

Organisational Psychology Masters, University of the Witwatersrand

THE ROLE OF IMPLICIT PERSON THEORIES AND PSYCHOLOGICAL CAPITAL IN WORKPLACE THRIVING



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PLAGIARISM DECLARATION

I, Ronit Batya Levy, declare that this research project is my own, unaided work. It has not been submitted before for any other degree or examination at this or any other university.

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ABSTRACT

The aim of the current study was to investigate two possible mechanisms that might facilitate thriving in the workplace, namely implicit person theories and psychological capital. These variables were chosen because of their potential to operate in accordance with Barbara Fredrickson's broaden and build hypothesis, with implicit person theories working to broaden thought-action repertoires, and psychological capital working to build personal resources.

The study employed a quantitative, non-experimental, correlational, and cross sectional design. A sample of 226 working adults living in South Africa volunteered to participate in the study. They completed four online questionnaires: a demographic questionnaire; the Thriving at Work Scale; the Implicit Person Theories Scale; and the Psychological Capital Questionnaire-24 (PCQ-24). To test the hypothesis that implicit person theories and psychological capital jointly facilitate the experience of workplace thriving, a series of correlations, regressions, and mediation analyses were conducted. The results indicated that psychological capital does indeed mediate the relationship between implicit person theories and workplace thriving.

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CHAPTER 1: INTRODUCTION AND LITERATURE REVIEW

Today's workplace is characterised by intense global competition spurred by considerable technological advances and access to information on a global level (Robbins & Judge, 2013). It is an environment that requires flexibility, innovation, and speed-to-market with the result that survival, let alone success, demands higher-than-average performance (Luthans & Youssef, 2007; Luthans, Luthans, & Luthans, 2004). However, success cannot be attained simply by trying to fix weaknesses (Luthans & Youssef, 2007). Rather, there is a need for a more balanced approach that takes into consideration both the positive and the negative, both developing strengths and trying to improve weaknesses (Luthans & Youssef, 2007).

Building on the positive psychology literature, organisational and management scholars have started to recognise the potential benefits of integrating positive psychological principles to enhance the corporate experience (Mills, Fleck, & Kozikowski, 2013). An important component of the employee experience is the idea of workplace thriving, which is characterised by the experience of learning and vitality (Porath, Spreitzer, Gibson, & Garnett, 2012). The experience of thriving is argued to impact on important outcomes such as development, health, and performance (Boyd, 2015). Given the potential importance of workplace thriving, it is therefore important to understand what might lead to this experience. The primary aim of this study was therefore to investigate two possible mechanisms that facilitate thriving in the workplace, namely implicit person theories (Dweck & Leggett, 1988) (known as 'mindsets' in the contemporary literature on the topic¹) and psychological capital (Luthans, Youssef, & Avolio, 2007).

The relationships between these variables is explored within the framework of Fredrickson's broaden and build theory which suggests that positive emotions broaden individuals' thought-action repertoires and build their enduring personal resources which they can then draw on at a later time to help them to survive and thrive (Fredrickson, 2001). In particular, the broaden aspect was operationalised as implicit person theories (mindset) and the build aspect was operationalised as psychological capital. The specific argument advanced in this research report is that psychological capital mediates the relationship between mindset and workplace thriving.

¹ The ontology of implicit theories and mindset is identical and therefore the terms will be used interchangeably in this research report.

This research report is organised in the following manner: after presenting a broad outline of the field of positive psychology with a specific focus on Barbara Fredrickson's broaden and build theory, the concept of positive organisational behaviour is introduced, paying close attention to psychological capital and its dimensions of self-efficacy, hope, optimism, and resilience. Following this, an explanation of workplace thriving is provided - the outcome or dependent variable in the study's research design. Finally, the emerging organisational research on mindset or implicit person theories is explored. In the current research design, mindset was operationalised as a possible predictor of workplace thriving, with psychological capital hypothesised as a potential mediator of this relationship. Within each of these explanations, both empirical and theoretical evidence is provided in support of (and in some cases, in opposition to) the constructs, making specific reference to their uses within the current study. Following this exploration of the existing literature, the rationale for conducting the current research is presented, which explains the possible links between the variables of interest in greater detail. This is followed by the research hypotheses, methodology section, results from the study, and finally a discussion of the results that were obtained. Limitations and directions for future research are also provided.

Positive psychology and the broaden and build hypothesis

Positive psychology may be defined as “a science of positive subjective experience, positive individual traits, and positive institutions” (Seligman & Csikszentmihalyi, 2000, p. 5). That is, positive psychology concerns itself with the conditions and processes that contribute to the flourishing or optimal functioning of human beings (Gable & Haidt, 2005). While much psychological research in the past had focused on what was wrong with people, positive psychology, which emerged in the late 1990s, prompted a renewed emphasis and interest in what is right with them (Bakker & Derks, 2010). As explained by Gable and Haidt (2005), positive psychology has grown in large part from the recognition of an imbalance in clinical psychology which, for the most part, has focused on mental illness. Positive psychology has thus been described as an attempt to adopt a perspective that is more open and appreciative of human potentials, motives, and capacities (Sheldon & King, 2001).

It is important to note that the aim of positive psychology is not the denial of the distressing, unpleasant, or negative aspects of life. Rather, Gable and Haidt (2005) argue that scholars who study topics in positive psychology fully acknowledge the existence of human suffering, selfishness, and ineffective institutions. The aim of positive psychology, however, is to study the other side of the coin – the ways in which individuals feel joy, display altruism and create

healthy institutions – thereby addressing the full spectrum of human experience (Gable & Haidt, 2005).

In their seminal article on the topic, Seligman and Csikszentmihalyi (2000) suggest that psychologists have scant knowledge about what makes life worth living. Centuries of research in the field of psychology has demonstrated a negative bias when examining human beings and society at large (Seligman, 2002). One of the reasons for this negativity bias can be explained by the evolutionary value of negative emotions. Negative emotions (such as anger and fear) are essential for human survival in that they enable an individual to act immediately in life-threatening situations (Bakker & Derks, 2010). In contrast to this, positive emotions seldom occur in life-threatening situations. A question that arises from this is, if positive emotions do not directly contribute to human survival, why do they exist at all? (Fredrickson, 2003). Are positive emotions, then, simply pleasant distractions? Positive psychology suggests that this is certainly not the case. Rather, within this field of study, positive emotions have been conceptualised as active ingredients in superior coping and thriving, despite adversity (Fredrickson, Tugade, Waugh & Larkin, 2003).

According to Fredrickson (2003), unlike negative emotions that narrow thought-action repertoires to promote quick and decisive action in life-threatening situations (for example, the fight or flight response), positive emotions encourage the discovery of novel lines of thought and action, thereby facilitating generativity and behavioural flexibility (Fredrickson & Losada, 2005). Emotions such as joy, interest, pride, and contentment that broaden individuals' thought-action repertoires lead them to discover new thoughts and actions, and this in turn leads to an increase in personal resources (Fredrickson & Joiner, 2002). To explain this, Fredrickson (2001) formulated a hypothesis suggesting that positive emotions are evolved adaptations that function to build lasting resources. According to her broaden and build theory, positive emotions and their accompanying broadened mindsets provide indirect and long-term adaptive benefits in that they build enduring physical, intellectual, social, and psychological resources such as social connections, coping strategies, and environmental knowledge (Fredrickson, 2003; Fredrickson & Losada, 2005).

The positive emotion of interest, for example, broadens by prompting the urge to explore, and absorb new information and experiences. In so doing one expands, or builds, the self (Fredrickson, 2001). As explained by Fredrickson and Losada (2005), initially positive attitudes like interest and curiosity create subsequent knowledge that is more accurate than

knowledge that is produced by initially negative attitudes, such as boredom and cynicism (Fredrickson & Losada, 2005). These authors argue that positivity, by stimulating approach and exploration, has the power to create experiential learning opportunities that either correct or confirm initial expectations (Fredrickson & Losada, 2005). In contrast to this, negative expectancies encourage avoidance behaviour and are therefore less likely to be corrected by actual experience (Fazio, Shook, & Eiser, 2004). That is, opportunities to amend incorrect impressions may be lost owing to initial negativity. Fredrickson and Losada (2005) therefore argue that over time, positive affect, through its consequent broadening exploratory behaviour in the moment, builds more accurate cognitive maps of what is good and bad in one's environment. This expanded knowledge subsequently becomes a lasting personal resource (Fredrickson & Losada, 2005).

Empirical research has demonstrated a fair amount of support for both the broaden and the build hypotheses (Salanova, Schaufeli, Xanthopoulou, & Bakker, 2010). In a randomised, longitudinal field experiment of 139 working adults, Fredrickson, Cohn, Coffey, Pek, and Finkel (2008) empirically tested whether positive emotions, induced through loving-kindness meditation (LKM), built consequential personal resources. Within the context of a workplace wellness programme, the researchers offered a seven-week meditation workshop to employees who were interested in stress reduction (Fredrickson et al., 2008). Volunteers completed an initial survey assessing their life satisfaction, depressive symptoms, and status on various personal resources (cognitive, psychological, social, and physical), following which they were randomly assigned to the meditation workshop or to a waitlist control group. Participants from both groups completed daily reports of their emotion experiences and meditation practice throughout the duration of the workshop and, at the time of the final survey (which reassessed the same constructs as the first survey), also completed a detailed account of the emotions they experienced on that particular day using the day reconstruction method (Fredrickson et al., 2008). The researchers also investigated whether the personal resources being measured actually made a difference in participants' lives by testing whether any increases in resources, in turn, contributed to changes in overall life satisfaction, and decreases in depressive symptoms (Fredrickson et al., 2008).

The results of the experiment illustrated that the practice of LKM led to shifts in the daily experiences of individuals across a wide range of positive emotions such as love, joy, gratitude, contentment, hope, pride, interest, amusement, and awe (i.e. the broaden hypothesis) (Fredrickson et al., 2008). These increases were visible both within the course of changes in

daily emotions over the nine week period (7 weeks of the workshop and 2 weeks after), as well as within the detailed day reconstruction analysis provided by the participants two weeks after completing the workshop. Furthermore, although these shifts in positive emotions took time to appear and were quite small in magnitude, over the course of a nine-week period they were linked to increases in a number of personal resources such as mindful attention, self-acceptance, positive relations with others, and good physical health (i.e. the build hypothesis) (Fredrickson et al., 2008).

A particularly promising finding in this research was that these gains in personal resources were consequential – they empowered individuals to become more satisfied with their lives and to experience fewer depressive symptoms, as assessed by the life satisfaction and depressive symptoms measures collected before and after the LKM workshop (Fredrickson et al., 2008). The researchers concluded that by elevating daily experiences of positive emotions, the practice of loving-kindness meditation resulted in long-term gains that made genuine differences in individuals' lives (Fredrickson et al., 2008). As noted by Salanova and colleagues (2010), this study was particularly critical in that it provided evidence for causal relationships and for actual increases (i.e. gains) over time, thereby demonstrating that momentary experiences of positive emotions have the ability to build enduring psychological resources and to trigger upward spirals toward emotional well-being over time (Fredrickson & Joiner, 2002).

Despite the new perspective that positive psychology and theories such as the broaden and build hypothesis offer about the nature of human beings, it is important to note that they are not without their criticisms. Among these critiques are the points that positive psychology is nothing more than 'happiology' (Seligman & Pawelski, 2003); that it suffers from internal divisions e.g. divergent views of its proponents on what constitutes happiness, as well as from ambiguities, such as regarding the possibility of nonvirtuous happiness (Kristjánsson, 2010). Furthermore, positive psychology has been criticised for its one-sided positivity bias as well as its separation of positive and negative emotions and experiences (Bakker & Derks, 2010). In the particularly harsh words of Richard Lazarus,

Many of those who were caught up in the excitement of discovering the venerable concept of positive thinking and feeling have, unfortunately, converted their oversimple dogmas into popular slogans designed to whip up enthusiasm for a vague and old-hat ideology that so far has had little new to say. (Lazarus, 2003, p. 107)

While some of these critiques have a stronger basis than others, it is important to keep these and others critiques in mind when exploring various aspects of positive psychology in order to avoid some of the potential pitfalls of positively oriented, but often unsubstantiated, popular self-help books and management fads (Youssef & Luthans, 2007).

One area that has managed to address some of the critiques of positive psychology is positive organisational behaviour, which emphasises the necessity (a) for theory building that is more focused, (b) more research, and (c) for the effective application of positive behaviours of employees in organisational settings (Bakker & Schaufeli, 2008). This is discussed in greater detail in the section that follows.

Positive organisational behaviour and psychological capital

Positive organisational behaviour (POB), a relatively recent offshoot of positive psychology, is defined as “the study and application of positively oriented human resource strengths and psychological capacities that can be measured, developed, and effectively managed for performance improvement in today’s workplace” (Luthans, 2002a, p. 59). Youssef and Luthans (2007) argue that POB manages to escape some of the pitfalls of surface positivity found in various management fads and popular ‘feel good’ positive approaches (Luthans, 2002b), by relying on the scientific criteria of being theory and research driven and validly measurable.

In addition to this, POB focuses on psychological capacities that are state-like (rather than dispositional, fixed, and trait-like) and are therefore open to change, learning, and development through workplace interventions, proactive management, and through self-development (Luthans, 2002b). POB also only incorporates psychological state-like capacities that can result in performance improvement in the workplace (Luthans & Youssef, 2004). Luthans (2002b) argues that this performance criterion differentiates POB from simple personal development ideas found in ‘best-seller’ books, as well as from much of the positive organisational scholarship (POS) literature, which concentrates largely on constructs like forgiveness, virtue, and compassion as ends in themselves for today’s organisations.

One aspect of POB that has recently received a fairly large amount of attention from both researchers and practitioners is positive psychological capital or simply ‘PsyCap’. Luthans (2012) notes that the term *psychological* capital was chosen to differentiate and go beyond the term *human* capital, which refers to the education, experience, skills, and tacit knowledge of employees (i.e. ‘what you know’). It also goes beyond *social* capital – the resources of trust, relationships, and contact networks that employees have (i.e. ‘who you know’) (Luthans,

Luthans, & Luthans, 2004). Rather, PsyCap may be understood as ‘who you are’ and ‘what you can become’ (Luthans et al., 2004; Luthans, Vogelgesang, & Lester, 2006).

More specifically, PsyCap is understood as an individual’s positive psychological state of development and is characterised by the state-like psychological resource capacities of self-efficacy, optimism, hope, and resilience (Luthans, Avolio, Avey, & Norman, 2007). Luthans, Avolio, Walumbwa, and Li (2005) assert that at the individual level, PsyCap is a psychological resource that has the potential to fuel growth and performance, while at the organisational level, it offers the potential for providing leverage, return on investment, and competitive advantage through this improved employee performance. Each of the positive psychological capacities will now be explored in greater detail.

Self-efficacy

Self-efficacy, defined as “an individual’s belief in one’s capability to organize and execute the courses of action required to produce given attainments” (Bandura, 1997, p. 3), has emerged as a critical motivational construct in the study of human behaviour, especially in the context of work (Gerhardt & Brown, 2006). Rooted in agentic social cognitive theory (Bandura, 2009), self-efficacy is born from the idea that unless individuals believe that they are able to produce desired effects and to prevent undesired ones by their actions, they have little incentive to act or to persevere when confronted with difficulties (Bandura, 2009). As proposed by Bandura (2009, p. 179), “To be an agent is to influence intentionally one’s functioning and life conditions”. That is, individuals are contributors to their life circumstances rather than just products of them (Bandura, 2009).

Individuals with high self-efficacy tend to approach new situations with confidence, to choose challenging tasks and endeavours, to extend motivation and effort to accomplish their goals successfully, and to persist with their efforts and persevere when faced with obstacles as they believe that success is likely (Cole, 2007; Luthans & Youssef, 2004). Conversely, individuals with low self-efficacy tend to expect failure and to avoid challenges (Cole, 2007). Luthans and Youssef (2004) assert that self-efficacy has substantial research supporting its positive impact in organisational settings, including links to task effort and performance persistence, effective problem solving, resilience in the face of failure, as well as self-control (Judge, Erez, & Bono, 1998).

For example, a meta-analysis by Stajkovic and Luthans (1998) of 114 studies (N = 21 616) examined and discovered a correlation of 0.38 between self-efficacy and work-related

performance – an impact stronger than well-established correlates like goal setting, personality traits (e.g. conscientiousness), and attitudes (e.g. job satisfaction) (Luthans & Youssef, 2004). Furthermore, self-efficacy has also been shown to correlate with organisational commitment and turnover intentions (Harris & Cameron, 2005), as well as theorised to have a potential mediating effect on occupational stress, burnout, and work engagement in a South African study (Rothmann, 2003).

Self-efficacy meets the inclusion criteria as a psychological capacity in that it represents a positive belief that is state-like rather than trait-like (not an ability per se nor outcome expectancy); it can be developed (e.g. through enactive mastery, vicarious learning, and verbal persuasion); and it can be managed effectively to improve work-related performance (it is positively related to performance and job satisfaction) (Bakker & Derks, 2010; Luthans et al., 2007).

Hope

The construct of hope is rooted in the work of positive psychologist C. Rick Snyder (Luthans & Youssef, 2004) who defines it as “a positive motivational state that is based on an interactively derived sense of successful (1) agency (goal-directed energy) and (2) pathways (planning to meet goals)” (Snyder, Irving, & Anderson, 1991, p. 287). Hope is argued to consist of two complementary components, namely, ‘willpower’ and ‘waypower’ (Simons & Buitendach, 2013). ‘Willpower’ refers to an individual’s agency or determination to achieve goals and ‘waypower’ describes an individual’s ability to develop alternative pathways in order to achieve a goal when faced with challenges (Simons & Buitendach, 2013).

Hope can therefore be understood as a motivational state that is based on the interaction between three major conceptual foundations: goals, agency, and pathways – agency to pursue goals and proactively identifying multiple alternative pathways to reach those goals. In this way, hope represents the *will* to achieve success and the ability to identify, clarify, and pursue the *way* to success (Luthans et al., 2007; Snyder, 2000).

Although research on the relationship between hope and work outcomes is still in its infancy, results are promising. For example, empirical research by Youssef and Luthans (2007) demonstrated a positive relationship between employee hope and performance and work attitudes, while Jensen and Luthans (2002) demonstrated a correlation between entrepreneurs’ hope and their satisfaction with business ownership. A cross cultural study by Luthans and colleagues (2005) also found a relationship between Chinese factory workers’ hope and their

supervisor rated performance and merit salary. In an exploratory study, Peterson and Luthans (2003) found that compared to low-hope leaders, high-hope leaders had more profitable work units as well as better satisfaction and greater retention rates among their subordinates. Taken together, these studies might suggest that employees who are hopeful have a greater likelihood of being motivated and more confident in taking on a task, and are also likely to find alternative pathways when faced with obstacles, resulting in higher performance (Luthans et al., 2005).

Once again, hope fulfils the inclusion criteria of a psychological capacity in that it has been supported as being state-like and thus open for development and improvement through interventions (Bakker & Derks, 2010; Luthans & Youssef, 2007). Such interventions may include goal-setting training as well as initiatives that encourage creativity, participation, contingency planning, and thinking that is ‘out-of-the-box’ in order to enhance employees’ hope, particularly those targeting their pathways thinking (Luthans & Youssef, 2007).

Optimism

Generally associated with the work of Martin Seligman and drawing from attribution theory, optimism may be understood as “an attributional style that explains positive events through personal, permanent, and pervasive causes and negative events through external, temporary, and situation-specific ones” (Luthans & Youssef, 2007, p. 331). Being optimistic allows an individual to take credit for events in his or her life that are favourable, as well as to create distance from unfavourable life happenstances. In this way, self-esteem and morale may be boosted, while shielding the individual from depression, guilt, self-blame, and despair (Luthans & Youssef, 2004). In contrast to this, those that adopt a pessimistic explanatory style tend to externalise positive events, ascribing them to causes that are temporary and situation-specific, while internalising events that are negative and attributing them to causes that are permanent and pervasive (Luthans & Youssef, 2007). As a result, individuals who use a pessimistic explanatory style are hindered by self-doubt and negative expectancies, while those adopting an optimistic style tend to create positive expectancies that motivate their pursuit of goals in the future (Luthans & Youssef, 2007).

Importantly, in the context of being a psychological capacity, optimism is not just an unchecked process without realistic evaluation (Schneider, 2001). Succinctly explained by Luthans and his colleagues, “optimism as a facet of PsyCap is associated with a positive outcome outlook or attribution of events, which includes positive emotions and motivation and has the caveat of being realistic” (Luthans et al., 2007, p. 547). In contrast to indiscriminating optimism which

has the potential to lead to irresponsible behaviour (Luthans & Youssef, 2004), *realistic optimism* must include an evaluation of what is and is not accomplishable in a specific situation, thus adding to an individual's hope and self-efficacy (Luthans et al., 2007). Furthermore, it is not extreme in the externalisation and elimination of personal responsibility for poor choices (Luthans & Youssef, 2004). As explained by Schneider (2001), the aspirations and hopes that are associated with realistic optimism are combined with an emphasis on potential opportunities to improve the likelihood of outcomes that are desirable and personally meaningful, yet contingent on situational constraints.

Similarly, *flexible optimism* is a psychological strategy that allows optimism to be exercised when appropriate rather than a reflex or habit over which one has no control (Peterson, 2000). This allows for individuals to adapt their explanatory styles – alternating between optimistic and pessimistic – according to the situation at hand. Optimism may not always be the most effective explanatory style, such as in situations that call for prudence, contingency planning, preventive measures, and redundant systems (Luthans & Youssef, 2007). As noted by Seligman (1998, p. 292), “pessimism has a role to play, both in society at large and in our own lives; we must have the courage to endure pessimism when its perspective is valuable”. Optimism that is both realistic and flexible thus allows for the simultaneous recognition of positive achievements and the acceptance and accountability for challenges and difficult situations (Luthans & Youssef, 2007).

Of particular importance to the notion that optimism be viewed as a psychological capacity is that it can be learned and developed through approaches like leniency for the past, appreciation for the present, and opportunity seeking for the future (Youssef & Luthans, 2007). Optimism is dynamic and changeable and is thus considered to be state-like, allowing for it to be effectively managed and developed for improved performance in work settings (Peterson, 2000; Youssef & Luthans, 2007).

A number of studies have established the value of optimism to a broad range of positive outcomes, both in clinical and organisational settings (Luthans & Youssef, 2004). For example, Seligman (1998) demonstrated that optimism had a significant and positive relationship with performance of insurance sales agents. More recently, Jensen, Luthans, Lebsack, and Lebsack (2007) found a positive correlation between midlevel managers' measured state of optimism and their supervisors' ratings of their overall work performance in the banking industry, as well as a positive relationship between self-rated optimism, job satisfaction, and self-rated

performance for both midlevel managers and bank tellers. Chemers, Watson, and May (2000) determined that optimism can positively affect leadership effectiveness in a sample of Reserve Officer Training Corps cadets, while Green, Medlin, and Whitten (2004) identified a positive link between employee optimism and levels of performance in manufacturing settings.

Resilience

Resilience has been quite widely defined and used in a number of contexts. Broadly understood, however, resilience refers to “the flexibility in response to changing situational demands, and the ability to bounce back from negative emotional experiences” (Tugade, Fredrickson, & Barrett, 2004, p. 1168). In the context of the workplace, resilience has been defined as a “positive psychological capacity to rebound, to ‘bounce back’ from adversity, uncertainty, conflict, failure, or even positive change, progress and increased responsibility” (Luthans, 2002b, p. 702).

Arguably, resilience may be the most important positive resource in the navigation of a turbulent and stressful workplace where job redesign, downsizing, and layoffs are increasingly commonplace as organisations transform and shift their focus (Avey, Luthans, & Jensen, 2009). This is because individuals who are high in resilience tend to be more able to adapt when confronted by negative experiences and changes in the external environment (Luthans et al., 2006). They are more likely to display creativity, be adaptive to change, and to demonstrate persistence when dealing with adversity, with the potential result of improved performance in a rapidly transforming workplace (Luthans et al., 2005). As noted by Youssef and Luthans (2007), resilience enables individuals not only to reactively recover, but also to learn proactively and grow through overcoming challenges. In this way, resilience allows one to bounce back not only to his or her original state, but to even higher levels of performance, and to find meaning and value in life in the process (Luthans & Youssef, 2004).

Traditionally, resilience has been conceptualised as an extraordinary capacity that is seen in only highly unique individuals and as a trait-like quality (Luthans & Youssef, 2007). However, within the POB perspective, resilience is seen to come “from the everyday magic of ordinary, normative human resources” (Masten, 2001, p. 235); it is a learnable capacity that can be developed in the most ordinary of individuals (Luthans & Youssef, 2007). As noted by Tugade and colleagues (2004), positive emotions enhance resilience in the face of negative events, thereby reflecting its state-like quality. Furthermore, research has demonstrated a positive relationship between resilience and work outcomes such as performance, job satisfaction, and

work happiness (Larson & Luthans, 2006; Luthans et al., 2005; Luthans et al., 2007; Maddi, 1987; Youssef & Luthans, 2007). Finally, it can be enhanced through various methods, demonstrating that it is state-like and open to development. Such methods include the use of positive emotions, shifting the perceived level of risk or personal assets, and generally fostering self-enhancement and development (Avey et al., 2009).

PsyCap: A higher order construct

While the POB criteria-meeting capacities of self-efficacy, hope, optimism, and resiliency offer a high-potential source of competitive advantage to explore and on which to capitalise, empirical findings across a range of samples points to the notion that these four positive psychological capacities contribute more in combination and interaction than they do individually (Luthans & Youssef, 2007). That is, there is a common, underlying link that runs between them and ties them together - a higher-order core factor (Luthans et al., 2007). Using the argument that distinct psychological constructs may have, at their core, common processes driving motivation and behaviour, Luthans and colleagues (2007) propose that PsyCap as a higher-order factor may represent the common source of variance (i.e. common mechanistic processes) that connect the four constructs of self-efficacy, hope, optimism, and resilience. This higher-order factor or construct “represents one’s positive appraisal of the particular situation, the physical and personal resources available, and the probability of succeeding based on personal effort, upward striving, and perseverance” (Luthans & Youssef, 2007, p. 335).

In the formulation and empirical demonstration of PsyCap as a higher-order construct, it was deemed necessary to note that each of the four positive constructs discussed above has demonstrated conceptual independence and empirically based discriminant validity (Luthans et al., 2007). However, the commonality or underlying link is argued to be a mechanism that is shared across each of the facets that contribute to a motivational inclination to accomplish goals and tasks (Luthans et al., 2007). Luthans and Youssef (2007) have drawn from psychological resource theories, which suggest that psychological constructs are members of a broader domain (Avey, 2014), to support this conceptualisation of PsyCap as a higher-order core construct. For example, they note that key resource theories support interactive effects across constructs, and multiple-component resource theories support build-out and contagion effects within the internal dimensions of constructs (Luthans & Youssef, 2007). In this case, the four dimensions of self-efficacy, hope, optimism, and resilience are members of the broader construct of PsyCap (Avey, 2014).

Avey, Reichard, Luthans, and Mhatre (2011) have explained that data evidence supports this multidimensional nature of PsyCap in at least three ways. Firstly, convergent validity has been found to exist between the components (with correlations ranging from .6 to .7) and secondly, competing confirmatory factor analytic model comparisons run by Luthans and colleagues (2007) have found PsyCap to be best modelled as a second-order factor (Avey et al., 2011). Finally, Avey and colleagues (2011) point to evidence of the additive predictive validity of the composite PsyCap construct above and beyond its individual components in predicting various work outcomes. These authors therefore suggest that while an individual construct (such as hope) may be valid in terms of discriminant and predictive validity, it may be more beneficial to consider it as an indicator of something more foundational (such as PsyCap) (Avey, et al., 2011).

As explained by Paterson, Luthans and Jeung (2014), the combined capacities of PsyCap have indeed been empirically confirmed as a stronger predictor of attitudes and performance than any one of the four components alone. This was illustrated in a study with a sample of 422 Chinese workers from three factories, where Luthans and colleagues (2005) found that levels of hope, optimism, and resilience related at approximately the same level to performance outcomes (self-efficacy was excluded from this study because, according to the authors, there is already considerable research evidence on its strong relationship with workplace performance). However, the combination of these three constructs had a higher relationship with rated performance than any of the constructs individually, thereby indicating the shared mechanisms between them (Luthans et al., 2007).

In another study by Luthans and his associates (2007) using a high tech manufacturing and service sample, a usefulness analysis was conducted which provides evidence for the utility of a measure in predicting variance in outcome variables beyond existing measures. In this analysis, the utility of the composite PsyCap was compared with each of the individual components to investigate if it was more ‘useful’ than the existing measures of each facet. The results of this indicated that PsyCap was more consistently related to both performance and satisfaction than each of its individual components (Luthans et al., 2007).

A more recent meta-analysis by Avey and colleagues (2011) consisting of 51 independent samples (N = 12 567 employees) found significant positive relationships between PsyCap and desirable employee attitudes (e.g. organisational commitment and psychological well-being), desirable employee behaviours (citizenship), as well as with multiple measures of performance

(self-rated, supervisor evaluations, and objective). On the basis of these findings, the authors conclude that evidence accumulated over the past several years supports that as a higher-order factor comprising of self-efficacy, hope, optimism, and resilience, PsyCap is significantly and strongly related to employee attitudes and behaviours that are generally recognised as desirable by human resource managers, as well as to important performance outcomes (Avey et al., 2011).

At this point it is critical to note that the vast majority of research on PsyCap outlined thus far has been conducted by Fred Luthans, either as a first author (e.g. Luthans et al., 2005; Luthans et al., 2007; Luthans & Youssef, 2004) or as a contributing author (e.g. Avey et al., 2011; Jensen & Luthans, 2002; Larson & Luthans, 2006). While PsyCap is a growing and promising area of research, this is clearly a possible concern. However, as the current research has no ties to Luthans or any of his associates, it will be a valuable test of its utility and further evidence of its validity outside of the ‘Luthans circle’, should it prove to be a useful and valuable construct. Furthermore, with only a few exceptions (e.g. Du Plessis & Barkhuizen, 2011; Simons & Buitendach, 2013), PsyCap has not been widely investigated in the South African context. As such, this study hopes to add value and knowledge to the current understanding of PsyCap in South Africa, by examining whether or not these findings from abroad can be replicated in a South African sample, independently from the ‘Luthans circle’, by a researcher who has no vested interest in the construct.

Workplace thriving

A field of research that has emerged alongside POB is positive organisational scholarship (POS), defined as “the study of that which is positive, flourishing, and life-giving in organizations” (Bakker & Schaufeli, 2008, p. 149). As explained by Bakker and Schaufeli (2008), POS is similar to POB but different from positive psychology, in that its primary focus is on the workplace and on the accomplishment of work-related outcomes. Furthermore, while POB focuses primarily on individual psychological states and human strengths that influence employee performance (Bakker & Schaufeli, 2008) (e.g. hope, optimism etc. – discussed above), POS places greater attention on the social embeddedness of individual and organisational flourishing, and on identifying the dynamics leading to exceptional individual and organisational performance (Roberts, 2006).

Within this POS framework, a relatively new construct referred to as ‘thriving’ has emerged. Thriving is defined in this literature as the psychological experience of growth in a positive

capacity (Spreitzer & Porath, 2014). More specifically, as conceptualised and defined by Spreitzer, Sutcliffe, Dutton, Sonenshein, and Grant (2005), thriving is the psychological state in which individuals experience both a sense of vitality and a sense of learning at work. The term vitality is affective in nature and refers to feelings of energy and aliveness and a zest for work (Nix, Ryan, Manly, & Deci, 1999), as well as being considered a component of personal growth (Ryan & Frederick, 1997). Individuals who experience vitality at work are passionate about what they do - they produce their own energy through excitement for their work (Spreitzer, Porath, & Gibson, 2012). Learning, which addresses cognitive ability, is understood as the acquisition of knowledge and skills to build confidence and capability (Carver, 1998) and a sense of continual improvement. Together, these two dimensions capture the cognitive (learning) and affective (vitality) components of the psychological experience of personal growth and development that characterises thriving in the workplace (Porath et al., 2012).

Although learning and vitality have enjoyed much attention independently, recent research has indicated that there are a number of advantages to considering them jointly, since experiencing both states simultaneously has been associated with various favourable outcomes for individuals and organisations (Paterson et al., 2014). As argued by Paterson and colleagues (2014), the two dimensions of thriving act in concert to create an overall sense of forward momentum and progress at work that cannot be captured by either vitality or learning in isolation. For example, an employee who initially displays vitality at work will be unlikely to sustain this psychological state if he or she does not have the opportunity for learning and growth which replenishes vitality (Paterson et al., 2014). Similarly, an employee who is constantly learning but lacks the energy that is generated by experiencing vitality will feel depleted rather than a sense of growth and momentum. As such, even though each dimension can signify some progress towards growth and development, Porath and colleagues (2012) argue that it is only in combination that learning and vitality enhance one another to form the experience of workplace thriving.

Thriving and self-determination theory

The thriving construct, as described above, is rooted in self-determination theory (SDT). As such, it is based on the assumption that individuals possess an innate desire for personal growth, a sense of choice, and personal initiative in their lives (Wallace, Butts, Johnson, Stevens, & Smith, 2013). They possess an internal striving to elaborate their knowledge, seek challenges, cultivate their interests, and explore the world (Van den Broeck, Vansteenkiste, & De Witte,

2008). SDT further assumes that individuals are self-motivating by nature, and that success in-and-of-itself is the greatest reward, as opposed to external results (Schiffbauer, 2013). Self-determination may therefore be understood as a form of motivation that is internally directed rather than being controlled or coerced externally (Spreitzer et al., 2005). An individual does not thrive at work simply because he or she has been goaded by the boss or forced by the organisational system to do so. Instead, when individuals act with volition, there is a greater chance that they will be oriented toward growth and to experience vitality (Spreitzer & Porath, 2014).

Thriving is understood as an adaptive function in that it assists individuals to navigate and change their work contexts to promote their own development (Spreitzer et al., 2005). It does this by providing an internal cue that employees use for self-regulation and to assess their forward progress (Wallace et al., 2013). Thriving may therefore be understood as serving as a gauge that can assist employees to understand whether what they are doing and how they are doing is increasing their short-term individual functioning, as well as their long-term resourcefulness, in the hopes of improving their effectiveness at work (Spreitzer & Porath, 2014). When individuals are aware of how they feel, they have a greater ability to pursue opportunities for learning and recovering energy (Porath et al., 2012). As argued by Spreitzer and Porath (2014), if employees pay attention to their learning and vitality while doing their work, they may be better able to self-regulate for sustained performance over time, thereby minimizing the potential for burnout.

This is something which is considered critical in today's work environment, given that individuals need to learn to navigate protean careers as well as to sustain their performance, health, and well-being over time (Porath et al., 2012). Spreitzer and colleagues (2012) have argued that when employees are thriving, they are energised to grow and develop, and are thus creating resources, rather than just depleting them. This creation of resources is made possible by the use of agentic behaviours – active and purposeful actions – which have been described as 'the engine' that promotes thriving (Spreitzer et al., 2005). This is owing to the notion that when individuals engage in agentic behaviours, they generate resources that promote vitality and learning – the core components of workplace thriving (Cullen, Gerbasi, & Chrobot-Mason, 2015). In particular, the agentic behaviours of task focus, exploration, and heedful relating are thought to be the primary actions that increase the likelihood of thriving (Boyd, 2015).

Task focus. Task focus refers to the extent to which an employee focuses his or her behaviour on meeting the assigned responsibilities at work (Spreitzer et al., 2005). It is characterised by moments when employees are alert and attentive during the completion of work-related tasks. In these moments, employees are argued to be fully engaged in the task at hand by voluntarily and purposely driving their personal energy into their work tasks (Paterson et al., 2014).

Spreitzer and colleagues (2005) argue that task focus promotes the experience of vitality in two ways. Firstly, when individuals focus on their tasks, there is a greater likelihood that they will become absorbed in their work, and therefore feel more energetic. Secondly, when they complete their work successfully, employees are likely to feel a sense of accomplishment, which in turn leads to increased energy. Conversely, when task requirements are not met, a sense of failure and feelings of helplessness may result, leading to depletion in one's energy (Spreitzer et al., 2005). Based on the expenditure of energy resources that such task focus requires, it may be argued that this would deplete rather than increase vitality (Paterson et al., 2014). However, the argument put forth by Paterson and his associates (2014) is that the affective benefits of a deep task focus and the feelings of accomplishment that accompany successful completion of a task more than compensate for the energy required to initiate and maintain task focus.

Spreitzer and colleagues (2005) also argue that task focus contributes to a sense of learning. They propose that when employees focus on their tasks, there is an increased chance that they will develop and refine routines and repertoires for doing their work efficiently and effectively, which in turn contributes to the experience of learning (Spreitzer et al., 2005). Niessen, Sonnentag, and Sach (2012) further argue that task focus promotes learning because when employees are highly focused on a task, they are more likely to recognise when a need exists to attain new skills and knowledge in order to successfully achieve their tasks. In contrast to this, when an individual fails to meet task requirements, restrictions to individual autonomy may result, along with feelings of incompetence and fewer opportunities for self-direction, which in turn may lead to the sense that one is not learning (Spreitzer et al., 2005).

Exploration. Exploration refers to experimentation, discovery, risk taking, and innovative behaviours that assist individuals to stretch and grow in new directions (Spreitzer et al., 2005). Once again, exploration is thought to enhance both learning and vitality at work. In terms of learning, exploration leads to experimentation of thoughts and behaviours, which in turn creates a setting wherein individuals are free to learn from their mistakes and their successes

(Boyd, 2015). When employees explore, there is a greater likelihood that they will gain knowledge and find solutions to new problems (Niessen et al., 2012). The new ideas and strategies that they encounter as they explore improve the knowledge and skills that they possess and can apply. Consequently, employees will sense that they are learning, particularly as they recover from mistakes that they met during their exploration (Spreitzer et al., 2005). Furthermore, Niessen and colleagues (2012) note that research on active learning has demonstrated that exploration impacts learning and transfer as it stimulates metacognitive activity.

Exploration also aids the experience of vitality. As employees explore new ways of doing their work, they are likely to arouse their curiosity and experience feelings of energy (Spreitzer et al., 2005). It allows employees to encounter new ideas, information, and strategies for doing work, and this exposure to novelty has the potential to provide and restore energy (Spreitzer et al., 2005). Furthermore, exploration can enhance vitality by affording workers the experience of being capable of dealing with non-routine job demands (Niessen et al., 2012).

Heedful relating. The final agentic behaviour that increases the likelihood of workplace thriving is when individuals operate attentively to those around them. That is, they heedfully relate with others (Spreitzer et al., 2005). The characteristics of this construct include contribution, representation, and subordination (Paterson et al., 2014). When employees heedfully relate, they act in a collective and collaborative manner that demonstrates that they understand how their own roles fit with the roles of others to achieve the goals of the system (Boyd, 2015; Spreitzer et al., 2005).

Boyd (2015) explains that high-quality working relationships that have attributes of heedful relating create conditions wherein energy and vitality can flourish. When individuals heedfully relate, they are more likely to help others and to provide social support. Providing support is thought to increase both affective and physiological energy as it impacts on belongingness which affects emotional patterns and cognitive processes (Niessen et al., 2012; Spreitzer et al., 2005). Shrager and Shirom (2009) demonstrated that meaningful interaction with others, specifically support from co-workers, cooperation, warm relationships with others, and the demonstration of friendship and humanity, was the most frequent reason for experiencing vitality. Atwater and Carmeli (2009) have also demonstrated that the quality of relationships with supervisors and co-workers has a positive association with the experience of vitality.

Spreitzer and colleagues (2005) also argue that heedful relating promotes a sense of learning. This is owing to the idea that when workers attend to the actions of their colleagues, they gain information and opportunities for learning (Niessen et al., 2012). This may be understood through the lens of Bandura's social learning theory that posits that individuals look to relevant others for models of suitable behaviour and ways of doing things (Paterson et al., 2014). Through their interactions at work, employees learn to refine their skills as well as gain new knowledge from their colleagues, developing new strategies and approaches as they attend to what their co-workers are doing, i.e. through interpersonal learning (Boyd, 2015; Paterson et al., 2014; Spreitzer et al., 2005). Furthermore, this will increase the likelihood that employees will feel responsible for the outcomes of the larger system and will therefore be challenged to execute a variety of integrative behaviours that extend beyond the boundaries of their focused work responsibilities (Spreitzer et al., 2005). Spreitzer and colleagues (2005) therefore argue that heedful relating can assist individuals to acquire and use new skills, and consequently experience learning.

All three of these agentic behaviours are in line with SDT which, unlike self-regulation theory and conservation of resources theory that focus on how energy is depleted (through self-control activities), maintains that energy may be maintained and even enhanced, rather than simply depleted or expended. As such, SDT emphasises the forces that may catalyse or generate energy and assumes that while efforts to control the self (e.g. through emotional regulation) can drain energy, autonomous self-regulation is considerably less draining (Spreitzer & Porath, 2014). When thriving is used as an internal gauge for self-regulation, employees behave in a proactive and agentic manner, taking responsibility and initiative to control their own destiny (Porath et al., 2012).

It is important to note that the assumption made by SDT that humans are inherently active organisms does not imply that this tendency is automatic (Van den Broeck et al., 2008). Rather, SDT acknowledges that individuals can become passive and counter-productive. As such, the growth oriented nature of individuals requires fundamental nutrients and can only manifest in the event that individuals have built sufficient inner resources to nourish this inherent tendency or found the required support from their environment (Van den Broeck et al., 2008). It may be argued that this can be viewed as one possible manifestation of the broaden and build hypothesis discussed earlier: individuals are only able to thrive if they have accumulated sufficient psychological resources to allow and enable them to do so.

In the same way that the satisfaction of physical needs (e.g. hunger, shelter) is crucial for physical survival, SDT proposes that the satisfaction of psychological needs is crucial for one's optimal psychological functioning (Van den Broeck et al., 2008). In particular, there are three innate basic psychological needs or nutrients outlined by Ryan and Deci (2000) in this regard: the feelings of autonomy, competence, and relatedness. Autonomy is related to the notion of volition, or the sense that one's behaviour originates from and is endorsed by oneself; feelings of competence refer to a sense of efficacy in dealing with one's environment and with making effective use of surrounding resources; and relatedness describes the feeling of being connected to others and having a sense of belongingness (Spreitzer et al., 2005). Spreitzer and colleagues (2005) argue that these three dimensions of self-determination provide the essential psychological nutrients for agentic behaviour – the 'thriving engine' – and ultimately for psychological growth and development. In sum, when employees behave in an agentic manner, their actions serve to stimulate the development of resources, which also sparks their experience of thriving. The experience of thriving, in turn, affects outcomes such as development, health, and performance (Boyd, 2015).

Evidence of the benefits of thriving at work

In line with the ideas of thriving as a self-regulatory gauge, it has been found to be related to both performance and well-being outcomes (Spreitzer & Porath, 2014) in a number of empirical investigations. In terms of well-being outcomes, Porath and colleagues (2012) explored the relationship between thriving and burnout and thriving and health in a sample of 136 working professionals enrolled in an Executive Master of Business Administration (EMBA) programme of a large Western university, using the Workplace Thriving Scale that was used for the current study. Using a series of multiple regressions and controlling for the effects of basic demographics (e.g. age and gender), Porath and associates (2012) found that thriving was positively related to general health and negatively related to job strain. The authors report that when employees experience thriving at work they experience better health, a finding that held true even after controlling for the effects of traditional attitudinal predictors such as job satisfaction and organisational commitment. However, thriving only explained an incremental 3% of the variance in general health and 10% in burnout (Porath et al., 2012).

In terms of organisational outcomes, in a longitudinal study consisting of 346 participants in 75 groups, Wallace and colleagues (2013) determined that thriving played a key mediating role in the innovation process. Carmeli and Spreitzer (2009) also hypothesised and confirmed that thriving was positively associated with innovative work behaviours. Looking at job

performance, in a sample of white collar employees across six organisations, employees who rated themselves with higher levels of thriving were evaluated as performing at a higher level by their superiors (Porath et al., 2012). Similarly, in a sample of executives from a variety of industries, executives who were thriving were rated substantially more effective by their subordinates than those who had reported lower levels of thriving (Porath et al., 2012).

Porath and colleagues (2012) argue that the thriving construct harnesses ideas of positive growth and development that are similar to other theories of individual growth (e.g. Maslow's theory of self-actualisation), but that it enjoys better empirical support than some of these theories. Indeed, a study conducted by Paterson and colleagues (2014) on the relationship between thriving and psychological capital demonstrated that thriving employees are those who are progressing in their self-development. In this study, 198 employee-supervisor dyads were used to test a number of hypotheses, including the prediction that thriving at work would be positively related to supervisor-rated employee self-development at work. Two of the scales used in the current research were completed by employees in the Paterson et al. (2014) study (PCQ24 and Workplace Thriving Scale), together with measures of supervisor climate, task focus, and heedful relating. The supervisor survey contained the outcome measures of the study, namely subordinates' performance and self-development (Paterson et al., 2014). A one-month time lag was implemented to allow for the effects of thriving at work to take hold, such that supervisor respondents rated their subordinates' performance and self-development over the past month. The hypothesis was supported, demonstrating that thriving at work leads to subsequent self-development. The researchers do, however, caution that the one-month time lag may not have been sufficient to fully observe changes in self-development (Paterson et al., 2014).

Thriving is viewed as a state rather than as a personality disposition or trait, meaning that it is more malleable over time and influenced by the situation or task in which one is embedded. It is conceptualised as a continuum where individuals are more or less thriving at any point in time (Spreitzer & Porath, 2014). Importantly, thriving reflects "continually developing and becoming, rather than achieving a fixed state wherein one is fully developed" (Ryff, 1989, p. 1071). Accordingly, thriving may be argued to contribute to the POB literature which focuses on measurable and positive state-like constructs that are open to development (Youssef & Luthans, 2007). As stated by Porath and colleagues (2012) and in line with POB, thriving is a construct that can be used to manage performance improvement effectively in the workplace.

Implicit person theories/mindset

One interesting area of research that has only recently been applied to organisational settings (e.g. Heslin & VandeWalle, 2011; Heslin, VandeWalle, & Latham, 2006) is the work of Carol Dweck and her colleagues (e.g. Dweck, 1999; Dweck & Leggett, 1988) regarding implicit person theories (IPTs). These authors have suggested that a particular form of implicit theories, which they refer to as self-theories or more recently as ‘mindsets’ (Dweck, 2006), provide conceptual frameworks that guide how individuals think, feel, and act in the context of achievement (Dweck, 1999). At their core, mindsets are the implicit theories or beliefs that individuals hold regarding the plasticity and malleability of personal characteristics such as intelligence, ability, and personality (Carr, Rattan, & Dweck, 2012). While IPTs can be domain specific, for example, holding different implicit theories about the malleability of ability, personality, and morality (Dweck, 1999), an individual’s mindset reflects his or her implicit assumptions about the stability of the collection of personal qualities that govern the overall *kind of person* that someone is and how that person may behave (Heslin et al., 2006).

Mindsets are thought to take one of two forms. A fixed mindset or an entity implicit theory refers to an individual’s belief that personal attributes are largely fixed entities that are difficult to change or develop (Vandewalle, 2012). Entity theorists tend to hold the assumption that little can be done to improve presumably rigid abilities, and as such are inclined to view challenging tasks as tests that could diagnose inherent ability deficiencies (Keating & Heslin, 2015). Conversely, an individual with a growth mindset or an incremental implicit theory considers personal attributes to be relatively malleable and therefore amenable to change and development (Dweck & Leggett, 1988). Typically, incremental theorists tend to believe that people have the capacity to change and develop their behaviour over time, especially when they devote themselves to learning and applying more effective strategies for task performance (Heslin & VandeWalle, 2008).

Mindsets are argued to have important consequences for motivation and behaviour (Murphy & Dweck, 2010), particularly with regard to *goal focus, perception of effort, attributions, and patterns in response to feedback* (Thompson, 2006). Indeed, decades of research in educational, social, and (most recently) organisational psychology have demonstrated the self-regulatory and interpersonal implications of mindsets (Keating & Heslin, 2015).

Goal Focus. In terms of goal focus, research has demonstrated that individuals with a fixed mindset tend to pursue performance goals, which involves a desire to demonstrate one’s

competence to oneself and to others (El-Alayli & Baumgardner, 2003). Individuals with a performance goal orientation often seek to establish the adequacy of their ability and to avoid giving evidence of their inadequacy. As such, they may view achievement situations as tests of competence, and seek to demonstrate and be judged as competent rather than to develop their competence (Dweck & Leggett, 1988; Thompson, 2006). Individuals with a fixed mindset and performance goal orientation may also try to avoid situations where they may fail since they tend to view failure as evidence of their own immutable lack of ability (Moser, Schroder, Heeter, Moran, & Lee, 2011; Thompson, 2006).

El-Alayli and Baumgardner (2003) note that research has demonstrated that entity theories and performance goals often result in a ‘helpless’ cognition-affect-behaviour pattern in the face of failure or perceived incompetence. When faced with challenges, these individuals tend to exert less effort and persist less, question their ability and self-disparage, and may become defensive (El-Alayli & Baumgardner, 2003; Murphy & Dweck, 2010). In contrast to this, individuals with a growth mindset tend to pursue more mastery or learning oriented goals – goals directed at developing new abilities (Thompson, 2006). Such individuals wish to *improve* their abilities, rather than to *prove* them (Dweck & Leggett, 1988). When individuals pursue learning goals, they generally strive to master a skill and are motivated to do so by the internal satisfaction that such mastery provides (Burnette, O’Boyle, VanEpps, Pollack, & Finkel, 2013). Since incremental theorists believe that personal characteristics are not fixed, they tend to perceive achievement settings as opportunities for growth, rather than as chances to fail (El-Alayli & Baumgardner, 2003). As such, those who have a learning goal orientation often seek challenges and persist in the face of obstacles (Luthans, Youssef, & Rawski, 2011), since they do not view failure as a threat to their competence and an indication of poor innate ability (El-Alayli & Baumgardner, 2003).

Rather than falling into a pattern of ‘learned helplessness’, incremental theories and their accompanying learning goals result in a ‘mastery-oriented’ cognition-affect-behaviour pattern following failure or perceived incompetence that is characterised by optimism, positive affect, a lack of self-blame, persistence, and sustained or enhanced effort and performance (El-Alayli & Baumgardner, 2003). When individuals believe that their abilities and characteristics are not fixed, they are able to perceive failure as an opportunity for learning a new strategy or applying more effort because they believe that improvement and success are the result of hard work (El-Alayli & Baumgardner, 2003; Thompson, 2006).

For example, in a study conducted by Hong, Chiu, Dweck, Lin, and Wan (1999) with students entering a university in Hong Kong where English proficiency is a requirement, students who might benefit from taking a remedial English class were identified. Following a mindset assessment, the authors asked the students about how willing they were to take the class and determined that students who had been assessed to have a fixed mindset were less willing to do so than those who held a growth mindset (Hong et al., 1999). Rather than risking exposure of an inherent ability deficiency, students with a fixed mindset were willing to risk their academic standing and subsequent job prospects (Keating & Heslin, 2015).

Similar results were found by Blackwell, Trzesniewski, and Dweck (2007) who examined the reactions of students to their first academic failure following the transition from elementary school to junior high. These authors found that while students with a growth mindset reported that they would find new study strategies and work harder, those with a fixed mindset were more likely to report that they would study *less*, and would try to avoid taking a course in that subject area again (Dweck & Elliott-Moskwa, 2010).

Perception of Effort. For individuals who have a fixed mindset, effort is regarded as an indication of low ability - high levels of effort are understood as a way to make up for a lack of ability (Thompson, 2006). The assumption here is that significant effort is only needed by those who are not innately talented in a particular domain (Keating & Heslin, 2015). This makes sense given the notion that entity theorists believe that personal qualities are fixed and immutable, thus leading to the conclusion that effort is a fruitless task (Dweck & Leggett, 1988). For entity theorists, effort is not only a pointless exercise, but it also demonstrates to both others and themselves that they do not possess a valuable trait, an outcome that is considered highly aversive. Performing well or avoiding situations of possible poor performance is thus of critical importance to the individual with a fixed mindset (Carr et al., 2012).

Conversely, for the incremental theorist, the importance of current performance is overshadowed by the possibility for learning (Carr et al., 2012). For these individuals, effort is perceived as an essential part of growth and development, and as playing a fundamental part in translating ability into success (Gucciardi, Jackson, Hodge, Anthony, & Brooke, 2015). Indeed, studies with college students, employees, and participants working on tasks in laboratory studies have all determined that a learning goal orientation positively influences the level of effort exerted. This is a finding that is consistent with the belief of incremental theorists

that effort is a mechanism for achieving success and for approaching tasks with a sense of self-efficacy (Vandewalle, 2001a). As explained by Keating and Heslin (2015, p. 5), “a growth mindset inclination to see the power of effort to develop initially inadequate ability can prompt vigorous dedication to the task at hand”. When an individual adopts a growth mindset together with its complementary learning goal orientation, the propensity to set goals and devise a plan to accomplish the goals offers a further impetus to exert effort (Vandewalle, 2001a).

Attributions. Individuals with a growth mindset are curious and view mistakes as an opportunity to learn and develop rather than as a cause for condemnation (Hunter & Scherer, 2009). As a result of this, these individuals tend to develop a more resilient sense of personal efficacy (Tabernero & Wood, 1999). This was demonstrated in a series of experiments by Wood and his colleagues that examined implicit theories of the acquisition of managerial skills on a complex task both individually and in groups (e.g. Tabernero & Wood, 1999; Wood & Bandura, 1989; Wood, Phillips, & Tabernero, 2002).

One of these studies by Wood and associates (2002), for example, found that individuals who were placed in the entity group blamed their ability, the task, and their luck when they experienced difficulty – all of which are uncontrollable. The incremental group, by contrast, remained committed to strategy attributions, gained in efficacy over trials, and set higher goals for themselves on later trials compared to the entity group (Dweck & Molden, 2005). In another study by Wood and Bandura (1989), it was determined that even though both the incremental and entity group began the task with a sense of managerial efficacy, the participants in the entity group demonstrated a progressive decline in self-efficacy across trials as they attempted to accomplish a complex task (Dweck & Molden, 2005). Furthermore, these individuals also became less efficient in their use of analytic strategies, set less challenging goals, and showed a steady decline in organisational performance across trials. In contrast to this, individuals in the incremental group adopted more systematic strategies, managed to maintain their sense of efficacy, and sustained a higher level of performance across trials (Dweck & Molden, 2005).

In both of these studies (Wood et al., 2002; Wood & Bandura, 1989), rather than attributing their failures to their own inherent inabilities as the entity group did, the incremental group attributed failure to strategy weaknesses and therefore adjusted their strategies accordingly to achieve better outcomes.

Patterns in Response to Feedback. It is clearly evident that the implicit person theories that an individual holds influences his or her perceptions of effort and failure as well as the types of

goals that individuals set for themselves. Critically, these differences may play a pivotal role in terms of the individual's ability to thrive through learning. A particularly convincing empirical study conducted by Mangels, Butterfield, Lamb, Good, and Dweck (2006) illustrated these differences by examining brain-wave data to study college students' event-related brain potentials (ERPs) while they completed a challenging general knowledge task. As participants completed the task, they were told whether each of their answers was correct or incorrect and were also given feedback explaining the right answer for participants who had answered incorrectly (Keating & Heslin, 2015). The waveforms associated with error detection and correction demonstrated that there was a relationship between an entity mindset and lower levels of neural activity in regions of the brain associated with feedback processing when receiving corrective task-related feedback, relative to individuals with an incremental mindset (Hudson, 2012).

Mangels and colleagues (2006) determined that implicit theories are likely to predict subsequent self-regulatory behaviour through top-down biasing of attention that focuses on information that is congruent with one's goals. While individuals with a fixed mindset became alert and engaged when they were presented with information that was relevant to performance but not to learning-relevant information that might help them improve, individuals holding a growth mindset consistently engaged with learning-relevant information (Carr et al., 2012). Furthermore, the researchers concluded that compared to incremental theorists, entity theorists were less likely to engage in sustained processing of feedback relevant to future success (Burnette et al., 2013). This was attributed to the notion that entity theorists concentrated more on regulating negative emotions related to lack of potential for future progress, while incremental theorists paid greater attention to encoding information critical for future success which, they believed (unlike the entity theorists), was still a possibility (Burnette et al., 2013). This study therefore empirically demonstrated that holding an incremental implicit theory facilitates attentiveness to new, useful information that enables learning and skill development, and consequently, leads to superior performance (Keating & Heslin, 2015).

Evidently, feedback seeking and response to feedback is another important differentiator between entity and incremental theorists. As already mentioned, individuals with a fixed mindset tend to be fearful of feedback that indicates failure as they interpret it as evidence of their inadequate ability (Burnette et al., 2013). When feedback is perceived as a judgement about one's worth, efforts to improve are side-tracked by emotional responses, rumination, and defensive rationalisation activities (Vandewalle, 2001a). Conversely, individuals with a growth

mindset are less concerned with the evaluative implications of failure feedback since they interpret it as useful information toward the longer term goal of learning and developing mastery (Burnette et al., 2013; Tabernero & Wood, 1999). Interpreting feedback diagnostically stimulates a proactive response to develop and consider alternative strategies aimed at improving performance (Vandewalle, 2001a).

These differences in feedback seeking behaviour and perceptions of feedback were empirically demonstrated in a series of studies by Heslin and Vandewalle (2005) who found that the growth mindset of a manager was positively related to his or her seeking of negative feedback from subordinates, when self-reported by the manager and when rated by the subordinates (Vandewalle, 2012). Furthermore, upon asking participants to indicate the type of feedback they expected to receive when sought from their manager after experiencing a number of job promotion setbacks, the authors found that employees who held a fixed mindset reported that their managers' feedback would be a judgement about their talent. Conversely, employees with a growth mindset indicated that they were more likely to receive feedback that would be useful diagnostic information (Vandewalle, 2012).

When feedback is accurate and sufficiently detailed it has the potential to provide information about progress, assist employees in developing the skills needed for task performance, and advise them of the behaviour and strategy changes that are necessary to improve performance (Vandewalle, 2001a). Simply put, seeking and attending to feedback is critical in the learning process. Clearly, then, an individual's mindset may play an important role in an individual's willingness to learn and, thereby, thrive at work. Indeed, Molden and Dweck (2006) suggest that having a growth mindset as opposed to a fixed mindset may enable individuals to view failure as providing diagnostic information about their present level and possible actions for improvement. This may also then be understood as a necessary 'ingredient' for thriving to act as a self-regulation gauge, as discussed previously (Spreitzer & Porath, 2014).

Changing mindsets

An area in the mindset literature that is of critical importance is the notion that mindsets can be altered through intervention. Although mindsets or IPTs have been conceptualised and shown to be relatively stable beliefs that an individual will characteristically bring to a situation, these theories are also dynamic (Carr et al., 2012; VandeWalle, 2001b). Carr and colleagues (2012) note that they can be triggered by strong situational cues as well as changed through instruction and exposure to different schools of thought. Indeed, a number of empirical investigations have

demonstrated that mindsets can be modified with interventions. In a laboratory study, for example, Wood and Bandura (1989) manipulated implicit theories by providing participants with explicit instructions about whether an attribute was fixed or malleable in nature. Yeager and colleagues (2014) also demonstrated that when participants were exposed to a growth mindset intervention emphasising that people can change, they displayed reactions that were less negative to social adversity, and lower stress and illness eight months later.

In a longitudinal experimental study, Heslin, Latham, and VandeWalle (2005) investigated whether managers with a fixed mindset could be trained to adopt a growth mindset that endured beyond an experimental session. They developed an incremental intervention based on principles of self-persuasion that exposed participants with a distinct fixed mindset to scientific testimony, counter-attitudinal idea generation, counter-attitudinal reflection, counter-attitudinal advocacy, and cognitive dissonance (Heslin & VandeWalle, 2008). Six weeks after receiving the intervention, the managers who had held a fixed mindset provided their subordinates with appraisal ratings and coaching suggestions that were similar to those of managers who held a chronic growth mindset (Heslin & VandeWalle, 2008). That is, entity theorists showed an increased willingness to coach a poor performing employee, as well as increased quantity and quality of their performance improvement suggestions (Heslin et al., 2006).

The above studies (Heslin et al., 2005; Wood & Bandura, 1989, Yeager et al., 2014) illustrate that although mindsets are relatively stable beliefs, they are also dynamic and therefore may be altered through targeted interventions.

Mindset and organisational behaviour

While Heslin and his associates have made important advances in knowledge about how the mindsets of managers impact on their relationships with their subordinates, relatively less work has examined how implicit theories in the workplace impact on how employees perceive themselves and their *own* ability, including how they approach challenges and respond to failure. While this is generally the primary focus of Dweck's research which examines achievement in the domain of school children (e.g. Dweck & Leggett, 1988), the focus has carried over less obviously into the organisational literature, which has been more focused on how implicit theories affect the appraisal of others rather than of the self.

A notable exception to this is the recent work by Keating and Heslin (2015) on mindset and employee engagement. However, this article focuses on the theoretical links between the

constructs but it does not provide any empirical evidence. Another exception is Luthans and associates (2011), who address how a mastery-orientated mindset may mediate the relationship between psychological capital and problem solving performance and innovation. However, this research operationalises mindset as the participants' choice of the level of difficulty of a problem (Luthans et al., 2011) and not through the direct measure of an implicit person theory scale as has been utilised in other areas of psychology (and in the current research) to measure the construct.

It appears that there is a dearth in empirical research focusing on mindsets within the POB framework. This is somewhat surprising as it may offer a potential avenue for employee development, engagement (Keating & Heslin, 2015), and workplace thriving. If employees who hold a growth mindset are in fact able to bounce back from failure and learn from their experiences, as the theory suggests, then this has important implications for both individual well-being and organisational effectiveness (Rock, Davis & Jones, 2013). The lack of empirical research in the organisational psychology field is a gap that the current research will seek to redress. Specifically, this research will consider if mindset meaningfully relates to workplace thriving.

Although mindsets have not been explicitly linked to the positive organisational behaviour and scholarship literatures, the construct does seem to be relevant in a number of ways. Firstly, although mindsets are somewhat inherent to an individual, it is possible to alter them through targeted interventions, as discussed above. This makes them state-like, an important prerequisite for POB psychological capacities (Luthans, 2002b). In addition to this, the type of mindset that an individual adopts can have performance implications for the workplace with regard to goal focus, perception of effort, attributions, and response patterns, as previously mentioned (Thompson, 2006). As such, although the construct of mindsets has only recently been introduced into the organisational psychology research domain, it seems to hold a great deal of potential for improving both the performance of individuals and the organisations in which they work. As argued by Hunter and Scherer (2009), when individuals consciously shift to a growth orientation, unforeseen possibilities are opened up and problems are resolved. Changing mindsets thus arguably has enormous potential for improved workplace productivity, making it an exciting and potentially fruitful area for organisational psychologists to explore.

Rationale for the current study

The belief that individuals with an incremental mindset have regarding the malleability of their characteristics is said to give these individuals higher control convictions, to lead to greater task persistence, and to demonstrate greater willingness to spend time practising skills compared to individuals holding an entity mindset (Hudson, 2012). Importantly, these effects of an incremental mindset are argued to exert their greatest influence in the face of challenges and setbacks (Dweck, 1999).

It seems logical, then, to assume that mindset would predict the learning and vitality dimensions of workplace thriving (Spreitzer et al., 2005) in terms of how individuals approach and respond to challenges, effort, feedback, failures, and so on. However, the question is whether or not this is enough to explain adequately why some individuals thrive while others languish. A belief that abilities *can* be changed does not necessarily translate into the belief that one has the *capacity* to make those changes (Hudson, 2012). Without the belief that one has the ability to change and grow (a growth mindset), an individual may not be willing to engage in learning activities that contribute to thriving. However, even if an individual does possess a growth mindset, he or she may lack the self-efficacy, optimism, hope, and resilience to pursue developmental opportunities that allow for thriving to occur. As such, the current research contends that it is not simply a matter of mindset that determines how individuals respond to challenges and failure in the workplace. Rather, it may be that the personal resources outlined in PsyCap of resilience, self-efficacy, hope, and optimism make these responses possible.

This reasoning can be understood within the framework of Fredrickson's (2001) broaden and build theory discussed earlier. If the 'broadening' aspect can be conceptualised and operationalised as a growth mindset, the hypothesis predicts that this is still not enough to thrive. Rather, it is the accumulation of these broadened thought-action repertoires (prompted by positive emotions), that allows individuals to build their personal resources (Fredrickson, 2001). If PsyCap is conceptualised and operationalised as the 'build' aspect of the hypothesis, then this might explain how a growth mindset, together with PsyCap, may encourage and enable an upward spiral of positivity and, in turn, thriving in the workplace. Indeed, as argued by Luthans and colleagues (2011), a mastery orientation (which is a critical feature of a growth mindset), through challenge seeking behaviour and perseverance, creates a medium for the development of self-efficacy in particular, and PsyCap in general. In this way, mindset may be

thought of as a necessary but not sufficient predictor of thriving, with PsyCap acting as a mediator between these two variables.

Another argument for the proposed synergy between mindset and PsyCap in the experience of thriving may be deduced by considering the construct of thriving itself. As already mentioned, thriving is only possible when both the cognitive (learning) and the affective (vitality) dimensions of the construct are present (Porath et al., 2012). From this perspective, a growth mindset, with its accompanying propensity to seek out challenges and constantly learn and grow (Dweck, 2006), may be understood as the cognitive aspect of thriving. As discussed, workplace thriving is characterised by agentic behaviours like exploration, or the willingness to employ experimentation, risk-taking, and innovation which helps individuals to grow and develop in their roles (Schiffbauer, 2013). PsyCap, with its positive state-like psychological resource capacities (Youssef & Luthans, 2007), may lead to the vitality or affective dimension of thriving. As noted by Luthans and colleagues (2007, p. 550), “PsyCap represents an individual’s positive appraisal of circumstances and probability for success based on motivated effort and perseverance”.

This idea is illustrated by the work of Porath and colleagues (2012) who determined that thriving was related to more of a learning orientation (a critical aspect of a growth mindset and relevant to the learning dimension of thriving), and more positive core self-evaluations (which is integral to PsyCap and potentially indicative of feelings of vitality owing to the experience of self-determination – discussed above). These individuals are more likely to engage actively in tasks since they have greater confidence in their potential for success, and such task engagement has the potential to generate vitality and to heighten possibilities for learning and, ultimately, for thriving (Porath et al., 2012). Conversely, individuals with low self-efficacy are more likely to over-generalise negative outcomes as personal failings, which, subsequently, hinders their learning and vitality (Porath et al., 2012).

According to Spreitzer and colleagues (2012, p. 156), thriving employees have “a more personal mission and purpose about their work, they are more resilient in the face of difficulty, and they have higher quality relationships with those they work with”. Without both a growth mindset (a broadened thought-action repertoire and propensity to learn) and the capacities of self-efficacy, resilience, hope, and optimism made available through PsyCap (built up resources and feelings of vitality), thriving in the workplace may not be fully achievable or sustainable.

The constructs of mindset, PsyCap, and thriving are not just theoretically important. Today's workplace is a fast-paced and unpredictable environment and it is crucial that employees match these realities with swiftness and flexibility in growth and development (Luthans & Youssef, 2007). Imperatively, all three of the discussed constructs are not fixed. If employees can be trained to have a growth mindset (Heslin et al., 2006) and PsyCap can be built up "through intentional activities that leverage personal mastery, vicarious learning, social support, physiological and psychological arousal, goal setting, contingency planning, positive attributions, and effective coping and risk-management strategies" (Luthans et al., 2011, p. 340), and if these two factors together lead to workplace thriving which contributes to human sustainability through psychological (reduced burnout) and physical (perceptions of health) well-being (Porath et al., 2012), then, organisations have in their hands an unprecedented potential source of competitive advantage (Luthans & Youssef, 2007). As argued by Spreitzer and colleagues (2012, p. 160), "if human sustainability is a goal, thriving is a vital force for enabling healthy, high performing, engaged employees".

The context of the current study

A review of the literature suggests that the three constructs discussed above do not appear to have been investigated together in published research. While thriving and PsyCap have been empirically linked recently (e.g. Paterson et al., 2014), their relationships with mindset have not been interrogated. In addition to this, while there has been some published research on PsyCap in South Africa (e.g. Görgens-Ekermans & Herbert, 2013; Simons & Buitendach, 2013), this does not appear to be the case for mindset or workplace thriving. While some research exists in South Africa on thriving (e.g. in 2013, van den Berg investigated resilience and thriving among health professionals), it has used the conceptualisation of thriving that was offered by Carver (1998) who proposed that thriving is understood as reaching positive outcomes after exposure to significant *risk*, similar to the notion of resilience. This is different to the argument proposed by Spreitzer and colleagues (2005) – and that which is advanced in the current study – who propose that one does not need to experience hardship or risk in order to thrive. Additionally, while other research on thriving in South Africa does exist (e.g. Bozalek, 2010; Smith & Drower, 2008), this has not focused specifically on thriving in the workplace.

Furthermore, while the construct of engagement – similar to but not the same as thriving – has been more widely examined in the South African context (e.g. Field & Buitendach, 2011; Rothmann & Rothmann, 2010; Van Zyl, Deacon, & Rothmann, 2010), the construct of

workplace thriving has not enjoyed the same level of attention. In fact, not one published study using the conceptualisation of workplace thriving as consisting of learning and vitality (Spreitzer et al., 2005) could be found. As such, the current research is, to the author's knowledge, the first to approach thriving from this angle, adding an important new lens to research on employee well-being in the South African context.

Finally, the construct of mindset is not only new to South Africa, but also to the field of organisational psychology in general. Published South African research in this area appears to be almost non-existent. One exception to this is Potgieter (2011) who examined mindset in relation to competitive sport. For the most part, however, this field has been left largely unexplored.

As such, the added value of the current research is not only the investigation of the constructs of PsyCap, workplace thriving, and mindset as they relate to each other. It is also, to the author's knowledge, the first to examine the constructs of workplace thriving and mindset as it relates to the workplace, in a South African context.

A visual conceptual model of this research is depicted in Figure 1, below.

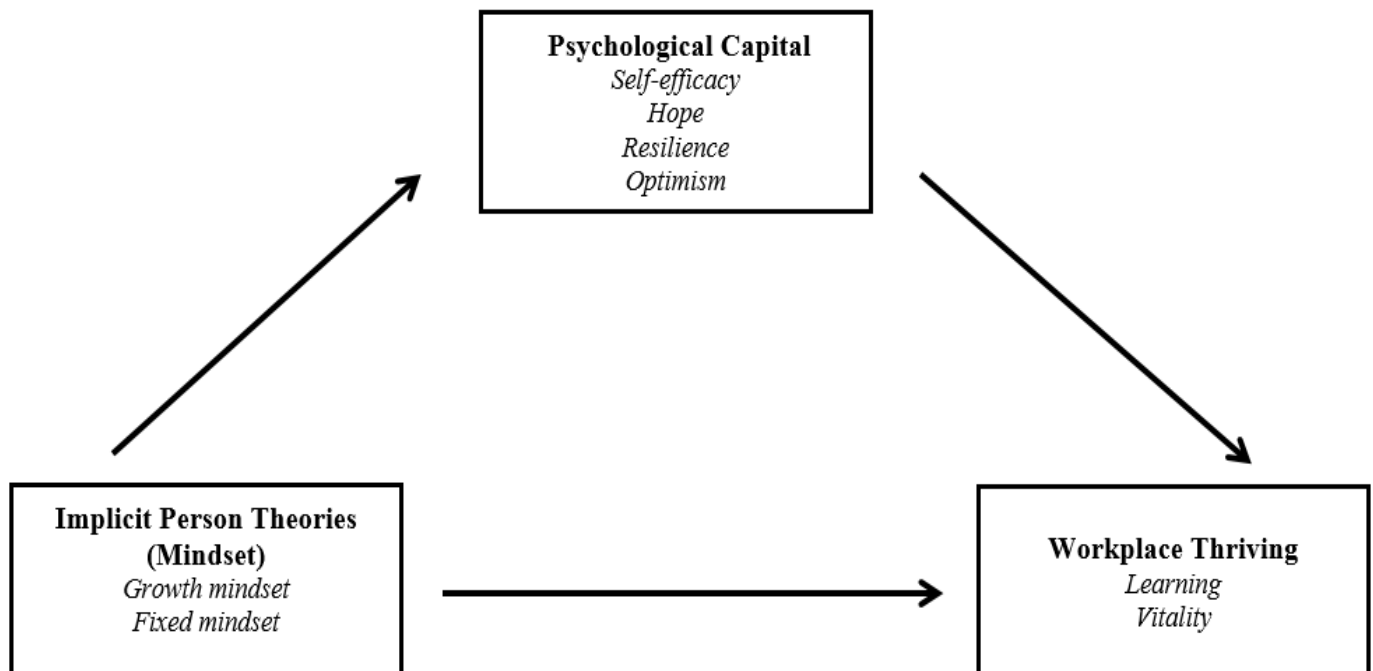


Figure 1
Conceptual Model

RESEARCH HYPOTHESES

From the theoretical propositions discussed above, the following hypotheses can be suggested:

Hypothesis 1a): There is a significant, positive relationship between implicit person theories (IPT) and psychological capital (PsyCap)

Hypothesis 1b): There is a significant, positive relationship between a growth mindset and PsyCap

Hypothesis 1c): There is a significant, negative relationship between a fixed mindset and PsyCap

Hypothesis 2a): There is a significant, positive relationship between PsyCap and workplace thriving

Hypothesis 2b): There is a significant, positive relationship between PsyCap and learning

Hypothesis 2c): There is a significant, positive relationship between PsyCap and vitality

Hypothesis 3a): There is a significant, positive relationship between IPT and workplace thriving

Hypothesis 3b): There is a significant, positive relationship between IPT and learning

Hypothesis 3c): There is a significant, positive relationship between IPT and vitality

Hypothesis 4): PsyCap mediates the relationship between IPT and workplace thriving²

² IPT as a total score, as well as its components growth mindset and fixed mindset, were the independent variables (IVs); workplace thriving, learning, and vitality were the dependent variables (DVs); and PsyCap, self-efficacy, hope, optimism, and resilience were the mediator variables (MED) in this study.

CHAPTER 2: METHODOLOGY

Research Design

The design employed for the purpose of this study was quantitative, non-experimental, correlational, and cross sectional in nature (Warner, 2013). Since there was no manipulation of a treatment variable, this research was non-experimental as naturally occurring variables were measured that are believed to be meaningfully related (Warner, 2013). The design was cross-sectional as the study examined the variables of interest at a single point in time (Cozby, 2009). The research was also correlational, which is, according to Stangor (2011, p. 180), “designed to test research hypotheses in cases where it is not possible or desirable to experimentally manipulate the independent variable of interest”. With this research strategy, measurements of two or more variables are collected to obtain a set of scores for each individual in the study. These measurements are then examined to establish if patterns exist between the variables and to measure the strength of these relationships (Gravetter & Forzano, 2011).

Procedure

Before the study began, ethical clearance was obtained from the University of the Witwatersrand Human Research Ethics Committee (non-medical). In addition to this, it was necessary to gain permission to make use of the scales that were utilised in this study. The IPT scale and Thriving at Work Scale are freely available along with the scoring information and the PCQ-24 is available for non-commercial purposes upon request from the authors. Permission to use the PCQ-24 in the current study was granted by the authors.

Following this, surveys were distributed electronically by providing a link to the relevant tests on Google Forms, an online survey forum similar to Survey Monkey. The link was distributed through the social networking sites Facebook and LinkedIn as well as on various community forums. To increase the size of the sample, snowball sampling was also used. Individuals known to the researcher who may have been suitable to participate in the study were approached and asked to send the email link to anyone who they knew who could be a suitable participant. Finally, individuals attending Wits Plus were approached and asked to participate in the study. Wits Plus is a division of the University of the Witwatersrand offering part time studies for individuals who are employed full time, making students who attend Wits Plus suitable for the current research. Where relevant (i.e. for first year psychology Wits Plus students), potential participants were informed of a one percent addition towards their final mark for participation, as per the Department of Psychology’s policy on research participation.

Once the link was received, employees were able to decide whether or not to take part in the study. If they did decide to participate, they followed the link to the scales to be completed. The link remained open for approximately two months within which participants were able to complete the questionnaires at their earliest convenience. Participation took approximately 10 to 15 minutes and required the completion of the demographic questionnaire (Appendix A), the PCQ-24 (Appendix B), the Thriving at Work Scale (Appendix C), and the IPT scale (Appendix D). Once all data was collected, analysis began.

Sampling and Sample

The sampling strategies used in this research were non-probability, convenience, volunteer, and snowball sampling (Huck, 2014). Non-probability sampling refers to sampling where the selection of elements is not determined by the statistical principle of randomness (Durrheim, 2006). This type of sampling was necessary for the current study because the sample was drawn only from those who volunteered to participate in the research. The voluntary nature of the sample also indicates why convenience sampling was necessary. Since this research did not attempt to make any inferences regarding populations (Stangor, 2011), this method of sampling was appropriate for the current study. The snowball sampling method was also used in the hopes of reaching more people and thus increasing the size of the sample (Huck, 2014).

The sample for this research consisted of individuals currently employed in South African organisations in a variety of industries and occupations. No limitations were applied regarding level of position in the organisational hierarchy or any other demographic characteristics (age, ethnicity, gender, religion). Table 1 below illustrates the demographic data collected from this sample. A full list of occupations and industries represented in the sample can be found in Appendix E.

Table 1

Demographic characteristics of the sample

Item	Category	N	Percentage
Age	18-24	55	24.3
	25-34	75	33.2
	35-44	43	19.0
	45-54	33	14.6
	55-64	14	6.2
	65+	6	2.7
Gender	Male	99	43.8
	Female	127	56.2
Ethnicity	White	153	67.7
	Black	42	18.6
	Coloured	11	4.9
	Indian	15	6.6
	Missing/Other	5	2.2
Relationship status	Married	87	38.5
	Widowed	3	1.3
	Divorced	18	8.0
	Single, never been married	86	38.1
	Single but cohabiting with significant other	29	12.8
	In domestic partnership/civil union	2	0.9
	Missing/Other	1	0.4
Educational level	Left school before matric	2	0.9
	Matric	54	23.9
	Diploma	45	19.9
	Undergraduate degree	57	25.2
	Postgraduate degree	62	27.4
	Registration with professional board	5	2.2
	Missing/Other	1	0.4
Level of seniority	Junior/entry level	31	13.7
	Staff member, no managerial responsibility	54	23.9
	Supervisor/junior management	32	14.2
	Middle management	35	15.5
	Senior management	32	14.2
	Executive	29	12.8
	Missing/Other	13	5.8
Job tenure	0-4 years	119	52.7
	5-10 years	53	23.5
	11-20 years	26	11.4
	21 years +	11	4.7
	Missing	17	7.5

Of the 243 responses collected via Google Forms, 17 were discarded as they were incomplete or the participants did not meet the criteria of being employed in the South African workforce. This left 226 respondents – 127 females (56.2%) and 99 males (43.8%). Ethnicity (which was collected purely for descriptive purposes) was quite skewed with 153 respondents (67.7%) being white. Forty-two respondents (18.6%) were black, 15 participants (6.6%) were Indian, and 11 participants (4.9%) were coloured. Five participants (2.2%) chose not to disclose their ethnicity. Age distribution was as follows: 18-24 years (24.3%); 25-34 (33.2%); 35-44 (19%); 45-54 (14.6%); 55-64 (6.2%); and 65+ (2.7%). The sample was fairly well distributed in terms of level of education: 54 (23.9%) had a matric, 45 (19.9%) had a diploma, 57 (25.2%) had obtained an undergraduate degree, and 62 (27.4%) had obtained a post graduate degree. Only 2 participants (0.9%) had left school before matric and 1 (0.4%) did not report on their level of education. Twenty-five participants (11.1%) also reported that they were registered with a professional board.

There were at least 21 different industries represented among the participants, however the most common ones were education (11.5%); finance and financial services (11.1%); and telecommunications, technology, internet, and electronics (11.9%) (Please refer to Appendix E for a full list). There were also a vast array of occupations (at least 21) represented in the sample. The most common occupations were computer and mathematical occupations (8.4%); management occupations (10.2%); and office and administrative support occupations (13.3%) (Please refer to Appendix E for a full list). In terms of level of seniority, 13.7% of participants held a junior or entry level position, 23.9% of participants were staff members with no managerial responsibilities, 14.2% were supervisors or junior managers, 15.5% were in middle management, 14.2% were in senior management, and 12.8% of participants held executive positions. 3% reported holding ‘other’ positions, and 2.7% of participants did not report on their level of seniority within their organisation.

Instruments

Demographic Questionnaire

A self-developed demographic questionnaire was used to obtain information about the sample, primarily for descriptive purposes. The demographic data collected from this questionnaire included age, gender, ethnicity, marital status, and highest level of education attained. The questionnaire also asked participants to indicate their field/industry of employment, occupation, job tenure, and job level.

Psychological Capital

The instrument that was used to measure psychological capital is the PCQ-24 self-rater version (Luthans et al., 2007). The scale consists of 24 items in total, each of which is measured on a six point Likert-type scale with anchors *1 = strongly disagree* and *6 = strongly agree*. There are four subscales with six items in each, corresponding to the four elements of PsyCap namely hope, optimism, self-efficacy and resilience (Görgens-Ekermans & Herbert, 2013). According to Luthans and colleagues (2007), these four subscales were selected based on sound evidence of reliability and validity, relevance to the workplace as well as being measures of state-like constructs. The resulting score represents the respondent's level of psychological capital (Du Plessis & Barkhuizen, 2011). An example item from the resilience subscale is "*I can get through difficult times at work because I've experienced difficulty before*" (Luthans et al., 2007).

Using four independent samples, Luthans et al. (2007) reported internal consistency reliability estimates ranging from $\alpha = 0.66$ to 0.84 for the four subscales and from $\alpha = 0.88$ to 0.89 for PsyCap total. The authors concluded that while the optimism subscale had an alpha coefficient of 0.69 in one sample and the resilience subscale had an alpha coefficient of 0.66 in another (and therefore did not reach generally accepted levels of internal consistency), the overall reliability of the PCQ across the four samples was consistently above conventional standards (Luthans et al., 2007). The measure has also been used in South African samples with authors reporting internal consistency reliability estimates ranging from $\alpha = 0.67$ to 0.90 for the four subscales and from $\alpha = 0.85$ to 0.91 for the total in three separate studies (Du Plessis & Barkhuizen, 2011; Görgens-Ekermans & Herbert, 2013; Simons & Buitendach, 2013). The PCQ-24 was therefore an appropriate measure to use for the current study.

Thriving at Work

The instrument that was used to measure workplace thriving is a 10-item scale that was developed and validated across five different samples by Porath and colleagues (2012). The scale consists of five items measuring the learning dimension of the construct (e.g. "*at work I see myself continually improving*") and five items measuring the vitality dimension (e.g. "*at work I have energy and spirit*"). The items are measured on a 5 point Likert-type scale with the anchors *1 = strongly disagree* and *5 = strongly agree*. Porath and associates (2012) report that confirmatory factor analyses have demonstrated initial support for the two-dimensional structure of thriving (i.e. learning and vitality). Validation studies conducted by the authors also demonstrated convergent and discriminant validity of the scale by empirically illustrating

patterns of correlations between thriving and related constructs (such as affect, goal orientation, proactive personality, and core self-evaluations) that conformed to theoretical propositions (Porath et al., 2012). The scale has demonstrated good internal consistency reliability according to generally accepted standards (Huck, 2014) with Cronbach alpha coefficients ranging from 0.90 to 0.94 across five samples (Porath et al., 2012).

Implicit Person Theories (IPT)

In order to determine participants' implicit person theories or 'mindsets', Levy and Dweck's (1997) eight-item domain-general 'kind-of-person' measure was used. The scale, labelled 'Beliefs about Human Nature', assesses implicit beliefs that cut across the domains of personality and ability (Heslin et al., 2005). The scale consists of four items expressing an incremental theory or a growth mindset (e.g. *"everyone, no matter who they are, can significantly change their basic characteristics"*) and four items that reflect an entity theory or fixed mindset (e.g. *"the kind of person someone is, is something very basic about them and it can't be changed very much"*) (Levy & Dweck, 1997). Respondents rate the extent to which they agree with each item on a 6 point Likert-type scale (*1 = strongly agree, 6 = strongly disagree*) (Poon & Koehler, 2008). A mean score is calculated for each respondent. Scores are reversed so that a lower score reflects a stronger belief in an entity theory and a higher score indicates an incremental implicit theory (Heslin et al., 2005).

The scale has test-retest reliability estimates of 0.82 over a one-week period and 0.71 over four weeks (Heslin et al., 2006). It also has demonstrated high internal consistency reliability in validation studies conducted by Dweck, Chiu, and Hong (1995), with alpha coefficients of 0.90, 0.92 and 0.94 in three independent samples consisting of 184, 93 and 69 participants respectively (Hong, Chiu, Dweck, & Sacks, 1997). In terms of construct validity, the scale is generally uncorrelated with other motivational, ability, or demographic constructs such as academic aptitude tests or self-presentation concerns like social desirability (Heslin et al., 2006) which illustrates that the measure is not confounded by these constructs (Hong et al., 1997).

Ethical Considerations

Prior to the commencement of the study, ethical clearance was obtained from the University of the Witwatersrand Human Research Ethics Committee (non-medical) (please see Appendix F). To ensure informed consent, a participant information sheet outlining the procedures and purpose of the research was attached to the email with the survey link that was be sent to

potential participants (please refer to Appendix G). It explained the purpose of the study, what participation entailed, and that participation in the study was entirely voluntary and would not harm or benefit the employee in any way. Individuals had the right to refuse to participate as well as to withdraw from the study until the time of submission of the tests without penalty (Gravetter & Forzano, 2011).

Both confidentiality and anonymity of data were ensured as the tests did not require participants to disclose any identifying information and no IP addresses were recorded (Tayie, 2005). However, for first year Wits Plus psychology students who wished to participate in the study, anonymity could not be assured as student numbers were required for identifying the psychology students who would be awarded an additional one percent for participation. These student numbers were, however, removed from the final data set and replaced with unidentifiable participant numbers.

An explanation of the debriefing procedure was also outlined in the information sheet (Wassenaar, 2006) which explained that results would be posted on a blog at the time of completion of the research. It was, however, specified that no individual feedback was possible due to anonymity. Details of the researcher and supervisor were provided, who could be contacted with any additional questions or concerns. There were no benefits or foreseeable risks to taking part in the study, with the exception of the first year Wits Plus psychology students who received an additional one percent towards their final term mark as a reward for participating in the study. Those that did receive this additional course credit were deemed to benefit from their participation, however, this is in accordance with departmental policy.

Data Analysis

Due to the use of quantitative measures for the constructs of psychological capital, workplace thriving, and implicit person theories, it was necessary to employ statistical procedures in the analysis of the collected data. The software used for this purpose was IBM SPSS Statistics 22.

The first step of data analysis was an exploratory factor analysis that was conducted on the IPT scale in order to determine which items corresponded to which subscale, and exactly what these subscales were. The motivation for this exploratory factor analysis was to establish construct validity in the current sample. A factor analysis was only conducted for the IPT scale because while the PCQ24 and Workplace Thriving scales do have established factor structures (Luthans et al., 2007 for PCQ24 and Porath et al., 2012 for thriving), there is less evidence of the factor structure of the IPT scale in the literature.

Cronbach alpha coefficients were also calculated to establish the internal consistency reliability of the scales used. Internal consistency refers to the extent to which each item in a scale correlates with each other item (Terre Blanche, Durrheim, & Painter, 2006). The most common statistic used for this is the Cronbach alpha coefficient, a number ranging from 0 to 1, with values of 0.75 and above typically considered to be reliable i.e. to have good internal consistency reliability (Terre Blanche et al., 2006).

Before inferential statistical analysis could be performed on the data, it was necessary to determine the nature and characteristics of the sample from which this data was drawn. For the nominal variables obtained from the demographic questionnaire, simple frequency distributions were calculated and for the interval variables in the study, measures of central tendency and variability (mean, standard deviation, and range) were computed.

To determine whether or not the data was normally distributed, skewness coefficients were calculated for each of the main variables (with values falling between -1 and +1 considered to be normal), and histograms were examined for a normal bell-shaped curve. These steps were taken to determine whether or not the variables were sufficiently normally distributed for parametric analyses to be conducted (Huck, 2014).

To explore the relationships between IPT, PsyCap, and mindset, Pearson's Product-Moment Correlations were calculated to determine the strength and direction of the relationships between these variables (Huck, 2014).

In order to address the main hypotheses of this research, mediated regression was conducted. Mediation analysis is one method that can be used to explain the process or mechanism by which one variable affects another (MacKinnon, Fairchild, & Fritz, 2007). In a mediation model, the effect of an independent variable (IV) on a dependent variable (DV) is transmitted through a third intervening, or mediating, variable (Fritz & MacKinnon, 2007).

Baron and Kenny (1986) outline four conditions that must be met in order to conclude that mediation has occurred:

1. There should be a significant relationship between the IV and the mediator
2. There should be a significant relationship between the IV and the DV
3. There should be a significant relationship between the mediator and the DV
4. The relationship between the IV and the DV should be significantly reduced after controlling for the effects of the mediator.

Although this particular method has received some criticism in recent years (please see limitations section later in this research report), Baron and Kenny's article has been cited over 35 000 times in scientific papers and is still a widely used approach for testing mediation (Field, 2013), thus making it suitable for the current study.

Full mediation is said to occur when the association between the IV and DV is completely accounted for by the mediator, whereas partial mediation occurs when the relationship that exists between these variables is only partly accounted for by the mediator (Mathieu & Taylor, 2006). Baron and Kenny (1986) have suggested that it is unrealistic to expect a complete mediation within the social sciences and, therefore, partial mediation warrants a conclusion of a mediation effect (Fritz & MacKinnon, 2007).

The first three conditions for mediation were tested using a series of regressions between the main variables (Kenny, 2014). The fourth condition was tested with the mediation analysis which consisted of estimating a series of regression models namely: regressing the mediator on the IV; regressing the DV on the IV; and regressing the DV on both the IV and on the mediator (Baron & Kenny, 1986).

To assess the significance of the mediation effects for the various mediation models that were tested in the study, Sobel tests were conducted using an online calculator developed by Preacher and Leonardelli (2015) and cross checked with the calculator developed by Soper (2015) in order to ensure consistency. The Sobel test aims to establish whether the reduction in the effect of the IV on the DV, once the mediator has been included (i.e. the mediation effect), is significant (Preacher & Leonardelli, 2015; Soper, 2015).

Finally, multicollinearity was also evaluated as to whether or not it presented a problem for the various multiple regressions. Multicollinearity occurs when two or more independent variables are too highly correlated with each other (Huck, 2014). This is thought to be undesirable as it causes inferences about individual predictor variables to be untrustworthy (Huck, 2014). As such, the following indices of multicollinearity were calculated and examined for each mediation model to determine whether or not this was a problem: the tolerance value (Tol); the variance inflation factor (VIF); and the condition index. To ensure that multicollinearity is not posing a problem, tolerance values should not be less than 0.1 and VIF values should not exceed 10 (Clarke-Carter, 2009). The condition index should not be greater than 30 (Rovai, Baker, & Ponton, 2013).

As this study was attempting to advance a theoretical framework, it was essential that the articulation of how and why the variables of interest are ordered in a particular way be illustrated. It is, however, critical to note that as this was a non-experimental study, causal inferences could not be made (Mathieu & Taylor, 2006). As such, statistical mediation analysis based on non-experimental data (such as was the case in the current research) provide suggestive rather than definitive evidence regarding causal processes (Shrout & Bolger, 2002). Such analyses are also able to provide evidence that one mediation pattern is more plausible than another, and can therefore provide critical information necessary for the design of true experimental studies of causal processes (Shrout & Bolger, 2002).

CHAPTER 3: RESULTS

This chapter presents an analysis of the statistical results obtained from the data that was collected for the current study. All data was analysed using the statistical programme IBM SPSS Statistics 22.

Factor analysis of the IPT scale

Before addressing the research hypotheses of the study, it was necessary to examine the psychometric properties of the scales used. The first step was to consider the factor structures of the scales. As noted earlier, while the PCQ24 and Workplace Thriving scales do have established factor structures, evidence for the factor structure of the IPT scale appears to be less consistent in the literature.

Levy and Dweck (1997) provided evidence of the unitary nature of incremental and entity beliefs, thereby producing a single scale, demonstrating that disagreement with the entity items represents agreement with the incremental items (Levy, Stoessner, & Dweck, 1998). However, as pointed out by Tempelaar, Rienties, Giesbers, and van der Loeff (2012) although the standard modelling approach is to combine both subscales into a single implicit theory scale, these researchers found that the negative correlation (-0.73) that existed between the two subscales was not strong enough to warrant combination as an inevitable step. As such, they treated entity implicit theory and incremental implicit theory as separate latent constructs (Tempelaar et al., 2012). Due to these inconsistencies in factor structures, an exploratory factor analysis was conducted to attain some clarity on the matter for the current study.

In order to determine the factor structure of the implicit person theories scale, an exploratory factor analysis with varimax rotation was conducted (Pallant, 2005). The purpose of the factor analysis was to determine whether or not the scale was comprised of a single factor (i.e. mindset/implicit person theories) or of two factors namely growth mindset and fixed mindset.

The eight items of the implicit person theories scale (IPT) were subjected to principle components analysis (PCA) using IBM SPSS Statistics 22. Before performing the PCA, the suitability of the data for factor analysis was assessed (Pallant, 2005). Upon inspection of the correlation matrix it was determined that there were a number of coefficients of 0.3 and above. In addition to this, the Kaiser-Meyer-Olkin value was 0.87, exceeding the recommended value of 0.6 for this test. The Bartlett's Test of Sphericity was also statistically significant ($p = 0.000$) thus supporting the factorability of the correlation matrix (Pallant, 2005).

The eigenvalues obtained from the exploratory factor analysis using PCA are presented in Table 2 below. According to Kaiser's criterion or the eigenvalues greater-than-one rule (Pallant, 2005), two factors were indicated. This was supported by the scree plot (please see Figure 2, below), which revealed a clear break after the second component.

Table 2

Eigenvalues for the IPT scale

Item	Eigenvalue
1	4.460
2	1.514
3	0.482
4	0.450
5	0.334
6	0.285
7	0.261
8	0.214

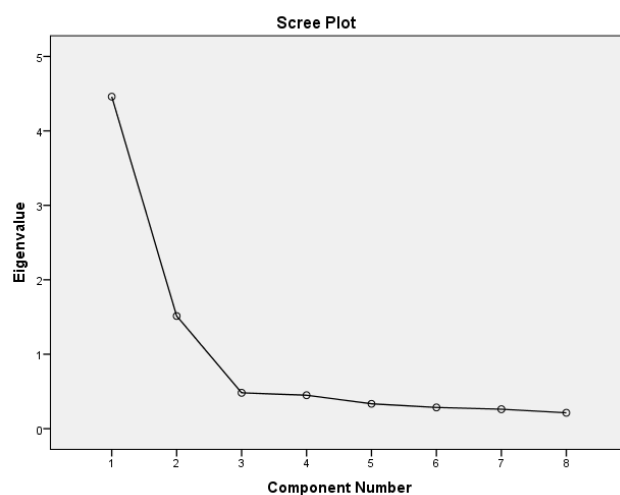


Figure 2

Scree plot for the factor analysis of the IPT scale

In addition to this, factor one accounted for the largest proportion of variance explained (55.75%) followed by factor two (18.92%). The results indicated that together these two factors explained 74.67% of the total variance. Based on the eigenvalues, the scree plot, and the proportion of variance explained, two factors were extracted.

Table 3

Rotated factor pattern for the IPT scale

	Factor 1	Factor 2
Item 1	-0.139	0.847
Item 2	-0.203	0.883
Item 3	0.815	-0.162
Item 4	-0.304	0.793
Item 5	0.804	-0.303
Item 6	-0.244	0.796
Item 7	0.865	-0.226
Item 8	0.856	-0.198

Table 3 above presents the rotated factor pattern for the IPT scale used in data collection. Conceptually, it was evident that factor 1 represented a growth mindset and factor 2 represented a fixed mindset. Items 3, 5, 7, and 8 which were all growth items loaded consistently on factor 1 based on a cut-off value of 0.4 and above (Whitley & Kite, 2013) while items 1, 2, 4, and 6 (fixed items) loaded consistently on factor 2. All of these loadings were high (0.79 and above) with no cross loadings.

Based on the results of the factor analysis it was clear that there were two separate subscales that composed the IPT scale namely growth (items 3,5,7, and 8) and fixed (items 1, 2, 4, and 6) mindset. It was therefore decided to adopt a two factor structure in the analysis of results.

Reliabilities

In order to establish the internal consistency reliability of the measuring instruments in the sample obtained, Cronbach Alpha coefficients were computed for the subscales and total scores for PsyCap and thriving for the PCQ24 and Workplace Thriving Scale, as well as for the total of the IPT scale and its growth and fixed subscales, as shown in Table 4, below.

Table 4

Internal consistency reliabilities for the main variables and their subscales

Variables		Number of Items	Cronbach's Alpha
Implicit Person Theories	Total	8	0.89
	Growth	4	0.89
	Fixed	4	0.88
Psychological Capital	Self-Efficacy	6	0.91
	Hope	6	0.87
	Resilience	6	0.78
	Optimism	6	0.80
	Total	24	0.94
Workplace Thriving	Vitality	5	0.88
	Learning	5	0.92
	Total	10	0.92

As can be seen in the above table, all of the scales and their respective subscales had very good internal consistency reliability ($\alpha = 0.78$ and above). This indicates that there was a good degree of consistency across the parts of the scales in the sample obtained, suggesting that the IPT, PCQ24, and Workplace Thriving Scale were internally reliable for use in this study.

Descriptive statistics and normality

Descriptive statistics were computed to summarise the nature of the sample from which the data was drawn, as well as the nature of the data obtained for the key variables measured. Measures of central tendency and variability (mean, standard deviation, and range) were computed for the interval variables (Huck, 2014). These are presented in Table 5 below. Skewness coefficients and histograms (please refer to Appendix H) were also derived and were used to establish the extent to which the data was normal in nature.

Table 5

Descriptive statistics and normality for the main variables

Variable	N	Mean	SD	Min	Max	Skewness	Kurtosis
IPT	226	3.65	1.01	1	6	0.14	-1.52
Growth	226	3.46	1.19	1	6	0.15	-0.47
Fixed	226	3.84	1.17	1	6	-0.20	-0.69
PsyCap	225	4.54	0.81	2	6	-0.82	0.63
Efficacy	225	4.75	1.00	1	6	-0.97	0.79
Hope	225	4.50	0.94	1	6	-0.68	0.23
Resilience	224	4.61	0.85	2	6	-0.87	-0.88
Optimism	222	4.29	0.95	1	6	-0.54	0.05
Thriving	225	3.69	0.85	1	5	-.077	-0.03
Learning	226	3.93	1.00	1	5	-1.19	0.83
Vitality	225	3.45	0.90	1	5	-0.45	-0.43

From the above table, as well as from the histograms in Appendix H (Figures 3 – 13), it can be concluded that all of the main variables in the study seemed to be reasonably normally distributed. For the implicit person theories scale, total IPT scores were average ($M = 3.65$; $SD = 1.01$). Both the growth ($M = 3.46$; $SD = 1.19$) and fixed ($M = 3.84$; $SD = 1.17$) mindset subscales seemed to be approximately average in the current sample.

PsyCap total scores were normally distributed with few participants falling into the upper or lower extremities ($M = 4.54$; $SD = 0.81$). The same was true for the individual subscales: self-efficacy ($M = 4.75$; $SD = 1.0$); hope ($M = 4.50$; $SD = 0.94$); resilience ($M = 4.61$; $SD = 0.85$); and optimism ($M = 4.29$; $SD = 0.95$).

Levels of workplace thriving seemed to be average to high ($M = 3.69$; $SD = 0.85$), as were the scores calculated for the individual subscales: learning ($M = 3.93$; $SD = 1.0$) and vitality ($M = 3.45$; $SD = 0.90$).

The full range of response options were utilised by the employees for each subscale (1 - 6 for IPT and PsyCap; 1 – 5 for workplace thriving), with the exception of the resilience subscale where the lowest response step (1) was not utilised by any of the participants.

In terms of normality, the skewness coefficients for all scales and subscales fell between -1 and +1, a necessary condition to assume data to be approximately normally distributed (Huck, 2014). The only exception to this was the learning subscale from the workplace thriving measure which had a skewness coefficient of -1.19. However, given the relatively large sample size ($N = 226$), the data still could be assumed to be sufficiently normally distributed through the application of the Central Limit Theorem which holds that descriptive statistics based on larger samples (greater than 30) afford greater precision in population parameter estimates than do those calculated on smaller samples (Stangor, 2011). As such, given that the parametric assumption of normality was met, as were the assumptions of independence, random sampling (assumed), and interval scales of measure for the variables (Field, 2009), parametric techniques were undertaken in order to address the research questions.

Correlations

In order to establish the strength and direction of the relationships between the main variables in the study, Pearson's Product-Moment Correlations were computed (Marczyk, DeMatteo, & Festinger, 2005). Correlations were also calculated to establish the nature of the associations between the IPT subscales and total score; between the PsyCap subscales and total score; and between the workplace thriving subscales and total score. Tables 6, 7, and 8 in Appendix I illustrate the relationships between IPT, PsyCap, and thriving with their respective subscales. All subscales were significantly and positively related.

At this point it should be noted that the initial correlations between IPT and PsyCap and IPT and workplace thriving appeared to be in the opposite direction to what makes sense both theoretically and according to previous research. It would seem that the complexity of the scoring resulted in some confusion, leading to an error in coding in the form of double reverse scores. The reverse scoring was therefore recalculated which resolved the problem. It was therefore assumed that this coding error was the reason for the initial puzzling direction of the results. Unfortunately, however, it was not possible to check this against the original raw data due to an error. Because of this, the following results need to be interpreted with caution.

The relationship between mindset and psychological capital

The following analysis aimed to establish whether mindset and psychological capital were related as well as to establish the nature of this relationship. Pearson's Correlation Coefficients were calculated between overall IPT score and its two subscales, and total PsyCap and its four subscales. The results are presented in Table 9, below.

Table 9

Relationship between IPT and PsyCap

	IPT	Growth mindset	Fixed mindset
PsyCap	.132*	.217***	.010
N	225	225	225
Efficacy	.144*	.236***	.006
N	225	225	225
Hope	.130	.224***	.001
N	225	225	225
Resilience	.131*	.173**	.053
N	224	224	224
Optimism	.054	.119	-.023
N	222	222	222

* Significant at $p < 0.05$ ** Significant at $p < 0.01$ ***Significant at $p < 0.001$

This correlation matrix demonstrates that IPT was significantly correlated with total PsyCap ($r = .13$, $p = 0.048$) and with the efficacy ($r = .14$, $p = 0.031$) and resilience ($r = .13$, $p = 0.05$) subscales. All three of these relationships were positive but weak. No significant correlations were observed for IPT total and the hope and optimism subscales. Hypothesis 1a) that there is a significant, positive relationship between IPT and PsyCap was therefore supported.

In contrast to the fixed mindset subscale which did not significantly correlate with total PsyCap or with any of its subscales, the growth mindset subscale was significantly related to total PsyCap ($r = .22$, $p = 0.001$) and all subscales with the exception of optimism: efficacy ($r = .24$, $p = 0.000$); hope ($r = .22$, $p = 0.001$); and resilience ($r = .17$, $p = 0.010$). The strength of these relationships were also weak, but they were stronger than the relationships observed between the total IPT score and PsyCap. As expected, all significant relationships found were positive, indicating that higher levels of PsyCap are related to a growth mindset. Hypothesis 1b) that there is a significant, positive relationship between a growth mindset and psychological capital was therefore supported, while hypothesis 1c) that there is a significant, negative relationship between a fixed mindset and psychological capital was not supported. Effect size conversions, from Pearson's r to Cohen's d , are presented in Table 10 in Appendix J.

The relationship between psychological capital and workplace thriving

In order to determine whether employees' levels of psychological capital were related to their levels of workplace thriving, Pearson's Correlation Coefficients were calculated and are presented in Table 11, below. The correlation matrix indicates that PsyCap, workplace thriving, and their respective subscales were all significantly, positively, and moderately to strongly related. Thus hypotheses 2a, b, and c were all supported.

Table 11

Relationship between PsyCap and workplace thriving

	Thriving	Learning	Vitality
PsyCap	.578*	.478*	.563*
N	224	225	224
Efficacy	.432*	.373*	.399*
N	224	225	224
Hope	.575*	.492*	.542*
N	224	225	224
Resilience	.395*	.335*	.377*
N	223	224	223
Optimism	.604*	.457*	.639*
N	222	222	222

*Significant at $p < 0.001$

Interestingly, the higher order construct of PsyCap was not the strongest relationship that existed with workplace thriving and its subscales. Rather, workplace thriving was most strongly correlated with optimism ($r = .60, p = 0.000$), as was vitality ($r = .64, p = 0.000$), while learning was most strongly correlated with hope ($r = .49, p = 0.000$). The weakest relationships were observed with the learning subscale, most notably resilience ($r = .34, p = 0.000$) and efficacy ($r = .37, p = 0.000$), although these were actually weak to moderate in strength. All correlations were positive, indicating that higher levels of PsyCap were associated with higher levels of workplace thriving in the current sample.

The relationship between mindset and workplace thriving

The correlation matrix in Table 12, below, presents the Pearson's Correlation Coefficients that were computed in order to determine whether employees' mindsets were significantly related to their levels of workplace thriving, as well as to establish the nature of this relationship.

Table 12

Relationship between IPT and workplace thriving

	Workplace Thriving	Learning	Vitality
IPT	.056	.023	.086
N	225	226	225
Growth mindset	.161*	.126	.167*
N	225	226	225
Fixed mindset	-.069	-.091	-.023
N	225	226	225

* Significant at $p < 0.05$

The relationship between total IPT and workplace thriving and its subscales proved to be non-significant. The same was true for the fixed mindset subscale. Both hypothesis 3a) and 3b) that there is a significant relationship between IPT and thriving and IPT and learning, were therefore unsupported. In contrast to this, the growth mindset subscale was significantly, positively, and weakly related to overall workplace thriving ($r = .16$, $p = 0.02$) and to vitality ($r = .17$, $p = 0.01$), although a significant association was not found between growth mindset and learning. Hypothesis 3c) that IPT and vitality are significantly associated was therefore only partially supported, since overall IPT and vitality were not significantly related.

The mediation models

In order to determine whether or not psychological capital mediated the relationship between implicit person theories and workplace thriving, a series of simple and multiple regressions were conducted between the various subscales and total scores for the key measures.

The results for the regression analyses are presented below and are organised according to the four steps in establishing mediation that have been proposed by Baron and Kenny (1986) and further explained by Kenny (2014). The four steps were conducted as follows:

- 1) The first step is to show that the causal variable is correlated with the outcome (Kenny, 2014). This is done by establishing the direct effect of the IV on the DV (demonstrating that there is an effect that may be mediated) i.e. establishing the extent to which IPT predicts workplace thriving.

- 2) The second step is to show that the causal variable is correlated with the mediator (Kenny, 2014). This is done by establishing the direct effect of the IV on the mediator i.e. establishing the extent to which IPT predicts PsyCap.
- 3) The third step is to show that the mediator affects the outcome variable (Kenny 2014). This is achieved by establishing the direct effect of the mediator on the DV i.e. establishing the extent to which PsyCap predicts workplace thriving.
- 4) The fourth step consists of determining whether mediation occurred through establishing the extent to which both the IV and the mediator predict the DV when entered concurrently into the predictive model (as appropriate on the basis of the first three steps) i.e. to establish whether PsyCap mediates the relationship between IPT and workplace thriving.

Keeping the above steps in mind, there were a total of 45 potential mediation models that could be assessed. The core IV-DV relationships consisted of establishing the extent to which implicit person theories as a whole, growth mindset, and fixed mindset each predicted overall workplace thriving, workplace learning, and workplace vitality (yielding a total of nine IV-DV combinations). Each of these nine base IV-DV pairs could potentially be mediated by total psychological capital, self-efficacy, hope, resilience, and optimism, thus yielding 45 potential models overall.

Step 1: IV-DV

As determined by a series of simple linear regressions, results presented in Table 13 below, workplace thriving and its two dimensions could not be significantly predicted by an IPT total score (thriving $\beta = 0.06$, $p = 0.4$; learning $\beta = 0.02$, $p = 0.73$; vitality $\beta = 0.09$, $p = 0.2$) or by the fixed mindset subscale (thriving $\beta = -0.07$, $p = 0.3$; learning $\beta = -0.09$, $p = 0.17$; vitality $\beta = -0.02$, $p = 0.73$). However, the growth mindset subscale did significantly predict workplace thriving ($\beta = 0.16$, $p = 0.016$) and vitality ($\beta = 0.17$, $p = 0.012$). It explained 2.6% of the variance in thriving ($R^2 = 0.026$) and 2.8% of the variance in vitality ($R^2 = 0.028$). It did not, however, significantly predict the learning subscale ($\beta = 0.13$, $p = 0.058$). This indicated that only a growth mindset could be used to predict workplace thriving and vitality.

Table 13

Regression analysis with IPT and workplace thriving

		R	R ²	Sig.	B	t	p-value	Tol.	VIF	Cond. Index
IPT	Thriving	0.056	0.003	.401	0.056	0.841	.401	1.000	1.000	7.390
	Learning	0.023	0.001	.733	0.023	0.342	.733	1.000	1.000	7.403
	Vitality	0.086	0.007	.200	0.086	1.287	.200	1.000	1.000	7.390
Growth	Thriving	0.161	0.026	.016*	0.161	2.437	.016*	1.000	1.000	5.969
	Learning	0.126	0.016	.058	0.126	1.902	.058	1.000	1.000	5.982
	Vitality	0.167	0.028	.012*	0.167	2.535	.012*	1.000	1.000	5.969
Fixed	Thriving	0.069	0.005	.303	-0.069	-1.031	.303	1.000	1.000	6.702
	Learning	0.091	0.008	.173	-0.091	-1.367	.173	1.000	1.000	6.716
	Vitality	0.023	0.001	.727	-0.023	-0.350	.727	1.000	1.000	6.702

The results from Step 1 eliminated most of the possible combinations of variables for mediation, as only two of the nine base IV-DV relationships were significant. Given this, only ten viable mediation models remained, specifically the extent to which overall psychological capital, self-efficacy, hope, resilience, and optimism might mediate the relationships between growth mindset and overall thriving, and growth mindset and vitality, respectively.

Step 2: IV-MED

Based on the results of step 1, only the growth mindset subscale was utilised as the IV for step 2 as the IPT total and fixed mindset subscale did not significantly predict any of the DVs, making mediation impossible. Table 14, below, therefore demonstrates the relationship between a growth mindset and PsyCap. Table 15 in Appendix K demonstrates the relationship for all IV-MED pairs, including those that were not used in the mediation analyses.

Table 14

Regression analysis with growth mindset and PsyCap

IV	MED	R	R ²	Sig.	B	t	P-value	Tol.	VIF	Cond. Index
Growth	PsyCap	0.217	0.047	.001*	0.217	3.319	.001*	1.000	1.000	5.979
	Efficacy	0.236	0.056	.000*	0.236	3.626	.000*	1.000	1.000	5.979
	Hope	0.224	0.050	.001*	0.224	3.428	.001*	1.000	1.000	5.979
	Resilience	0.173	0.030	.010*	0.173	2.611	.010*	1.000	1.000	5.965
	Optimism	0.119	0.014	.076	0.119	1.784	.076	1.000	1.000	5.981

Based on the above table it can be determined that the growth mindset subscale significantly predicted total PsyCap ($\beta = 0.22$, $p = 0.001$) and three of its subscales: efficacy ($\beta = 0.24$, $p = 0.000$); hope ($\beta = 0.22$, $p = 0.001$); and resilience ($\beta = 0.17$, $p = 0.010$). It did not significantly predict optimism ($\beta = 0.12$, $p = 0.076$). A growth mindset explained 4.7% of the variance in total PsyCap ($R^2 = 0.047$), 5.6% of the variance in self-efficacy ($R^2 = 0.056$), 5% of the variance in hope ($R^2 = 0.05$), and 3% of the variance in the resilience subscale ($R^2 = 0.03$). These results were to be expected based on results from correlation analyses.

The lack of a predictive relationship between growth mindset as the independent variable and optimism as a potential mediator eliminated two further mediation models. The eight remaining viable models represented the extent to which overall psychological capital, self-efficacy, hope, and resilience might mediate the relationships between growth mindset and overall thriving, and growth mindset and vitality, respectively.

Step 3: MED-DV

Based on the results of steps 1 and 2, four possible mediators remained relevant: PsyCap total, self-efficacy, hope, and resilience. These are the mediators that were thus used to predict workplace thriving for step 3 of the mediation analyses. Since a growth mindset could not significantly predict learning in step 1, this subscale was also not used in the final mediation analyses, leaving overall thriving and vitality as the two remaining DVs for step 3. The results for this are presented in table 16, below. Table 17 in Appendix K demonstrates the relationship for all MED-DV pairs, including those that were not used in the mediation analyses.

Table 16

Regression analysis with PsyCap and workplace thriving

MED	DV	R	R ²	Sig.	B	t	P-value	Tol.	VIF	Cond. Index
PsyCap	Thriving	0.578	0.334	.000*	0.604	10.548	.000*	1.000	1.000	11.255
Efficacy		0.432	0.186	.000*	0.367	7.132	.000*	1.000	1.000	9.622
Hope		0.575	0.331	.000*	0.522	10.478	.000*	1.000	1.000	9.709
Resilience		0.395	0.156	.000*	0.395	6.397	.000*	1.000	1.000	10.947
PsyCap	Vitality	0.563	0.317	.000*	0.622	10.153	.000*	1.000	1.000	11.255
Efficacy		0.399	0.160	.000*	0.359	6.493	.000*	1.000	1.000	9.622
Hope		0.542	0.294	.000*	0.520	9.616	.000*	1.000	1.000	9.709
Resilience		0.377	0.142	.000*	0.398	6.044	.000*	1.000	1.000	10.947

The table above illustrates that PsyCap and its three remaining subscales all significantly and positively predicted workplace thriving and vitality. All relationships were extremely significant ($p = 0.000$). Total PsyCap was the best predictor of workplace thriving ($\beta = 0.60$), explaining 33.4% ($R^2 = 0.334$) of the variance in the variable. This was followed by hope ($\beta = 0.52$) which explained 33.1% ($R^2 = 0.331$) of the variance, efficacy ($\beta = 0.37$) which explained 18.6% ($R^2 = 0.186$) of the variance, and finally resilience ($\beta = 0.40$) which explained 15.6% ($R^2 = 0.156$) of the variance in workplace thriving.

Looking at the vitality subscale, PsyCap was once again the strongest predictor ($\beta = 0.62$), explaining 31.7% ($R^2 = 0.317$) of the variance in vitality, followed by hope ($\beta = 0.52$; 29.4% of variance explained) and efficacy ($\beta = 0.36$; 16% of variance explained). Resilience was again the least significant predictor ($\beta = 0.40$), explaining 14.2% ($R^2 = 0.142$) of the variance in the vitality subscale. This was also to be expected based on the strong positive associations found between these variables in the correlation analysis.

Since all 8 of the models tested in step 3 were significant, no other models were excluded and thus all eight remaining models, as listed above, were tested in step 4.

Step 4: MEDIATION

Table 18, below, demonstrates that the relationship between a growth mindset and workplace thriving was fully mediated by all of the PsyCap variables.

Table 18

Overall psychological capital, self-efficacy, hope, and resilience as mediators of the relationships between growth mindset (GM) and workplace thriving (WT)

	R	R²	Sig.	β	t	p-value	Tol.	VIF	Cond. Index
Model 1	0.579	0.335	.000*						
GM				0.039	0.700	.485	0.953	1.049	6.493
PsyCap				0.569	10.135	.000*	0.953	1.049	13.658
Model 2	0.436	0.190	.000*						
GM				0.064	1.024	.307	0.944	1.059	6.510
SE				0.417	6.688	.000*	0.944	1.059	11.706
Model 3	0.576	0.332	.000*						
GM				0.036	0.644	.520	0.951	1.052	6.478
Hope				0.567	10.060	.000*	0.951	1.052	11.824
Model 4	0.407	0.165	.000*						
GM				0.097	1.544	.124	0.971	1.030	6.387
Resil				0.379	6.057	.000*	0.971	1.030	13.340

For model 1, when both growth mindset and PsyCap were entered into the regression equation simultaneously, the overall model was significant ($p = 0.000$) and explained 33.5% of the observed variance in workplace thriving. However, while a growth mindset was originally a significant predictor of workplace thriving (step 1), when both growth mindset and PsyCap were entered into the same equation, PsyCap (the mediator) remained a significant predictor of workplace thriving ($\beta = 0.57$, $p = 0.000$), but growth mindset (the IV) did not ($\beta = 0.04$, $p = 0.485$). These findings support PsyCap's role as a full mediator of the relationship between a growth mindset and workplace thriving.

Table 18 also demonstrates that the relationship between a growth mindset and workplace thriving was fully mediated by the psychological capital dimension of self-efficacy. When both growth mindset and self-efficacy were entered into the regression equation simultaneously in model 2, the overall model was significant ($p = 0.000$) and explained 19% of the observed variance in workplace thriving. As was the case for model 1, growth mindset which had previously been a significant predictor of workplace thriving was no longer significant ($\beta = 0.06$, $p = 0.307$) when it was entered into a regression equation along with self-efficacy. Self-

efficacy, on the other hand, remained a significant predictor of the dependent variable ($\beta = 0.42, p = 0.000$). These findings support the role of self-efficacy as a full mediator of the relationship between a growth mindset and workplace thriving.

The results for model 3 also indicated that the relationship between a growth mindset and workplace thriving was fully mediated by the psychological capital dimension of hope. The overall model of growth mindset and hope as predictors of workplace thriving was significant ($p = 0.000$), and together accounted for 33.2% of its variance. When entered into a regression equation together, hope remained a significant predictor of workplace thriving ($\beta = 0.57, p = 0.000$), but growth mindset did not ($\beta = 0.04, p = 0.52$). As such, the role of hope as a full mediator of the relationship between a growth mindset and workplace thriving is supported.

The final model (model 4) with workplace thriving as the dependent variable was also found to be significant. The results in Table 18 demonstrate that the relationship between a growth mindset and workplace thriving was fully mediated by the PsyCap dimension of resilience. When growth mindset and resilience were entered into the regression equation simultaneously, the overall model was significant ($p = 0.000$) and explained 16.5% of the observed variance in workplace thriving. Like the three previous models, growth mindset no longer significantly predicted thriving ($\beta = 0.10, p = 0.124$) when it was entered into a regression equation along with resilience. Resilience, however, remained a significant predictor of workplace thriving ($\beta = 0.38, p = 0.000$). These results indicate that a growth mindset only leads to workplace thriving when resilience is taken into account, supporting the role of resilience as a full mediator of the relationship between a growth mindset and workplace thriving.

Table 19

Overall psychological capital, self-efficacy, hope, and resilience as mediators of the relationships between growth mindset (GM) and vitality

	R	R²	Sig.	β	t	p-value	Tol.	VIF	Cond. Index
Model 5	0.565	0.319	.000*						
GM				0.048	0.838	.403	0.953	1.049	6.493
PsyCap				0.553	9.726	.000*	0.953	1.049	13.658
Model 6	0.406	0.165	.000*						
GM				0.077	1.216	.225	0.944	1.059	6.510
SE				0.381	6.028	.000*	0.944	1.059	11.706
Model 7	0.544	0.296	.000*						
GM				0.049	0.843	.398	0.951	1.052	6.478
Hope				0.531	9.181	.000*	0.951	1.052	11.824
Model 8	0.391	0.152	.000*						
GM				0.105	1.663	.098	0.971	1.030	6.387
Resil				0.359	5.693	.000*	0.971	1.030	13.340

Table 19, above, demonstrates that the relationship between a growth mindset and vitality was fully mediated by all of the psychological capital variables.

In model 5, when both growth mindset and PsyCap were entered into the regression equation simultaneously, the overall model was significant ($p = 0.000$) and explained 31.9% of the observed variance in vitality. However, while a growth mindset was originally a significant predictor of vitality, when both growth mindset and PsyCap were entered into the same equation, PsyCap remained a significant predictor of vitality ($\beta = 0.55$, $p = 0.000$), but growth mindset did not ($\beta = 0.05$, $p = 0.403$). These findings support PsyCap's role as a full mediator of the relationship between a growth mindset and vitality.

The above table also demonstrates that the relationship between a growth mindset and vitality was fully mediated by the psychological capital dimension of self-efficacy. When both growth mindset and self-efficacy were entered into the regression equation simultaneously in model 6, the overall model was significant ($p = 0.000$) and explained 16.5% of the observed variance in vitality. In this model, a growth mindset which had previously been a significant predictor of

vitality was no longer significant ($\beta = 0.08, p = 0.225$) when it was entered into a regression equation along with self-efficacy. Self-efficacy, on the other hand, remained a significant predictor of the dependent variable ($\beta = 0.38, p = 0.000$). These findings support the role of self-efficacy as a full mediator of the relationship between a growth mindset and vitality.

The overall model of growth mindset and hope as predictors of vitality was significant ($p = 0.000$), and together accounted for 29.6% of its variance. When entered into a regression equation together in model 7, hope remained a significant predictor of vitality ($\beta = 0.53, p = 0.000$), but growth mindset did not ($\beta = 0.05, p = 0.398$). As such, the role of hope as a full mediator of the relationship between a growth mindset and vitality is supported.

The results for the final model, model 8, demonstrate that the relationship between a growth mindset and vitality was fully mediated by the psychological capital dimension of resilience. When both growth mindset and resilience were entered into the regression equation simultaneously, the overall model was significant ($p = 0.000$) and explained 15.2% of the observed variance in vitality. In this model, growth mindset no longer significantly predicted thriving ($\beta = 0.11, p = 0.098$) when it was entered into a regression equation along with resilience. Resilience, however, remained a significant predictor of vitality ($\beta = 0.36, p = 0.000$). These results indicate that a growth mindset only leads to vitality when resilience is taken into account, supporting the role of resilience as a full mediator of the relationship between a growth mindset and vitality.

In sum, the relationship between a growth mindset and workplace thriving was fully mediated by all of the PsyCap variables that were tested (overall PsyCap, self-efficacy, hope, and resilience), as evidenced in Figures 14, 15, 16 and 17 (please refer to Appendix L).

Sobel tests were carried out for all mediation models to establish whether the reduction in the effect of the IV on the DV, once the mediator was included (i.e. the mediation effect), was significant. The results for these are presented in Table 20 below, and illustrate that the mediation effects for all models were significant ($p < 0.05$). In all 8 models, the IV was growth mindset. The DV for the first four models was workplace thriving and the last four models had vitality as their DV. In both sets, resilience had the smallest mediation effect (model 4, $p = 0.015$; model 8, $p = 0.016$), although these effects were still significant.

Table 20

Sobel Tests

	Model	Test statistic	P-value
1	Growth mindset – PsyCap total – Thriving total	3.141	0.002
2	Growth mindset – PsyCap efficacy – Thriving total	3.219	0.001
3	Growth mindset – PsyCap hope – Thriving total	3.277	0.001
4	Growth mindset – PsyCap resilience – Thriving total	2.421	0.015
5	Growth mindset – PsyCap total – Vitality	3.130	0.002
6	Growth mindset – PsyCap self-efficacy – Vitality	3.152	0.002
7	Growth mindset – PsyCap hope – Vitality	3.249	0.001
8	Growth mindset – PsyCap resilience – Vitality	2.401	0.016

Multicollinearity

To establish whether or not multicollinearity presented a significant problem for the mediation models displayed above, it was necessary to examine the tolerance value, the VIF, and the condition index for each case. In all cases, tolerance values exceeded 0.4 and VIF values did not exceed 1, indicating that they were not problematic (Clarke-Carter, 2009). In addition to this, condition indices for all steps were all less than 30, illustrating that multicollinearity did not pose a problem for any of the regression models in any of the steps (Rovai et al., 2013). Based on these three multicollinearity statistics, it can be concluded that multicollinearity did not present a concern for any of the mediation models presented above.

Summary of findings as they relate to the study's hypotheses

In short, the findings of this research, in relation to the proposed hypotheses, can be summarised as follows:

- 1) The first set of hypothesised relationships between implicit person theories and psychological capital were partially supported. While a positive relationship did exist between a growth mindset and PsyCap, no negative relationship between a fixed mindset and PsyCap was discovered. It was concluded that the reason for this might have been a problem with the instrument used to measure IPT, specifically the fixed mindset items.
- 2) The second set of hypotheses, which proposed that a positive relationship would exist between PsyCap and workplace thriving and its two components, were all supported. These results were fully expected based on findings from previous research.

- 3) The third set of hypothesised relationships between implicit person theories and workplace thriving were once again partially supported, perhaps owing to the IPT measure. Hypothesis 3b), however, was not supported at all, as no relationships were uncovered between learning and any of the IPT variables.
- 4) The final hypothesis was the primary focus of the study, and speculated that PsyCap would mediate the relationship between IPT and workplace thriving. There were a total of 45 potential mediation models that could be assessed (based on various combinations of the core IV-MED-DV relationships), although only eight of these were viable. It was established that overall PsyCap, self-efficacy, hope, and resilience fully mediated the relationship between a growth mindset and workplace thriving, as well as between a growth mindset and vitality. Overall, the mediation model that best fit the data was a growth mindset → PsyCap → workplace thriving. This finding supported the utility of PsyCap as a higher order construct, as well as workplace thriving as a variable with greater value as an overall construct than its constituent parts (learning and vitality) individually.

CHAPTER 4: DISCUSSION

Workplace thriving has been argued to contribute to human sustainability by assisting employees to be healthy, engaged, and high performing, thereby offering organisations an important potential source of competitive advantage (Porath et al., 2012; Spreitzer et al., 2012). Given this potential, it is important to ascertain what the potential mechanisms are that facilitate workplace thriving. As such, the current study aimed to determine whether or not the constructs of mindset and psychological capital might fulfil this demand. These variables were chosen because of their potential to operate in accordance with the broaden and build hypothesis (Fredrickson, 2001), with mindset working to broaden thought-action repertoires, and psychological capital working to build personal resources. To test this possibility, mediation analyses were conducted to examine how these two variables might work together to facilitate the experience of workplace thriving in a sample of South African employees.

The results from these analyses were presented in chapter 3. The aim of the current chapter is to discuss these as they relate to the hypotheses of the current research as well as to results that have been found in previous studies (where these are available) in the relevant literature. The chapter will also present the theoretical and practical implications of the results obtained, discuss the limitations of the study, and will conclude by outlining directions for possible future areas of research. A final comment on positive psychology is also offered.

Psychometric properties of the instruments

Before addressing the research hypotheses of the study, it was necessary to examine the psychometric properties of the scales used. As noted previously, the factor structure of the IPT scale seems to be somewhat inconsistent in the literature, and it was therefore decided to conduct an exploratory factor analysis for this scale to attain some clarity on the matter.

The results for this factor analysis clearly demonstrated two separate subscales, as was evident from the rotated factor pattern for the IPT scale in Table 3, with the incremental or growth items loading on factor 1, and the entity or fixed items loading on factor 2. This indicated that the scale consisted of two distinct factors, namely a growth mindset and a fixed mindset. The two subscales also demonstrated good internal consistency reliability, further attesting to their use as separate subscales.

Key variables in the sample

In order to determine the levels of psychological capital, the experience of workplace thriving, and the extent to which participants held a growth or a fixed mindset within the sample obtained, descriptive statistics and histograms were utilised.

Levels of workplace thriving appeared to be average to high, with approximately 40% of the sample scoring an average of 4 and above, indicating higher levels of workplace thriving. The learning subscale of the workplace thriving scale was slightly negatively skewed, with a greater number of participants scoring on the upper end of the scale, and more than half (52%) averaging a score of 4 and above. This number was substantially lower for the vitality subscale, with approximately 23% of the sample receiving an average score of 4 and above. Scores of vitality in the current sample were thus lower than scores for learning and closer to average levels for the subscale. A visual representation of these results can be found in Figures 6 to 8 in Appendix H. This was a rather interesting finding, given that mindset was not predictive of learning but it was predictive of vitality and workplace thriving (discussed in greater detail in the sections to follow). It may therefore be the case that an insignificant relationship between learning and the predictor variable (mindset) was in fact a result of skewed data rather than a function of the actual association (or lack thereof) between the variables.

In terms of PsyCap, the current sample seemed to score on the higher end of the spectrum, with no participants having an average score of 1 (the minimum possible score), and most participants falling between a mean score of 4 and 5 (please see Figure 9 in Appendix H for a visual representation). The same was true for all four subscales (Figures 10 to 13 in Appendix H), illustrating that the current sample scored above average on the measure of psychological capital.

Regarding IPT, it was determined that for the current sample, overall IPT, as well as both the growth and fixed mindset subscales, appeared to be approximately average, although scores were slightly lower than those obtained for PsyCap and workplace thriving. The overall average IPT score was also slightly lower in the current sample than in previous studies (e.g. Heslin et al., 2006; Heslin & VandeWalle, 2011), although this difference was also slight.

The relationship between implicit person theories and psychological capital

One of the first aims of the current research was to investigate the nature of the relationship between implicit person theories (mindset) and psychological capital. More specifically, based on the literature surrounding the topics, it was theorised that a significant and positive

relationship would exist between implicit person theories and PsyCap (*Hypothesis 1a*) as well as a growth mindset and PsyCap (*Hypothesis 1b*), while a negative relationship was hypothesised to exist between a fixed mindset and PsyCap (*Hypothesis 1c*). These hypothesised relationships received partial support, with data analyses producing some mixed and unexpected results.

The hypothesis that a positive relationship existed between IPT and PsyCap was only partially supported. While IPT was positively associated with PsyCap total, self-efficacy, and resilience, this was not the case for the hope and optimism subscales which proved to be insignificant. Hypothesis 1a), that there is a significant, positive relationship between IPT and PsyCap, was therefore partially supported.

The results for the correlation between a growth mindset and PsyCap were similar to those of the latter's relationship with IPT, with the only difference being that optimism was the only subscale that did not correlate with a growth mindset. Hypothesis 1b) was therefore also only partially supported. All of these relationships were positive, as expected, although their strengths were somewhat weak. The strength of the relationships between growth mindset and PsyCap and its components were, however, stronger than the relationships between IPT and PsyCap and its components. These results further supported the use of growth mindset as a separate subscale.

The most surprising and potentially most important finding within this set of hypotheses was in fact the results that were insignificant. More specifically, although it was suggested, based on the literature, that a significant, negative relationship would exist between a fixed mindset and PsyCap and its four components, no such relationships were found. In fact, none of the relationships even neared significance, with the lowest p value being 0.43 ($p > 0.05$). Hypothesis 1c) was therefore not supported.

Results as disparate as these from the literature require attention. The original implicit person theories scale only consisted of entity or fixed items and validation studies by Levy and colleagues (1998) demonstrated that these items were highly correlated (between 0.83 and 0.92) with the 8 item measure, thereby demonstrating that the two versions measure the same construct. Many studies have subsequently used the entity items on their own (without the growth items) (e.g. Levy et al., 1998; Poon & Koehler, 2008). However, this did not seem to be the case for the current study, given that correlations existed between PsyCap and IPT total and growth mindset, but not between PsyCap and fixed mindset. There may also have been

confusion with regards to the way in which the scale was presented. The scale was developed in the United States and does not appear to have been used with a South African population or in other non-Western contexts. It is possible that cultural differences affected the interpretation of the scale, resulting in these unexpected findings. However, another explanation may simply be that the measure is a rather limited interpretation of Implicit Person Theories.

Based on the factor analysis discussed above that indicated two separate subscales, it was decided to use only the growth subscale in the mediation analyses due to these inconsistencies. The inconsistencies indicated that while the theory on mindset itself offers great potential utility and promise, the instrument used to measure the construct is inconsistent and potentially problematic.

The relationship between psychological capital and workplace thriving

Another aim of the study was to explore the relationships between psychological capital and workplace thriving and their respective components. These relationships were substantially stronger and more significant than the relationships between PsyCap and mindset. All of the relationships were significant, positive, and moderate to strong, indicating that higher levels of PsyCap were associated with higher levels of workplace thriving in the current sample. Hypotheses 2a) to 2c) were therefore all supported.

These strong relationships are in line with the work by Paterson and colleagues (2014), who were among the first to explore the relationship between PsyCap and workplace thriving using the Porath et al. (2012) measure of the latter construct. As noted by these authors, although PsyCap had not been theoretically developed or empirically tested in relation to workplace thriving (until the time of their study), it had been suggested as a factor that was potentially important in workplace thriving (Paterson et al., 2014). This suggestion held true in the Paterson et al. (2014) study, and has been further demonstrated in the current research. While the results of the current research are largely in line with the study by Paterson and colleagues (2014), there are some important additional results that were either not investigated or not reported in this previous study. Specifically, the 2014 study did not report on the breakdown of the relationships between PsyCap and its components, and thriving and its components.

Two interesting points are worthy of mention in this regard. Firstly, the learning dimension of workplace thriving displayed the weakest relationship with PsyCap and its components, compared to the vitality dimension and total workplace thriving (although these were, for the most part, still moderate in strength). The most probable reason for this may be traced back to

the non-normal data distribution for the learning variable, as was the case for the relationship between mindset and learning. Although the Central Limit Theorem allowed for normality to be assumed based on the large sample (Stangor, 2011), it is possible that the data was too skew for this to actually hold.

The second interesting point was that the resilience component of PsyCap had the weakest correlations with workplace thriving and its two components (although these were still not particularly weak). This weak correlation lends itself well to the argument that workplace thriving (as conceptualised by Spreitzer et al., 2005) is distinctly different to Carver's (1998) conceptualisation which contends that thriving is understood as reaching positive outcomes after exposure to significant *risk*, similar to the notion of resilience. This is an important affirmation of workplace thriving as a novel construct.

The relationship between implicit person theories and workplace thriving

The final correlational analysis that was carried out in this research examined the relationship between implicit person theories and workplace thriving. As was the case for the relationship between IPT and PsyCap, only the growth mindset subscale exhibited significant relationships with workplace thriving. However, this relationship only existed with workplace thriving and vitality, and not with the learning component. This was surprising, given the link that is said to exist between a growth mindset and a learning goal orientation (VandeWalle, 2001a). More specifically, individuals with a growth mindset typically tend to believe that people have the capacity to change and develop their behaviour over time, especially when they devote themselves to learning and applying more effective strategies for task performance (Heslin & VandeWalle, 2008). However, it might be possible to explain this unexpected finding with the same reason that PsyCap and learning were not more strongly related: a skewed data distribution of the learning subscale in the current sample.

It may also be the case, however, that the growth mindset measure did not truly reflect the participants' perceptions of performance versus learning, because it focused on beliefs about 'human nature' – which assesses implicit beliefs that cut across the domains of personality and ability (Heslin et al., 2005) – rather than beliefs about 'intelligence' (Dweck, 1999). The results may therefore also be an artefact of the measuring instrument used, and not necessarily an indication that the relationship between a growth mindset and learning does not exist.

Based on these results, hypotheses 3a) and 3c) were partially supported, because a relationship existed between a growth mindset and workplace thriving and vitality, but not between the

implicit person theories total score and the two latter variables. Hypothesis 3b) was not supported because there was no relationship between learning and any of the IPT components.

The mediation models

In order to determine whether or not psychological capital mediated the relationship between implicit person theories and workplace thriving, a series of simple and multiple regressions were conducted between the various subscales and total scores for the key measures. Each of these mediation models were constructed by determining the extent to which the IVs (overall IPT, fixed mindset, and growth mindset) predicted the DVs (workplace thriving, vitality, and learning), the extent to which the IVs predicted the proposed mediators (overall PsyCap, self-efficacy, hope, resilience, and optimism), the extent to which these mediators predicted the DVs, and finally, by reviewing the nature of the associations between the IVs and DVs after the proposed mediators were entered. The discussion that follows will proceed according to these four main steps in establishing mediation, as they appeared in the results section. Following this, the eight mediation models that were significant will be further discussed.

Step 1: IV-DV

As expected based on correlational analyses, neither IPT total nor a fixed mindset were able to significantly predict workplace thriving and its two components. The possible reasons for this were outlined in the discussion about the relationship between IPT (specifically, the potentially problematic measuring instrument) and workplace thriving, above. Again in line with the correlational analyses, a growth mindset did significantly predict workplace thriving and vitality, but not learning. The learning variable thus again proved to be problematic, as discussed above. Following the findings of step 1, it was only necessary to examine the mediation of the relationships between a growth mindset and workplace thriving, and a growth mindset and vitality.

Step 2: IV-MED

In step 2, a growth mindset significantly predicted total PsyCap, self-efficacy, hope, and resilience. However, it did not significantly predict the optimism subscale. The finding that optimism was not predicted by a growth mindset, while the other subscales were, calls for further attention. This was a particularly surprising finding given that intuitively, it is logical to assume that mindset and optimism would be related. As discussed previously, individuals who are optimistic attribute events that are positive to personal, permanent, and pervasive causes, while negative events are attributed to causes that are external, temporary, and

situation-specific (Luthans & Youssef, 2007). Similarly, following a setback or failure, individuals with a growth mindset tend to respond with optimism, positive affect, a lack of self-blame, persistence, and sustained or enhanced effort and performance (El-Alayli & Baumgardner, 2003). Individuals who adopt an optimistic style tend to create positive expectancies that motivate their pursuit of goals in the future (Luthans & Youssef, 2007), which is seemingly aligned to individuals with a growth mindset who tend to attribute failure to weaknesses in strategy (rather than inherent personal deficiencies) and consequently adjust their strategies to achieve better outcomes (Dweck & Molden, 2005).

An interesting explanation for why a growth mindset did not significantly predict optimism might be a function of the sample used in the study. As explained by Wheeler and Omair (2015), much of the research on mindsets has been conducted within school contexts, where students are enrolled in classes that typically do not allow much room for deciding how energies will be allocated (for example, mathematics generally cannot be abandoned for a different subject) (Wheeler & Omair, 2015). In this case, it makes sense that a growth mindset would be associated with greater optimism for success in the face of failure. However, in contrast to this, within the organisational context success does not usually depend on improving within a single prescribed domain (Wheeler & Omair, 2015). Rather, success is more likely to depend on an individual directing his or her efforts in a direction where these are expected to have the greatest effect, rather than exerting time and effort to improve in a domain that is poorly suited to the individual (Wheeler & Omair, 2015).

As such, having a growth mindset need not necessitate optimism as an inevitable outcome if the task at hand is not considered worthy of pursuit by the employee. Creating positive expectancies that motivate the pursuit of goals in the future (being optimistic - Luthans & Youssef, 2007) is not necessarily an appropriate strategy for all areas that require improvement, even if the individual believes that improvement within said domain is possible (a growth mindset) (Wheeler & Omair, 2015). This might explain why in this sample of working adults, a growth mindset did not predict optimism because optimism about future success is not always the appropriate response in an organisational context. Although some of the participants in the current sample were also students (from Wits Plus), they were still employed in organisations which differentiates them from school children. Here, unlike allocation of energies and efforts in academic contexts, employees have greater choice as to the types of goals that they consider worthy of expending their effort in an attempt to improve various skill sets to which they are

more naturally suited (Wheeler & Omail, 2015). Since optimism was not predicted by a growth mindset, it was excluded from further analyses.

Another noteworthy finding from this step was that a growth mindset explained the greatest amount of variance in the self-efficacy subscale (as compared to PsyCap and its three remaining subscales). This finding makes sense given that individuals with a growth mindset tend to approach tasks with confidence and a sense of self-efficacy (VandeWalle, 2001a). As noted earlier, this is the argument that has been advanced by Luthans and colleagues (2011) who assert that a mastery orientation (which is a critical feature of a growth mindset) creates a medium for the development of self-efficacy through challenge seeking behaviour and perseverance. Indeed, because these individuals are curious and view mistakes as an opportunity to learn and develop rather than as a cause for condemnation, they tend to develop a more resilient sense of personal efficacy (Hunter & Scherer, 2009; Tabernero & Wood, 1999).

Step 3: MED-DV

In the third step of the mediation analyses, psychological capital, self-efficacy, hope, and resilience all significantly predicted both workplace thriving and vitality. This suggests that, in the current sample, the more PsyCap resources that employees have accrued, the greater the likelihood that they experienced workplace thriving.

Paterson and colleagues (2014) offer a succinct explanation for this link between workplace thriving and psychological capital. As explained in the review of the literature presented at the beginning of this research report, an important aspect of thriving is the devotion of one's full attention and focus to the performance of tasks (Spreitzer et al., 2005). However, a key factor in deciding whether or not to devote this focus to the task may be the perceived likelihood of successfully completing the task (Paterson et al., 2014). Therefore, Paterson and colleagues explain:

Those with high levels of PsyCap are confident that they can be successful in task accomplishment (efficacy), harness goal-directed energy and proactively plan for alternative pathways for task accomplishment (hope), persevere in the face of obstacles (resiliency), and attribute positive outcomes to self and negative outcomes to circumstances (optimism). (Paterson et al., 2014, p. 437)

High levels of PsyCap therefore make an employee more likely to display high task focus since he or she expects an outcome of successful task completion, thereby leading to the experience

of workplace thriving (Paterson et al., 2014). This idea was supported by the third step of the mediation analyses in the current study.

Since all 8 of the models tested in step 3 were significant, no other models were excluded and thus all eight remaining models were tested in the final step of mediation.

Step 4: MEDIATION

a) Overall psychological capital, self-efficacy, hope, and resilience as mediators of the relationships between growth mindset and workplace thriving

The relationship between a growth mindset and workplace thriving was fully mediated by all of the PsyCap variables that were tested (overall PsyCap, self-efficacy, hope, and resilience), as evidenced in Figures 14, 15, 16 and 17 (please refer to Appendix L). The results obtained from the Sobel tests indicated that all four of these mediation models accounted for a significant reduction in the effect of a growth mindset on workplace thriving, further demonstrating the relevance and importance of the PsyCap mediators in explaining this relationship. These are explained in greater detail below.

Figure 14 in Appendix L illustrates that the relationship between a growth mindset and workplace thriving was fully mediated by overall psychological capital. In other words, these findings indicate that in the current sample, the effect of a growth mindset on workplace thriving was only present when the mediator (PsyCap) was not taken into account, therefore supporting the causal chain: a growth mindset led to PsyCap, and PsyCap in turn led to workplace thriving. However, a growth mindset did not lead to workplace thriving when PsyCap was taken into account.

Figure 15 in Appendix L demonstrates the same pattern as the one described above, however the relationship was mediated by self-efficacy. The figure reveals that a growth mindset led to self-efficacy, and self-efficacy in turn led to workplace thriving. That is, a growth mindset only led to workplace thriving when self-efficacy was not taken into account. These findings support the role of self-efficacy as a full mediator of the relationship between a growth mindset and workplace thriving.

Figures 16 and 17 (Appendix L) also depict that the relationship between a growth mindset and workplace thriving was mediated by hope and resilience respectively. Figure 16 depicts the causal chain (IV → MED → DV), with hope as the mediator, illustrating that the effect of growth mindset on workplace thriving was only present when hope was not taken into account.

In Figure 17 it can also be seen that a growth mindset only led to workplace thriving when resilience was not taken into account, supporting the role of resilience as a full mediator of the relationship between a growth mindset and workplace thriving.

b) Overall psychological capital, self-efficacy, hope, and resilience as mediators of the relationships between growth mindset and vitality

The same IV and mediation variables discussed above were also used in the second set of mediation models, but instead of workplace thriving being used as the DV, vitality took on this role. Once again, all PsyCap variables tested (overall PsyCap, self-efficacy, hope, and resilience) fully mediated the relationship between a growth mindset and vitality. These relationships are depicted in Figures 18, 19, 20 and 21 in Appendix L. Sobel tests again further supported the PsyCap variables as significant mediators which accounted for a significant reduction in the effect of a growth mindset on vitality.

As evidenced by Figure 18 (Appendix L), PsyCap acted as a full mediator in the relationship between a growth mindset and vitality. This indicates that in the current sample, the effect of a growth mindset on vitality was only present when PsyCap was not taken into account. This supports the causal chain of a growth mindset leading to PsyCap, and PsyCap in turn leading to vitality. Growth mindset did not, however, lead to vitality when PsyCap was taken into account. Figures 19, 20 and 21 (Appendix L) all demonstrate the same pattern of mediation, with self-efficacy, hope, and resilience acting as mediators of the relationship between a growth mindset and vitality, respectively. These results support the role of self-efficacy, hope, and resilience as full mediators of the abovementioned relationship.

In summary, all eight mediation models tested were significant, indicating that PsyCap, self-efficacy, hope, and resilience act as full mediators of the relationship between a growth mindset and workplace thriving as well as of the relationship between a growth mindset and vitality in the current sample.

Psychological capital as a mediator of the relationship between implicit person theories and workplace thriving – overall explanation and discussion of the mediation findings

Using the broaden and build hypothesis proposed by Fredrickson as a springboard, the current research hypothesised that psychological capital (the build component) would mediate the relationship between implicit person theories (the broaden component) and workplace thriving (the result of an upward spiral of positive emotions). Overall, this hypothesis was supported, although this was not the case for all subcomponents of the PsyCap (self-efficacy, hope,

optimism, and resilience), workplace thriving (learning and vitality), and implicit person theories (growth and fixed mindset) variables.

Based on the results obtained from analysis of the data, overall PsyCap, self-efficacy, hope, and resilience fully mediated the relationship between both a growth mindset and workplace thriving and a growth mindset and vitality, in the current sample. Only a growth mindset was used as the predictor variable in the final mediation analyses, as opposed to overall IPT and fixed mindset, since no correlations existed between overall IPT and fixed mindset and the mediator and outcome variables, nor were they predictive of the latter. The thriving component of learning was also not considered in the mediation analyses, given that a growth mindset was not predictive of learning, making mediation of this relationship impossible. Finally, optimism was not considered as a mediator since it could not be predicted by a growth mindset in the second step of the mediation analyses.

Although all of the abovementioned mediation models were significant, some models fit the data better than others. Firstly, with both workplace thriving and vitality as the outcome variables, overall PsyCap was the best fit for the data, accounting for more variance in the relationships between mindset and thriving and mindset and vitality as compared to the PsyCap dimensions of self-efficacy, hope, and resilience individually. This finding supports the idea of a common, underlying link running between the variables and tying them together, with the result that the four positive psychological capacities contribute more in combination and interaction than they do individually (Luthans & Youssef, 2007). In other words, this finding supports the role of PsyCap as a higher order core factor (Luthans et al., 2007).

Secondly, the overall model with workplace thriving as the outcome variable was more significant than the overall model with vitality as the outcome variable. Once again, this supports the idea that workplace thriving, as a combination of learning and vitality, has greater value than the constructs of learning and vitality as individual constructs. As was argued by Porath and colleagues (2012), even though each dimension can signify some progress towards growth and development, it is only in combination that learning and vitality enhance one another to form the experience of workplace thriving. This argument was indeed corroborated by the findings in the current sample.

Three other points pertaining to the PsyCap mediators were also particularly interesting. Firstly, it was interesting to note that self-efficacy did not explain more variance in the relationship between mindset and workplace thriving (compared to the other PsyCap

dimensions), given the importance that has been bestowed upon it in both the mindset and POB literatures. For example, self-efficacy is argued to affect self-motivation and actions through its influence on goals and aspirations (Bandura, 2009). This would presumably be closely linked to the idea that individuals with a fixed versus growth mindset have different approaches to goal focus, perception of effort, attributions, and patterns in response to feedback (Thompson, 2006). For example, as discussed earlier in this research report, in the study by Blackwell and colleagues (2007) that examined students' responses following academic failure, students with a growth mindset reported that they would find new study strategies and work harder, while those with a fixed mindset were more likely to report that they would study less, and would try to avoid taking a course in that subject area again.

Although the final mediation results do not seem to support this important role of self-efficacy, upon closer examination, this is not necessarily the case. In step 2 of the mediation analysis, a growth mindset was in fact the best predictor of self-efficacy as compared to the other PsyCap components, including overall psychological capital. This finding in actual fact fully supports previous literature which maintains that IPT predicts self-efficacy, particularly in the face of challenges or failure. As explained by Bandura (2009), efficacy beliefs have an important role to play when individuals make choices about what goal challenges they undertake, the amount of effort to invest in their endeavours, and how long they will persevere when faced with difficulties. As argued by Taberno and Wood (1999), individuals who doubt their capabilities after a setback tend to become more dissatisfied with themselves and their performance, and are consequently more likely to avoid challenges. Conversely, individuals with a stronger sense of self-efficacy are more inclined to continue trying to achieve the challenging goals that they set for themselves (Tabernero & Wood, 1999).

While this strong association between mindset and efficacy was confirmed in step 2, the relationship between efficacy and thriving in step 3 was much weaker than the former. While it was still a significant predictor of both workplace thriving and vitality, the third step still weakened the mediation model (with efficacy as mediator). The reason for this may be that although overall PsyCap and workplace thriving have been shown to be related, self-efficacy by itself is generally linked to work-related performance (e.g. Stajkovic & Luthans, 1998) - as opposed to the affective experience of workplace thriving - a link that was not tested in the current research. This might help to explain the surprisingly (comparatively) weak role of self-efficacy as a mediator of the relationship between a growth mindset and workplace thriving.

A second interesting point pertaining to the mediators was that hope explained almost as much variance in the relationship between mindset and thriving as overall PsyCap did. Huang and Luthans (2015) offer a potential reason for why this might be the case. They explain that hopeful individuals are generally independent thinkers who tend to enact autonomous behaviours that are triggered by their intrinsic interests (Huang & Luthans, 2015). This is directly related to the idea of autonomy that is inherent in workplace thriving, where an employee experiences the sense that his or her own behaviours originate from and are endorsed by him or herself (Spreitzer et al., 2005).

Furthermore, employees who are hopeful tend to view obstacles within their jobs as opportunities for improvement or even radical changes, since they generally assume a role that is both broader and more proactive whilst engaging in their work (Huang & Luthans, 2015). This is in line with the adoption of a growth mindset and a learning goal orientation where, when faced with challenges, individuals become motivated to persist longer and attempt new strategies (Murphy & Dweck, 2010). In other words, these individuals have both the ‘willpower’ or determination to achieve goals, and the ‘waypower’ to develop alternative pathways in order to achieve a goal when faced with challenges (Simons & Buitendach, 2013). The strong links that exist between a growth mindset and hope, and workplace thriving and hope, are therefore not surprising.

A final noteworthy point related to the PsyCap mediators was that resilience explained the least amount of variance in the relationship between mindset and workplace thriving. This was an interesting finding, considering the argument advanced by Avey and colleagues (2009, p. 682), that resilience “is arguably the most important positive resource to navigating a turbulent and stressful workplace”, qualities that are regularly used to describe modern places of work. These authors note that job redesign, downsizing, and layoffs are increasingly commonplace, and argue that employees need to develop the ability to adjust and bounce back from such major organisational transitions (Avey et al., 2009). Avey and associates (2009, p. 682) therefore assert that “more than ever, the development of resilience is needed to help individuals recover from adversity or personal setbacks—not *if* they happen, but *when* they happen”.

The finding that resilience was not as important as the other positive psychological resources in the current sample therefore deserves attention. It may simply be the case that for the participants in this sample, the resource of resilience has not been as critical in their ability to thrive at work as have the other PsyCap dimensions. South African employees (such as those

that constitute the current sample) may not have faced mergers, acquisitions, and organisational restructurings (Avey et al., 2009) to the same degree as other Western countries, with the result that the development of resilience has not been as critical as other PsyCap capacities within the South African workforce.

In addition to this, more than half of the current sample have been employed in their current organisations for four years or less. It may therefore be the case that these employees have not had to endure major organisational transitions within their short employment span (such as would be the case with employees who had longer tenure), with the result that they may not have needed to bounce back from extreme levels of adversity. While it is certainly the case that many South Africans have faced a substantial amount of adversity in the past given the country's social, economic, and political history, such levels of adversity may not have been encountered within the participants' current position of employment, which may be more recent. It is likely that if unemployed individuals were a part of this sample, resilience may have been a far more important factor. It is also certainly possible that if resilience was examined in a South African context *outside* of work, these results would differ markedly.

Implications for facilitating workplace thriving by 'broadening' mindsets and 'building' psychological capital

As was argued in the rationale for conducting this study, the constructs of mindset, PsyCap, and thriving are not just theoretically important. The management and development of these three constructs may go a long way in achieving worthwhile productive, ethical, and sustainable outcomes, resulting in competitive advantage for the organisations of today (Luthans & Youssef, 2004). As has been alluded to throughout this research report, mindset, PsyCap, and thriving are not fixed and can all be enhanced through both targeted interventions and relatively simple changes in workplace practices. Some of these are outlined below.

Implicit person theories or mindsets serve as an unconscious filter, predetermining what individuals see, and how they see it (Hunter & Scherer, 2009). The implications of this for workplace productivity have been extensively addressed throughout this research report. At the most basic level for example, in considering a new business venture, a manager with a fixed mindset might automatically assume that it will fail (thereby reflecting poorly on him or her), while a manager with a growth mindset might explore the possibilities for moving into an untapped market (Hunter & Scherer, 2009). Succinctly put by Hunter and Scherer (2009, p. 183), "one mindset shuts down opportunity; the other creates it". This clearly has important implications for businesses.

As has been discussed, mindsets can be altered through intervention. However, what may be even more important than targeted intervention, is that a growth mindset may be encouraged through relatively simple workplace practices. For instance, growth mindsets are cued when successful performances are attributed to working hard and employees are praised for their effort and initiative, as opposed to receiving praise focused on ‘who’ they are (Keating & Heslin, 2015). For example, an employee who is labelled as ‘brilliant’ may shy away from challenging tasks that might jeopardise his or her reputation for being a gifted genius, but an employee who is praised for effort is more likely to invest time in knowledge and skill development (Keating & Heslin, 2015).

Indeed, Murphy and Dweck (2010) refer to a ‘culture of growth’, which is marked by a collective endorsement of the belief that it is possible to cultivate talent and intelligence. Within such organisational cultures of growth, employees are more likely to be built (through the human resource management strategies of training and development), as opposed to bought from the external labour market (through the human resource management strategies of recruitment and selection) (Keating & Heslin, 2015). Encouraging a growth mindset in the workplace can lead to a workforce that has the potential - if appropriately cultivated - to experience vitality, learning, and thriving at work.

However, while a growth mindset is critical to workplace thriving, the current research has demonstrated that this, on its own, is not enough. Rather, it is a growth mindset, together with psychological capital, that encourages and enables an upward spiral of positivity and, in turn, thriving in the workplace. Therefore, it is not only a growth mindset that needs to be encouraged, but also the accumulation of personal resources. As noted by Avey and colleagues (2011), PsyCap has been empirically found to be developable, even in relatively short training interventions (1–3 hours) as well as online (e.g. Luthans, Avey, & Patera, 2008). A number of well-researched, established guidelines for psychological capital management are offered in the literature, with suggestions offered as to how to increase the capacities of self-efficacy, hope, optimism, and resilience (Luthans & Youssef, 2004). An example of the guidelines suggested by Luthans and Youssef (2004) may be found in Appendix M.

Similar to mindset, however, PsyCap need not only be addressed through targeted training interventions. For instance, evidence is accumulating that suggests that the provision of workplace support facilitates the development of PsyCap in employees, since it provides them with greater hope to seek out new and different pathways for goal achievement, and assists as

a resource which allows them to bounce back quickly following setbacks (Newman, Ucbasaran, Zhu, & Hirst, 2014). Psychological capital needs to be developed and managed, in the same way as other forms of capital, if it is to contribute toward long-term success and competitiveness (Luthans & Youssef, 2004).

While it is possible to argue that thriving is a luxury during these times of economic recession – where individuals may feel lucky to have a job at all, let alone one that is financially and intellectually rewarding – the argument put forth in this research report is that this is precisely the time to be thinking about workplace thriving (Spreitzer et al., 2005; Spreitzer & Porath, 2012). Workplace thriving has the potential to contribute to organisational capabilities for long-term adaptability in a dynamic and changing world (Spreitzer & Sutcliffe, 2007). It is a means for sustaining an organisation's human resources as well as a key mechanism that impacts on organisational performance and health care costs, since thriving employees are those who are both stronger performers and are more proactive, resilient, committed, and healthy (Geiger, 2013). Spreitzer and Porath (2012) argue that helping employees to grow and remain energised at work is noble on its own merits, but it can also boost organisational performance in a sustainable way. As such, there is a strong business case for enhancing thriving at work, in times of low engagement, high burnout, and employees attempting to do more with less in a tough economic climate (Geiger, 2013).

The practical implications of this, and other studies in the field of positive organisational behaviour, are that by giving industrial/organisational (I/O) psychologists and practitioners a better understanding of which factors contribute to workplace thriving, organisations will be given the power to impact human and organisational sustainability and performance over time (Geiger, 2013). Combining methods for encouraging a growth mindset and enhancing psychological capital, some of which have been outlined above, in order to improve workplace thriving, therefore has great promise for creating high performing and sustainable organisations.

Limitations of the study

Although this study has made a substantial contribution to the understanding of the role of implicit person theories and psychological capital in workplace thriving, it is not without its limitations. A number of these relate directly to the methods of statistical analyses used.

First among these, although it was necessary to articulate the particular ordering of the variables of interest in order to advance a theoretical framework, it is critical to remember that since this

was a non-experimental study, causal inferences could not be made (Mathieu & Taylor, 2006). The mediation analyses conducted in this study therefore provided suggestive rather than definitive evidence regarding causal processes (Shrout & Bolger, 2002).

A second limitation of the study was the actual method of mediation analysis that was utilised when analysing the data. The Baron and Kenny method has in fact been widely criticised on various grounds, among which is the low power of the test (i.e. the likelihood of detecting an effect) (Hayes, 2009). It has also been questioned in terms of the necessity of testing the overall association in step 1, as well as the fact that recommendations are nested in a framework that assumes that mediation processes can be analysed by linear regression analysis (Shrout & Bolger, 2002). While it is important to be aware of these critiques, the causal steps approach to assessing mediation has been the most widely used method to assess mediation (MacKinnon et al., 2007) and was therefore deemed suitable for use in the current study.

This study also made use of the Sobel test to assess for statistically significant reduction effects in the mediation models. Although a number of researchers tend to consider bootstrapping as a preferred method for testing mediation compared to the Sobel test, Koopman, Howe, and Hollenbeck (2014) have in fact noted that when sample sizes exceed 140 cases the Sobel test does indeed satisfy necessary assumptions and provides a sufficient level of statistical power for testing mediation hypotheses. As such, given the large sample size in the current study (226 cases), using the Sobel test did not present a major concern, and was rather a matter of preference.

Another limitation to consider is that although the sample size in the current study was relatively large ($n = 226$), it was rather skewed in terms of ethnicity, with 68% of the sample being white. This is a limitation in the South African context where the workforce is far more racially diverse. As such, it would be important to replicate the study with a more racially heterogeneous sample in order to improve its generalisability and make it more representative of the South African workforce.

Generalisability is also impacted upon by the use of non-random, convenience sampling (Stangor, 2011), a further limitation in this study. This is because participants are chosen on the basis of availability and volunteerism, with the result that the sample does not represent the population as a whole, thereby creating potential biases in the research findings (Stangor, 2011). It also should be noted, however, that a major strength of the current research was the use of actual employees as opposed to undergraduate students, as is often the case in academic

research. Furthermore, there was a rather large representation in the current sample, with employees coming from a wide array of industries, organisations, and positions (Ramsden, 2015). This provides a wider scope for the application of the findings which does add credibility to the results obtained.

It is also important to be aware of the limitations associated with the instruments that were used in this study, all of which were measures of self-report. While such instruments are useful in that they provide insights into participants' attitudes, belief, and behaviours, as well as allow researchers to collect large amounts of data inexpensively, they are not without fault (Riggio, 2013). Specifically, they assume that individuals are willing and/or able to provide accurate self-reports on the causes of their behaviour (Stangor, 2011). However, there is a distinct possibility that answers will be distorted or biased (either intentionally or unintentionally), due to issues associated with reactivity, social desirability, and self-promotion (Riggio, 2013).

Finally, and as noted previously, the IPT instrument proved to be problematic in the current research, creating a key limitation of the study. Specifically, the unusual response anchors together with the recommended method of reverse scoring led to confusion in interpreting the results. The scale itself is thus problematic and requires further research. As such, and as already mentioned, it is important to interpret the results of the current study with caution. It is recommended that future research addresses these limitations of the instrument before making any definitive conclusions based on the results that it generates.

Directions for future research

This study has provided a very useful starting point for future researchers, with a number of avenues that may prove to be fruitful. First and foremost, while the current research has provided suggestive evidence regarding the causal processes among mindset, PsyCap, and thriving, an important area for future research would be to consider these processes in the context of a true experimental design, which would provide more definitive evidence of causality (Shrout & Bolger, 2002).

An unexpected finding in the research was that a growth mindset did not predict the learning component of workplace thriving. Two possible reasons were offered for this finding: the data for the learning subscale was not normally distributed, and that the instrument used to measure mindset was the beliefs about 'human nature' rather than the beliefs about 'intelligence' form. It would be interesting for future researchers to examine if these findings were indeed an artefact of the research, or if these results were in fact reflective of the relationship (or lack

thereof) between mindset and learning, as both outcomes may have important theoretical and practical implications.

An important area that was not addressed in this study was actual productivity or performance. While it was inferred that the combination of the variables discussed would lead to improved organisational effectiveness, no actual measure of this was included. As such, another recommendation for future research is that work performance be included as a key variable within the model of thriving that has been advanced in this research report.

It may also be useful for future researchers to examine the combination of mindset and PsyCap on thriving over time, perhaps before and after mindset and PsyCap interventions, to see if these do in fact predict future workplace thriving. This would also be a more appropriate test of the variables within the framework of the broaden and build hypothesis, which posits that upward spirals of positive emotions are cumulative and build over time, ultimately leading to well-being and, potentially, thriving at work (Fredrickson & Joiner, 2002).

A final important point to consider on the current research is that thriving does not occur within a vacuum. An employee may have a growth mindset and an arsenal of positive psychological resources, however, thriving may still not be possible if he or she is located in an unsupportive work environment that stifles growth and development. Work environments that are characterised by a high employee involvement climate are argued to offer opportunities for participation in decision making, provide opportunities for training and development, and allow employees the freedom to work autonomously through encouraged self-initiation (Wallace et al., 2013). This is in line with the socially embedded model of thriving utilised throughout this research report (Spreitzer et al., 2005), which proposes that opportunities for growth and development are best realised by employees who are both embedded in work environments that allow for engagement in such opportunities, *and* who possess the necessary personal resources (particularly, a growth mindset and PsyCap) to enable thriving at work (Wallace et al., 2013).

As such, a final recommendation for future research is to examine thriving in the workplace as it was originally intended – as embedded in a social context. Measuring workplace climate together with the variables measured in the current research might provide an extremely useful and interesting model of workplace thriving that is based on the broaden (mindset) and build (PsyCap) hypothesis, and rooted within a social context.

A final comment on positive psychology and the utility of psychological capital

The term ‘positive’ in organisational studies has gained increasing attention in recent years, with the notion of ‘positivity’ becoming a popular topic with consultants, self-help advocates, and change agents (Cameron, Mora, Leutscher, & Calarco, 2011). Alongside this increased popularity has been a surge in publications of both lay management books and research-driven texts, leaving managers and I/O practitioners with the task of sorting fact from fiction (Mills et al., 2013). As discussed at the beginning of this research report, positive psychology has become a controversial area of debate for organisational scholars, with sceptics and advocates ‘battling it out’ in the academic literature on the matter (Cameron et al., 2011).

The aim of this research report was not to debunk or confirm positive psychology as a valid or invalid area of research, but rather to consider whether or not it has utility in South African organisations. Moreover, given the abundance of research that exists on psychological capital with Fred Luthans’ name on it, it seemed worthwhile to examine the construct in a more neutral context, by an author with no vested interest in proving its utility. Based on the findings of the current research, PsyCap certainly does appear to be a useful and valuable construct. It can therefore be concluded that findings from abroad can indeed be replicated in a South African sample, independently from the ‘Luthans circle’, by a researcher who has no vested interest in the construct. As mentioned above, an important area for future research, however, will be to test the utility of PsyCap and other constructs from the positive psychology literature (specifically, workplace thriving), as predictors of actual workplace performance, as opposed to simply inferring (based on past research) that improved performance is a likely possibility. It is hoped that the current study will act as a springboard for such research.

Conclusion

Using the broaden and build hypothesis as a theoretical framework and point of departure, the current research has demonstrated that while a growth mindset is critical to workplace thriving, this, on its own, is not enough. Rather, the results from this study have indicated that it is a growth mindset, together with psychological capital, that encourages and enables an upward spiral of positivity and, in turn, thriving in the workplace. It is hoped that this novel approach to understanding the broaden and build hypothesis will contribute to theory building in the relatively recent but fast growing field of positive organisational behaviour, and provide practitioners with new possibilities of understanding and cultivating thriving in the workplace.

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Appendix A: Demographic Questionnaire

Age: _____

Gender: _____

Ethnicity:

White		Coloured	
Black		Indian	
Other (please specify)			

Current relationship status:

Married		In a domestic partnership or civil union	
Widowed		Single, but cohabiting with a significant other	
Divorced		Single, never married	
Separated		Other (please specify)	

Highest level of education attained: (Please tick most relevant - more than 1 is acceptable)

Left school before matric		Undergraduate degree	
Matric		Postgraduate degree	
Diploma		Registration with a professional board	
Other (Please specify):			

Industry of employment: _____

Occupation: _____

Job level: (please tick most appropriate)

Entry level	
Middle level	
Senior/Upper level	
Other (please specify)	

Job tenure: (number of years in current organisation) _____

Appendix B: Psychological Capital Questionnaire -24 (PCQ-24)

*Below are statements that describe how you may think about yourself **right now**. Please use the following scale to indicate your level of agreement or disagreement with each statement.*

		Strongly Disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly Agree
1	I feel confident analysing a long-term problem to find a solution.						
2	I feel confident in representing my work area in meetings with management.						
3	I feel confident contributing to discussions about the organisation's strategy.						
4	I feel confident helping to set targets/goals in my work area.						
5	I feel confident contacting people outside the company (e.g. suppliers, customers) to discuss problems.						
6	I feel confident presenting information to a group of colleagues.						
7	If I should find myself in a jam at work, I could think of many ways to get out of it.						
8	At the present time, I am energetically pursuing my work goals.						
9	There are lots of ways around any problem.						
10	Right now I see myself as being pretty successful at work.						
11	I can think of many ways to reach my current work goals.						

12	At this time, I am meeting the work goals that I have set for myself.						
13	When I have a setback at work, I have trouble recovering from it, moving on.						
14	I usually manage difficulties one way or another at work.						
15	I can be “on my own”, so to speak, at work if I have to.						
16	I usually take stressful things at work in stride.						
17	I can get through difficult times at work because I’ve experienced difficulty before.						
18	I feel I can handle many things at a time at this job.						
19	When things are uncertain for me at work, I usually expect the best.						
20	If something can go wrong for me work-wise, it will.						
21	I always look on the bright side of things regarding my job.						
22	I’m optimistic about what will happen to me in the future as it pertains to work.						
23	In this job, things never work out the way I want them to.						
24	I approach this job as if “every cloud has a silver lining”.						

Appendix C: Thriving at Work Scale

Instructions: Using the scale below, please indicate the extent to which you agree or disagree with each of the following statements.

		Strongly Disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree
1	At work, I find myself learning often.					
2	At work, I continue to learn more and more as time goes by.					
3	At work, I see myself continually improving.					
4	At work, I am not learning.					
5	At work, I have developed a lot as a person.					
6	At work, I feel alive and vital.					
7	At work, I have energy and spirit.					
8	At work, I do not feel very energetic.					
9	At work, I feel alert and awake.					
10	At work, I am looking forward to each new day.					

Appendix D: Implicit Person Theories Scale (IPT)

Instructions: Using the scale below, please indicate the extent to which you agree or disagree with each of the following statements.

		Strongly Agree	Agree	Mostly Agree	Mostly Disagree	Disagree	Strongly Disagree
1	The kind of person someone is, is something very basic about them and it can't be changed very much.						
2	People can do things differently, but the important parts of who they are can't really be changed.						
3	Everyone, no matter who they are, can significantly change their basic characteristics.						
4	As much as I hate to admit it, you can't teach an old dog new tricks. People can't really change their deepest attributes.						
5	People can always substantially change the kind of person they are.						
6	Everyone is a certain kind of person, and there is not much that can be done to really change that.						
7	No matter what kind of person someone is, they can always change very much.						
8	All people can change even their most basic qualities.						

Appendix E: Sample information

Percentage of sample in industry of organisation

1. Advertising and Marketing (6.2%)
2. Airlines and Aerospace (including defence) (1.3%)
3. Automotive (1.3%)
4. Business Support and Logistics (1.3%)
5. Construction, Machinery, and Homes (2.7%)
6. Education (11.5%)
7. Entertainment and Leisure (2.2%)
8. Finance and Financial Services (11.1%)
9. Food and Beverages (2.7%)
10. Government (2.7%)
11. Healthcare and Pharmaceuticals (6.2%)
12. Insurance (0.9%)
13. Manufacturing (5.3%)
14. Non-profit (4%)
15. Retail and Consumer Durables (4.9%)
16. Real Estate (2.2%)
17. Telecommunications, Technology, Internet and Electronics (11.9%)
18. Utilities, Energy and Extraction (2.7%)
19. Human Resources (2.2%)
20. Law (4%)
21. Other (10.6%)
22. Missing (2.2%)

Percentage of sample in each occupation

1. Architecture and Engineering Occupations (4.9%)
2. Arts, Design, Entertainment, Sports, and Media Occupations (6.2%)
3. Business and Financial Operations Occupations (7.5%)
4. Community and Social Service Occupations (3.1%)
5. Computer and Mathematical Occupations (8.4%)
6. Education, Training, and Library Occupations (7.5%)
7. Food Preparation and Serving Related Occupations (1.8%)
8. Healthcare Practitioners and Technical Occupations (3.5%)
9. Healthcare Support Occupations (3.1%)
10. Human Resource Occupations (6.2%)
11. Installation, Maintenance, and Repair Occupations (0.9%)
12. Legal Occupations (4.9%)
13. Management Occupations (10.2%)
14. Office and Administrative Support Occupations (13.3%)
15. Personal Care and Service Occupations (0.4%)
16. Production Occupations (1.8%)
17. Protective Service Occupations (0.9%)
18. Sales and Related Occupations (6.2%)
19. Transportation and Materials Moving Occupations (0.4%)
20. Consultant Occupations (1.3%)
21. Other (5.3%)
22. Missing (2.2%)

Appendix F: Ethics clearance certificate

UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG

HUMAN RESEARCH ETHICS COMMITTEE (SCHOOL OF HUMAN & COMMUNITY DEVELOPMENT)

CLEARANCE CERTIFICATE

PROTOCOL NUMBER: MORG/15/003 IH

PROJECT TITLE:

The role of implicit person theories and psychological capital in workplace thriving.

INVESTIGATORS

Levy Ronit

DEPARTMENT

Psychology

DATE CONSIDERED

30/06/15

DECISION OF COMMITTEE*

Approved

This ethical clearance is valid for 2 years and may be renewed upon application

DATE: 30 June 2015


CHAIRPERSON
(Professor B. Bowman)

cc Supervisor:

Prof. Karen Milner
Psychology

DECLARATION OF INVESTIGATOR (S)

To be completed in duplicate and **one copy** returned to the Secretary, Room 100015, 10th floor, Senate House, University.

I/we fully understand the conditions under which I am/we are authorized to carry out the abovementioned research and I/we guarantee to ensure compliance with these conditions. Should any departure be contemplated from the research procedure, as approved, I/we undertake to submit a revised protocol to the Committee.

This ethical clearance will expire on 31 December 2017

PLEASE QUOTE THE PROTOCOL NUMBER IN ALL ENQUIRIES

Appendix G: Participant Information Sheet



Psychology
School of Human & Community Development
University of the Witwatersrand
Private Bag 3, WITS, 2050
Tel: (011) 717 4500 Fax: (011) 717 4559



Good day

My name is Ronit Levy, and I am conducting research for the purposes of obtaining a Master's Degree in Organisational Psychology at the University of the Witwatersrand. As part of my Master's degree I am required to complete a research project. The more responses I receive, the greater the strength of my research. My research aims to explore two particular facilitators of workplace thriving, namely mindset and psychological capital. I would like to invite you to take part in this research. Please note that to take part in this research, you need to be employed in a South African organisation

Participation in this research will involve you completing the questionnaires that follow. The questionnaires will take approximately **20 minutes** to complete. **Please note that your participation is completely voluntary and you will not be advantaged or disadvantaged in any way for choosing to complete or not to complete the questionnaire.**

No identifying information, such as your name or I.D. number, is asked for and no one at your organisation will be aware of whether you choose to participate or not. You will therefore remain anonymous and the data you provide will not be linked to you as an individual in any way. You will also not be asked to provide the name of the organisation you work for; the data will not be analysed on the basis of your specific organisation; and your organisation will not be identified by name in writing up the research. Your completed questionnaire will not be seen by any other person and will only be processed by myself and my supervisor; and your responses will only be looked at in relation to all other responses in the study. There are no foreseeable risks or benefits to taking part in this study.

If you choose to participate in the study please complete the following questionnaire as carefully and honestly as possible. Once you have answered the questions, you can submit the completed answers online. No IP addresses will be recorded. This will ensure your anonymity.

If you do complete the questionnaire, this will be considered as informed consent to participate in the study.

As the data is anonymous, it will not be possible to provide you with individual feedback. However, feedback of the general results will be given in the form of a summary of the overall findings of the research to the Human Resource Department of your organisation for distribution and will also be posted on a blog [blog address to be inserted]. If you have any questions or concerns, please feel free to contact myself or my supervisor as per the details below. This research may provide new possibilities of understanding and cultivating well-being in the workplace. If you choose to complete the questionnaire, your participation in this study would be greatly appreciated.

Kind Regards

Ronit Levy
rlevy36@gmail.com

Supervisor: Professor Karen Milner
Karen.Milner@wits.ac.za

Appendix H: Histograms

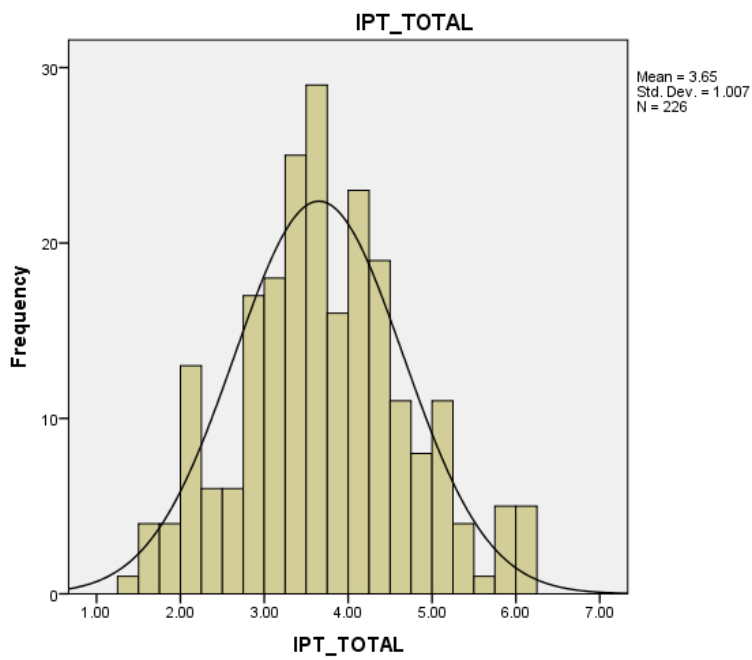


Figure 3

Distribution of IPT scale total scores

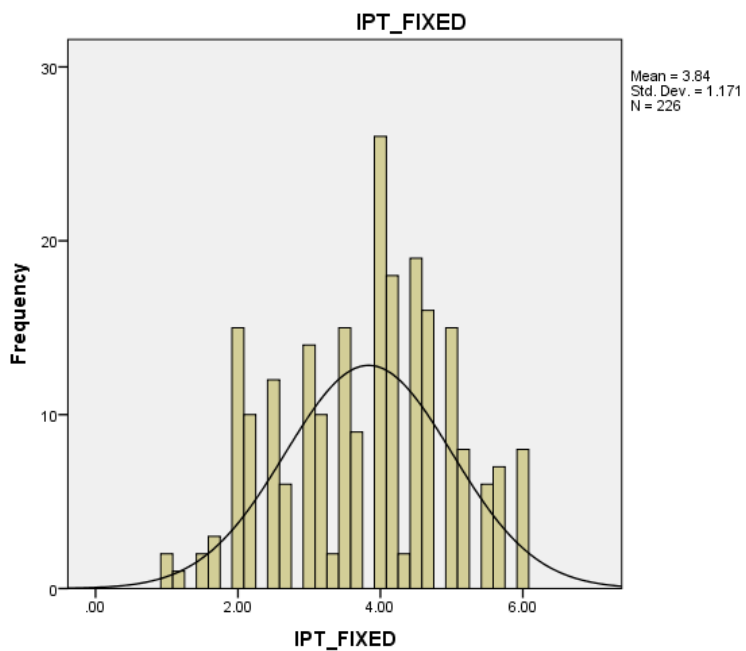


Figure 4

Distribution of IPT fixed subscale total scores

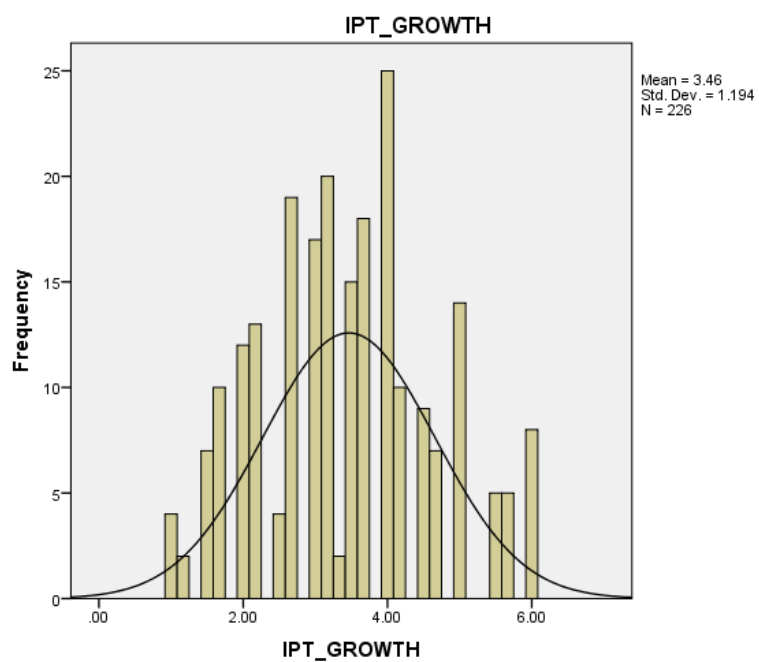


Figure 5

Distribution of IPT growth subscale total scores

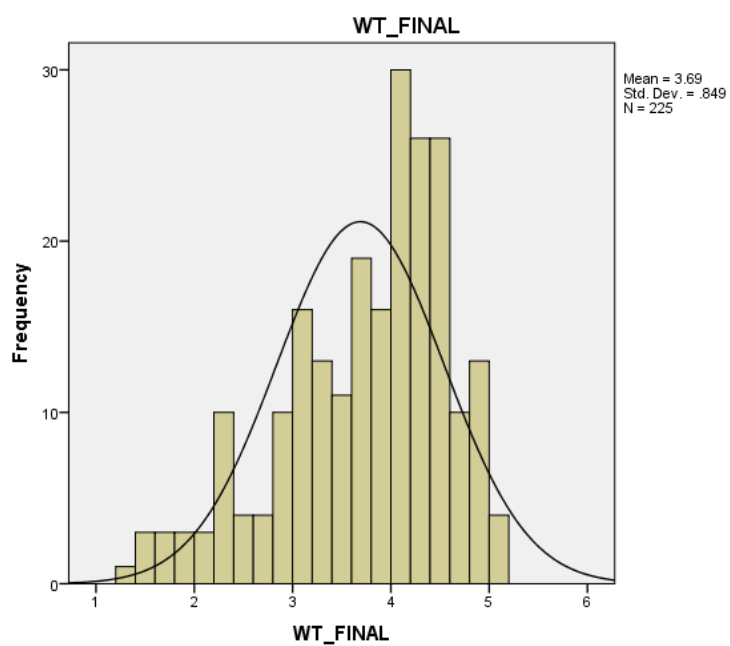


Figure 6

Distribution of workplace thriving scale total scores

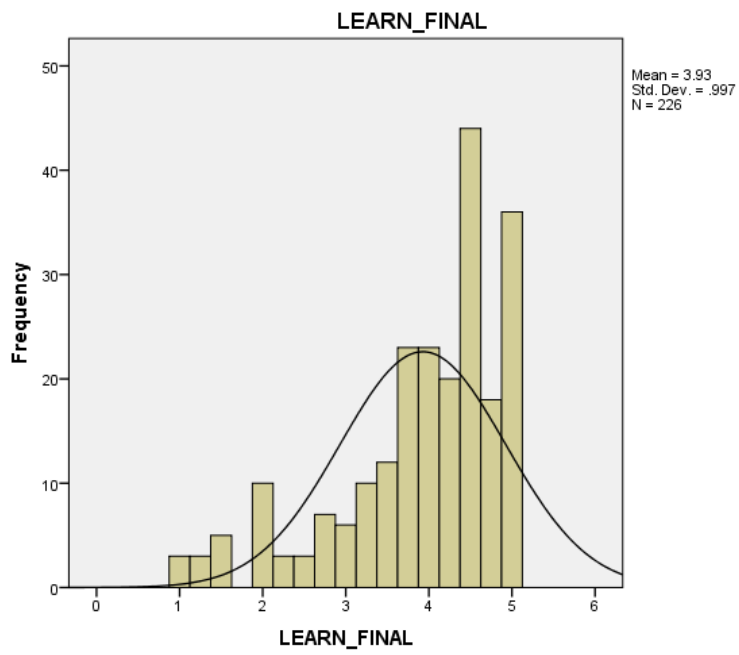


Figure 7

Distribution of workplace thriving learning subscale total scores

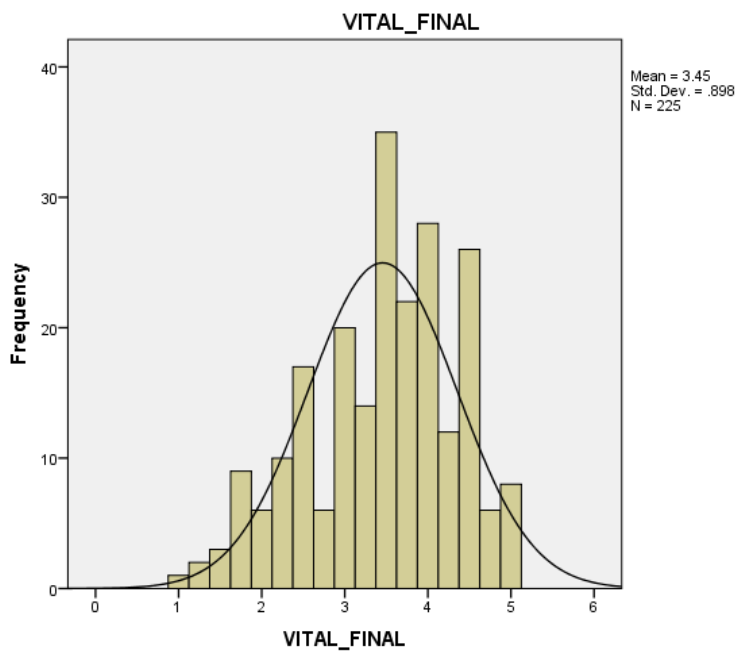


Figure 8

Distribution of workplace thriving vitality subscale total scores

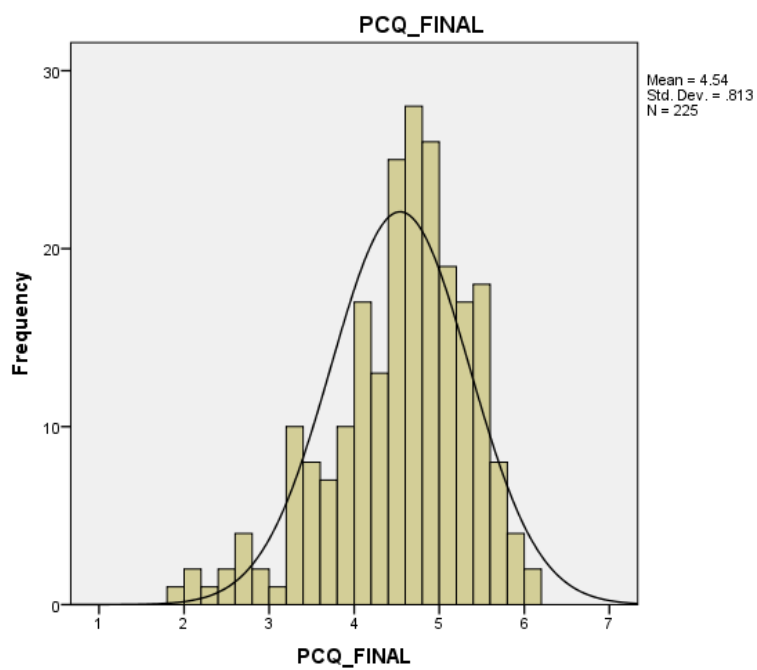


Figure 9

Distribution of PCQ24 total scores

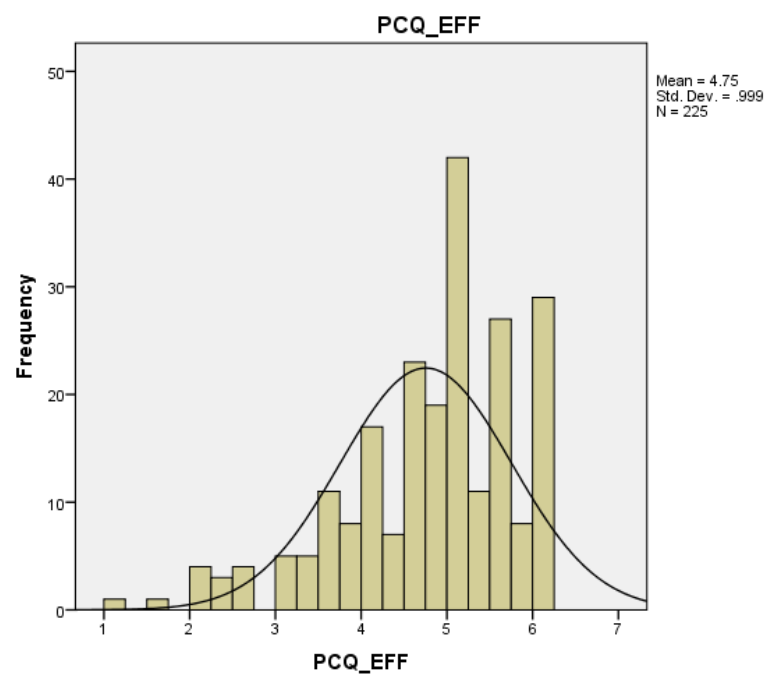


Figure 10

Distribution of PCQ24 self-efficacy subscale total scores

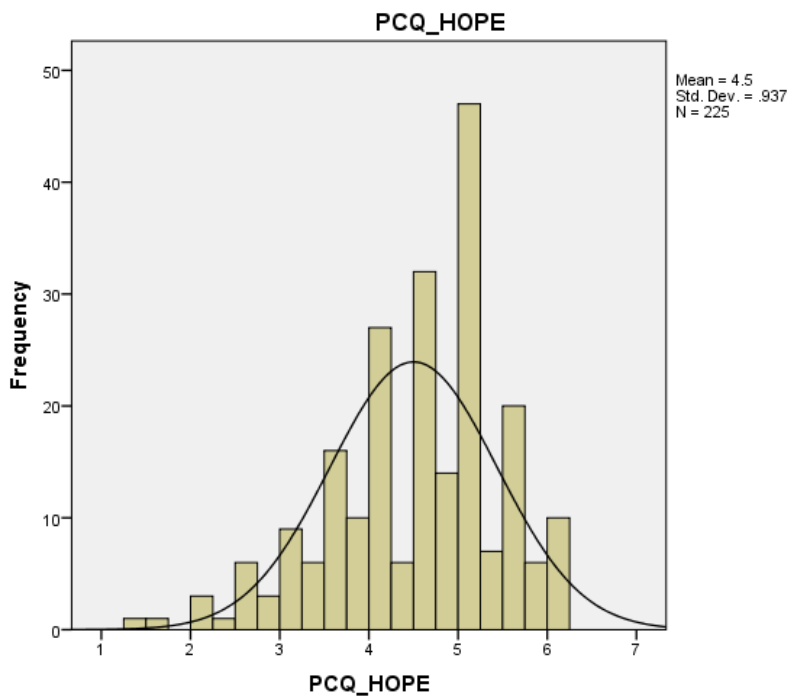


Figure 11

Distribution of PCQ24 hope subscale total scores

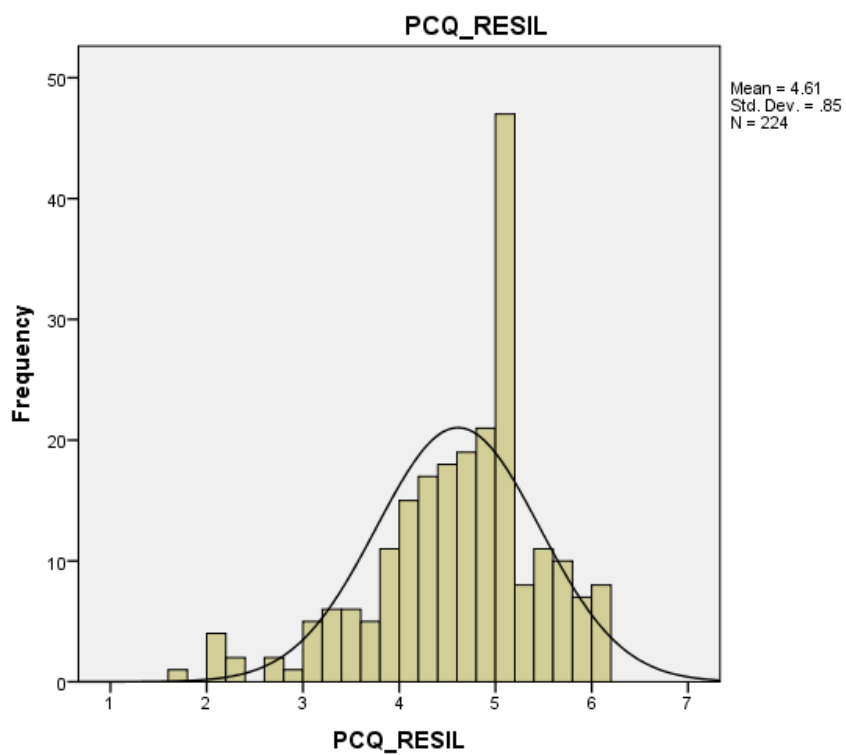


Figure 12

Distribution of PCQ24 resilience subscale total scores

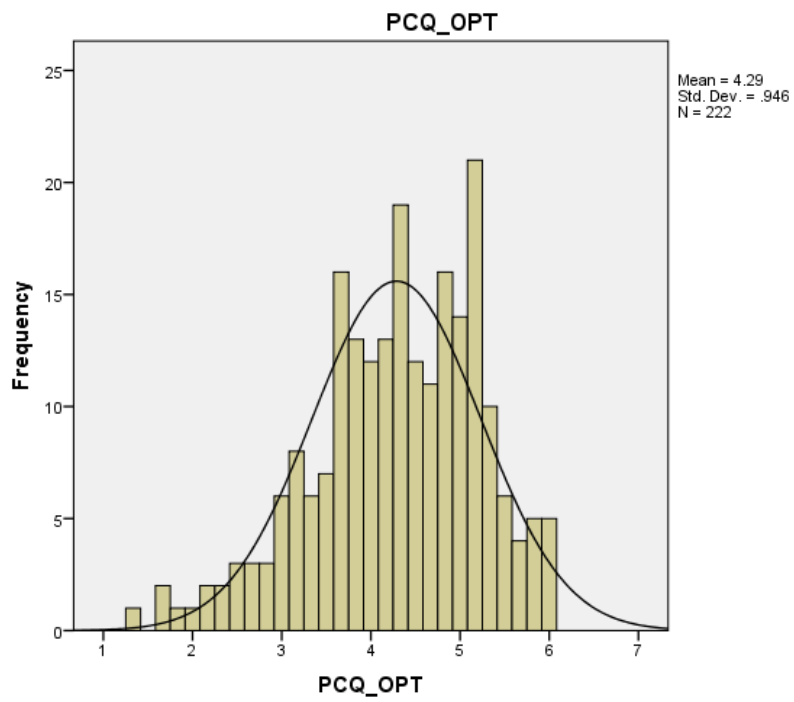


Figure 13

Distribution of PCQ24 optimism subscale total scores

Appendix I: Correlation tables

Table 6

Correlations between IPT total and subscales (N=226)

IPT	Fixed	Total
Growth	.449	.854
	.000	.000
Fixed		.847
		.000

Table 7

Correlations between PsyCap total and subscales

PsyCap	Hope	Resilience	Optimism	Total
Self-efficacy	.760	.713	.553	.874
	.000	.000	.000	.000
	225	224	222	225
Hope		.725	.731	.923
		.000	.000	.000
		224	222	225
Resilience			.589	.862
			.000	.000
			221	224
Optimism				.825
				.000
				222

Table 8

Correlations between workplace thriving total and subscales (N=225)

Workplace Thriving	Learning	Total
Vitality	.608	.884
	.000	.000
Learning		.908
		.000

Appendix J: Effect size conversions

Table 10

Significant Pearson's correlations (r) between IPT and PsyCap, and their equivalent Cohen's d effect sizes

Significant Correlations	Pearson's r	Cohen's d	Strength of Relationship
IPT and PsyCap	0.13	0.26	Small
IPT and efficacy	0.14	0.28	Small
IPT and resilience	0.13	0.26	Small
Growth mindset and PsyCap	0.22	0.45	Small-Moderate
Growth mindset and efficacy	0.24	0.50	Moderate
Growth mindset and hope	0.22	0.45	Small-Moderate
Growth mindset and resilience	0.17	0.35	Small

Appendix K: Regression tables

Table 15

Prediction of PsyCap by IPT

IV	MED	R	R²	Sig.	B	t	P-value	Tol.	VIF	Cond. Index
IPT	PsyCap	.132	.017	0.048*	.132	1.992	0.048*	1.000	1.000	7.404
	Efficacy	.144	.021	0.031*	.144	2.170	0.031*	1.000	1.000	7.404
	Hope	.130	.017	0.051	.130	1.961	0.051	1.000	1.000	7.404
	Resilience	.131	.017	0.050*	.131	1.974	0.050*	1.000	1.000	7.394
	Optimism	.054	.003	0.425	.054	0.799	0.425	1.000	1.000	7.460
Growth	PsyCap	.217	.047	0.001*	.217	3.319	0.001*	1.000	1.000	5.979
	Efficacy	.236	.056	0.000*	.236	3.626	0.000*	1.000	1.000	5.979
	Hope	.224	.050	0.001*	.224	3.428	0.001*	1.000	1.000	5.979
	Resilience	.173	.030	0.010*	.173	2.611	0.010*	1.000	1.000	5.965
	Optimism	.119	.014	0.076	.119	1.784	0.076	1.000	1.000	5.981
Fixed	PsyCap	.010	.000	0.877	.010	0.155	0.877	1.000	1.000	6.707
	Efficacy	.006	.000	0.925	.006	0.094	0.925	1.000	1.000	6.707
	Hope	.001	.000	0.993	.001	0.009	0.993	1.000	1.000	6.707
	Resilience	.053	.003	0.427	.053	0.795	0.427	1.000	1.000	6.713
	Optimism	.023	.001	0.737	-.023	-0.336	0.737	1.000	1.000	6.769

Table 17

Prediction of workplace thriving by PsyCap

MED	DV	R	R²	Sig.	B	t	p-value	Tol.	VIF	Cond. Index
PsyCap	Thriving	.578	.334	0.000*	.604	10.548	0.000*	1.000	1.000	11.255
Efficacy		.432	.186	0.000*	.367	7.132	0.000*	1.000	1.000	9.622
Hope		.575	.331	0.000*	.522	10.478	0.000*	1.000	1.000	9.709
Resilience		.395	.156	0.000*	.395	6.397	0.000*	1.000	1.000	10.947
Optimism		.604	.365	0.000*	.545	11.252	0.000*	1.000	1.000	9.188
PsyCap	Learning	.478	.228	0.000*	.587	8.123	0.000*	1.000	1.000	11.279
Efficacy		.373	.139	0.000*	.373	6.010	0.000*	1.000	1.000	9.642
Hope		.492	.243	0.000*	.525	8.450	0.000*	1.000	1.000	9.726
Resilience		.335	.112	0.000*	.394	5.299	0.000*	1.000	1.000	10.970
Optimism		.457	.209	0.000*	.485	7.628	0.000*	1.000	1.000	9.188
PsyCap	Vitality	.563	.317	0.000*	.622	10.153	0.000*	1.000	1.000	11.255
Efficacy		.399	.160	0.000*	.359	6.493	0.000*	1.000	1.000	9.622
Hope		.542	.294	0.000*	.520	9.616	0.000*	1.000	1.000	9.709
Resilience		.377	.142	0.000*	.398	6.044	0.000*	1.000	1.000	10.947
Optimism		.639	.409	0.000*	.608	12.335	0.000*	1.000	1.000	9.188

Appendix L: Diagrams representing the mediation models

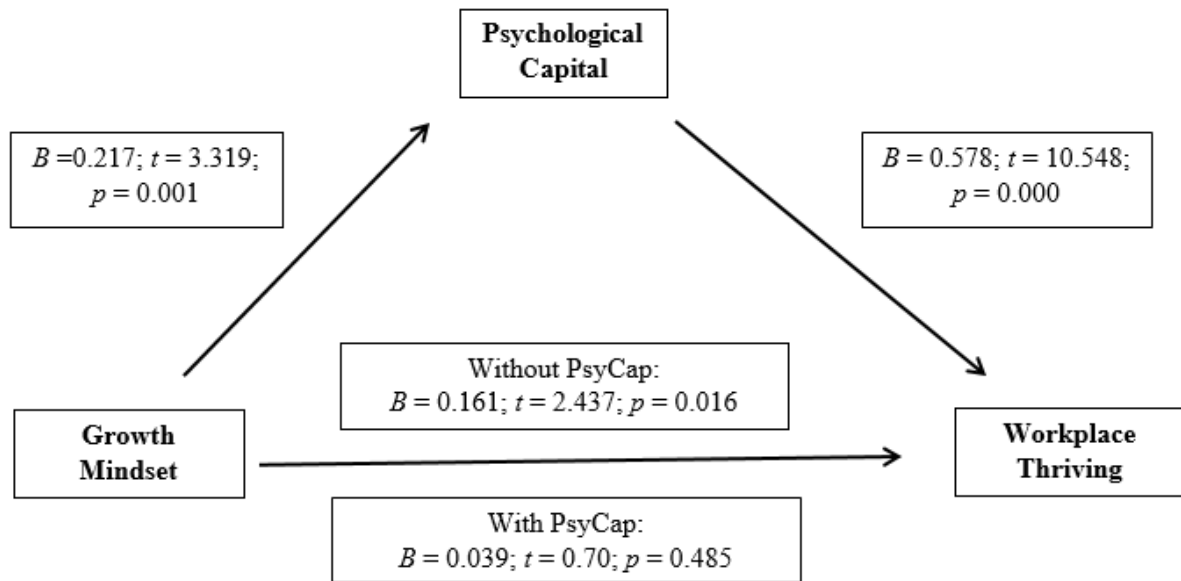


Figure 14

Model 1: Psychological capital as a mediator of the relationship between a growth mindset and workplace thriving

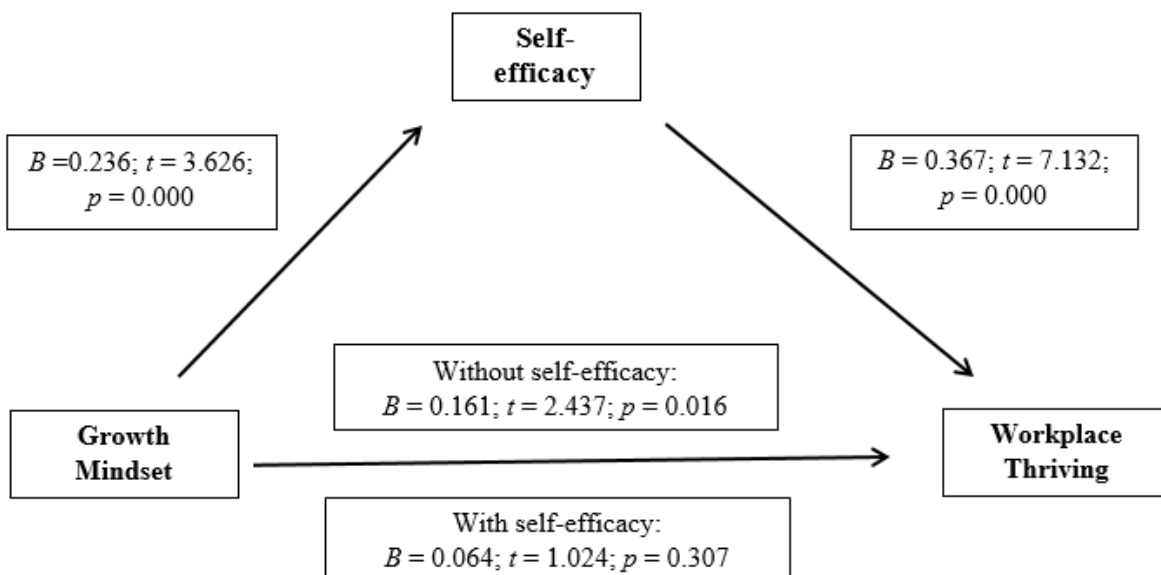


Figure 15

Model 2: Self-efficacy as a mediator of the relationship between a growth mindset and workplace thriving

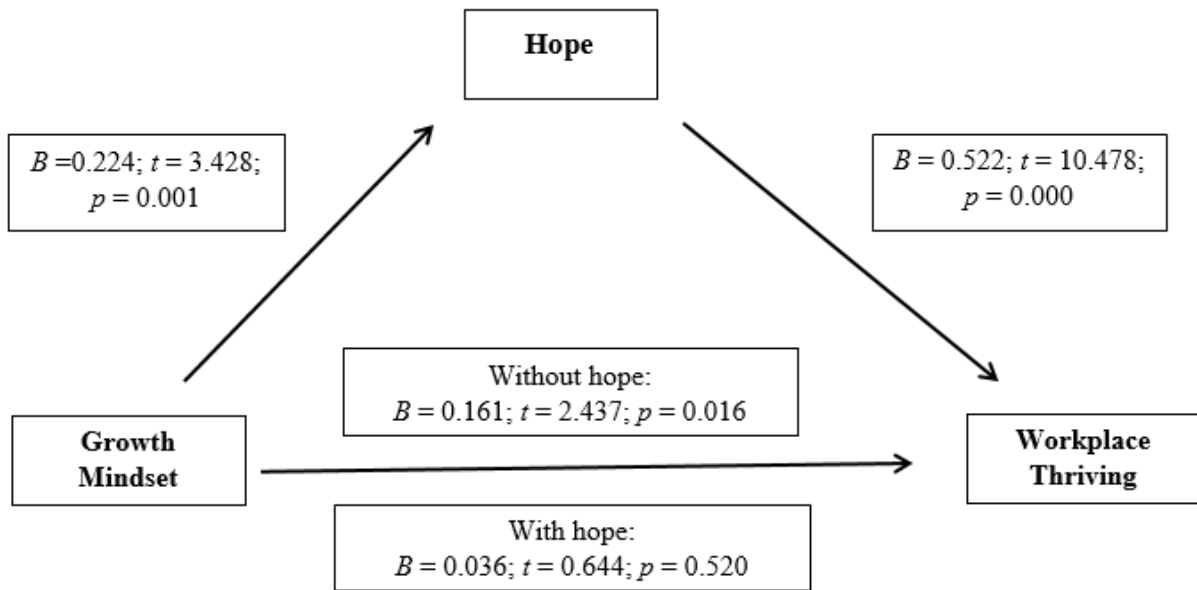


Figure 16

Model 3: Hope as a mediator of the relationship between a growth mindset and workplace thriving

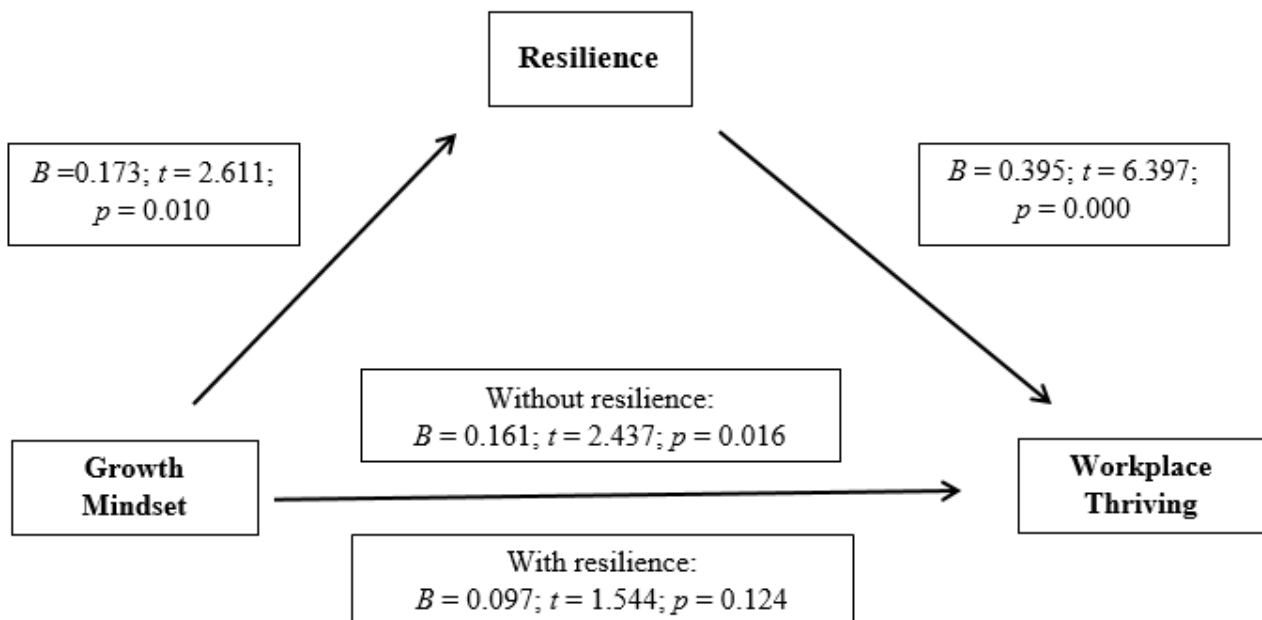


Figure 17

Model 4: Resilience as a mediator of the relationship between a growth mindset and workplace thriving

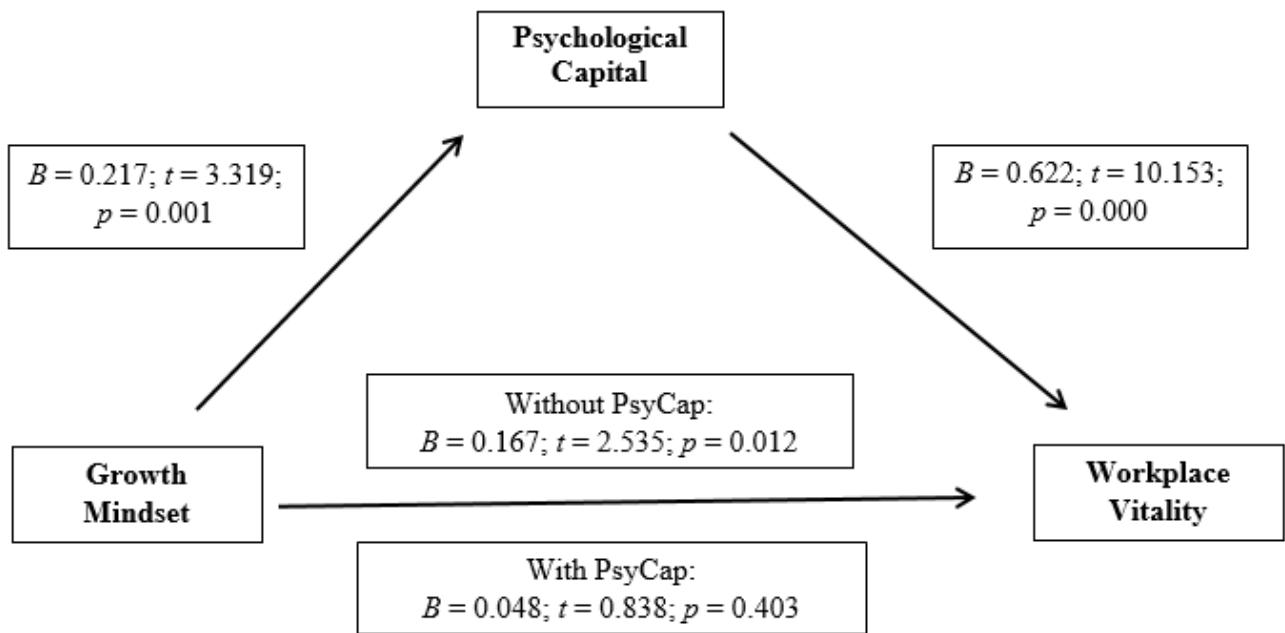


Figure 18

Model 5: Psychological capital as a mediator of the relationship between a growth mindset and vitality

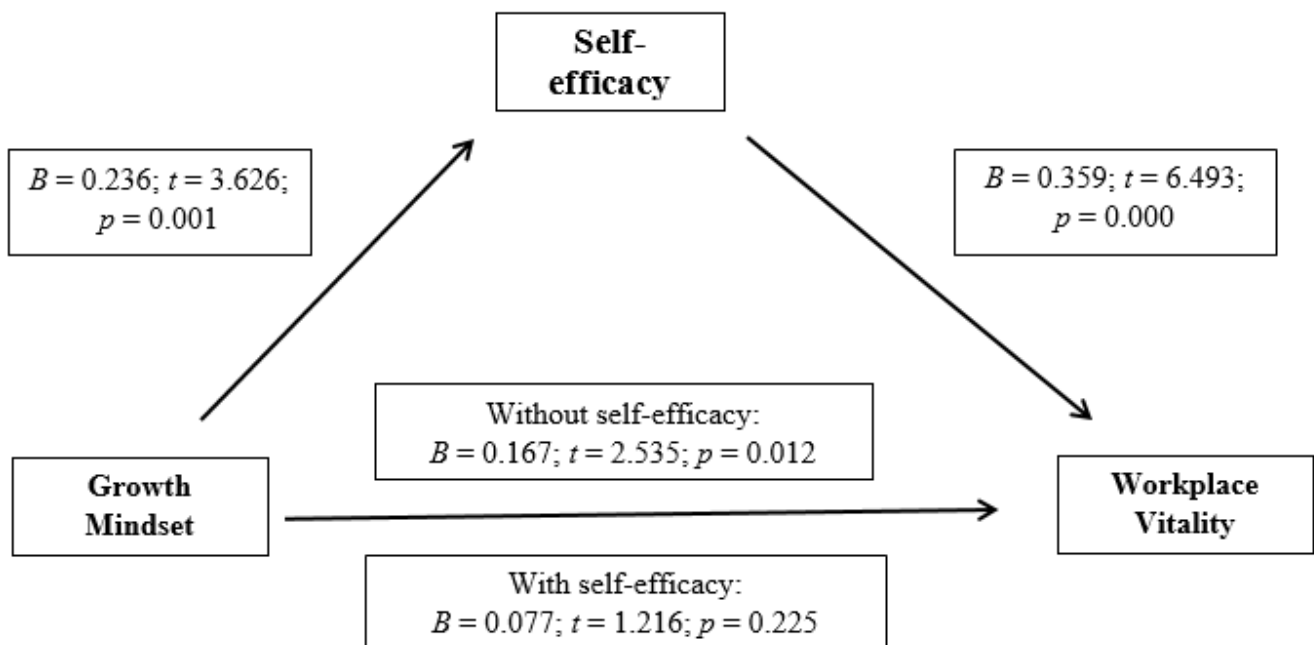


Figure 19

Model 6: Self-efficacy as a mediator of the relationship between a growth mindset and vitality

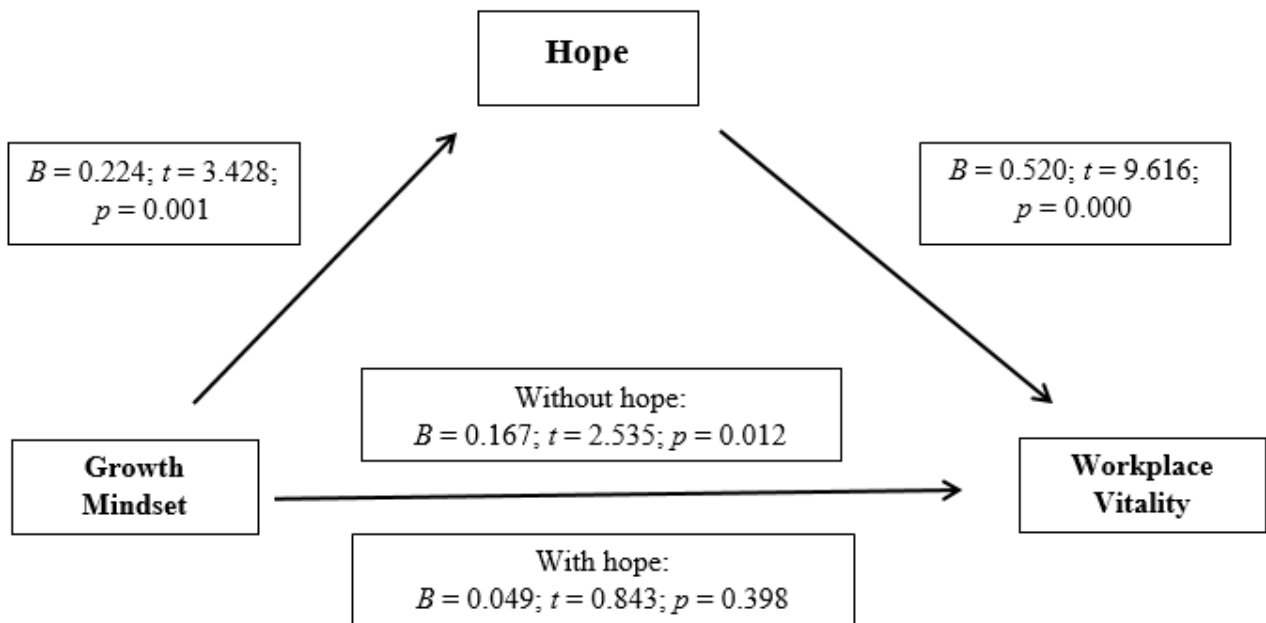


Figure 20

Model 7: Hope as a mediator of the relationship between a growth mindset and vitality

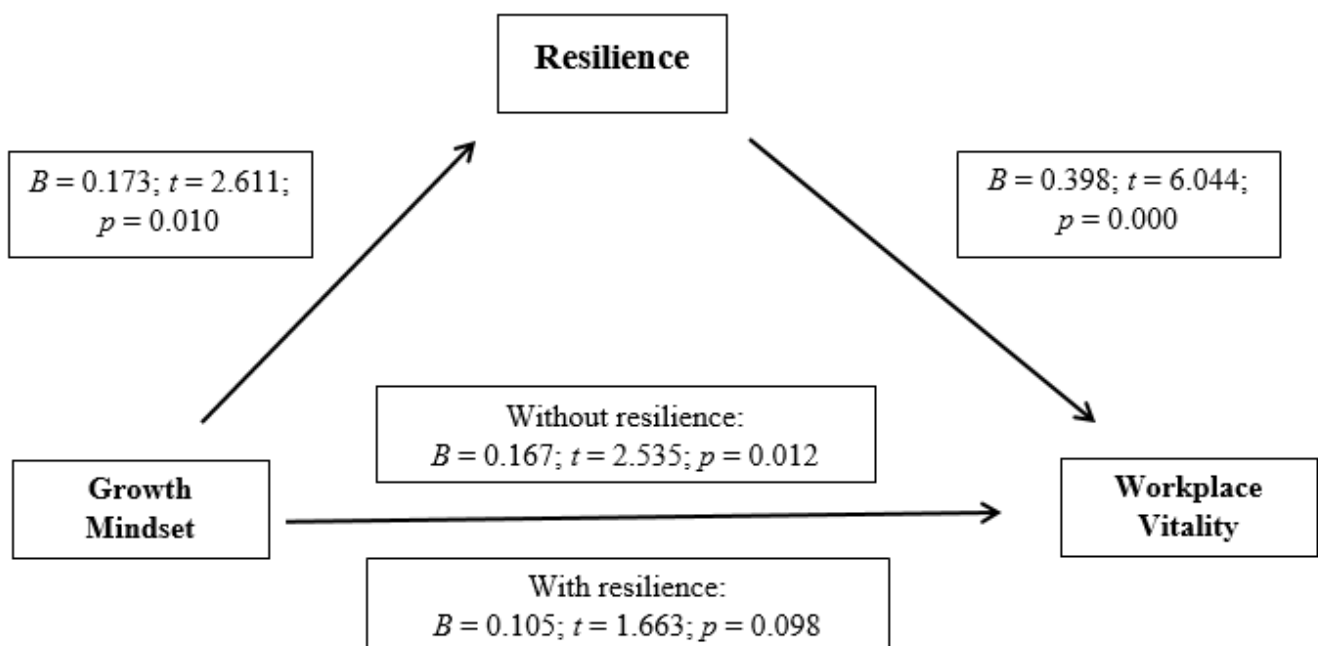


Figure 21

Model 8: Resilience as a mediator of the relationship between a growth mindset and vitality

Appendix M: Managing Human, Social and Psychological Capital

APPROACH	REPRESENTATIVE TECHNIQUES
HCM (Human Capital Management)	1. Selection and selectivity. 2. Training and development. 3. Building tacit knowledge.
SCM (Social Capital Management)	1. Open communication channels. 2. Cross-functional work teams. 3. Work-life balance programs.
PCM (Psychological Capital Management)	1. Developing efficacy/confidence through ◦ mastery experiences ◦ vicarious learning/modeling ◦ social persuasion ◦ positive feedback ◦ physiological and psychological arousal 2. Developing hope through ◦ goal setting ◦ “stepping” ◦ participative initiatives ◦ showing confidence ◦ “preparedness” ◦ contingency planning ◦ mental rehearsals ◦ “re-goaling” 3. Developing optimism through ◦ leniency for the past ◦ appreciation for the present ◦ opportunity-seeking for the future ◦ realistic perspectives ◦ flexible perspectives 4. Developing resiliency through ◦ asset-focused strategies ◦ risk-focused strategies ◦ process-focused strategies

Source: Luthans and Youssef (2004) - Human, social, and now positive psychological capital management: Investing in people for competitive advantage