
General self-efficacy	0.40	0.05	0.00

From the above table, it is evident that all the independent variables contribute significantly to the prediction of work engagement, except for optimism. All three of the independent variables explain 25% of the variance in work engagement. This model is significant. ($p < 0.00$).

4.8 Results of the measurement and structural models

When using the PLS approach to structural equation modeling, a two-step process is suggested (Chin, 1998). The first stage evaluates the outer model (i.e. measurement component). The purpose of this evaluation is to determine the measurement quality of the constructs to be used in the evaluation of the inner model (i.e. structural component). In Table 4.1, the measurements to be used in the evaluation of the inner model provided acceptable levels of fit as well as reliabilities. Hence, the evaluation of the inner model can be made without any concern about the quality of the constructs used. The outer model (i.e. the measurement model) was not evaluated using PLS.

The purpose of PLS path modeling is not to test a theory, but rather to facilitate prediction (Henseler et al., 2009). In order to determine which paths between the different variables are significant, the SmartPLS programme uses the bootstrapping method (Davison &

Hinkley, 2003; Efron & Tibshirani, 1993) as highlighted in Chapter 3. In this method, if zero is included in the confidence interval, then the corresponding coefficient is not significant.

The results of this method are reported in Table 4.13 below.

Table 4.13: PLS path modeling results

	Path coefficient	Bootstrap lower	Bootstrap upper	Significant
Authentic leadership to work engagement	0.193	0.1052	0.2822	Yes
Authentic leadership to optimism	0.190	0.0908	0.2953	Yes
Authentic leadership to general self-efficacy	0.060	-0.0492	0.164	No
Optimism to work engagement	0.072	-0.0288	0.1756	No
Optimism to general self-efficacy	0.410	0.3257	0.4863	Yes
General self-efficacy to work engagement	0.397	0.3064	0.4811	Yes

The significant paths include:

- Authentic leadership and optimism
- Authentic leadership and work engagement

- Optimism and general self-efficacy
- General self-efficacy and work engagement

In line with the research questions, the PLS Path Model which was built, is depicted in Figure 4.2 below. In this Figure, the path coefficients are indicated.

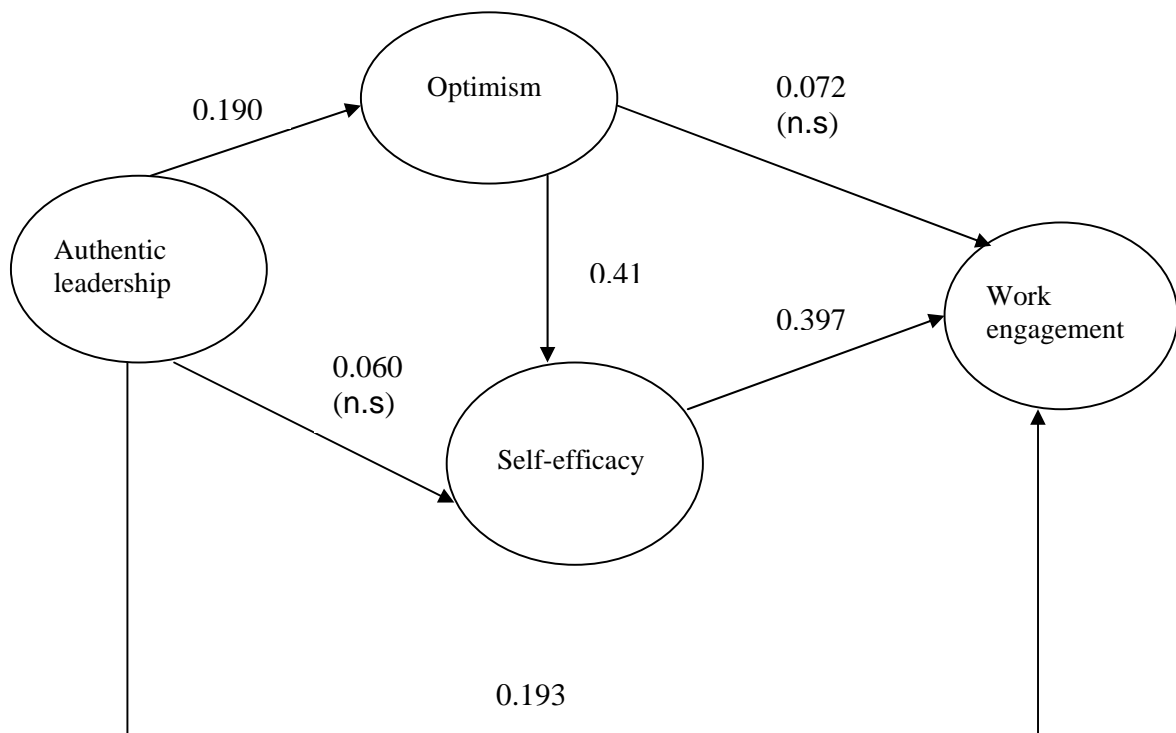


Figure 4.2: PLS path model

The PLS results suggest that by using authentic leadership, optimism and general self-efficacy, 25% of the variance in work engagement will be explained.

Figure 4.2 indicates that all paths in the structural model are significant, except the two paths between authentic leadership and general self-efficacy, and optimism and work engagement.

In light of this model of the present study, the following two observations can be made:

- (a) authentic leadership behaviours demonstrated by leaders as perceived by their immediate subordinates' seem to directly impact the levels of work engagement in the organisation.
- (b) authentic leadership behaviours demonstrated by leaders as perceived by their immediate subordinates' seem to impact their subordinates' levels of optimism, which in turn impacts their self-efficacy, hence resulting in increased levels of work engagement.

It seems apparent that the optimal approach to predict work engagement is either directly through authentic leadership, or through an alternative path consisting of the following sequence i.e. authentic leadership through optimism; through general self-efficacy to impact work engagement.

4.9 Summary

All the results obtained from the sample described in the previous Chapter 3 were presented in this chapter. The results reported, focussed on different analyses, namely: (a) confirmatory factor analysis, (b) exploratory factor analysis, (c) correlation analysis, (d) multiple regression analysis, and (e) structural equation modeling (e.g. partial least squares modeling). Of importance is that an interpretable factor structure was found for each of the four constructs. Each construct's factor structure showed acceptable levels of fit. In addition, significant relationships between the constructs were found. Significant path coefficients between all the constructs in the sequential model were found, except for the relationship between optimism and work engagement and between authentic leadership and general self-efficacy. The predictive value of the constructs to predict work engagement was addressed and will be further discussed in Chapter 5. Of importance was that authentic leadership and general self-efficacy were significant predictors of work engagement as based on the multiple regression results.

The implications of these findings will be interpreted and discussed in Chapter 5, together with recommendations for intervention and to improve future research in the field of positive organisational behaviour.

CHAPTER 5: DISCUSSION OF RESEARCH RESULTS AND RECOMMENDATIONS FOR FUTURE RESEARCH

5.1 Introduction

In this final chapter, the research results as presented in Chapter 4, are discussed and interpreted. The chapter commences with a discussion of the factor structures of the constructs in light of the existing literature, followed by a discussion of the correlation analysis and an interpretation of the measurement models. This is followed by a discussion of the multiple regression and PLS modeling results. The chapter concludes with a discussion of the limitations of this study and recommendations for intervention and further research.

5.2 Conclusions regarding the factor structure results on the data

For each of the constructs, confirmatory factor analysis was conducted and utilised to confirm the observed structure of the constructs. In those instances where confirmatory factor analysis results suggested a poor fit between the observed data and the theoretical model, exploratory factor analysis was used to identify the reasons for the poor-fitting results. After EFA, a further CFA was conducted to re-evaluate this revised structure. A discussion of the results of the factor analysis results for each construct follows.

5.2.1 Authentic leadership

Confirmatory factor analysis was carried out on the 16-item Authentic Leadership Questionnaire (ALQ) developed by Avolio, Gardner and Walumbwa (2007) to determine how well this proposed structure fitted the data.

The authors suggested a four-factor structure and therefore the confirmatory factor analysis allowed for this possibility. In the present study, the indices seem to indicate an acceptable fit with the data. The SRMR had a value of 0.055 and the RMSEA a value of 0.082. The incremental fit indices were CFI= 0.98 and NFI= 0.97, while the goodness-of-fit index was measured at 0.99. The reliability for this construct was 0.92. The sub-components had the following reliabilities: self-awareness ($\alpha= 0.85$); relational transparency ($\alpha= 0.77$); balanced processing ($\alpha= 0.69$); and internalised moral perspective ($\alpha= 0.83$).

As referred to in section 3.4.1, Walumbwa et al. (2008) conducted a confirmatory factor analysis using an independent sample from the United States which consisted of 224 full-time employees from a large high-tech manufacturer who rated their immediate supervisors on authentic leadership behaviours. When the values of the indices of the present study are compared with the four-factor model alluded to in section 3.4.1, the structure in the present study seems to represent a somewhat better fit with the data than the data obtained from the U.S. sample.

It can thus be concluded that authentic leadership, as measured by the Authentic Leadership Questionnaire, is a valid and reliable instrument based on the above mentioned results. The Authentic leadership measure is thus an accurate representation of the construct in the current study.

5.2.2 Optimism

Confirmatory factor analysis was carried out on the 10-item version of the Life Orientation Test Revised (LOT-R) developed by Scheier et al. (1994) in order to determine how well this proposed factor structure fitted the data.

In the present study, the indices seem to indicate an acceptable fit with the data except for the RMSEA value. The SRMR of the original factor structure revealed a value of 0.082 and the RMSEA a value of 0.12. The incremental fit indices were CFI= 0.93 and NFI= 0.92, while the goodness-of-fit index was measured at 0.98. The reliability for the total scale was 0.68.

Three previous studies provided conflicting evidence (Scheier & Carver, 1992; Scheier et al., 1994; Lai, Cheung, Lee, & Yu, 1998). In the study by Scheier & Carver (1992) a principle components factor analysis, using a Varimax final rotation technique, was conducted on a combined sample of 2 055 undergraduate women and men. The number of factors retained for the final solution was determined by setting the eigenvalue criterion at 1.0. The six LOT-R items (4 items are filler items), yielded one factor accounting for 48.1 % of the variance. All items loaded at least 0.58 on this factor. The mean factor loading was 0.69. The same one-factor solution also emerged from a subsequent principle components

factor analysis using an oblique rotation technique. The single factor also accounted for 48.1% of the variance.

In addition to exploratory factor analysis, the data was further examined by confirmatory analytic procedures (Jöreskog & Sörbom, 1978), using LISREL VI (Jöreskog & Sörbom, 1986). Confirmatory analyses were limited to the 6 items comprising the LOT-R. Initially, two simple measurement models were tested, one loading all factors on a single factor and one loading positively and negatively worded items onto separate factors. The models were evaluated using criteria described by Bentler and Bonett (1980), Jöreskog and Sörbom (1986), and Bollen (1989). The single-factor solution yielded a reasonably good fit to the data, $X^2(9, N= 2055) = 159.22$, $p= 0.001$; $\Delta_1= 0.95$, $\Delta_2= 0.95$, root mean square residual (RMR) = 0.048, as did the two-factor model, $X^2(8, N= 2055) = 43.59$, $p= 0.001$, $\Delta_1= 0.99$, $\Delta_2= 0.99$, RMR= 0.024. Evaluation of the difference in fit between the two models by a hierarchical or nested test (Bentler & Bonett, 1980) suggested that the two-factor solution was superior, $X^2(1, N= 2055)= 115.63$, $p <.0001$.

In contrast to analyses involving the original scale, factor analyses of the revised LOT seem to point in the direction of a one-factor model, but not strongly so. Exploratory factor analyses using both orthogonal and oblique rotation techniques on the LOT-R in isolation yielded a one-factor solution. One-factor solutions were also reached when factor analyses were done on all of the items from all of the related scales simultaneously (Scheier et al., 1994).

On the basis of these previous studies, the factor structure of the LOT-R deserves special comment. It is not uncommon for the original LOT to yield two separate factors, one for positively worded items and one for negatively worded items (e.g., Marshall, Wortman, Kusulas, & Vickers, 1992; Scheier & Carver, 1985). For simplicity, optimism and pessimism can be viewed as opposite poles of the same dimension, attributing the two-factor structure to differences in wording rather than more meaningful item content (Scheier & Carver, 1985). Results from the confirmatory factor analysis on the 6 items comprising the LOT-R were more mixed, however. That is, in absolute terms, both the one-factor and the two-factor model provided an acceptable fit to the observed data (Scheier & Carver, 1992).

Confirmatory factor analysis was performed on the LOT-R data to contrast the applicability of one- and two-factor models. It was found that the LOT-R better supports a one-factor than a two-factor model: [one-factor: $X^2(38) = 486.48$, $P < .0001$; Bentler-Bonett normed fit index = 0.69; two-factor: $X^2(37) = 526.24$, $P = < .001$; Bentler-Bonett normed fit index = 0.34]. The LOT-R is therefore more likely to represent a uni-dimensional than a multidimensional construct, as suggested by data reported previously in an English speaking sample (Scheier et al., 1994).

A study by Lai et al. (1998) to examine the utility of the revised Life Orientation Test to measure optimism among 248 Hong Kong Chinese undergraduate students, conducted exploratory factor analysis using principle component analysis and a two-factor solution was generated for the LOT-R. The first factor was loaded with 3 positive items and explained 33.3% of the total variance (eigenvalue = 2.01). The negative items were loaded onto the second factor and accounted for 22.8% of additional variance (eigenvalue = 1.37). However the one-factor solution reported by Scheier et al. (1994) was not replicated in the present sample.

In the current study, to investigate the possibility whether a two-dimensional structure of the LOT-R would fit the data better, exploratory factor analysis was conducted based on parallel analysis. This study by Lai et al. (1998) provides support to the present study which also found a two-factor solution.

The rationale for investigating the two-factor solution is underpinned by the promising results provided by Lai et al. (1998). In addition, the reason for conducting exploratory factor analysis on the structure of the LOT-R was due to the fact that the original uni-dimensional structure did not provide adequate fit, especially in terms of the high RMSEA value = 0.12. This provided the motive for the researcher's decision to extract a two-dimensional structure, by means of principle components factoring (with oblique rotation).

In computing a revised two-factor solution, the current study found improved fit statistics, as opposed to the original one-factor structure found by the developers of the LOT and LOT-R, with a RMSEA= 0.073, SRMR= 0.056, CFI= 0.98, NFI= 0.95 and GFI= 0.99. The reliability for the total scale was ($\alpha = 0.68$). The sub-components had the following

reliabilities; optimism ($\alpha = 0.50$); pessimism ($\alpha = 0.73$). It is highly likely that the low reliability associated with the optimism scale was due to the small number of items comprising this complex dimension (six in total - 3 measuring optimism, and 3 measuring pessimism).

It is clear that the two-dimensional structure of the LOT-R as suggested by the study of Lai et al. (1998) and the current study's CFA, indicate an improved fit with the data.

5.2.3 Self-efficacy

Confirmatory factor analysis was carried out on a single-factor solution of the General Self-Efficacy Scale by Sherer and colleagues (1982) in order to determine how well this factor structure fitted the data. The original three-factor solution did not provide an interpretable result. The latter was based on the phi-matrix that was not positive definite.

In the present study, the indices seem to indicate an acceptable fit with the data. The SRMR had a value of 0.055 and the RMSEA a value of 0.051. The incremental fit indices were CFI= 0.99 and NFI= 0.98, while the goodness-of-fit index was measured at 0.99. The reliability for the total scale was 0.87.

A study by Nel and Boshoff (2008) with a sample of 295 participants that wrote part one of their accounting qualifying exam (QE1), completed the 17-item General Self-efficacy Scale of Sherer and colleagues (1982). Confirmatory factor analysis was carried out, in order to determine how well a one-factor structure fitted their data. The following goodness-of-fit statistics were obtained for the three-factor structure (original) versus the one-dimensional structure. Regarding the three-factor structure, the SRMR had a value of 0.055 and the RMSEA a value of 0.049. The incremental fit indices were CFI= 0.97, and NFI= 0.93, while the goodness-of-fit index was measured at 0.91. Whereas for the one-dimensional structure, the SRMR had a value of 0.055 and the RMSEA a value of 0.050. The incremental fit indices were CFI= 0.97, and NFI= 0.93, while the goodness-of-fit index was measured at 0.91.

The one-dimensional structure as evaluated by Nel and Boshoff (2008) provides a better fit based on their study, than the original three-factor structure developed by the authors of

the GSE scale. Nel and Boshoff's (2008) results seem to support the results of the present study.

It can thus be concluded that self-efficacy, as measured by the General Self-Efficacy Scale (GSES), is a valid and reliable instrument based on the above mentioned results. The results of the general self-efficacy measure is thus an accurate representation of the construct in the current study.

5.2.4 Work engagement

Confirmatory factor analysis was carried out on the original structure in order to determine how well this factor structure fitted the data.

In the present study, the indices seem to indicate an acceptable fit with the data. The SRMR had a value of 0.073 and the RMSEA a value of 0.090. The incremental fit indices were CFI= 0.97 and NFI= 0.96, while the goodness-of-fit index was measured at 0.99. The reliability of the total scale was 0.92. The sub-components had the following reliabilities; vigour ($\alpha= 0.80$); dedication ($\alpha= 0.89$); and absorption ($\alpha= 0.77$).

A study by Shimazu, Schaufeli, Kosugi, Suzuki, Nashiwa, Kato, Sakamoto, Irimajiri, Amano, Hirohata and Goto (2008) was conducted to validate the Japanese version of the Utrecht Work Engagement Scale (UWES-J). Confirmatory factor analyses using the multiple-group method revealed that instead of the original three-factor model, a one-factor model that assumes that all engagement items load on one single factor, fitted the data. Moreover, the one-factor structure was invariant across all three samples. Internal consistency of the scale was sufficiently high ($\alpha= 0.92$) and test-retest reliability with an interval of two months was 0.66.

The results of the confirmatory factor analysis of the UWES-J (N= 2324) goodness-of-fit statistics for the one-factor model, are as follows: RMSEA= 0.11, CFI= 0.85 and GFI= 0.81.

The results of the three-dimensional structure of the present study seem to be far superior to the results evidenced by the Shimazu et al.'s (2008) one-factor solution.

It can thus be concluded that work engagement as measured by the Utrecht Work Engagement Scale is a valid and reliable instrument based on the above mentioned results. The UWES measure is thus an accurate representation of the construct in the current study.

In the following section, the research questions of the current study will be answered.

5.3 Conclusions regarding predicting work engagement through PLS modeling

In this section, the results of the Pearson product-moment correlation analysis as well as the path coefficients will be discussed against the backdrop of existing literature, where it exists for the respective constructs. The correlation analysis was performed on the constructs and not their sub-components. Structural equation modeling was done through PLS modeling. In this study, PLS modeling focused on the prediction of work engagement through path analysis.

The paths between the latent variables, authentic leadership and optimism (proposition 1); authentic leadership and work engagement (proposition 3); optimism and self efficacy (proposition 4); self-efficacy and work engagement (proposition 6) of the structural model are significant. However, the paths between the latent variables, authentic leadership and self-efficacy; and optimism and work engagement are not significant.

Only proposition 2 and 5 were not supported by non-significant path coefficients. Significance of path coefficients were determined through the bootstrapping method (Davison & Hinkley, 2003; Efron & Tibshirani, 1993) as referred to in Chapter 3.

The relationship between authentic leadership and optimism

A significant positive correlation was found between authentic leadership and optimism. ($r=0.1896$; $p=0.0001$). More specifically, it was established that authentic leadership is sequentially related to optimism (proposition 1). The size of the path coefficient (0.190) is noteworthy.

This confirms the conceptual relationship between authentic leadership and optimism as referred to in section 1.5.1.1, which alludes to a plethora of literature which emphasizes the

significant link between authentic leadership and optimism (Gardner & Schermerhorn, 2005; Luthans et al., 2007, Schneider, 2001; Avolio & Luthans, 2006; Luthans & Avolio, 2003; Luthans, Norman, & Hughes, 2006).

Specifically, Avolio, et al., (2007) provide a conceptual explanation of the link between authentic leadership and optimism, where most importantly as authentic leaders develop their associates, they help them build their own realistic optimism. Rather than doing everything and making all the decisions for them, high PsyCap optimistic leaders enable, empower, delegate, and trust their followers to achieve the desired outcomes. They equip their people with the necessary knowledge and skills, abilities and motivation, not only to succeed, but also to be able to make personal, permanent, and pervasive attributions of their own.

Thus an optimistic explanatory style would help employees taking charge and being in control of their own destiny. Importantly, this optimistic processing of events is likely to cause their positive outlook to actually come true. In other words, PsyCap optimism can lead to a self-fulfilling prophecy (Peterson & Chang, 2002) and can be both motivated and motivating (Peterson, 2000) to achieving long-term success.

Thus it is possible that leaders who are optimistic may therefore influence their followers in a positive way.

The relationship between authentic leadership and work engagement

A significant positive correlation exists between authentic leadership and work engagement ($r= 0.2617$; $p= 0.00$). In addition, it was established that authentic leadership is sequentially related to work engagement (proposition 3). The latter was evident through both a significant path coefficient (0.193) from PLS modeling as well as multiple regression analysis. The magnitude of the path coefficient (0.193) is fairly substantial, indicating a relatively strong influence of authentic leadership on work engagement. This seems to confirm the conceptual link between authentic leadership and work engagement as alluded to below.

Although, relatively little attention has been devoted to the relationship between leadership and work engagement, Avolio et al. (2004) believe this relationship merits increased attention, especially in the light of the results from Harter and colleagues (e.g., Harter, Schmidt, & Hayes, 2002; Harter, Schmidt, & Keyes, 2003) recent meta-analyses that indicate engagement is positively and strongly related to a variety of key performance outcomes, including productivity, customer satisfaction, profit, accidents and employee turnover. As defined by Harter et al. (2003, p. 269), employee engagement “refers to the individual’s involvement and satisfaction with as well as enthusiasm for work.

Avolio et al. (2004) view engagement in their model as an important consequence of authentic leadership that mediates its effects on follower outcomes commonly seen as influenced by leadership processes (Bass, 1990; Yukl, 2002), including transformational leadership (Avolio, 1999; Bass & Avolio, 1994; Lowe, Kroeck, & Sivasubramaniam, 1996; Walumbwa & Lawler, 2003). While Avolio et al. (2004) recognise that other forms of leadership can be effective in achieving these outcomes, they believe that the intervening states of follower identification, trust, hope, and positive emotions in their model posit to arrive from authentic leadership, provide an especially solid foundation for veritable and sustainable organisational performance (Luthans & Avolio, 2003).

Hence it seems apparent that authentic leadership behaviours have a strong influence on levels of follower work engagement.

The relationship between optimism and self-efficacy

A significant positive correlation exists between optimism and self-efficacy ($r= 0.4217$; $p= 0.00$). It was also found that optimism is sequentially related to self-efficacy. The size of the path coefficient (0.410) is substantial, indicating that the influence of optimism on self-efficacy is rather strong. It also provides confirmation of proposition 4, namely that a significant relationship exists between optimism and self-efficacy.

This confirms the conceptual relationship between optimism and self-efficacy as suggested in the literature. Between optimism and self-efficacy, there are noteworthy similarities, as well as significant differences. Both are evaluations about the future, although self-efficacy seems to be antecedent to optimistic appraisal (a strong sense of self-efficacy facilitates

optimistic appraisals; Bandura, 1997). On the other hand optimism may reflect a more benign assessment of the environment rather than of the personal capabilities (Carver & Scheier, 1998).

Research has shown that both are strongly associated with behaviours, thoughts and emotions. High self-efficacy, for example, has been related to more positive thinking, higher self-esteem, higher goals and more positive emotions (Bandura, 1997; Locke & Latham, 1990; Schwarzer, 1992). Optimists seem to employ more problem-focused coping strategies and more effective ways of emotional regulation (Taylor & Armor, 1996). Moreover, optimism mediates the relationship between perceptions about the world, and the self and well-being (Karademas, 2006), whereas there is evidence that self-efficacy functions as a mediator between personality characteristics and adaptation (Major, Richards, Cooper, Cozzarelli, & Zubek, 1998). Thus self-efficacy and optimism may be related to enhanced outcomes through regulating behaviour and emotions or through mediating other underlying cognitive structures and processes.

Related support for the existence for distinct contributions from the various positive capacities, such as optimism and general self-efficacy, can also be drawn from psychological resources theories (Hobfoll, 2002). For example, integrated resource models treat individual capacities as cumulative sets or “resource caravans.” These individual capacities or resources coexist. They are developed, manifested, and utilised as a collective rather than in isolation. The richness and reliability of one’s “resource reservoirs:” rather than possessing one specific resource, become critical in successfully performing in a specific domain, event, or challenge and for general health and well being (Youssef & Luthans, 2007).

In other words, it seems possible that the positive psychological capacities of optimism and self-efficacy may be important for work engagement beyond what may be accounted for by any one of them.

The relationship between self-efficacy and work engagement

A significant positive correlation exists between self-efficacy and work engagement ($r= 0.4539$; $p=0.00$). Furthermore it was found that self-efficacy is sequentially related to work engagement (proposition 6). The latter was evident through both a significant path coefficient (0.397) from PLS modeling as well as through multiple regression analysis. The size of the path coefficient (0.397) is substantial, indicating that the influence of self-efficacy on work engagement is rather strong.

This confirms the conceptual relationship between self-efficacy and work engagement as suggested in literature. Specifically, studies have shown that the higher a person's self-efficacy, the more likely she or he will be to initiate tasks, sustain effort toward task accomplishment, and persist when problems are encountered or even in the face of failure (Bandura, 1986, 1997; Stajkovic & Luthans, 1998 a,b).

Luthans and Peterson (2002a) propose that the manager's self-efficacy may be related to employee engagement because as the manager's employees become more engaged (cognitively and/or emotionally) in their work, the manager acquires confidence and belief in her/his abilities to create and build an engaged team or group successfully. This engaged team led by an efficacious manager, results in desired unit/organisational outcomes. It is therefore possible that a similar explanation could be applied to individual employee's self-efficacy in relation to work engagement.

Given the evidence in literature of the positive relationship between self-efficacy and work engagement, it seems possible that self-efficacy is related to employee work engagement.

The relationship between authentic leadership and self-efficacy

Authentic leadership was found to have a significant correlation with self-efficacy. ($r= 0.1382$; $p= 0.01$). However, the path coefficient (0.060) was non-significant. Hence on the basis of the above results, proposition 2 is supported by the significant correlation, but not in terms of the path coefficient.

Moreover, this finding does not support the attempts to conceptually (Luthans, Luthans, Hodgetts, & Luthans, 2002, McCormick, 2001) and through research (Chemers, Watson, & May, 2000; Chen & Bliese, 2002; Walumbwa, Lawler, Avolio, Wang, & Shi, 2005) link self-efficacy and leadership as suggested in the literature.

Possible explanations for the lack of a significant relationship between authentic leadership and self-efficacy may lie in the theoretical conceptualisation of authentic leadership in the definition of self-awareness (Kernis, 2003) which refers to demonstrating an understanding of how one derives and makes meaning of the world and how that meaning making process impacts the way one views himself or herself over time. It also refers to showing an understanding of one's strengths and weaknesses and the multifaceted nature of the self, which includes gaining insight into the self through exposure to others, and being cognisant of one's impact on other people.

Noteworthy, is that the definition of self-awareness (Kernis, 2003) does not allude to the development of self-confidence. The same is true of relational transparency, balanced processing and internalised moral perspective. Reflecting on the definition of general self-efficacy (Sherer et al., 1982), none of the components in the definition of the dimensions of authentic leadership (i.e. self-awareness, internalised moral perspective, balanced processing and relational transparency) refer to the development of self-confidence.

Another possible explanation could pertain to the uniqueness of the sample of the organisation in question. In having a thorough knowledge of the company; two-thirds of all employees are based in the Western Cape are predominantly Afrikaans-speaking, and don't have English as their first language. As such, respondents may perhaps not have been able to understand the intricacies of the questions, and were possibly not able to finely differentiate between the various nuances of the survey questions posed in English.

It is therefore apparent that authentic leadership behaviours do not seem to directly influence the levels of self-efficacy of their followers. Possible explanations for the lack of a significant relationship between authentic leadership and self-efficacy may be due to the need for authentic leadership to work through the other positive construct optimism, in order to potentially have an influence on self-efficacy.

The relationship between optimism and work engagement

Optimism was found to have a positive correlation with work engagement ($r= 0.2759$; $p= 0.00$). In contrast to the significant correlation, the path coefficient from both the PLS modeling and multiple regression were non-significant. The size of the path coefficient (0.072) indicates that there is little influence of optimism on work engagement. This refutes proposition 5, namely that a significant positive relationship exists between optimism and work engagement.

Moreover, this does not support the conceptual relationship between optimism and work engagement as suggested in literature as referred to in section 1.5. Similar to the other positive psychological capacities, empirical research on optimism in the workplace is just emerging. However, Seligman (2002) did find that optimism was positively related to the performance of sales agents. In addition, in the study of Chinese factory workers mentioned previously by Luthans et al. (2005), optimism was also found to have a significant relationship with rated performance. The study by Youssef and Luthans (2007) found employees' optimism to be related to their performance, satisfaction, and happiness.

A possible explanation for the lack of a significant relationship between optimism and work engagement may be due to the need for optimism to work through the other positive construct self-efficacy in order to potentially have an influence on work engagement.

Another potential explanation may be that the optimism measuring instrument may not have been the most appropriate for use in this study, given the unique combination of variables with the sample of respondents within the specific organisation.

Furthermore, the researcher of the present study found a different optimism structure as opposed to the original structure of the developers, which gives rise to the question of the portability of the instrument without subjection to the necessary cultural refinement.

The non-significant path coefficients fail to provide support for the following propositions (a) authentic leadership is not related to self-efficacy (proposition 2); (b) optimism is not related to work engagement (proposition 5) in the specific sample.

Research question 2 was addressed and discussed in Chapter 4, thus by making use of the partial least squares method, a successful model could be built as depicted in Table 4.13 and Figure 4.2 respectively.

In summary, from the empirical work reported in this chapter, it is clear that no strong relationship exists between authentic leadership and self-efficacy, nor between optimism and work engagement.

5.4 Summary

The findings in this study demonstrated that authentic leadership can be measured in an organisational environment. The relationships between authentic leadership and work engagement; authentic leadership and optimism; optimism and self-efficacy; and the relationship between self-efficacy and work engagement were found to be significant. Authentic leadership showed a significant correlation with self-efficacy, and optimism also showed a significant correlation with work engagement.

In light of this model of the present study, the following possible observations were made:

- (a) authentic leadership behaviours demonstrated by leaders as perceived by their immediate subordinates seem to directly impact the levels of work engagement in the organisation.
- (b) authentic leadership behaviours demonstrated by leaders as perceived by their immediate subordinates seem to impact their subordinates levels of optimism which in turn impacts their self-efficacy, hence resulting in increased levels of work engagement.

It seems apparent that the optimal approach to predict work engagement is either directly through authentic leadership or through an alternative path consisting of the following sequence i.e. authentic leadership through optimism; through self-efficacy to impact work engagement.

It therefore follows that it seems possible that authentic leaders with an optimistic style could positively influence employees to have an optimistic view, which in turn could influence their levels of self-efficacy. It is apparent however, that there seems to be a need for authentic leadership to work through the positive construct optimism, in order to potentially have an influence on self-efficacy, thus ultimately leading to increased levels of work engagement.

Hence, the present study served as a baseline/first-level study that provides a foundation for future research and provides additional data-based research on authentic leadership and its relationship to other variables.

5.5 Limitations and recommendations

This section of this research study aims to provide guidance for future researchers interested in the study of the relationship between positive organisational scholarship variables, with specific focus on the constructs of authentic leadership, optimism, self-efficacy and work engagement. Firstly, some limitations of this study are discussed. This is followed by recommendations for future research and suggestions on how interventions could be approached.

5.5.1 Limitations of the present research study

The influence of context cannot be overlooked in the present study of authentic leadership. A more thorough understanding is needed of contextual factors, including those that can be shaped by the leader and those that are not within the leader's control, foster different identities and moderate the authentic leader's effects (Kark & Shamir, 2002). By integrating context into one's understanding of the authentic leadership process, there will be greater opportunity to control for any contextual nuances and thus enhance the predictability of any leadership model (Avolio et al., 2004).

With regard to the measurement of optimism, the Life Orientation Test Revised instrument should be subjected to refinement in order to increase its applicability to an organisational setting as highlighted previously. Seligman's Attributional Style Questionnaire (ASQ) (Peterson, Semmel, van Bayer, Abrahamson, Metalsky, & Seligman, 1982) is suggested as an option. Alternatively, another instrument should be designed or sourced.

Respondents from this present study were elicited from a single sample used from just one organisation, which may limit the generalisability of the findings to other organisational settings.

Future research studies utilising the survey method should aim to implement measures to prevent mono-method and possible response bias. Since the data in this study was gathered at a single point in time, and not as continued measurement over a period of time, it may have aggravated common method biases resulting in inflated correlations.

A more ethnically diverse sample would be useful to explore whether authentic leadership, optimism, self-efficacy and work engagement are seen and evaluated differently by different cultural groups.

It is clear that many possibilities exist for future studies to further explore the relationships between authentic leadership, optimism, self-efficacy and work engagement.

5.5.2 Recommendations for future research

Several recommendations for future research are offered in the following section. First, as Seligman and Csikszentmihalyi (2000) point out, there are several levels of analysis that require attention resulting from the inclusion of positive psychology. They include: (1) the subjective level that comprises positive subjective experiences such as well-being, contentment and satisfaction (focussed on past hope and optimism anchored in the future). Along with flow and happiness in the present; (2) the micro, individual level with positive traits and qualities such as the capacity for love, courage, aesthetic sensibility, forgiveness and wisdom; and (3) the group or macro level encompassing positive civic virtues such as civility, tolerance and work ethic (Luthans, 2001).

As illustrated in the literature overview, several emergent themes found in theory and research on authentic leadership development reflects areas of convergence and divergence. Emerging areas of convergence include: a focus on the role of authentic leader and follower emotions and followers' emotional reactions to leader authenticity and inauthenticity; growing recognition of the importance of relational transparency to authentic

leadership and explication of specific contextual influences on authenticity. According to Avolio et al. (2004) areas of divergence involve differences of opinion regarding inclusion of moral component and positive psychological capital as essential elements in models of authentic leadership.

The various authors alluded to in this research study, all highlight a plethora of directions for future theory development and research. For example, the authors proposing conceptual models (Chan et al., 2005; Klenke, 2005; Youssef & Luthans, 2005) either provide propositions for testing their models and/or recommendations for further theory building and research while others pose preliminary findings and consider their implications for this emerging area of research (e.g. Eigel & Kuhnert, 2005; Kolditz & Brazil, 2005). Still others focus primarily on authentic leader development and advanced recommendations for making intervention strategies effective (e.g. Eigel & Kuhnert, 2005; Youssef & Luthans, 2005). Chan et al. (2005) describe the measurement challenges confronting researchers interested in studying authentic leadership and provide recommendations for addressing these challenges.

Gardner et al. (2005) claim that regardless of the methodology, it is essential that the predictions advanced by authentic leadership development theory, as is the case for any model of leadership development, be empirically tested and validated. The afore-mentioned authors propose that researchers use a wider array of dependent variables to assess the effects of authentic leadership and the efforts to develop it.

Gardner et al. (2005) further suggest that the most important current area to measure are those constructs and corresponding variables that gauge changes that one intends to create via some "genuine" and/or authentic leadership development intervention. The range of constructs and variables that need to be included can involve variables that assess intrapersonal change, interpersonal change, group-level change, and ultimately organisational-level change.

Starting at the individual level, future research therefore ought to explore how the moral self-concept of leaders and followers is configured when associated with high moral character. On the interpersonal level, future research thus can examine how the leader

shapes the follower's self-concept and the way they choose to think and act across the full range of moral dilemmas. Simply put, what are authentic leadership behaviours, and how do they distinctly differ from charismatic and transformational leadership behaviours?

At the group and organisational level, further research seems clearly required on how authentic leaders and followers impact subsequent exchanges within groups in terms of positivity, trust, respect, self-sacrifice, citizenship, extra effort, willingness to tell the truth, and the social networks that form as a consequence of this type of leadership. In line with the group and organisational levels, careful exploration at the more macro levels is required of how operational definitions at all levels, measures and interventions, apply across different individuals, groups and especially cultural contexts (Gardner et al., 2005).

Finally, when considering directions for future research, it is important to reiterate that authentic leadership and authentic leadership development are related but separate phenomena. Authentic leadership involves the processes whereby leaders form genuine transparent and trusting relationships of influence with followers/associates. In contrast, authentic leadership development involves the planned and unplanned processes whereby individuals come to identify the leader role as part of their core self-concept (Chan et al., 2005; Gardner, 1993) and achieve self-awareness, balanced processing, relational transparency, and authentic behaviour when enacting that role with followers (Gardner, Avolio, & Walumbwa, 2005; Ilies et al., 2005). It may also involve genuine, transparent and veritable planned efforts to develop authentic leaders (Avolio & Gardner, 2005). Given these differences, it is important for researchers to clearly identify which of these phenomena are of interest and design their studies accordingly. Through this study the researcher hopes to contribute to the field of authentic leadership and in the process help build and develop the field.

The above discussion evidently stresses the need for continued research in this domain. From the literature review it becomes evident that, exploring the identified constructs requires rigorous quantitative and qualitative research, but especially quantitative research, to further the study field of authentic leadership.

Further confirmatory studies on the factor structures of the instruments used in this study,

namely the Authentic Leadership Questionnaire (ALQ), Life Orientation Test Revised (LOT-R), General Self-Efficacy Scale (GSES) and Utrecht Work Engagement Scale (UWES) are needed.

In contrast to the non-significant path coefficients, authentic leadership and self-efficacy; optimism and work engagement, the correlation coefficients were significant. It is therefore possible that those relationships may hold true for future studies using either a larger sample or different measuring instruments for these constructs.

More importantly, further work is needed on differentiating authentic leadership from existing theories of leadership such as transformational, charismatic, inspirational and servant. Future research also needs to explore how some other leadership theories might be connected to authentic leadership.

5.6 Intervention: Implications for practice

The importance of the present study is encapsulated in the knowledge that there are necessary antecedents to the development of authentic leadership, optimism and self-efficacy in order to increase levels of work engagement. Hence, it is suggested that organisations consider the following two broad intervention categories (1) development of authentic leadership behaviours of their leaders in order to increase levels of employee work engagement, and (2) development of positive psychological capacities such as optimism and self-efficacy of both leaders and followers in order to increase levels of leader and follower work engagement.

In line with the latter suggested interventions, the core processes in Avolio and Luthans' (2006) proposed authentic leadership development include (1) positive psychological antecedents; (2) organisational context antecedents; and (3) self-development; but also, (4) the positive psychological capabilities need to be examined with the larger than life context of leaders; (5) the organisational context needs to be framed through vision, strategy, and culture; and finally (6) how both planned and unplanned trigger events moderate and shape the authentic leader's development.

As alluded to earlier, Luthans and Youssef (2004) argue that now, 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).

It is therefore concluded that drawing from the emerging repertoire of positive psychologically-based interventions, the development of authentic leadership behaviours, and the development of the positive psychological capacities of both leaders and followers in order to facilitate heightened levels of work engagement, may yield substantial returns for organisations.

5.7 Conclusion

The results obtained from the sample presented in the previous Chapter 4, were presented with interpretations and possible explanations in this chapter. The interpretations focussed on the factor structures and reliability of the constructs. In addition, the attempt to predict the correlations with work engagement, the interpretations of the multiple regression analysis and the PLS model were presented. Suggestions were made regarding how organisations can develop authentic leadership, optimism and self-efficacy in order to increase levels of work engagement. In order to address the limitations of the current study, several directions for future research were provided.

In conclusion, global organisations are beginning to recognise that positive psychology concepts can help organisational leaders meet the challenges in today's turbulent, unprecedented environment. Although traditional approaches are still necessary for effective management, they are no longer sufficient in today's paradigm, the "flat world" (Friedman, 2005) competitive environment. Organisations should take full advantage of developing authentic leadership and growing the optimism and self-efficacy of their employees in order to capitalize on these context-specific, cumulative, renewable factors. The advantage of organisations developing authentic leadership, optimism and self-efficacy in order to increase levels of work engagement is that it is difficult to replicate by competitors, without considerable effort and discipline on the part of managers and leaders, making it an enduring competitive advantage (Luthans & Youssef, 2004).

Similar to the other psychological capacities, it is evident that empirical research on these positive constructs is only just emerging. Future research needs to explore further ways that organisations can intervene to develop authentic leadership, boost realistic optimism, and self-efficacy, thus positively impacting levels of work engagement for continued sustainable growth and performance.

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