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# The Effects of Authentic Leadership on Worker Engagement:

## Investigating the Roles of Basic Psychological Need Satisfaction and Psychological Capital in Military and Emergency Services

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# Abstract

Organisations are continuously in pursuit of improvement, whether that is regarding increased efficiency or profit, stronger outputs, enhanced outcomes, higher levels of wellbeing, or increased sustainability. However, these improvements rely on the people within the organisations making it happen. Research has shown that there is a strong link between leadership and worker engagement and explicitly between authentic leadership and engagement. However, the topic remains convoluted and mostly unexplained with very little research investigating specific pathways. This dearth of knowledge inhibits any pragmatic response to how organisations should be developing their leaders or increasing worker engagement. There is an even larger gap in research dedicated to exploring these pathways within emergency services and military fields even though the hierarchical nature of these industries generates a heavy reliance on leadership to produce desired outcomes. This study aimed to address this by examining how authentic leadership is related to engagement through basic psychological need satisfaction and psychological capital and investigated the possibility that neuroticism plays a moderating role.

Two hundred and nine employees working in emergency services or military organisations were surveyed using an online survey and the data gathered was used to conduct several regression analyses to test the hypothesised models. The study revealed that authentic leadership was positively associated with basic psychological need satisfaction and worker engagement. It showed that need satisfaction was positively associated with psychological capital which was shown to be positively associated with engagement. It also revealed that need satisfaction and psychological capital sequentially mediated the relationship between authentic leadership and worker engagement. Neuroticism, however, was not a significant moderator of neither the relationship between authentic leadership and engagement nor between psychological capital and worker engagement.

This research serves as an important exploratory step towards assisting the field in demystifying the role that authentic leadership may play in increasing and maintaining sustainable worker engagement. Equally, it goes towards enabling clearer direction for organisations in military and emergency services sectors wanting to develop more robust, outcomes focused programmes that improve engagement through leadership development.

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# Chapter One: An Introduction to Engagement

Until recently the working landscape appeared to be fixated on reward and punishment systems to drive performance and the outcomes corporations and businesses sought. There is an exponentially growing area of research dedicated to exploring the possibility that people may not need bribing, threatening, and bullying to achieve these goals and in fact, these methods may work against them in the long-term. What we are now seeing is a landslide of literature pointing towards the idea that organisations need only *engage* their employees in their work. While the evidence is building rapidly, many workplaces are still practicing old methods or struggling with how to achieve this. Therefore, research aimed at providing organisations with distinct steps so they may achieve high engagement is crucial in bridging theory with practical usefulness. The following chapters break down two possible pathways to increasing engagement and starts by clarifying what is meant by the term 'worker engagement'.

## Defining Engagement

To discuss or address worker engagement in any meaningful or pragmatic way we need to be able to measure it, and to be able to measure engagement we must first be able to define it. This has proven to be problematic since the concept of worker engagement first appeared in management literature by Kahn (1990). Furthermore, the continued overlap with concepts such as organisational commitment and job satisfaction is in part responsible. Kahn (1990) described organisational life and membership as complex, emotionally charged, and ongoing. He argues that individuals navigate their organisational lives by both pulling *away* from membership to avoid engulfment and alternately moving *towards* membership to avoid isolation. Kahn referred to this constant calibration as seeking balance between personal engagement and personal disengagement. Therefore, he differentiated between the two and defined engagement as "the harnessing of organization members' selves to their work roles;

in engagement, people employ and express themselves physically, cognitively, and emotionally during role performances" (Kahn, 1990, p. 694). Building upon this definition, Rich et al. (2010) argued that there is an investment of an individual's head, heart, and hands when they are engaged so engagement is a more complete depiction of the relationship between self and role than related constructs such as job satisfaction.

In expanding on Kahn's theoretical model of engagement, Schaufeli, Salanova et al. (2002, p. 74) offer an operationalisation of the construct defining worker engagement as "a positive, fulfilling, work-related state of mind that is characterised by vigour, dedication, and absorption". A theoretical analysis on work-related well-being by Schaufeli and Bakker (2004) provided evidence for two underlying dimensions: 'activation' which defines a range from exhaustion at one end to vigour at the other, and 'identification' defining a range spanning from cynicism to dedication. According to this analysis, engagement is characterised by high activation (vigour) and identification (dedication). Additionally, after 30 extensive interviews, a third factor, absorption was identified as an important element of worker engagement. Elaborating on these three characterisations, Schaufeli, Salanova et al. (2002) explain that vigour is described as a willingness to invest effort, persistence in the face of difficulties, high levels of energy, and resilience. Dedication is described as pride, enthusiasm, and a sense of significance, and absorption is considered a deep engrossment in work. Importantly, Schaufeli (2021) clearly differentiates between engagement and workaholism, stressing that an engaged employee works hard because they enjoy their work while a workaholic works hard in order to avoid feelings and thoughts that come about when they are not working.

Upon settling with the three hypothesised three-factor structure, Schaufeli and associates constructed a self-report questionnaire called the Utrecht Work Engagement Scale (UWES) (Schaufeli & Bakker, 2004; Schaufeli, Martinez et al., 2002; Schaufeli, Salanova et

al., 2002). Showcasing over 60,000 employee records, ample factor analyses and sufficient internal consistencies, literature convincingly points to the superiority of the three-factor structure of worker engagement over alternative models. Therefore, the UWES is arguably our best measure of engagement to date and supports Schaufeli, Salanova et al.'s (2002) definition of worker engagement (Schaufeli, 2021; Schaufeli & Bakker, 2004).

For the purposes of this paper, Schaufeli's definition of worker engagement incorporating vigour, absorption, and dedication is assumed and has been the preferred definition for measurement in numerous contemporary research papers (Boccoli, et al., 2023; De-La-calle-durán & Rodríguez-Sánchez, 2021; Dudasova et al., 2024; Geldenhuys et al., 2014; Gupta & Shaheen, 2018; Robijn et al., 2020; Schaufeli, 2021; Trépanier et al., 2015).

**Engagement in the Context of Positive Psychology**

Positive character traits and emotions fall under the conceptual framework of positive psychology in which worker engagement, in the context of work psychology, is firmly placed (Wu et al., 2023). More precisely, positive psychology refers to the processes and conditions that enhance organisations, people, or a group's ability to function (Gable & Haidt, 2005). The movement is dedicated to repositioning mass perspectives from diseased-based or problem-focused models to those which emphasise psychological capacities, resources, recovery, and wellbeing (Carr, 2022; French & Holden, 2012). The roots of positive psychology reach far back in history and can be observed throughout philosophical, religious, and psychological evolutions (Carr, 2022). However, the movement itself was founded by psychologists Martin Seligman and Mihaly Csikszentmihalyi towards the end of the 20$^{th}$ century (Seligman & Csikszentmihalyi, 2000), who aimed to utilise knowledge gained from mainstream psychology for the facilitation and understanding of wellbeing (Carr, 2022). Seligman and Csikszentmihalyi (2000) argued that the preoccupation with how individuals

can survive and endure adversity has neglected many avenues in which individuals and groups may explore and experiences they may pursue, to flourish and thrive in the world.

Although Seligman and Csikszentmihalyi founded the movement, the underpinnings of the concept and references to positive psychology can be found within the workings of many other distinguished psychologists. Amongst these, a prominent humanistic psychologist, Abraham Maslow (1954), wrote the book *Motivation and Psychology* which used the expression 'positive psychology'. Similarly, an evaluation of a program designed to improve happiness was published by Frederick Fordyce in 1977 (Carr, 2022; Fordyce, 1977) and Michael Argyle's (2001), *The Psychology of Happiness* first released in 1987 details several empirical studies on wellbeing factors and influences. Therefore, it appears the concept was becoming of high interest to many in the field long before it gained official recognition.

Many branches of psychology have now begun utilising the paradigm of positive psychology for proven successful psychological interventions, such as positive cognitive behavioural therapy which draws on both positive psychology and solution focused brief therapy in a clinical setting (Radu & Mişu, 2023). Although organisational psychology has observed several positive constructs over time such as job commitment and satisfaction, organisational citizenship behaviours, positive affect and positive reinforcement, the discipline experienced an era of renewed attention to positive approaches in the new millennium (Youssef & Luthans, 2007). The application of positive psychology in the organisational context has received immense interest since then from both practitioners and academics who can clearly see the potential of a positive approach in achieving beneficial work outcomes such as high levels of engagement (Albrecht, 2013). Equally however, van Zyl et al. (2024) explain that the movement is experiencing significant threat as practitioners and researchers are faced with keeping up with rapidly changing work environments and

technology. They call attention to organisational trends that are once again leaning towards objective data collection such as workflows and keyboard strikes to measure engagement due to an increase in remote work and the gig economy which are all decentralising work systems (Youssef & Luthans, 2007). In turn, these measures are changing the interactions and structures previously investigated by positive organisational psychology. However, with a positive psychological approach, organisations can move beyond the practice of identifying and reducing organisational problems to surface level observations with short-sighted solutions (Albrecht, 2013). This evolved approach emphasises positive outcomes and human strengths that lead to long-term optimal functioning. This approach is comparable to positive cognitive behavioural therapy which differs from traditional cognitive behavioural therapy in that it does not focus on problem solving to remove the problem but rather focuses on what is working and capitalises on resources available (Bannink, 2012). Through this unique lens we may, therefore, find opportunities through adversity rather than only conclusions about negative constructs and chase exceptional outcomes rather than creating ceilings to success (Van Zyl et al., 2024). In fact, a new approach termed positive psychology 2.0 deliberates the complex nuances of the interactions between the psychological factors constructing our experiences beyond the traditional dichotomy of positive versus negative (Radu & Mişu, 2023). Understanding this individualised and subjective approach highlights the pressing challenges posed by the evolving organisational landscape that is moving towards faster, easier, and cheaper methods of analysing psychological factors. Many data-driven approaches that have no way of capturing subjective experiences and which can bring an increased risk of privacy and biased decision-making reveal a significant threat to the benefits of positive organisational psychology (van Zyl et al., 2024).

## Why Should We Care About Worker Engagement?

### *Worker Engagement and Wellbeing*

Like worker engagement, most people have a reference-level understanding of employee wellbeing, meaning that they know what it broadly refers to but often struggle to specifically define it and completely appreciate the concept. Zheng et al. (2015) highlight two schools of thought concerning wellbeing: hedonism which refers to sensory pleasure or happiness, and eudaimonism which refers to happiness through meaning or purpose. They argue that the two positions divide the concept of wellbeing into subjective wellbeing from a hedonic perspective, and psychological wellbeing from a eudaimonic perspective. However, they also argue that they should be combined to offer a more complete examination of overall wellbeing. Given the definition chosen to conceptualise worker engagement in this paper, incorporating the characteristics of vigour, absorption, and dedication, it would be reasonable to hypothesise that engagement would be positively linked with wellbeing from a eudaimonic perspective. However, Shuck and Reio (2014) and De-La-calle-durán and Rodríguez-Sánchez (2021) highlight that literature exploring how engagement affects employee wellbeing has been relatively overlooked in comparison to the amount of literature investigating the effects of engagement on organisational performance. Encouragingly, over the last couple of decades there has been increased interest particularly during and post the Covid-19 pandemic, spurring a plethora of research untangling the correlation (De-La-calle-durán & Rodríguez-Sánchez, 2021).

There appears to be some conflict between researchers regarding the relationship between wellbeing and worker engagement with some suggesting that wellbeing increases worker engagement and others presenting evidence indicating worker engagement increases wellbeing (Gupta & Shaheen, 2018; Shuck & Reio, 2014). Boccoli et al. (2023) also recognised these contradictions of perspectives in their literature review analyses in which

they found that some researchers treated worker engagement as an antecedent of wellbeing and others considered it to be a result of it.

Martin Seligman conceptualises five building blocks for engagement: positive emotions, engagement, relationships, meaning, and accomplishment (PERMA) (Seligman, 2018). Using this model he presents a completely different perspective, suggesting that engagement is actually a dimension of wellbeing rather than a predictor or outcome variable which would explain the ambiguity. Reinforcing this concept, De-La-calle-durán and Rodríguez-Sánchez (2021) found a bidirectional relationship between worker engagement and wellbeing and stressed the need for organisations to support both for organisational performance and health.

One serious negative outcome from low employee wellbeing is burnout which has also been found to be extensively and negatively correlated with worker engagement (Hodkinson et al., 2022; Schaufeli, Martinez et al., 2002; Shabangu & Jonck, 2026). It has previously been operationalised as the opposite pole of a single continuum that places burnout at one end and engagement at the other (Schaufeli, Martinez et al., 2002). For this reason, it is worth outlining the construct here and explaining why engagement was chosen as a measure in this study rather than burnout, which is often incorrectly proposed to gain the same insights for organisational and leadership development.

Burnout is distinguished by three dimensions, cynicism, exhaustion, and reduced professional efficacy. Respectively, exhaustion and cynicism have shown to be the direct opposites to the engagement dimensions of vigour and dedication (Schaufeli & Bakker, 2004). However, reduced professional efficacy is not the opposite of absorption and the opposite of this definition is not included in the concept of engagement defined by Schaufeli and associates. They argue this is for two reasons: Firstly, empirical research has shown that professional efficacy plays a far lesser role than that of cynicism and exhaustion in defining

burnout. Secondly, through discussions and interviews with workers and managers, it appears that engagement is better characterised by a state of full immersion in one's work (absorption) than it is by professional efficacy. Furthermore, Schaufeli, Martinez et al. (2002) found that professional efficacy may in fact be a measurement of engagement rather than burnout, but this has yet to be empirically confirmed. Although research continues to explore the relationship, along with the pervious definition of worker engagement, Schaufeli, Martinez et al. (2002) argue that burnout and engagement should be measured separately, and worker engagement is treated as such throughout this research. Finally, pressing on a previous point, as organisations are encouraged to shift from problem-focused, reactive initiatives to those that focus on proactivity and organisational thriving within a positive psychological paradigm, it is proposed that worker engagement may be a more valuable measure in this context.

### *Worker Engagement and Organisational Outcomes*

The positive correlation between worker engagement and performance, turnover, and customer loyalty has been extensively documented and should provide another incentive for organisations to place emphasis on building engagement (Alolayyan & Alyahya, 2023; Dudasova et al., 2024; Lee et al., 2024; Robertson & Cooper, 2010; Robijn et al., 2020). Rich et al. (2010) believes it is the investment of cognitive, emotional, and physical energy that enhances performance and found that the relationship between task performance and the performance antecedents of perceived organisational support, core self-evaluations, and value congruence, was fully mediated by engagement. Links between worker engagement and organisational commitment, along with negative correlations between worker engagement and absenteeism and turnover, highlight how worker engagement may impact organisational performance through several avenues (Dudasova et al., 2024).

Geldenhuys et al.'s, (2014) cross-sectional study supports the importance of cultivating engaged employees and underlines the centrality of high engagement in fostering high commitment. They discuss the benefits of cultivating behaviour guided by intrinsic motivational orientations and conclude that commitment driven by meaningful work and engaged employees provides a more stable platform than the wavering power of external motivators such as money. Furthermore, Layek and Koodamara (2024) found that contingent rewards were not directly related to performance outcomes but were fully mediated by vigour, absorption, and dedication, displaying a convergence of external factors to nurture internal orientations. Driven by autonomy, skill variety, feedback, task significance and task variety, Geldenhuys et al. (2014) posits that engagement positively influences organisational performance through the direct relationship between task engagement and meaningfulness. Organisations that dedicate long-term strategies that strengthen employee commitment through engagement tend to experience greater employee investment of resources into their organisation and increased efforts to perform (Geldenhuys et al., 2014). This, therefore, suggests sustained higher levels of worker engagement through meaningfulness will improve organisational commitment which can lead to improved long-term financial gains. Research by Noercahyo et al. (2021) also supports the notion that worker engagement is linked to organisational performance. Although they found no significant direct effect between worker engagement and organisational performance, they did find positive significant effects between worker engagement and job satisfaction and between job satisfaction and organisational performance, indicating that worker engagement indirectly affects performance through job satisfaction.

The direct positive correlation between employee wellbeing and performance has also been shown in the extant literature (Nielsen et al., 2017; Robertson & Cooper, 2010). Based on the previously discussed relationship between worker engagement and wellbeing it would,

therefore, logically follow that organisations focussed on increasing engagement would also see an increase in performance through the symbiotic relationship between engagement and employee wellbeing. Robertson and Cooper (2010) argued that organisations would benefit from considering both commitment/citizenship *and* wellbeing together as a wider construct of engagement. They contend that organisations that focus purely on commitment and citizenship can neglect employee psychological wellbeing, implying that high levels of worker engagement would likely not be sustainable under these conditions. They further argue that people with high levels of psychological wellbeing are more likely to exhibit a wide range of positive behaviours that support increased engagement and thereby organisational effectiveness. This once again supports the notion of an interdependent relationship between employee wellbeing and worker engagement as antecedents to organisational performance.

In summary, achieving and maintaining high worker engagement is crucial for both employee wellbeing and organisational performance. While some experts argue that worker engagement may be embedded as a dimension of wellbeing, others believe it is a pre-cursor to it, and others contend that the relationship is bidirectional (Cabrera & Donaldson, 2024; De-La-calle-durán & Rodríguez-Sánchez, 2021; Gupta & Shaheen, 2018; Shuck & Reio, 2014). What is *not* in contention is the strong correlations between worker engagement and worker wellbeing. Equally, the idea that worker engagement is a crucial element of performance and therefore organisational success is largely agreed upon throughout the field and is well documented (Alolayyan & Alyahya, 2023; Dudasova et al., 2024; Lee et al., 2024; Robertson & Cooper, 2010; Robijn et al., 2020). Regardless of whether organisations are pursuing increased wellbeing or high performance, worker engagement may be the key to both.

**The Current State of Engagement**

In 2023 the Automatic Data Processing Institute (ADP) surveyed over 28,000 participants from 28 countries across the globe and reported that only approximately 18% of workers were fully engaged (Hayes & Northrup, 2024). The latest Gallup data indicates a global slump in worker engagement showing similar levels of engagement to ADP and a decline for the second year in a row with the lowest recorded levels since 2020 (Gallup, 2026). After the global financial crisis in 2008, instability and uncertainty due to increased competition, market volatility, and rising complexities within industries led to declining levels of positivity amongst workers (Yan et al., 2023). Although the Covid-19 pandemic also produced record lows for engagement levels, it initiated a large boost in hybrid working which is believed to be partly responsible for increased levels of worker engagement as the world continues to return to post-pandemic normalcies (Hayes & Northup, 2024). They report that hybrid workers measured higher engagement than either fully on-site workers or fully remote workers. The unfeasibility of hybrid arrangement for many roles within many industries or positions may mean we will start seeing significant differences across industries due to working arrangement alone. Despite an increase in hybrid work increasing engagement, reported levels have still only reached a global average of 19% according to ADP's latest data (Hayes & Northrup, 2026). To complicate matters further, hybrid working may increase engagement but recent data in New Zealand shows that hybrid workers reported substantially higher burnout rates (Massey University, 2024). This indicates that this relationship may be curvilinear as high burnout and high engagement rarely go hand in hand. However, Massey University (2024) also highlight that the increase in burnout across all work models is likely, in part, due to the sudden and rapid growth in job insecurity once again. Regardless of industry or work model, these low rates of worker engagement highlight a potential area of concern for many organisations.

The following chapter will cover the theoretical foundations of this study, namely the job demands-resources model and self-determination theory. Chapter 3 will then cover leadership development and authentic leadership and how it relates to worker engagement before delving into the proposed explanatory mechanisms bridging that relationship in chapters 4 and 5.

# Chapter 2: Theoretical Foundations for this Study

## The Job Demands-Resources Model

The Job Demands-Resources (JD-R) model assists in predicting employee outcomes such as engagement via processes powered by two working conditions; demanding work conditions and supportive working conditions (Bakker et al., 2007). Importantly these conditions can evoke two very different physiological processes. According to the JD-R model, job demands describe the social, organisational, or psychological aspects of a role that require sustained physical or mental effort and are consequently associated with psychological or physiological costs. If left unmanaged Bakker et al. (2007) explain these conditions can evoke an energy depleting process which can lead to exhaustion and negative outcomes such as poor performance. They also explain the second set of conditions refers to the adequacy of resources made available to employees. These include physiological, physical, or psychological aspects of a role that are fundamental to accomplishing work objectives, fostering development, and reducing job demands. Bakker et al. (2007) state this second process can lead to positive outcomes such as higher engagement. They stress therefore, that resources are not only essential in buffering demands such as workload, lack of equipment, time pressures, and physical strain, they are also useful in their own right.

Higher demands have also been shown to increase the strength of the link between resources and engagement (Li et al., 2014). This suggests that if demands are high, resources become even more crucial in achieving positive employee outcomes. Of note however, Bakker et al. (2007) underline that demands may not always represent negative aspects of a role, but even positive demands may become stressors if an employee does not receive adequate support, recovery or other relevant resources to deal with them. Simply put, high demands without adequate resources to balance them out frequently lead to withdrawal and

eventual disengagement from work or serious psychological issues such as burnout (Li et al., 2014).

Showing how well the JD-R model allows for many complexities involved in work life, Breevaart et al.'s (2020) research found that high demands *increased* engagement when employees were able to increase their energy resources during 'off-work' activities the day before. Capozza et al. (2023) support this with reference to the difference between hindrance demands and challenge demands. The JD-R model only assumes demands are detrimental when resources are low. They both indicate that the model structure is useful for analysis while incorporating many factors. Equally, despite allowing for the complexity of working conditions and their impact on outcomes, the model is able to achieve a high degree of parsimony. Thus, one of the reasons for the popularity of the JD-R model is its ability to integrate a wide range of job dimensions (Capozza et al., 2023). This is in comparison to more restrictive theories and models such as the job characteristics theory which posits that only five dimensions affect performance and motivation. Because within the JD-R Model, all aspects of a role can be encompassed under either demands or resources and it allows for flexibility of conditions under which the two dimensions interact, it is commonly believed to be the most reliable model in predicting employee performance and wellbeing. Chapters 4 and 5 later discuss how the JD-R may help explain practical pathways to engagement

**Self-Determination Theory**

As asserted by Schaufeli (2021), the JD-R model provides a useful descriptive and heuristic framework to study engagement but used in isolation it lacks theoretical grounding meaning its explanatory capability is limited. Therefore, they argue that it is important that experts examine the psychological mechanisms that fundamentally link resources, demands, and other outcomes with engagement. In agreement with Meyer et al. (2010), they identify self-determination theory as one way to explain several possible mechanisms at play. The

below section explains how self-determination theory provides a theoretical framework that helps us understand sustainable worker engagement from a human motivational standpoint.

Motivation may be split into two types: controlled motivation and autonomous motivation (Deci et al., 2017). Self-determination theory further distinguishes motivation into intrinsic and extrinsic categories. As an autonomous type of motivation, intrinsic motivation refers to an internal motivation to do something for rewards inherent to the task itself such as feeling joy, satisfaction, or interest (Deci et al., 2017; Ryan & Deci, 2000; Sansone & Harackiewicz, 2000). In contrast, external motivation is driven by external factors such as monetary reward, threats of punishment, or because the activity holds importance and value. Although employees ideally experience both intrinsic and extrinsic motivation synergistically, it has also been shown that when roles are too externally constrained or controlled, this can decrease intrinsic motivation as it can diminish employees' feelings of autonomy (Deci & Ryan, 2000; Gagné & Deci, 2014; Ryan & Deci, 2020). The diminishment of intrinsic motivation in exchange for motivation by control or tangible rewards comes at a two-fold cost. Firstly, Ryan and Deci (2000) explain that contingent reward systems often create reward-desired behaviours. They present evidence which indicates these reward systems may lead to a desensitisation to basic human needs and can impede awareness of and decrease self-regulation. They also argue these systems can instigate poor work-life balance and decrease investment in personal relationships, interests, and health (Ryan & Deci, 2000). Secondly, this theory implies that relying on imposed rewards and controls, or transactional relationships within work settings, may be risky when the compensation or punishments lose value to the employee or are no longer a viable option, leaving them with reduced intrinsic *and* extrinsic motivation (Sansone & Harackiewicz, 2000). Therefore, through the lens of self-determination theory, a more stable approach to motivating employees may be through assisting them in motivating themselves. Dorssen-Boog et al. (2021) argue exactly this. Using

self-determination theory in combination with self-leadership theory they provide evidence that by training employees to autonomously control their own behaviours and cognitions, they are able to elevate their own engagement levels. Using a training intervention as a tool to develop self-leadership, they showed that it may be possible to firstly, develop self-leadership and secondly, that self-leadership can have a positive influence on worker engagement which then influences performance. They believe that a crucial element generating these results is that employees are given a large degree of autonomy within their role and that they are given the opportunity to self-manage to some extent, so they can align tasks and their roles to their personal interests, values, and goals. Without self-motivation and ability to manipulate these alignments, it logically follows that employees may become overly reliant on external motivation especially if the role or task is not naturally motivating.

At the core of self-determination theory lies the assumption that individuals have an evolutionary psychological need to experience autonomy, relatedness to others, and competency (Deci & Ryan, 2013; Forner et al., 2007; Ryan & Deci, 2000). Beyond this, they continuously work towards merging external controls into self-controls leading to self-determination and a willingness to engage in their work. The degree to which these needs are met can be understood within the construct of basic psychological need satisfaction. Without these three needs met, Meyer (2014) argues amotivation may eventuate, signifying a lack of motivation or intention to work. Meaningfulness has been put forward as a fourth basic human psychological need (Frankyl 1946/2006; Tønnesvang, 2025) and argued convincingly in the literature as relevant in organisational settings. Research has revealed that work motivation is driven by finding purpose in ones' work and has been found to have a positive significant relationship with engagement (Mabekoje et al., 2016; Robijn et al., 2020; Schaufeli, 2021; Towsen et al., 2020). However, meaningfulness as a distinct component of the basic psychological need construct is still under debate and therefore, a reliable

measurement of it has not yet been established. This being the case, while acknowledging research indicating it may have a legitimate place within the construct in the future, it will not be specifically measured in this study.

Referring to the experience of free will or independent choice, autonomy allows an individual to act and behave without feeling controlled or forced and grants the freedom to make uncoerced and informed decisions (Dorssen-Boog et al., 2021). In a workplace setting this may mean that an employee is able to job craft to a certain extent or may have a designated task but is able to decide how they go about completing it. According to self-determination theory, autonomy is non-negotiable in terms of psychological health and defines a deeply engrained need to self-regulate one's own actions and experiences to feel in control of their own lives (Puhakka et al., 2025).

When employees' need for competence is satisfied, they feel capable and confident in their abilities (Szulawski et al., 2021). Whereas, if workers do not believe they are competent (need is frustrated), they may fear or experience failure and suffer feelings of inadequacy as a result. This should flag a large area of focus for employers who consistently rely on employees to be capable in completing relevant tasks to fulfil role requirements. In terms of need satisfaction, the emphasis is on individual perception, and so although employees may be, very competent, research strongly suggests the psychological need will not be satisfied until they believe they are (Puhakka et al., 2025; Szulawski et al., 2021).

Denoted by the extent that employees feel understood, appreciated, and connected to those they work closely with, relatedness is an important part of people feeling like they belong (Meng, 2022; Puhakka et al., 2025). As discussed, the number of people undertaking remote work boomed during covid and has not returned to pre-covid numbers (Puhakka et al., 2025). Therefore, without the physical closeness of on-site work and the reduced support often associated with remote work, the satisfaction of the need for relatedness should be of

current concern to organisations. Regardless of work type however, relatedness is vital in terms of maintaining or increasing motivation particularly in settings in which alignment of social norms and/or a large element of teamwork is required (Lauer & Wilkesmann, 2024).

A meta-analysis and systematic review by Tang et al. (2020) showed that overall, need satisfaction was positively associated with several wellbeing indicators but failed to find a correlation between relatedness as an individual component of wellbeing. However, when looking at work factors rather than general wellbeing, Gagné et al.'s (2026) analysis of 1192 articles demonstrated that all three needs are likely relevant in explaining many beneficial workplace outcomes. Therefore, not only does needs satisfaction appear to be an important factor for psychological health, but research has also clearly shown that needs satisfaction can positively influence autonomous motivation, which has major implications for organisations (Dorssen-Boog et al., 2021).

In summary, by satisfying an individual's basic psychological needs, self-determination theory proposes that motivation naturally shifts to a more internally driven mechanism that appears to play an important role in producing many favourable workplace outcomes. Need satisfaction has therefore been identified as a critical component of this study. Chapters 4 and 5 will delve deeper into this theory exploring the link between need satisfaction and worker engagement. These chapters will also present the argument that a motivational pathway exists between leadership and worker engagement which is reliant on need satisfaction. Prior to this, the following chapter introduces the topic of leadership as the first predictor of engagement in this study's model.

# Chapter 3: Leadership

## Perspectives on Leadership

Leadership theories have evolved dramatically over time, guided strongly by several situational, social, and political factors, along with research development influencing popular trends and beliefs (Peters, 2023; Safonov et.al., 2018). Due to the complex issues surrounding the phenomenon it is commonly believed to be "the most studied and least understood concept of any of the social sciences" (Bennis & Nanus, 2004, as cited in Vasilescu, 2019, p. 48). Likely due to this fact, a universal working definition does not exist, and different definitions are often adopted according to the perspective of the researcher. However, most definitions include the elements of group, purpose, and influence, and there is large scale agreement upon the importance of effective leadership in organisations (Safonov et al., 2018; Vasilescu, 2019). Leaders have significant and lasting effects on group and organisational culture, performance, employee job satisfaction and loyalty, and the overall functioning of an organisation and so the vast interest in the topic can come of no surprise (Çoğaltay, 2015).

Following from leadership theory, the concept of leadership style was introduced, which is defined generally as a specific approach that leaders utilise to lead a team or group (Muswaka, 2025). Importantly, the style used affects how a leader communicates, motivates, sets expectations, and makes decisions, and what kind of environment they create for their team to implement organisational goals and strategies. This, in turn significantly impacts organisational outcomes (Muswaka, 2025).

Although until recently leadership theories were developed without the use of the scientific methodologies used today, the earliest theories date back to ancient times when philosophers including Aristotle, Homer, Lao-Tzu, Niccolo Machiavelli, and Confucious attempted to depict the ideal leader based largely on conjectural methods (Safonov et al., 2018). While many of the theories produced by ancient philosophers had strong ethical, self-

developmental, follower-centric, and reflective foundations, the discourse of western leadership theory was shepherded by the 'great man theory' formally introduced by Carlyle (1841/1904) in his work 'Heroes, Heroic Worship, and Heroes in History' (Mouton, 2019; Safonov et al., 2018). Whilst many leadership theories during the same period differed in features, the basic premise of most held the same overarching 'great man' principle, and this was that great leaders are born with inherited traits that could not be developed or learnt (Safonov et al., 2018; Vasilescu, 2019). Mouton (2019) demonstrates that this theoretical foundation became so dominant in western culture that for years the discipline seemed to be only based on the same root concept and still manifests in several current theories despite the evolution in leadership research. Throughout history, longstanding views and traditions are steeped in tales of great warriors, powerful conquerors, wise chiefs, strong military generals, and masculine heroes achieving extraordinary feats via their extraordinary attributes setting them apart from their followers Mouton (2019). It is these long standing and far-reaching convictions that makes the difficulty of disentanglement from such deeply engrained beliefs so apparent. Even with continuous advancements in evaluation and research, beliefs throughout organisations about leadership remain entrenched in this ideology.

From the 'great man theory' came trait theory of leadership in the twentieth century when researchers began attempting to distinguish what exact characteristics and attributes make powerful leaders (Çoğaltay, 2015). Although not outright stating that the traits of a leader are an inherent quality and allowing for the possibility of trait development, the similarities and closeness to 'great man theory' in this respect are hard to ignore. Furthermore, the theory holds fast to differentiating leaders from followers while promoting leadership through the lens of a masculinist construction with the emphasis on largely male traits formulating the ideal model of leadership. However, it was the research dedicated to trait theory that initiated the development of the first comprehensive psychometric

instruments specifically for leadership assessment such as the Leaders Behavior Description Questionnaire in 1945 (Peters, 2023) and the adaption of Raymond Cattell's 16 Personality Factors Questionnaire in 1954 (Cattell et al., 1970; Peters, 2023). These advancements in research and testing set the stage for the future of development in this field.

Advancing from the original trait-based theories, Max Weber introduced charismatic leadership to the field in the late 1940's which served as a stepping stone to one of the current leading theories: transformational leadership (Milosevic & Bass, 2014; Safonov et al., 2018). Milosevic and Bass (2014) describe charismatic leadership as a style exhibited by extraordinary individuals who possess near-supernatural qualities that naturally influence, inspire, and build confidence in their followers. However, they equally argue that these qualities may in some cases be unstable as they may only emerge when a situation requires such leadership. Transformational leadership, as the modern manifestation of trait theory and charismatic leadership, offers a more follower-centric style in which leaders adopt moral and altruistic behaviours (Jackson & Roberts, 2022). Miller (2007) also outlines several important differences between charismatic and transformational styles. She explains that while a charismatic leader's aim is to influence followers to persuade them to strive towards the leader's own vision or the organisation's vision, the transformational leader encourages follower input and is open to their impact on the vision itself. Miller (2007) argues a transformational leader seeks to satisfy the needs of their followers. Moreover, they strive towards a mutual uplifting of both them and their followers and elevate followers into leaders, which deviates quite drastically from charismatic theory which argues leaders are born and not made.

In the background, and in contrast to trait-based theories of leadership, behavioural leadership theories were evolving and as behaviourism took on the leading position in psychological science in the late 1940's, so too did the coinciding theories of leadership

(Safonov et al., 2018). According to behaviourism, selected stimuli will cause specific behaviours, so it was proposed that if is possible to determine which leader behaviours create the stimuli required to produce desired behaviours, then a leader may adapt their behaviour so to elicit those behaviours in their followers (Lord et al., 2017; Safonov et al., 2018). As behaviourism posits that behaviours can be learnt or trained and developed (Baum, 2017; Watson and Kimble, 1998), behavioural theories of leadership provided a very different alternative to trait theory. Lord et al. (2017) highlight the works of Kurt Lewin who introduced motivational forces and in combination with Ralph White, investigated democratic, authoritative, and liberal styles of leadership against performance outcomes (Safonov et al., 2018). Their work revealed that low productivity and high creativity correlated with democratic leadership while the reverse was observed with an authoritative style. Consequently, they did not find an 'ideal' style of leadership and Lewin concluded that situational factors were of high relevance in determining the most appropriate style, but it was from his work that many of the prevalent leadership theories in current literature originated. Muddying the waters of behavioural theories further, investigation into the measurement of leadership behaviours revealed issues with rater bias and indicated that psychometric instruments designed to measure leaders' behaviours may in fact be measuring rater bias (Lord et al., 2017). Furthermore, the remaining cultural dominance of masculine leadership beliefs meant that raters may be categorising leaders based on this and their knowledge of theories of leadership. This particular issue had such an impact on the leadership field that social cognitive research on the effect of raters' knowledge and bias remains highly active today. Fortunately, the introduction and accepted use of meta-analysis in the field of leadership meant some of the measurement inaccuracies, including bias, could be, at least partially addressed and effect sizes could be aggregated across studies for a more rigorous overview of leadership styles (Lord et al., 2017).

Behavioural leadership research produced several prevalent approaches to leadership. One of the most popular approaches was the transactional style (Safonov et al., 2018). With groundings in operant conditioning and behavioural exchange theory, transactional leadership posits that leaders award contingent rewards in exchange for something a leader wants or needs (Jentjens et al., 2025; Safonov et al., 2018). In its simplest form, this type of leadership may involve a leader offering monetary rewards, promotion or praise in exchange for followers achieving targets or reaching a specified goal. The exchange may also work in reverse in which followers reward their leader with respect and adoption of favoured practices in exchange for clear communication and guidance. This type of leadership may equally rely on punishment as a motivational tool (Sie et al., 2025). While many studies have shown that transactional leadership correlates with positive outcomes, research shows that the leader-follower relationship may not be quite as simple as offering reward or punishment in exchange for performance or output (Sie et al., 2025). Furthermore, some studies have indicated this style leans towards authoritarian methods and may negatively influence engagement, decrease creativity and performance, and increase stress, contradicting other studies suggesting the opposite. These differing results appear to provide further evidence that the best leadership style may be dependent on the situation, environment, and circumstances or that leadership theory cannot be excessively simplified.

Another important branch of behavioural styles of leadership are motivational approaches which remain embedded in many modern theories and approaches including transformational and transactional leadership. Rajiah and Bhargava (2016) argue that while extrinsic motivation is best linked with contingent reward and punishment, intrinsic motivation, stemming from Abram Maslow's hierarchy of basic human needs theory, is crucial for long term employee wellbeing and performance. Furthermore, from a behavioural perspective, motivation is the force behind behaviours and so with a focus on motivation,

leaders may be able to produce behaviours that contribute to desired outcomes. Rajiah and Bhargava (2016) explain that according to Maslow's theory, first physiological needs must be met along with the need for physical safety. As long as those basic survival needs are met, then individuals may be enabled to address the higher needs: belonging, esteem, and self-actualisation. Although, as explained in the order of the hierarchy, the physiological needs and the need for physical safety must be met first (or simultaneously), all the needs must be met, or they may impede motivation. Maslow believed that successful leadership involved transforming desires into motives but equally recognised the relevance of situational and environmental factors (Safonov et al., 2018).

As theories continued to develop, an important concept was building from the mounting research on transformational leadership: the concept of emotional intelligence in leadership. Researchers were beginning to pay attention to the requirement of leaders to be able to both control and exhibit emotions appropriately in different situations and also to understand and read other people's emotions (Safonov et al., 2018). Although stemming from transformational research and still in its infancy, this quality is required in all forms of follower-centric leadership (Antonakis et al., 2009; Ćwiąkała et al., 2025; Gerhardt et al., 2026). Similarly In Lord's et al (2017) article, "Leadership in Applied Psychology: Three Waves of Theory", they reveal that alternative theories were building concurrently with trait and behavioural trends and as early as 1941, researchers other than Lewin and Maslow had also begun arguing for a situational approach to leadership. In line with this concept, current leadership trends are increasingly leaning towards a call for dynamic or situational leadership in which a leader is able to adapt their style depending on what is required at the time (Anderson & Sun, 2015; Kammoe, 2025). This idea of leaders requiring adaptive capabilities and flexibility may also serve as a solution to the confusing landscape of leadership research by suggesting that most styles may have a place under certain conditions, and they need not

be pitched against each other. With respect to this notion, this study does not attempt to argue for a superior leadership style but rather to explore some of the hypothesised benefits from the specific behaviours associated with authentic leadership.

**Authentic Leadership**

Under the umbrella of positive leadership and established through transformational leadership research, Authentic leadership encapsulates an honest, emotionally intelligent, and as argued below, engaging leader. An essential quality underpinning an authentic leader is the knowledge of their own true feelings, abilities, thoughts, and motivations, and then their capability to honestly and transparently communicate these to those closest to them (Karbasi & Alavi, 2024). Their effectiveness partially relies on their drive to support others, guiding and advancing them while committing to employee wellbeing. Through self-regulation and self-awareness, authentic leaders are said to decrease negative behaviours by invoking trust and exhibiting ethical behaviour while also being able to inspire positive emotions (Baquero, 2023). Research also shows that a leader who can create secure and psychologically safe environments is more likely to enable trust and more secure attachments, thus prompting explorative and initiative behaviours which may lead to positive outcomes such as worker engagement (Byrne et al., 2017; Popper & Mayseless, 2003).

Baquero (2023) explains that authentic leaders are both motivated to and capable of developing their followers through their authenticity and ability to build positive cultures. It is plausible then to assume that authentic leadership influences employee behaviours and environments by providing information in the form of their own positive, honest, empathetic, consistent, and dependable actions, modelling how people should behave in, or experience, their work life. This coincides with emotion contagion theory which indicates that follower-centric leadership styles that places emphasis on dyadic communication between leader and

follower, and on followers' perspectives of their leaders, may be likely to influence followers emotionally with their actions (Snaebjornsson & Vaiciukynaite, 2016).

Korku and Kaya (2023) argue that one of the strengths of authentic leadership is that this type of leader, through their drive to increase wellbeing, will discover employees' talents and appoint them accordingly to the most beneficial positions for both the employee and the organisation. They explain that authentic leaders support staff innovation by creating trust, building strong relationships and cultivating optimism, resilience, and hope. Their study also revealed that authentic leaders positively framed employees' perception of corporate social responsibility, enhancing their feelings of meaningfulness.

Whilst Decuypere & Schaufeli (2020) take issue with the labelling of so many so-called 'positive leadership styles' (e.g. authentic, ethical, and transformational) due to their concerns regarding discriminant validity, they accept that their intended outcomes are distinct enough to compare with 'negative leadership' types. They, therefore, equally accept that although there are overlaps between leadership styles, and because their paper investigated the mechanisms of all styles and their effects on wellbeing, the differentiation between 'good' and 'bad' outcomes was enough for the purpose of their research. Similarly, this project aims to explore the mechanisms or the 'how' behind the well-documented relationship between leadership and engagement by measuring authentic leadership, conceptualised as a set of specific behaviours which are hypothesised to influence worker engagement via the identified pathways discussed in a later chapter. One of the most argued overlaps between leadership types is that between authentic and transformational, however differences in outcomes between the two have been documented (Korku & Kaya, 2023; Mansouri et al., 2024). The concept of authentic leadership was born from the transformational leadership construct and therefore it is unsurprising that there are similarities between the two. However, several studies have shown that authentic leadership may be more effective in eliciting certain

outcomes and behaviours. Korku and Kaya (2023) found that authentic leadership attributes of healthcare managers had a positive effect on innovative work behaviour, but they also found that the interactive effect when both types were included in the path analysis model produced the strongest effect. Although also sharing similarities with engaging leadership, Chaudhary (2021) presents another distinction between authentic leadership and other styles by contending that, unique to this style, authentic leadership *induces* authenticity in followers and encourages them to behave in accordance with their morals promoting greater meaningfulness.

Further critiques of authentic leadership come from debates over whether internal states such as self-awareness are antecedents to leadership rather than a component of leadership itself (Spector et al., 2025). In a more robust critique of authentic leadership, Alvesson and Einola (2024) quite dramatically oppose the conceptualisation of authentic leadership as a theory or construct, citing the overreliance on quantitative over qualitative studies investigating authentic leadership and the positioning of authentic leadership as unquestioningly 'good'. With specific reference to Helmuth et al's (2024) statement regarding authenticity requiring a resistance to external pressures, they argue that pure authenticity may be detrimental when a leader's own true desires do not align with team or organisational goals and culture. Overall, their concern appears to rest on the tendency for the field to explore and report on authentic leadership as universally positive leading to much of the literature lacking situational consideration, flexibility, and depth. Despite these critiques, experts are not arguing that authentic behaviour or authenticity should be dismissed. On the contrary even Alvesson and Einola (2024) agree that a shift in focus to actions may be a step in the right direction, admittedly also arguing that measured actions cannot distinguish internal authenticity. More optimistically, rather than writing the construct off entirely, Lux and Lowe (2024) indicate that the validity and usefulness of authentic leadership as a

measure requires understanding authenticity as a process that is fluid and is shaped by the environment, relationships, and context. They also strongly suggest that the effectiveness of authentic leadership relies on a leader's ability to signal their authenticity to influence their followers. This simple adjustment to the conceptualisation may eliminate many of the action vs. internal authenticity contentions and they encourage researchers to consider this possibility in future theoretical and psychometric development efforts.

The critiques mentioned are not completely unaligned with this study's position proposing that successful leadership relies on a holistic approach, that an authentic approach need not discount other methods, and its suitability will likely depend on the circumstance. Equally, this study relies on follower perceptions of observable leader behaviours and grants a higher level of credibility in employees' capability in identifying deception than the critics appear to. It also contends that faking authenticity would be difficult especially over long periods of time and therefore, this specific concern is likely to be less common than critics suggest. This is supported by Kashive and Raina (2024) who argue that followers are easily able to recognise surface acting. To conclude this section, this paper acknowledges the issues regarding overlap between leadership styles and measurement limitations but argues that for the purpose of this research, the use of the authentic leadership construct to determine possible explanatory processes related to specific observed behaviours is appropriate and justified.

**Authentic Leadership and Engagement**

While for many, the claim that leaders can substantially affect their employees' engagement is just stating the obvious, until recently research has not comprehensively addressed how or why this may be the case. Until organisations have a clear and thorough understanding of how and why leader behaviours affect worker engagement, leadership development will remain a confusing and unfocussed discipline for many organisations.

There are several prevalent theories exploring the relationship between engagement and leadership such as attachment theory, social contract theory psychological contract theory, emotional contagion theory, social exchange theory, leader-follower exchange theory, self-determination theory, and the job demands – resources theory (Baquero, 2023; Decuypere & Schaufeli, 2020; Robijn et al., 2020; Taylor et al., 2006). As speculated in Acuña & Male's (2024) paper and as argued by Decuypere and Schaufeli (2020), it appears likely that leadership affects worker engagement through several pathways requiring multiple theories to fully explain the phenomenon. This suggests that research investigating leadership and engagement should both approach the relationship with a holistic mindset which accepts the complex nature while at the same time making substantial efforts in unpacking the 'how's' and 'why's', for a deeper understanding of the mechanisms involved.

Social, psychological, and business literature has consistently demonstrated that not only are positive leadership styles significantly linked to engagement but also that many negative leadership styles are connected to decreased worker engagement (Bieńkowska & Tworek, 2023; Dudasova et al., 2024; Holtan et al., 2024; Muddle, 2020; Segers et al., 2010). There are, of course, contradictions to these findings such as the study conducted by Acuña & Male (2024) which found no relationship between toxic leadership and decreased engagement. However, they also highlighted unmeasured factors that may outweigh negative leadership such as vocation or employees valuing organisational outcomes rather than being driven by their leader, therefore maintaining high engagement regardless.

Decuypere & Schaufeli (2020) convincingly contend that leaders influence engagement through five pathways: practical, motivational, affective, cognitive, and behavioural, using the Job Demand-Resources (JD-R) theory, self-determination theory, emotional contagion theory, social exchange theory, and social learning theory to explain their position. They propose that there is a direct interpersonal process in which leaders are

capable of directly influencing engagement through behavioural, cognitive, and affective pathways. However, it is beyond the scope of this paper to investigate all pathways and therefore this research is focused on the two indirect pathways: practical and motivational. Decuypere & Schaufeli (2020) use the JD-R model to validate a practical pathway in which they propose that leaders are capable of diminishing demands and increasing resources to enhance engagement. They then also describe the second indirect, intrapersonal process by employing self-determination theory to explain how the effect of positive leadership styles on worker engagement are mediated by basic psychological need satisfaction via motivational pathways.

Authentic leadership has become increasingly linked with worker engagement in recent years (Basaran et al., 2020; Carasco-Saul et al., 2015; Decuypere & Schaufeli, 2020; Hsieh & Wang, 2015; Mabekoje et al., 2016; Towsen et al., 2020). Research has shown that authentic leaders increase worker engagement through their ethical behaviour and openness, therefore gaining employee trust and in turn their job commitment (Hsieh & Wang, 2015). Equally, Wu et al. (2023) present evidence of links between perceived organisational support and organisational commitment, worker engagement and job satisfaction. They argue that employees constantly evaluate their workplace environment and levels of support to assess if the organisation is meeting their need for affiliation, approval, and self-esteem. Wu et al. (2023) argue that the degree to which workers feel supported is positively correlated with how obligated workers feel in helping their organisation reach its goals.

Exploring the effects of fake leadership on job performance and organisational reliability, Bieńkowska and Tworek (2023) used authentic leadership as a positive alternative to fake leadership in their research and emphasise the importance of intraorganisational trust in shaping working environments. They describe fake leadership as an ingenuine, dishonest, and selfish leadership that usually includes anti-organisational and/or anti-employee

behaviours. Their study found that fake leadership induced low levels of trust which had a negative effect on performance and that authentic leadership induced high levels of trust which had a positive effect on worker engagement through which performance was increased. As a temporary and dynamic feature, trust can be strengthened, sustained or it can be weakened, undermined or destroyed. Furthermore, central to human interactions and so fundamental to the functioning of an organization, intraorganizational trust including leadership trust is an essential cog in organisational success. Bieńkowska and Tworek's (2023) results provide evidence that trust is instrumental in dictating the degree of influence that a leader has on their reports.

As most leadership models are evolving steadily away from 'great man' theories of leadership, organisations are encouraged to adopt more follower-centric and collaborative approaches in which leaders need to be flexible, open minded, and honest about their strengths and weaknesses (Flynn & Herrington, 2016). Based on the literature reviewed, it is argued here that when leaders are perceived as more authentic, worker engagement will be higher than less authentic leaders.

***H1:*** *There will be a significant and positive association between authentic leadership and worker engagement.*

# Chapter 4: How Basic Psychological Need Satisfaction and Psychological Capital Relate to Worker Engagement

Having already introduced the JD-R model and self-determination theory in the theoretical foundations chapter, this chapter discusses how psychological capital and basic psychological need satisfaction are hypothesised to reveal distinct practical and motivational pathways that help explain the relationship between authentic leadership and engagement.

## Psychological Capital

Conceptualised as a valuable resource, Psychological Capital (PsyCap) describes an individual's positive psychological state or state of development (Dudasova et al., 2024). It is characterised by resilience, self-efficacy, optimism, and hope, and has shown to act as a protection against negative psychological effects while acting as a mediator between perceived social support and worker engagement (Dudasova et al., 2024). Possessing the confidence required to complete difficult tasks, the sense to adjust actions for more beneficial outcomes, the belief in positive future outcomes, and the ability to bounce back or advance may all be considered personal assets (Luthans & et al., 2007). As organisations are still largely reliant on human input and output, these personal resources may equally be observed as organisational assets.

Although copious empirical research has determined clear distinctions between the four components of PsyCap, the constructs relate and connect to each other in a highly beneficial manner. Sweetman and Luthans (2010) explain that while both self-efficacy and optimism help individuals believe in positive outcomes, optimism can lead to an unrealistic belief in ability whereas self-efficacy is built from task mastery and evidence of one's ability. Therefore, while optimism helps improve one's outlook on success, self-efficacy offers a more evidence-based grounding effect. Similarly, while optimism, hope, and self-efficacy help build positive perspectives through motivation, resilience enables perseverance and

adaptability during unplanned adversity. Therefore, someone high in all four will be both motivated and adaptive. Confident people may also be more capable of applying optimism, resiliency, and hope to their roles, and optimistic explanatory styles may be better developed through controlled perceptions from hope, resilience, and self-efficacy. (Luthans et al., 2007). This interconnected nature of PsyCap and work environment or situation fluctuations adds weight to the argument that the strength and benefits of PsyCap as a whole are dependent on all four of its constructs.

**Psychological Capital and Worker Engagement**

Remembering that engagement is characterised by vigour, absorption, and dedication, we will now take a look at how the different components of PsyCap may build worker engagement through these elements in unique ways.

Resilience was traditionally referred to as the ability of an individual to be able to recover from, adapt to, or withstand adversity or failure but now may also be used to describe one's ability to deal with increased responsibility and progress (Luthans et al., 2007). Along with requiring hope, optimism, and self-efficacy, Youssef and Luthans (2007) highlight that resilience equally depends on self-reliant motivating processes and mechanisms that can affect work qualities and performance. Although commonalities exist between optimism, hope, and resilience, they also point out that important differences also exist. Resilience allows individuals to take reactive and proactive measures when faced with difficulty. They explain that someone high in resilience will react to adversity by recognising that the event has the potential to cause trauma or setbacks for even the most optimistic and hopeful people and will, therefore need to be able to bounce back. This recognition provokes investment in the rebound or recovery enabling them to return to their equilibrium. Proactively, a highly resilient person will use these adverse experiences as opportunities to grow and advance beyond their initial equilibrium. For these reasons, Youssef and Luthans (2007) claim that

resilience is unique in that it values risk factors in a positive light, when they may otherwise be considered as threats that decrease the chance of positive outcomes or increase the chance of negative ones. Furthermore, they claim that the focus of resilience incorporates adaptive mechanisms and processes that sets it apart from optimism and hope. Chen et al. (2024) found that an employee's level of career adaptability was positively associated with worker engagement. Although analysing the moderating effects of job insecurity on the relationship between person-organisation fit and engagement, they also present convincing evidence that adaptability is an important buffer against demands. Whilst optimism and hope work best with set plans, resilience allows improvisation and flexibility and so still functions in unexpected situations. In other words, resilience may prevail despite the circumstances.

Whilst many studies have found positive associations between resilience and worker engagement (Ibrahim & Hussein, 2024; Nantsupawat et al., 2024), others have found no association (Meintjes & Hofmeyr, 2018; Saleem et al., 2022). An explanation for these differences in findings may be explained by returning to the definition of resilience and *when* it becomes relevant in work settings. Sweetman & Luthans (2010) explain that because PsyCap is thought to represent a pool of psychological resources which an individual may draw upon as varying situations require, resilience may only be required during difficult times and/or for specific durations for individuals to return to psychological equilibrium. That is to say that when there is low stress or during less challenging times, employees would not need to draw upon resilient behaviours to remain engaged and so measures of the relationship between resilience and worker engagement taken during these times could produce no evidence of association. However, there has been a recent increase in job insecurity, economic volatility, and uncertainty in the fast-evolving contemporary employment environment across the globe (Chen et al., 2024). In New Zealand, Massey University (2024) recently published an article on Professor Jarrod Haar's, Ongoing Wellbeing@work research

in which 2024 data reveal that the percentage of people surveyed who perceived their jobs as under threat rose 26.4% from December 2023 to April 2024. Therefore, it is argued that resilience, or the ability to cope, thrive and adapt, is vital for employee performance and wellbeing in these uncertain times. Essentially, during more stressful times, the resiliency buffer may protect individuals from high demands, reduce stress reactions or perceptions of stressors, and reduce the chances of disengagement (Sweetman & Luthans, 2010). Equally, resilience is argued to assist in the recovery from past stress or reverse negative effects of previous demands. Sweetman and Luthans (2010) continue to explain that because the requirement for resiliency can fluctuate quickly and levels of this state-like resource need recharging or replenishing, development and recovery of the state directly affect emotional energy. Furthermore, as a core component of engagement, and intrinsically linked with resilience, vigour is characterised by high energy and thus, resilience has the capability of increasing worker engagement through both absorption and dedication but largely through vigour. Therefore, it is likely that resilience is situation-dependent and assuming very few work environments are always free from challenges, is considered an important resource for maintaining consistently high worker engagement in combination with the other three PsyCap components. There may also be room to speculate that a person with higher resilience levels may experience less fluctuation in worker engagement as resilience helps keep those levels constant throughout times of stress.

Nagoji and Mackasare (2023) contend that optimism has a causal relationship with engagement because of the optimistic individual's tendency to predict positive results. They state that optimistic people tend to observe events and things in a positive light and have a propensity to trust that outcomes will be positive or even beneficial, especially in times of uncertainty. This, they speculate, leads to more optimistic individuals being better psychologically equipped and making themselves more accessible for tasks. When work

demands are high, individuals often experience increased cynicism and feel like they have a lack of control (Sweetman & Luthans, 2010). That being the case, one of the ways that optimism can increase worker engagement is by counterbalancing these feelings and increasing dedication by affording a higher sense of control over demands. Equally, because it has been shown that an individual's explanatory style is directly related to their level of optimism, people with high levels of optimism are more likely to find explanations for stressors from external sources rather than believing they are due to their own inadequacies (Seligman, 1991; Sweetman & Luthans, 2010). Furthermore, through the expectation of positive outcomes, optimism increases psychological availability and so the optimist is more likely to become absorbed in a task and thereby experience higher levels of engagement (Kahn, 1990).

As a positive motivational state, hope is said to be defined by how an individual thinks about their goals and their motivation to achieve them (Bellamkonda & Pattusamy, 2024). Rather than an emotion, Snyder et al. (1991) discusses hope as a motivational, cognitive process centred around goal perception. They conceptualise the way to achieve goals as pathways and the desire to achieve them as agency. More precisely, they explain that hope is developed from a sense of agency, referring to successfully identifying goals and the availability of pathways to achieving them. If an employee experiences many positive events in the workplace, there is an increased chance they will believe they are capable of creating effective goal pathways, encouraging engagement in their work (Bellamkonda & Pattusamy, 2024). A highly hopeful person will have several goal pathways (Sweetman and Luthans, 2010). Furthermore, hope is distinguished from optimism by this element of pragmatic execution as opposed to optimism which only involves the expectation of favourable outcomes. It is suggested that through agency and motivational pathways hope increases worker engagement by increasing energy for vigorous dedication towards work goals.

A meta-analysis conducted by Stajkovic and Luthans (1998) revealed strong evidence of self-efficacy being a significant psychological tool for cultivating high performance at work. There is now consensus between experts and a plethora of research showing that self-efficacy is a precursor to vigour, absorption, and dedication (Rai et al., 2022). Sweetman and Luthans (2010) propose that vicarious learning, positive feedback, social persuasion, and task mastery are core components for building self-efficacy and are all relevant for increasing and sustaining worker engagement. In their research, Rai et al. (2022) found that self-efficacy fully mediated the relationship between work challenges and engagement and speculate that self-efficacy helps explain the underlying mechanisms between the two. They argue that challenges (a job demand), under the right circumstances may build self-efficacy and consequently increase worker engagement. Expanding on this concept, their results show that when challenges motivate employees to set and pursue goals, and when employees experience success in overcoming them and learn how to deal with future challenges, they are fulfilling all three components of worker engagement. Sweetman and Luthans (2010) explain that through achieving mastery by successfully dealing with a challenge, employees become more absorbed in reaching their goal. They argue that learning that they are capable of achieving their goals builds confidence and the expectation that future challenges can be overcome, meaning they put more effort into task completion (vigour). Finally, they posit that individuals high in self-efficacy from encouragement or proof of past successes due to their own inputs are likely to identify personally with their achievements and therefore become more dedicated to the task at hand.

The arguments provided in this segment strongly suggest that there is an important relationship between PsyCap and engagement and more precisely that PsyCap positively relates to worker engagement.

***H2:*** *There will be a significant and positive association between psychological capital and worker engagement.*

**Authentic Leadership and Psychological Capital**

PsyCap conceptualised as an intrinsic quality has been shown to have moderating effects on leadership outcomes such as moderating the positive effect of ethical leadership on employee success (Yazdanshenas & Mirzaei, 2023). However, other research has indicated that leader behaviours such as openness, encouraging follower participation, and encouraging others to do the same builds employee PsyCap which then mediates the relationship between leadership style and positive follower behaviours (Zhang et al., 2023). Similarly, Luthans et al. (2007) contend that PsyCap traits are learnable rather than a quality ingrained in extraordinary people and that there are several approaches available to organisations wishing to increase employee PsyCap. In contrast, Sharma and Afroz (2024) contend that PsyCap is both inherent and able to be cultivated.

Although research in the development of PsyCap is gradually progressing, there is still a lack of literature on the antecedents of the construct, specifically on some of its components such as self-efficacy (Rai et al., 2022). The strategies that have shown to assist in increasing individual PsyCap include asset-focused processes such as building knowledge, skills, or support. Risk-focussed strategies may also be employed to address and/or reduce stress, conflict, or ineffective leadership (Youssef & Luthans, 2007). Additionally, process-focused strategies that combine assets and risk strategies to provide coping mechanisms to overcome adversity may also be an effective option for organisations. Furthermore, positive emotions, which are susceptible to many external factors, are highly involved with building or reducing psychological resources. Many of these factors and organisational strategies are likely dependent on leadership to create environments conducive to positive outcomes and reliant on them for the facilitation of such processes.

Whilst clearly employee PsyCap should be considered of benefit to organisations, many leaders still exhibit behaviours that have shown to decrease PsyCap. For example, exploitive leaders who behave egoistically, undermine employees, take credit for others' work, place unjustified pressure on employees, and stunt employee development, have been shown to decrease employee PsyCap (Elahi et al., 2024). Other destructive leadership styles such as abusive leadership encompassing behaviours such as aggression and humiliation are also said to reduce PsyCap. Similarly, exploitative leadership entails a two-fold problem. Drawing on conversation of resources theory, not only do employees experience diminished PsyCap when exposed to exploitive leadership but Elahi et al. (2024) found that this phenomenon caused a hoarding of knowledge meaning that resources were not shared or utilised which in turn limits the employee psychological resources extended to the organisation.

As previously mentioned, many positive leadership styles have been extensively linked to increased PsyCap. Kashive and Raina (2024) use emotional contagion theory and affective process theory to explain the positive relationship between transformational leadership and PsyCap. Their findings support the hypothesis that the individualised consideration and inspirational motivating behaviours of transformational leaders increase PsyCap via emotional transference enabled by emotional regulation and expression. The emotional regulation aspect of the process is stressed as an important one as emotions are subject to the interpretation of the individual they are displayed to, so the emotion transferred will be that which is perceived rather than, in some cases, the one intended. They highlight that surface acting (or faking emotions) is easily recognisable to followers and that deep acting (or genuine attempts to experience the emotion) is more likely to appear to the follower as authentic. The authentic perception by followers is deemed crucial in the transfer of positive emotions and therefore a non-negotiable in the affective process. Ashforth and

Humphrey (1993) assert that 'natural' emotions are at times, socially inappropriate to the situation and they rarely match the desired emotional display (referred to as emotional labour) required to conform to societal rules. This notion, however, gives rise to the question of whether organisations should really be searching for emotionally intelligent authentic leaders to boost PsyCap, as they naturally display the emotions they are genuinely feeling *and* usually meet the positive emotion expectations of followers because they have an honest attachment to their work. Furthermore, it could be assumed that when authentic leaders at times do not display the expected positive emotions, they are displaying honesty and humanness and consequently building further trust from their followers.

The positive correlation between authentic leadership and PsyCap has been comprehensively documented (Avey, 2014; Brunetto et., 2024; Kong et al, 2018; Luthans et al., 2007; Yollu & Korkmaz, 2024). This line of reasoning lends itself to the idea that investment in leadership development from a positive psychological perspective is likely highly advantageous for organisations and leaders should not just be developed in terms of technical ability. The ethical and supportive attributes along with the emotional awareness and self-regulation of authentic leaders are said to empower employees and build personal resources such as PsyCap (Brunetto et al., 2024). Interestingly, Luthans et al. (2007) argue that leaders who are more authentic and have high PsyCap are more likely to build PsyCap and specifically resilience in their followers. Building leader's own psychological resources means they would then be capable of building resources in their followers, producing a cascading effect of PsyCap throughout the organisation. These arguments form the basis for hypothesis 3 stating that authentic leadership is positively associate with PsyCap.

**H3:** *There will be a significant and positive association between authentic leadership and psychological capital.*

**Authentic Leadership and Basic Psychological Need Satisfaction**

According to self-determination theory, when the environment supports and builds autonomy, competence, and relatedness, psychological needs will be satisfied, and leadership support is an important element in creating these environments (Deci & Ryan, 2000). By providing meaningful feedback non-manipulatively, encouraging positive workplace behaviours through genuine interactions, and acknowledging employee perspectives, authentic leaders are capable of increasing their employees' need satisfaction (Deci et al., 2001). The non-manipulative approach may be a particularly important one in successfully building employee need satisfaction. Berkovich and Gueta (2022) found no overall relationship between teachers' authentic leadership and their pupils' need satisfaction and found a negative association between male authentic leaders and pupils' need satisfaction. However, the context of this particular study was an educational environment with at-risk youth, and the researchers believe the negative relationship was a result of the speculated tendency for the male leaders to assume a more controlling manner which breaks the link between authenticity and need satisfaction. Therefore, it is likely that several other factors that were not a part of general working environments, including that the 'followers' were not employees but at-risk students, interfered with this process. It could also be argued that any controlling behaviours exhibited from leaders means that they were not truly practicing authentic leadership. The authors also caution that they used self-reports for measuring authentic leadership and that, unlike other styles of leadership, self-report ratings and follower-report ratings for authentic leadership have not yet been established as comparable.

Concerned with leadership behaviour rather than any specific leadership type, Schaufeli (2021) speculated that engaging leaders have the opportunity to satisfy their employees' basic psychological needs by strengthening, connecting with, and empowering them. Schaufeli explains that when leaders give their employees responsibility and allow

freedom within their role to complete tasks in a way that works for them, leaders are satisfying the basic need for autonomy. Equally, if leaders can boost or provide meaning to a role through their own behaviours such as valuing employee contributions or connecting their work to a bigger purpose, they may be increasing motivation through meaningfulness. In presenting this argument, Schaufeli provides examples of leadership attributes similar to those of authentic leadership that may contribute to satisfying employees' need for competence, such as strengthening skillsets and trusting them with increased responsibility, so they feel more capable. He also identifies leader conduct that creates feelings of connectedness including instigating team building and displaying positive leader behaviours while encouraging followers to behave in a similar manner.

Some studies indicate that the self-determined nature of authentic behaviour in of itself satisfies psychological needs (Leroy et al., 2015; Schoofs et al., 2024). Following the earlier argument that authentic leaders develop followers by demonstrating open, honest, self-awareness, clearly communicating their ideals, and balanced information processing, it is predicted that authenticity develops authentic followers who are able to, at least in part, satisfy their own needs. In short, this type of leader leads by example and creates authentic followers through their own authenticity. Via this method alone, we should expect to see an increase in need satisfaction as followers become more authentic by means of influence from their authentic leaders. This is demonstrated in Leroy et al.'s (2015) research investigating the relationship between authentic leadership and need satisfaction via surveying 30 leaders and 252 followers. They determined that in terms of authentic leadership, need satisfaction was determined by the synergistic relationship between leader and follower, a core component of this type of leadership. Therefore, based on the discussed evidence, it is hypothesised that followers' perception of leader authenticity will be positively related to employee basic psychological need satisfaction.

**H4:** *There will be a significant and positive association between authentic leadership and basic psychological need satisfaction.*

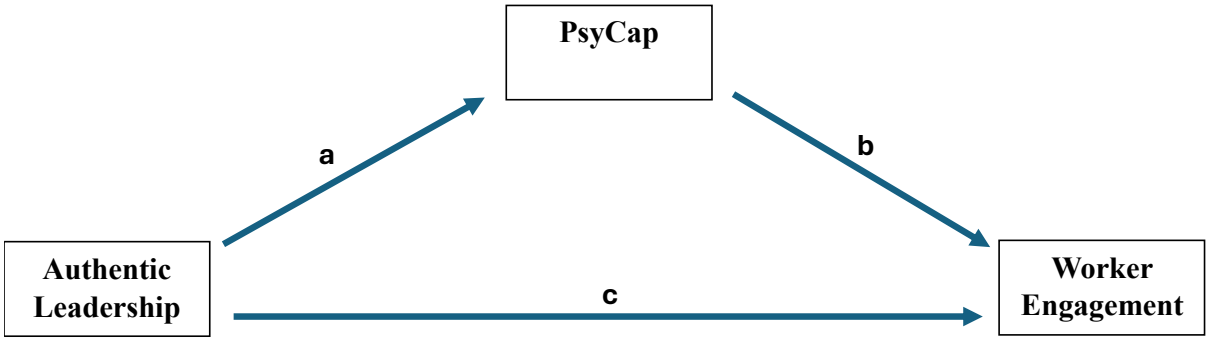
Having now proposed direct links between authentic leadership and worker engagement, between psychological capital and worker engagement, and between authentic leaderships and need satisfaction, the following chapter proposes an explanatory and sequential link between these constructs.

# Chapter 5: The Sequential Mediation Between Authentic Leadership and Worker Engagement

As already mentioned, authentic leadership may be capable of instigating motivational pathways that would help explain its positive association with worker engagement. This research explores the possibility that this pathway is not a completely direct one. The hypothesised serial mediation model posits that need satisfaction will partially mediate the relationship between authentic leadership and Psychological Capital (PsyCap), and PsyCap will partially and sequentially mediate the relationship between need satisfaction and worker engagement.

Although traditionally leadership has been observed purely as a resource in the form of support, leaders are often able to directly and indirectly control many resources and demands so it can be argued that leadership has a much more pivotal role in the Job Demands-Resources (JD-R) model (Decuypere & Schaufeli, 2020; Robijn et al., 2020). Lambert et al. (2010) second this notion, stating that job demands may be reduced by the instrumental support from supervisors who are also often able to increase resources. Furthermore, Lee et al. (2024) provide evidence that group level factors such as leadership likely govern the experience of job demands through social information processing and therefore shape behaviours and attitudes such as engagement. Therefore, the first predictor in the hypothesised mediation model is authentic leadership which, as argued in chapter 4, is believed to increase PsyCap. Serrano and Reichard (2011) show that personal resources can partially mediate the positive relationship between engaging leadership and worker engagement. To initially break down the final model, figure 1 displays a simple mediation in which authentic leadership positively predicts worker engagement through PsyCap.

**Figure 1**
*Simple Mediation Showing Authentic Leadership Predicts Worker Engagement Through Psychological Capital*




*Note. PsyCap = psychological capital.*

Serrano and Reichard (2011) further posit however, that there are four pathways for leaders to increase worker engagement: provide motivating and meaningful work, support and guide, facilitate relations within teams, *and* increase personal resources. While not challenging this position directly, this study is more in line with Mazzetti and Schaufeli's (2022) theoretical argument stating that leadership can increase PsyCap *through* a leader's ability to support employee freedom and responsibility, inspire, and connect with their followers. An authentic leader may thereby satisfy the psychological need for autonomy, competence, and relatedness as a pathway to PsyCap. Their results from a longitudinal study involved collecting data at two time points from 1048 employees to analyse the relationship between engaging leadership and worker engagement through personal resources and the relationship between engaging leadership and worker engagement through team resources. It revealed that personal resources partially mediated the positive relationship between engaging leadership and worker engagement, but they theorise that need satisfaction explains the increase in resources. This study intends to test this. Current evidence clearly suggests that authentic leadership has a positive association with worker engagement through PsyCap, but this study aims to break it down further by introducing another mediator into the model.

Van Den Broeck et al. (2008) found that basic psychological need satisfaction had a mediating effect on the positive relationship between resources and engagement, and need frustration mediated the negative relationship between demands and engagement in their sample of a diverse group of employees. Therefore, they provide additional evidence that worker engagement may be predicted by resource and demand allocation as hypothesised in the JD-R model while also reinforcing the argument that need satisfaction and need frustration play an important role in fostering or inhibiting engagement. Furthermore, they also found the negative correlation between resources and exhaustion was fully explained by need satisfaction, whereas the positive correlations between job resources and vigour, and between job demands and exhaustion, were partially explained by need satisfaction and frustration respectively. They suggest that sufficient resources lead to feelings of competence, autonomy, and belongingness which explains why they feel more vigorous in their work and less exhausted. Based on these results Van Den Broeck et al. (2008) also conclude that self-determination theory successfully assists in explaining those relationships because need satisfaction affects the motivational and energy depleting processes. They believe that by supporting need satisfaction, motivation is optimised increasing vigour whereas, frustration of the basic psychological needs will likely undermine that motivation.

Adding weight to the argument that need satisfaction plays a mediating role between leadership and engagement, Holtan et al. (2024) found indirect associations between an autonomy-supportive leadership style and nurses' worker engagement through need satisfaction and sequentially, intrinsic motivation. They also found indirect negative correlations between controlling leadership and worker engagement albeit with slightly weaker associations between controlling leadership and need frustration than they observed between autonomy-supportive leadership and need satisfaction. They did, however, find a stronger association between need frustration and amotivation which had an equally strong

negative association with worker engagement as the positive relationship between intrinsic motivation and engagement. Overall, their research provides further evidence that leaders are capable of strongly influencing whether employee needs are met which in turn effects their motivational regulation.

Capozza et al. (2023) conducted an experimental study with university students to test the basic propositions of the JD-R model which validated the framework whilst also providing some interesting links to self-determination theory. Firstly, their results again support the hypotheses that resources are positively linked with engagement, and demands are negatively associated with engagement. Secondly, they reinforce Van Den Broeck et al.'s (2008) work which revealed that resources instigated motivational processes via need satisfaction which bolstered engagement. Similarly, they also found that need satisfaction had a mediating effect on the negative relationship between resources and exhaustion, while need frustration mediated the relationship between demands and engagement by exacerbating the energy depleting process.

Specific relationships have also been examined between job resources and the components of need satisfaction. Jansen in de Wal et al. (2020) found positive correlations between transformational leadership as a resource, and autonomy and relatedness in their research exploring the effect of demands and resources on teachers' learning commitment. They also found that task autonomy as a resource was positively correlated with competence and autonomy. Equally, Capozza et al. (2023) reveal a direct positive relationship between resources and relatedness, autonomy, and competence, while demands were found to have a direct negative correlation with competence and autonomy. Finally, although beyond the scope of this analysis, cross-sectional research by Geldenhuys et al. (2014) and Robijn et al. (2020), specifically supports the notion that psychological meaningfulness, identified as a

fourth need in self-determination theory, mediates the relationship between social resources and worker engagement.

In their research conducted on mining employees in South Africa, Towsen et al. (2020) present evidence that authentic leaders increase worker engagement by enabling empowerment in their employees. Psychological empowerment, they explain, is comprised of four cognitions: self-determination, impact, meaning, and competence. Closely aligned with self-determination theory, the psychological empowerment model suggests that empowering employees requires providing them with more meaning in their work, making them feel more capable and self-motivated, and allowing them to work more autonomously to achieve outcomes. Empowerment then opens up intrinsic motivational pathways that can lead to increased engagement. Positioning authentic leadership as a job resource and psychological empowerment as a personal resource, they found that authentic leadership was positively correlated with worker engagement through psychological empowerment. This research of course, reinforces the argument that authentic leadership may increase worker engagement through motivational pathways. However, of particular interest to this study's hypothesis development and methodology, they also discuss results from Mabekoje et al.'s (2016) study which revealed significant positive relationships between psychological empowerment and relatedness, autonomy, and competence. This indicates that the psychological empowerment scale may be, at least in part, measuring need satisfaction. This is a logical assumption given that basic psychological need satisfaction, as a requirement of self-determination, is generally assumed to be comprised of competence, relatedness, autonomy, and arguably, meaningfulness. Regardless, Towsen et al. (2020) provide more evidence that self-awareness, transparency, awareness of the impact that actions have on others, and the inclusive nature of authentic leaders enables motivational pathways through trusting relationship with employees which in turn positively impacts worker engagement.

While some researchers argue that resources can increase need satisfaction (Rahmadani et al., 2020; Van Wingerden et al., 2018), many of these studies measure resources in the form of person-job fit, improved feedback, opportunities for development, and skill use rather than personal psychological resources. Or, in the case of Elbers et al.'s (2023) research investigating the relationship between the dark personality traits of leaders and needs satisfaction, PsyCap was shown to mediate the relationship but was conceptualised as an intrinsic trait. Therefore, the sequencing may be dependent on the type of resource and the context in which it is described. Other studies such as Verleysen et al. (2015) and Maunz et al. (2024) have found that need satisfaction is an antecedent to PsyCap or that authentic leadership directly affects need satisfaction (Schoofs et al., 2024). This study is concerned specifically with PsyCap conceptualised as a learnable resource and therefore, the hypotheses are based on previous research suggesting authentic leadership can support basic psychological need satisfaction which cultivates PsyCap. However, the research into need satisfaction as a nurturing influence on PsyCap is currently lacking (Maunz et al. 2024). The reality may in fact be, that defining the relationship between need satisfaction and PsyCap is not a sequentially simple one. The synergy between the two constructs needs to be more extensively explored specifically via deeper investigations into the possibility of a bi-directional relationship. As discussed however, there is ample evidence to justify the mediation sequencing specified in this study because it is hypothesised that authentic leadership enacts a supportive social context that may build employee's PsyCap as suggested by Mazzetti and Schaufeli (2022).

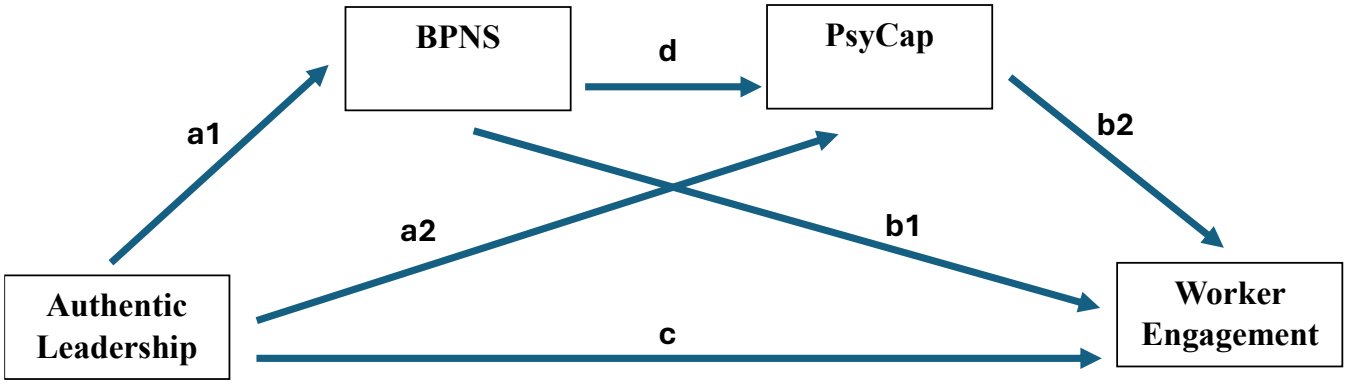
Mazzetti and Schaufeli (2022) and Leroy et al. (2015) argue that the causal pathways between leadership and engagement are grounded in self-determination theory, but they do not include need satisfaction as a measured variable in their studies. This study aims to specifically measure the need satisfaction construct in a serial mediation model to explore the

potential for a more comprehensive and accurate pathway from authentic leadership to worker engagement as shown in Figure 2.

**Hypothesis 5:** *There will be a significant and positive association between basic psychological need satisfaction and psychological capital.*

***Hypothesis 6:*** *Basical psychological need satisfaction and psychological capital will sequentially mediate the relationship between authentic leadership and worker engagement*

**Figure 2**
*Proposed Mediation Model*




*Note:* The model shows the hypothesised mediation sequence in which basic psychological need satisfaction and psychological capital serially mediate the relationship between authentic leadership and worker engagement.
BPNS = basic psychological need satisfaction; PsyCap = psychological capital

# Chapter 6: Neuroticism as a Moderator

Research investigating the effects of personality traits on worker engagement is still lacking (Kim et al., 2009). However, there has been an increase in current years, and evidence is building to provide evidence that neuroticism has a significant negative effect on worker engagement whether that be directly or indirectly (Fukuzaki & Iwata, 2024; Kim et al., 2009; Langelaan et al., 2006; Vachhrajani et al., 2022). In line with this notion, Kahn (1990) identified availableness, meaningfulness, and safety as three psychological conditions related to worker engagement but conceded that personal characteristics may affect how an employee experiences these conditions and that this would therefore affect their levels of engagement.

Personality traits have been defined as enduring "dimensions of individual differences in tendencies to show consistent patterns of thoughts, feelings and actions" (McCrae & Costa, 1990, as cited in McCrae & Costa, 1995, p. 235). The five-factor model presents neuroticism, conscientiousness, extraversion, agreeableness, and openness to experience as basic personality dimensions (Costa & Widiger, 2002). Distinct from moods or states, personality traits are relatively stable and enduring, can interact with many life experiences and can directly or indirectly influence wellbeing, occupational performance and choice, and the quality of relationships (Blatný et al., 2018).

Neuroticism is described as the inclination to feel, perceive and/or construct reality as threatening or problematic and describes the ease with which an individual experiences negative emotions such as anger, anxiety and sadness (Fukuzaki & Iwata, 2024; Rolland, 2002). The propensity for neurotic individuals to be moody, fearful, anxious, defensive, and tense means their limbic system becomes overwhelmed easily when exposed to stressors or demands (Vachhrajani et al., 2022). As a result, highly neurotic people often perceive ordinary events as threatening or experience demanding events as more threatening and tend

to have a more pessimistic outlook than those with lower levels of neuroticism. Fukuzaki and Iwata (2024) found that neuroticism moderated the relationship between workplace environmental factors and worker engagement in a sample of full-time workers in Japan. They believe this was attributable to the fact that people with higher levels of neuroticism were more likely to perceive stressors as threats or have negative emotional reactions towards them, weakening any positive worker engagement relationships with demands. Similarly, research findings indicate that neuroticism has a positive association with negative job demands (Bakker & Leiter, 2010). To cope with the strain, employees distance themselves from high-strain tasks and situations and therefore reduce their levels of absorption, vigour, and dedication (Vachhrajani et al., 2022).

Interested in individual engagement variability, Tewfik et al. (2024) explored the moderating effects of emotional stability on the relationship between worker engagement and performance. They contend that emotional stability should affect the relationship between worker engagement and performance because people with low emotional stability will be less likely to have become efficient in allocating resources. Following this logic, higher neuroticism i.e. emotional instability, should decrease a worker's ability to utilise resources, and so in the proposed model in which PsyCap is considered a resource, this would suggest that PsyCap, even if high, will not be utilised efficiently or consistently to increase worker engagement. Following the same logic, it is hypothesised that neuroticism will also decrease the strength of the hypothesised relationship between authentic leadership and worker engagement. Figure 3 shows the moderation model for hypothesis 7 and Figure 4 shows the moderation model for hypothesis 8.

**H7.** *Neuroticism will moderate the relationship between authentic leadership and worker engagement so that the positive relationship between authentic leadership and worker engagement will be lower for those with high levels of neuroticism.*

**H8.** *Neuroticism will moderate the relationship between psychological capital and worker engagement so that the positive relationship between psychological capital and worker engagement will be lower for those with high levels of neuroticism.*

**Figure 3**

*Moderation Model for Hypothesis 7*

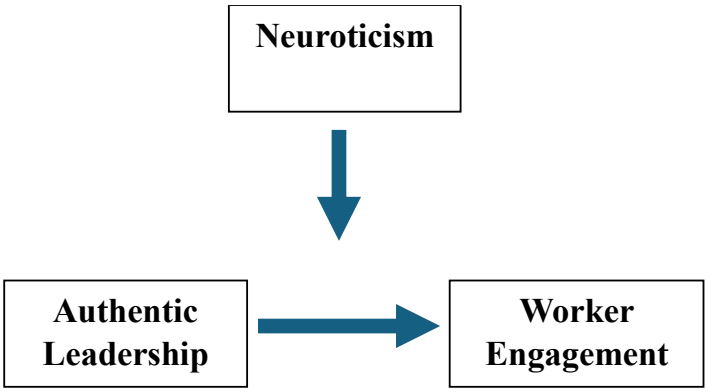
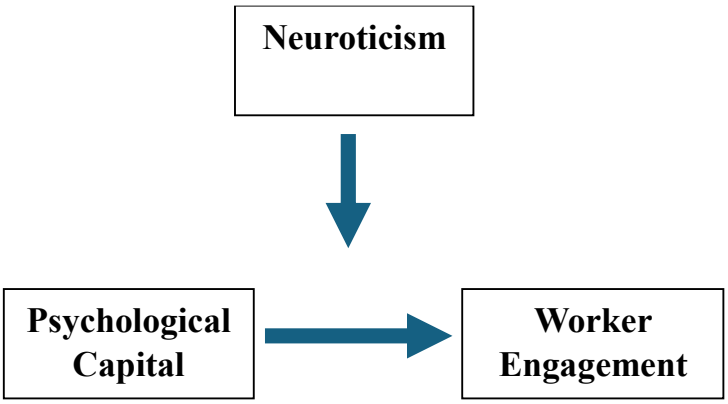



**Figure 4**

*Moderation Model for Hypothesis 8*



# Chapter 7: The Model in Law Enforcement, Emergency Services, and Military Sectors

Although historically the fields of military, emergency services, and law enforcement have been dominated by strongly authoritarian or controlling leadership, there have been large shifts in leadership models recently within these sectors as research has pointed towards alternative approaches (Flynn & Herrington, 2016; Wankhade & Murphy, 2023).

Davis and Bailey (2018) highlight the complexities of the contemporary policing environment which along with resourcing and financial pressures mean that leadership in law enforcement is an exceptionally complicated concept and comes with significant challenges. Using one example, they discuss the known benefits of shared leadership and decentralisation as exemplified by a US police department that experienced improved employee motivation, communication, and employee relations from the shift in leadership style. They also bring to light however, that more collaborative styles of leadership face considerable difficulties within hierarchical structures, such as the strain placed on training and working practices, and the reliance on the commitment and support by leadership from upper ranks. However, it is the very nature of hierarchical structures that makes leadership such an important factor. Stowers (2026) found that leadership was a critical component of the jail system that often mirrors the military-style emphasis on structure and obedience. Of equal importance were his findings on the need for leaders to be able to adapt, build self-efficacy, and role model desired behaviours to manage the many challenges within these structures such as burnout, public scrutiny, and communication.

Uncertainty is an accepted aspect to many roles in emergency services and military sectors due to the nature of the work regardless of whether staff work on the frontline or behind the scenes. Metwally and Ruiz-Palomino (2022) argue for the importance of ethical leadership behaviour during times of uncertainty to help employees maintain a positive outlook and preserve credibility in their leader. Authentic leadership has strong ethical

foundations and so in this respect, this style of leadership will likely provide this form of support. They also contend that effects of the Covid pandemic and the increased risk of mental illness in the military due high exposure to trauma increases the need for positive styles of leadership. Trust, honesty, communication, and support modelled by an ethical authentic leader along with their ability to motivate employees to see uncertainty as opportunity enables followers to thrive during turbulent times. Therefore, the increase in job insecurity and the volatility of the global financial market (Chen et al., 2024; Massey University, 2024; Yan et al., 2023), along with the fact that many employees within these fields are frequently exposed to trauma, necessitates the development of leaders who incorporate these characteristics. Although many roles within these sectors benefit from higher levels of job security (e.g. sworn police officers), the indirect effects of these factors will likely still have a large influence on their day to day working lives as organisational structures change, resources are stretched, and family members may be affected.

With consideration of the many complexities involved within these disciplines, it becomes clear that no one leadership style will be appropriate in all situations (Hungerford & Cleary, 2021). Leaders must have a broad leadership skillset (Flynn & Herrington, 2016). Furthermore, considering the multiplex organisational structures and rapidly changing environments encompassing everything from critical incidents through to wellbeing management, leaders are very unlikely to have all the answers at all times as more authoritarian models would suggest. Flynn and Herrington (2016) believe that failure of leadership in these fields is often driven by leaders attempting to use management solutions for leadership problems. They explain that management problems have fixed solutions or a set of solutions in which authority can be used to solve the issue. In complex environments however, problems can be intricate and require leaders to draw from different sources, seek others' expertise, and engage followers to find a solution. In favour of genuine leadership,

Flynn and Herrington's (2016) explore leadership in policing environments, and call for a shift away from authoritative leadership in which 'faking expertise' is a common phenomenon. They explain that in these working environments a leader very likely does not have all the answers and must often rely on the expertise of their team in order to achieve optimal results. Additionally, the use of authoritative leadership or exhibiting authoritative expertise in these industries has been consistently praised and rewarded throughout history and has often been necessary to move through the ranks. Of course, the negative impact of pretending to know all the answers when one does not can be extreme. Often under this form of leadership ineffective solutions will be utilised, solutions left unsolved, and followers will lose trust when leaders inevitably lose their credibility which frequently leads to poor performance (Bieńkowska & Tworek, 2023; Flynn & Herrington, 2016).

Many experts are now calling for a more follower-focused approach to leadership in these sectors and point to evidence suggesting that support and trust are non-negotiable during challenging times (Hungerford & Cleary, 2021). During a crisis, Foster (2020) describes five required leadership characteristics: a drive for the greater good, engagement with the community, a sense of opportunity, concern for staff, and empathy. These closely align with the characteristics of authentic leadership. Supporting this notion, Pastor Álvarez et al. (2019), found a positive correlation between authentic leadership and worker engagement in military units in Spain, mediated by social identification. Similarly, López-Cabarcos et al. (2024) found that authentic leadership increased engagement via reducing emotional exhaustion and both resilience and self-efficacy moderated the relationship in their study of 1500 European police officers. The stress and strain from shiftwork, long hours, high work demand, constant trauma exposure, empathy demand, and unpredictability experienced by many emergency services staff necessitates highly effective coping mechanisms such as psychological capital (Cahyono et al., 2025; Hazan-Liran & Walter, 2025; Wu et al., 2026;

Xie et al., 2025). Basic psychological need satisfaction has been described as vital for motivation, particularly in settings such as emergency services and military in which alignment of social norms and teamwork is a necessity (Lauer & Wilkesmann, 2024). If leaders are capable of building such coping mechanisms and supporting staff in a way in which they can function more effectively under these conditions, then organisations would logically see improvements in work outcomes such as engagement while looking after their people.

Drawing on the situational or dynamic approach, it is therefore argued that outside of critical incidents, follower-centric leadership should take precedence. It is predicted that authentic leadership will increase and sustain high worker engagement within these organisations through building basic psychological need satisfaction and psychological capital. The caveat however remains, that as Flynn and Herrington (2016) contend, leaders within these professions must be able to apply a multifaceted approach to leadership for the multitude of situations they face. Therefore, it is hypothesised that although military, emergency services and law enforcement draw on several skillsets including their ability to utilise command-and-control in critical incidents, they can simultaneously embody authentic leadership. It is argued that the proposed model (Figure 2) would not only be compatible with the current structures and processes within military and emergency services fields, but it may be extremely beneficial. This study aims to test this theory by testing the proposed hypotheses within these industries.

# Chapter 8: Methods

## Data Collection Methods

The online survey tool Qualtrics XM (www.qualtrics.com) was used to build the study's survey (See Appendix A). The survey was then distributed via the Prolific survey platform (www.prolific.com). Prolific provides access to pools of research participants who have registered with the platform as willing to respond to research surveys. Members supply demographic and educational details to Prolific which allows the platform to distribute surveys to target groups who match criteria specified in the survey set-up. Prolific then offers the survey online to potential qualifying participants who can then decide if they would like to take part, using the link provided by Prolific to access the Qualtrics survey.

The minimum sample size was 191 estimated using G*Power software and estimated effect sizes from previous research (López-Cabarcos et al., 2024; Towsen et al., 2020; Verleysen et al., 2015). It was anticipated that there would be an approximate 10% dropout/un-usable survey rate and therefore, 210 surveys were collected from participants who were both registered as Prolific participants and who met the selection criteria specified by the researcher. Two hundred and nine of the 210 surveys collected were used for analysis with one exclusion due to an excess of missing data.

Inclusion criteria built into the Prolific setup ensured that participants resided in countries in which English is the first language, and that they worked in medical or fire emergency services, police, or military organisations. Once the survey had been proofed and dummy collections completed to ensure clarity and coding accuracy, it was published on Prolific and remained active until 210 surveys had been completed.

In the initial information, participants were given a brief description of the types of questions they would be asked before they started the survey and were told that the aim of the survey was to understand how leadership affects worker engagement. They were also

informed of the ethical considerations and that the study had been peer reviewed and determined to be of low risk. Participants were then asked to provide informed consent before starting the survey.

**Ethical Considerations**

This research complied with the Massey University Code of Responsible Research Conduct. The research was evaluated as low risk and approval was gained via a low-risk ethics notification (see Appendix B).

In commitment to Te Ara Tika this study was conducted in reflection of tikanga principles. With respect to whakapapa, consultation with the supervisors was repeatedly conducted to ensure any potential ethical risks were discussed in full and mitigated or eliminated where possible. As a survey design, communication with participants was through the survey itself in which they were given a clear brief on relevant details of the study with no misleading or confusing information. An equally clear explanation of how the data was going to contribute to the study was also provided at the end of the survey and participants were given the option to request the results of the research upon completion.

The research was not targeted toward the Māori population; however, the purpose of the study was to contribute to developing leaders from all backgrounds who, because of this development, may be more responsive to the needs of diverse peoples. With respect to tika therefore, it was considered that participants themselves could be Māori, and the implications or consequences of the research could impact Māori. Through consultation and careful consideration, it was decided that direct engagement with Māori advisors was not required, and the potential impacts were predicted to be beneficial due to the contribution to positive psychological research. Manaakitanga was considered a crucial factor in this study and therefore, respect, dignity, and privacy were of upmost importance. Online data collection ensured that participants were anonymous, and this was communicated to the participants. No

information which could identify individuals or organisations was released, and data which may have identified participants or their organisations were coded to ensure anonymity. Datasets were stored on a password protected computer and will be stored for a period of five years. None of the survey questions were expected to cause any form of stress or psychological harm due to the low-risk nature of the survey but participants were offered direction in the case they experienced any adverse reaction to the questions.

**Participants**

Participants working in law enforcement, medical emergency services, fire services, and military sectors were globally recruited to respond to a 10-minute Massey Qualtrics survey linked to Prolific. Participants were paid GDP 1.00 to participate. Descriptive data collected included age, position level, work type, industry, gender, country of residence, working arrangement, and whether participants worked shift work or not.

The manager and director categories were merged into one manager category for analysis due to low participant numbers in the Director category (n = 4, see Table 1). Similarly, because there were a very small number of participants from countries other than the US and UK, recoding was used to merge Ireland, Australia, New Zealand, and Canada into a category labelled 'other' (n=23). The age categories were merged into 18 – 29 years old (n=35), 30 – 49 years old (n=124), and 50 – 70+ years old (n=47) to ensure sufficient sample numbers in each category for meaningful analysis.

Most respondents (62.7%, Table 1) reported that they worked in frontline roles. Just over 36% reported that their work type was hybrid, 7.2% worked remotely, and 56.7% reported their work type was not hybrid or remote. There was an almost even split of male and female participants with 50.5% reporting as female and 49.5% reporting as male with only one preferring not to say. Fifty-one percent of the participants were under 39 and the Police represented nearly half (46.4%) of the sample. Fifty-six percent were from the UK

and 32.5% from the USA and less than 1% from NZ. Just over half (51%) of the participants were not in management roles and only 1.9% of the sample reported working in director level roles and so managers and directors were analysed as one category. Table 1 details the remaining demographic information.

**Table 1**
*Participant Numbers and Percentages for Each Demographic Variable*

| Demographic | Category | Number of Participants | Percentage |
|---|---|---|---|
| Age | 18 – 24 | 11 | 5.3 |
| | 25 - 29 | 24 | 11.7 |
| | 30 - 39 | 72 | 35 |
| | 40 - 49 | 52 | 25.2 |
| | 50 - 59 | 31 | 15 |
| | 60 - 69 | 16 | 7.8 |
| Country | United Kingdom | 117 | 56.3 |
| | USA | 68 | 32.7 |
| | New Zealand | 1 | .5 |
| | Canada | 15 | 7.2 |
| | Australia | 5 | 2.4 |
| | Ireland | 2 | 1 |
| Industry | Police | 97 | 47.5 |
| | Military | 38 | 18.6 |
| | Emergency Medical Services | 55 | 27 |
| | Fire Service | 14 | 6.9 |
| Position Level | Individual Contributor | 107 | 51.2 |
| | Team Leader | 49 | 23.4 |
| | Manager | 49 | 23.4 |
| | Director | 4 | 1.9 |
| Work Type | Frontline | 131 | 62.7 |
| | Non-Frontline | 78 | 37.3 |
| Gender | Male | 105 | 50.5 |
| | Female | 102 | 49 |
| Working Arrangement | Hybrid | 75 | 36.1 |
| | Remote | 15 | 7.2 |
| | Neither | 118 | 56.7 |
| Shift Work | Yes | 124 | 59.3 |
| | No | 85 | 40.7 |

## Measures

The measures used in this study were designed to measure each construct both in terms of sub-scales based on their theoretical components and with the potential to be used as single factor scales measuring each construct as a whole. Given that the overall aim of this study was to investigate the relationships between the constructs, the limitations of statistical software used to measure the relationships, and the need to reduce the chance of type one errors, the measures were used as single factor scales. However, for completeness of analysis and to check construct validity, a Principal Component Analysis (PCA) was conducted for each scale.

### *Worker Engagement*

The Utrecht Engagement Scale – 9 (UWES-9) (Schaufeli et al., 2006) was used to measure worker engagement. The short version of 9 items was chosen to ensure that the survey was not overly long, and as it has been shown to have acceptable reliability and validity. Defined by the three domains of vigour, dedication, and absorption, the UWES-9 comprises three items per domain. Participants were asked to read each statement relating to how they feel at work and select how much they agreed with each statement on a scale of 1 – 7. For example, one item asked participants if they agree with the statement "when I get up in the morning, I feel like going to work". Rating options were: 1 = never, 2 = almost never – a few times a year or less, 3 = rarely – once a month or less, 4 = sometimes – a few times a month, 5 = often – once a week, 6 = very often – a few times a week, 7 = always – every day. The Kaiser-Meyer-Olkin (KMO) measure defined by Kaiser (1974) confirmed that the sample was large enough for analysis, KMO = .905. The KMO individual item values were all greater than the acceptable .5 limit. A Principal Component Analysis (PCA) with varimax rotation identified a one-factor solution that accounted for 64% of the variance. The UWES

9 scale was treated as a single factor scale comprising all 9 items. Scale scores were computed as the mean of the 9 items (α = .927), with higher scores indicating higher work engagement.

***Authentic Leadership***

Authentic leadership was measured using the Authentic Leadership Questionnaire (Avolio et al., 2007)[1] which consists of 16 items designed to assess how a participant perceives their leader's transparency, ethical or moral behaviour, balanced processing, and self-awareness. Participants were asked to rate how often each statement fitted with their leader's style using the following options: 0 = not at all, 1 = once in a while, 2- sometimes, 3 = fairly often, 4 = frequently, if not always. The value of KMO was .946 and all individual values were greater than .5. PCA with varimax rotation identified a single factor which accounted for 59% of the variance. Scale scores were computed as the means of 16 items, α = .952. The higher the score, the more a participant perceived their leader as authentic.

***Basic Psychological Need Satisfaction***

The Basic Psychological Need Satisfaction Scale – Work Domain was used to measure basic psychological need satisfaction (Deci & Ryan, 2000; Deci et al., 2001; Ilardi et al., 1993; Kasser et al., 1992). The scale is comprised of three subscales: autonomy, relatedness, and competence in relation to need satisfaction at work. Nine of the 21 items were negatively worded and so were reverse coded. Participants were asked to respond to each item by indicating how true each statement was regarding their job on a scale of 1 to 7 with 1 indicating that the statement is not at all true, 4 indicating that the statement is somewhat true, and 7 indicating that the statement is very true. PCA with varimax rotation identified a five-factor solution that accounted for 66.82% of the variance. However, one predominant factor explained 31.94% of the variance and the remaining four factors largely



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consisted of the reverse coded items or items that cross-loaded onto the first factor. The KMO measure confirmed the sample was large enough for analysis, KMO = .837. The KMO individual item values were all greater than the acceptable .50 limit except one item that fell just under .50. PCAs were then run without that item which had little effect on the outcome. The analysis was also re-run excluding reverse coded items, but this also did not change the overall outcome. The BPNS scale was treated as a single factor comprising all 21 items, α = .848. Scale scores were computed as the mean of the items.

***Psychological Capital***

Psychological Capital was measured using the Psychological Capital Questionnaire (PCQ) (Luthans et al., 2007). The PCQ consists of 24 items split into the four domains: hope, resilience, efficacy, and optimism. For each item, participants were asked to rate their level of agreement with on a scale which ranged from 1, indicating that they strongly disagreed with the statement, to 6 indicating they strongly agreed with it. Three items were negatively worded and so were reverse coded. The KMO measure confirmed the sample was large enough for analysis, KMO = .892 and the KMO individual item values were all greater than the acceptable .50 limit. A PCA with varimax rotation identified one predominant factor accounting for 34% of the variance with four additional minor factors. The PCQ scale was treated as a single factor scale comprising all 24 items, α =.90. Scale scores were computed as the mean of the items.

***Neuroticism***

The Emotional Stability (Factor 5) 10-item scale was used from IPIP representation of the Goldberg (1992) markers for the Big-Five factor structure to measure neuroticism. Participants were asked to indicate how accurate each of the 10 items were on the rating scale where 1 = "Very Inaccurate", 2 = "Moderately Inaccurate", 3 = "Neither Inaccurate nor Accurate", 4 = "Moderately Accurate", 5 = "Very Accurate". Because this scale measures

emotional stability for which low emotional stability indicates high neuroticism, the negatively worded items were left, and the positively keyed items were reverse coded so a high overall score would indicate high neuroticism. For example, “I am relaxed most of the time” was reversed so if a participant indicated that this statement was inaccurate (rated 1), the score would be recoded as 5. Once recoding was complete scale scores were computed as the mean of all items. PCA with varimax rotation identified a two-factor solution that accounted for 62.4% of the variance. However, one factor comprised only the two reverse coded items. The KMO value of .895 confirmed the sample was large enough for the analysis, and the PCA was re-run excluding reverse coded items, which identified a one-factor solution which accounted for 60% of the variance. The Neuroticism scale was also treated as a single factor scale comprising of 10 items, $\alpha = .876$.

**Data Analysis**

One-way Analysis of Variance (ANOVA) was used in the Statistical Package for the Social Sciences (SPSS) (Version 30.0.0.0) with a Tukey's Honestly Significant Difference (HSD) test to analyse differences in worker engagement, authentic leadership, basic psychological need satisfaction, and psychological capital scores across the categorical variables: age group, industry, country, work type, and position level. The mean differences were analysed to determine whether the differences were large enough to justify including them in the hypothesis testing as covariates. Eta squared results were reported as a measure of effect size. Independent samples t-tests were conducted to check for significant differences in all the predictor variables and worker engagement across the dichotomous variables, gender, frontline vs non-frontline, and shiftwork vs non-shiftwork.

A sequential mediation analysis using the PROCESS tool in SPSS (model 6) was used to test both the direct pathways for hypotheses 1 – 5 and to test the mediation pathways for hypothesis 6. The mediation effects of basic psychological need satisfaction and PsyCap were

analysed using bootstrapping to generate confidence intervals around the indirect effect. The hypothesised moderation was analysed through SPSS PROCESS model 1 to investigate the interaction effects of centred independent variables and centred moderator variables in H7 and H8.

Standard regression assumption testing was conducted prior to hypothesis testing to ensure the validity of the results. Linearity between the dependant and independent variables was checked using scatter plots which showed that each relationship was linear. P-P plots for each regression also showed that the assumption of residual normality was not violated. Scatter plots of the residuals between the dependant and independent variables were checked and showed no obvious patterns indicating that there were no violations of the assumption of homoscedasticity. Multicollinearity was checked with Variance Inflation Factors (VIF). The results showed all VIF statistics were between 1.247 – 1.763 and are therefore considered to be well below the tolerance level of 4 as determined by Garson (2012), indicating that the model does not have a multicollinearity problem.

# Chapter 9: Results

## Group Differences

One-way Analysis of Variance (ANOVA) showed that only position level had a small, significant difference in work engagement, $F(3, 205) = 2.724$, $p = .032$, $\eta^2 = .038$. Managers scored on average just under half a point higher in engagement than individual contributors on a scale of 1 – 7. In relation to authentic leadership perceptions, team leaders perceived their leaders as more authentic on average than other groups, but the effect size was also small, $F(3, 205) = 3.002$, $p = .032$, $\eta^2 = .040$. No significant differences were observed of authentic leadership scores for age, country of residence, industry, or working arrangement ($p = >.05$). The analysis showed significant differences in psychological capital scores between police and military workers, and between military and medical emergency services $F(3,200) = 6.017$, $p = <.001$, $\eta^2 = .083$ with military participants scoring just under half a point higher on average than police ($p = <.001$), emergency medical services ($p = .012$) personnel on a scale of 1-6. Significant differences in psychological capital were also observed between position levels with individual contributors scoring lower than team leaders ($p = .002$) and managers ($p = <.001$), $F(3, 205) = 8.341$, $p = <.001$, $\eta^2 = .109$. No significant differences in basic psychological need satisfaction were observed for any of the categorical variables ($p = >.05$). Small significant differences in neuroticism scores were observed showing police scored on average just over .5 higher on the neuroticism scale than the other industries ($p = .003$) and emergency medical services also scored on average just over .5 higher in neuroticism ($p = .008$), $F(3, 200) = 4.746$, $p = .003$, $\eta^2 = .066$. Neuroticism mean scores were slightly lower (under half a point) for individual contributors than for managers ($p = .042$). All other position comparisons were not significant ($p = >.05$).

Independent Samples t-test results for the dichotomous variables showed no significant differences across worker engagement, authentic leaders, need satisfaction, or

PsyCap in, frontline vs non-frontline, and shiftwork vs non-shiftwork. Table 2 shows all t-test results for each dichotomous variable. Of note, female participants reported slightly higher neuroticism mean scores than males and slightly lower PsyCap scores (Table 2).

**Table 2**
*Independent Samples t-Test Results for Gender, Shift Work, and Frontline Work*

| **Measure** | **Group** | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Male | | | Female | | | 95% CI for mean difference | t | df |
| | M | SD | n | M | SD | n | | | |
| AL | 3.643 | .761 | 105 | 3.57 | .837 | 102 | -.146,.293 | .661 | 205 |
| BPNS | 4.968 | .691 | 105 | 5.001 | .774 | 102 | -.234, .168 | -.325 | 205 |
| PsyCap | 4.65 | .554 | 105 | 4.479 | .586 | 102 | .015, .327 | 2.158* | 205 |
| WE | 4.718 | 1.067 | 105 | 4.705 | 1.042 | 102 | -.276, .302 | .091 | 205 |
| Neuroticism | 2.275 | .678 | 105 | 2.734 | .839 | 102 | -.668, -.250 | -4.335* | 205 |
| | Frontline Worker | | | Non-frontline Worker | | | 95% CI for mean difference | t | df |
| | M | SD | n | M | SD | n | | | |
| AL | 3.63 | .788 | 131 | 3.542 | .844 | 78 | -.316, .140 | -.759 | 207 |
| BPNS | 4.972 | .743 | 131 | 5.001 | .706 | 78 | -.177, .234 | .274 | 207 |
| PsyCap | 4.554 | .585 | 131 | 4.579 | .554 | 78 | -.138, .186 | .291 | 207 |
| WE | 4.704 | 1.123 | 131 | 4.721 | .914 | 78 | -.279, .313 | .115 | 207 |
| Neuroticism | 2.47 | .767 | 131 | 2.556 | .831 | 78 | -.137, .309 | .76 | 207 |
| | Shift Worker | | | Non-Shift Worker | | | 95% CI for mean difference | t | df |
| | M | SD | n | M | SD | n | | | |
| AL | 3.584 | .767 | 124 | 3.615 | .87 | 85 | -.255, .195 | -.264 | 207 |
| BPNS | 4.932 | .763 | 124 | 5.057 | .671 | 85 | -.326, .078 | -1.213 | 207 |
| PsyCap | 4.548 | .582 | 124 | 4.587 | .562 | 85 | -.199, .120 | -.486 | 207 |
| WE | 4.704 | 1.116 | 124 | 4.72 | .945 | 85 | -.308, .275 | -.113 | 207 |
| Neuroticism | 2.475 | .826 | 124 | 2.541 | .738 | 85 | -.286, .153 | -.595 | 207 |

Note. WE = worker engagement; AL = authentic leadership; BPNS = basic psychological need satisfaction; PsyCap = psychological capital.
* Significant effects determined by 95% confidence intervals that did not include zero.

Table 3 shows the bivariate correlations, means and SDs for all scale variables. As expected, worker engagement, authentic leadership, basic psychological need satisfaction, and psychological capital all showed positive significant relationships. Equally expected, these constructs all correlated negatively with neuroticism.

**Table 3**
*Pearson Correlations for all Variables with Means and Standard Deviations*

| | | | Pearson Correlation | | | | |
|---|---|---|---|---|---|---|---|
| | Mean | SD | 1 | 2 | 3 | 4 | 5 |
| 1 WE | 4.701 | 1.048 | (.927) | | | | |
| 2 AL | 3.597 | 0.809 | .416** | (.952) | | | |
| 3 BPNS | 4.983 | 0.728 | .503** | .436** | (.848) | | |
| 4 PsyCap | 4.564 | 0.573 | .571** | .338** | .560** | (.900) | |
| 5 Neuroticism | 2.502 | 0.79 | -.245** | -.150* | -.408** | -.546** | (.876) |

*Note.* WE = worker engagement; AL = authentic leadership, BPNS = basic psychological need satisfaction; PsyCap = psychological capital.
Values in parentheses on the diagonal represent Cronbach's alphas.
** Correlation is significant at the .001 level (two tailed).

**Initial analysis: Linear Regression**

Prior to hypothesis testing, a hierarchical regression analysis was conducted to examine the combined effect of all of the predictor variables on worker engagement. Variables were entered in blocks ordered to correspond with the hypothesised mediation model. Therefore, step one consisted of authentic leadership, step two consisted of authentic leadership and basic psychological need satisfaction. PsyCap was added in step 3, and the last step included the neuroticism scores (Table 4).

Overall, the full regression model predicted 39.9% of the variance in worker engagement (adj. $R^2 = .40$ $F(4, 204) = 35.572$, $p = <.001$). Table 4 shows that authentic leadership significantly explained 16.6% of the variance in worker engagement. After

controlling for authentic leadership, need satisfaction significantly explained 12.7% of the variance, and model 3, after controlling both AL and BPNS, shows that PsyCap predicted 10.8% of the variance. Neuroticism was the last block added to the regression for model 4 but after controlling for authentic leadership, need satisfaction, and PsyCap, it was not a significant predictor.

After the inclusion of predictors at each step, the R square change was statistically significant up to and including model three containing authentic leadership, need satisfaction and PsyCap. However, model 4 showed that the inclusion of neuroticism only incurred a very small change in R square which was not significant and therefore did not provide any incremental predictor power. This final model also clearly shows clearly that PsyCap explains the most unique variance in worker engagement.

**Table 4**

*Summary of Hierarchical Regression Analysis Variables Predicting Worker Engagement*

| Variable | Cumulative | | Simultaneous | | |
|---|---|---|---|---|---|
| | Adjust. $R^2$ | $R^2$ Change | Unstandardised b | SE | Standardised β |
| **Model 1** | | | | | |
| Authentic Leadership | .162 | .166 | .528*** | .082 | .408*** |
| **Model 2** | | | | | |
| Authentic Leadership | | | .313*** | .084 | .242*** |
| BPNS | .287 | .127 | .567*** | .093 | .394*** |
| **Model 3** | | | | | |
| Authentic Leadership | | | .257** | .078 | .198 |
| BPNS | | | .283** | .098 | .196 |
| Psychological Capital | .393 | .108 | .722*** | .119 | .395*** |
| **Model 4** | | | | | |
| Authentic Leadership | | | .243** | .078 | .188 |
| BPNS | | | .312** | .099 | .217 |
| Psychological Capital | | | .821*** | .13 | .449 |
| Neuroticism | .399 | .009 | .154 | .086 | .116 |

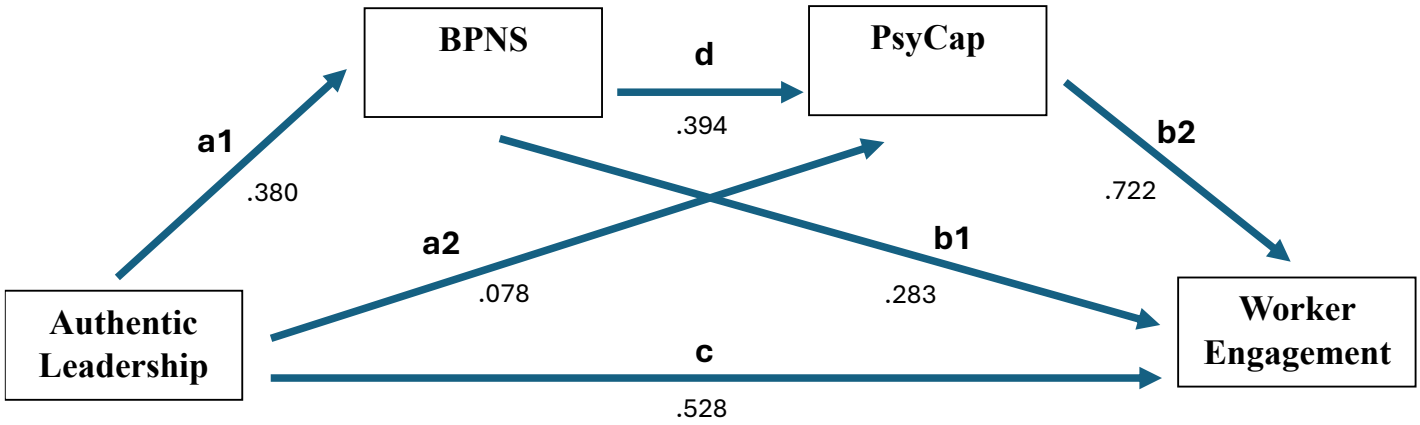
*Note. BPNS = basic psychological need satisfaction.*
***p* = <.01, ****p* =<.001.

## Hypothesis Testing

A serial mediation analysis was run in SPSS PROCESS (Version 30.0.0.0) using model 6 to test hypotheses 1 - 6. Based on the ANOVA results, industry and position level variables

were included as covariates. Figure 5 shows the unstandardised effects of each pathway in the analysed model.

**Figure 5**
*Mediation Pathway Model Showing the Unstandardised Effect Size Results*




*Note:* BPNS = basic psychological need satisfaction; PsyCap = psychological capital.

The first step in the hypothesis testing was to examine the direct paths. The unstandardised regression slope for the direct total effect of authentic leadership on worker engagement (path *c* in Figure 5), was statistically significant and positive ($b$ = .528, $p$ = <.000). This result supported hypothesis 1. Authentic leadership significantly and positively predicted the first mediator, basic psychological need satisfaction as shown in path *a1* in Figure 5 ($b$ = .380, $p$ = > .000), supporting H4. The positive regression slope calculated between authentic leadership and psychological capital as shown in path *a2* in figure 5 was not significant ($p$ = > .05) and so H3 was not supported. H2 was supported as psychological capital was shown to positively and significantly predict worker engagement as shown in path *b2*, figure 5 ($b$ = .722, $p$ = <.001). H5 was supported as the unstandardised regression slope for the effect of basic psychological need satisfaction on the second mediator, psychological capital was statistically significant and positive ($b$ = .394, $p$ = >.000) as shown in path d.

Once direct pathways had been analysed, the next step was to examine the mediated pathways shown in Figure 5. The first indirect effect showed that basic psychological need satisfaction mediated the relationship between authentic leadership and worker engagement (*b* = .107, 95% CI [.164, .400]). The second indirect effect showed that psychological capital did not mediate the relationship between authentic leadership and worker engagement (*b* = .056, 95% CI [-.022, .143]). The third indirect effect showed the full mediation model (path a1 – d - b2) and the results revealed that need satisfaction and PsyCap sequentially mediated the relationship between authentic leadership and worker engagement (*b* = .108, 95% CI [.056, .180]). These results support Hypothesis 6.

Table 5 presents the results of the direct and indirect effects from the mediation model 6 in SPSS.

**Table 5**
*Sequential Mediation and Direct Pathway Results*

| Effect | b | SE | β | t | 95% CI (Unstandardised) Lower | Upper |
|---|---|---|---|---|---|---|
| AL – WE | .257 | .078 | .198 | 3.305** | .104 | .690 |
| AL - BPNS (a1) | .380 | .057 | .422 | 6.700*** | .268 | .492 |
| AL - PsyCap (a2) | .078 | .045 | .110 | 1.713 | -.012 | .167 |
| BPNS - PsyCap (d) | .394 | .050 | .501 | 7.832*** | .295 | .493 |
| BPNS - WE (b1) | .283 | .098 | .196 | 2.892* | .090 | .475 |
| PsyCap - WE (b2) | .722 | .119 | .395 | 6.074*** | .488 | .999 |
| Total Effect (c) | .528 | .082 | .408 | 6.428*** | .366 | .690 |
| Total Indirect Effect | .271 | .078 | | | .164 | .400 |
| Indirect Effects | | | | | | |
| AL – BPNS - WE | .107 | .040 | .083 | | .164 | .400 |
| AL – PsyCap - WE | .056 | .041 | .043 | | -.022 | .143 |
| AL – BPNS – PsyCap - WE | .108 | .032 | .083 | | .056 | .180 |

*Note.* WE = Worker engagement; AL = authentic leadership; BPNS = basic psychological need satisfaction; PsyCap = psychological capital.
**p = <.05, **p = <.01, ***p=<.001.*

**Moderation Analyses**

**H7.** *Neuroticism will moderate the relationship between authentic leadership and worker engagement so that the positive relationship between authentic leadership and worker engagement will be lower for those with high levels of neuroticism.*

**H8.** *Neuroticism will moderate the relationship between psychological capital and worker engagement so that the positive relationship between psychological capital and worker engagement will be lower for those with high levels of neuroticism.*

Individual regression analyses were performed in SPSS PROCESS to test if the pathways between psychological capital and worker engagement, and between authentic leadership and worker engagement were moderated by neuroticism as hypothesised. The first moderation analysis examined whether neuroticism moderated the relationship between authentic leadership and worker engagement. While the direct effect of the predictor, authentic leadership remained significant, the interaction term in this regression was non-significant (B = -.079*, SE = .113, p* = .484), as shown in Table 6 indicating that hypothesis 7 was not supported.

A separate moderation analysis examined the moderating effect of neuroticism on the relationship between psychological capital and worker engagement. The predictor PsyCap in this moderation again remained significant but the interaction term (psychological capital x neuroticism) in this regression was not (B = -.191*,* SE = .124*, p* = .123), indicating that neuroticism also did not moderate the relationship between psychological capital and worker engagement and so hypothesis 8 was not supported. Table 6 displays the unstandardised coefficients of both regression models. Neuroticism showed to have an effect on worker engagement with only authentic leadership as a predictor in the first moderation model, but the effect was non-significant in the second model in which PsyCap was held at zero. Using

mean centering for both models this indicated that PsyCap explained any observed effects of neuroticism on engagement for this analysis.

**Table 6**
*Summary of the Moderated Regression Analysis Predicting Worker Engagement*

| | B | *t* | *p* | 95% CI | |
|---|---|---|---|---|---|
| | | | | Lower | Upper |
| **Criterion: Worker Engagement** | | | | | |
| **Hypothesis 7:** | | | | | |
| Predictors | | | | | |
| AL (a) | .491 | 5.983 | <.000 | .329 | .652 |
| Neuroticism (b) | -.247 | -2.950 | .004 | -.411 | -.082 |
| a*b | -.079 | -.701 | .484 | -.301 | .143 |
| **Hypothesis 8:** | | | | | |
| Predictors | | | | | |
| PsyCap (a) | 1.110 | 8.959 | <.000 | .866 | 1.354 |
| Neuroticism (b) | .151 | 1.665 | .098 | -.028 | .330 |
| a*b | .191 | 1.548 | .123 | -.052 | .435 |

*Note.* AL = authentic leadership.

# Chapter 10: Discussion

The intention of this research was to further investigate the well-established connection between authentic leadership and worker engagement. Primarily, it sought to determine if there is evidence to suggest that both basic psychological need satisfaction and psychological capital (PsyCap) have explanatory power within this relationship and importantly, to test the hypothesised sequencing. The specific sequencing detailed that basic psychological need satisfaction partially explains the relationship between authentic leadership and PsyCap, and PsyCap partially and sequentially explains the relationship between basic psychological need satisfaction and worker engagement.

The results from the regression analysis provided further support for the claims that authentic leadership has a significant and positive relationship with worker engagement. Further breaking down the possible mechanisms involved in this relationship, the analysis revealed that authentic leadership was positively associated with basic psychological need satisfaction and PsyCap was positively associated with worker engagement. Results from this study also revealed that the proposed mediation model may explain the positive effect authentic leadership has on worker engagement through psychological need satisfaction and PsyCap as per hypothesis 6. Furthermore, when controlling for need satisfaction, the direct effect of authentic leadership on PsyCap was non-significant but the indirect effect through need satisfaction was significant indicating a full mediation.

Current literature strongly indicates that neuroticism has a negative impact on PsyCap, authentic leadership, and worker engagement and the relationships between them. However, due to many conflicting results in the field this study endeavoured to test the nature of the effect of neuroticism on the relationships between PsyCap and engagement and between authentic leadership and engagement. The moderation analysis did not provide support for any significant moderating effects on the relationship between authentic

leadership and worker engagement nor on the relationship between PsyCap and worker engagement.

By investigating these practical and motivational pathways, this research provides new psychological depth to the field of leadership and organisational development. It offers organisations not only evidence in support of building authentic leadership in order to achieve several positive psychological outcomes within emergency services and military organisations, but also specifically provides building blocks for increased worker engagement. With this knowledge, organisations can establish more focused training with clearer direction and measurable step by step outcomes leading to engaged workers who perform well and have improved wellbeing.

**Group Differences**

Several interesting findings were found from the preliminary testing. Although not a part of the hypothesis testing, they reveal results that may have important implications. Small differences in engagement levels were observed between managers and individual contributors. This finding is consistent with a plethora of other workplace research that shows that worker engagement increases with seniority (Gallup, 2026; Lu et al., 2016; McBain, 2006). Literature suggests that higher position levels are associated with stronger levels of organisational connection and identification leading to a higher level of investment in their work (Lu et al., 2016). From a JD-R model perspective, increased engagement throughout leadership positions has also been credited to the increased autonomy, more challenging work (May et al., 2004; Saks, 2019), and skill variety associated with more senior positions (Saks, 2019). Although the latest Gallup (2026) data still only shows three in ten managers are globally engaged, research indicates that more engaged supervisors are more likely to produce engaged employees. Therefore, although this study did not collect data on any participants' direct reports, it is not unreasonable to assume that the higher levels of

engagement observed across the participants in supervisory roles may be assisting in building engagement within their teams. Alarmingly however, the Gallup (2026) report also showed that the greatest decrease in engagement was observed amongst these supervisory roles, raising concerns for the future state of organisations and drawing more urgency to the engagement issue across all position levels.

Higher trust and autonomy typically associated with more senior roles has been previously linked to higher employee-perceived authentic leadership ratings (Hakanen et al., 2008; Hsieh & Wang, 2015). Based on these associations alone it could be expected that managers would rate their leaders higher in authenticity than team leaders and individual contributors. However, in this study, this was not the case. The direct and potentially closer relationship that team leaders have with their supervisors may explain the higher authentic leadership ratings for team leaders in this study (Hakanen et al., 2008). Because team leaders can serve as the conduit between individual contributors and higher-level management, it could be speculated that they would need strong working relationships with their supervisors to connect staff with the overall team goals and the managers aspirations. However, further research would be required to investigate this finding in more detail, especially with the small mean difference and the differing definitions of the team leader role

Of interest, military participants scored overall higher in PsyCap than police and medical emergency services. All sectors included in the study were chosen in part due to the high stress and high-risk environments that many staff are frequently exposed to, driving the direction of leadership in these fields. As previously discussed in an earlier chapter, due to these conditions, psychological capital is known to be in an important factor in buffering high demands, ensuring staff wellbeing, and maintaining high engagement (Hernández & García, 2021). However, the ANOVA results suggest that military organisations may be doing something different. This could indicate that military sectors are incorporating more

advantageous processes and/or training to increase PsyCap or they are recruiting staff who have higher levels prior to joining. Either way, these results should be of interest at least to the other sectors in this study despite the small effect sizes.

Individual contributors scored on average slightly lower in PsyCap than both managers and team leaders. Of the many positive consequences of having high PsyCap, individual success and job performance have been extensively documented (Jia & Zhang, 2025; Kong et al., 2018; Stajkovic and Luthans; 1998). The increased levels of hope, resilience, optimism, and self-efficacy as components of PsyCap have all been directly linked with performance. It is, therefore, not surprising that individuals in higher positions in this study recorded higher levels.

**Authentic Leadership and Worker Engagement**

As evidence suggested, authentic leadership positively predicted worker engagement via the direct pathway in the proposed model supporting hypothesis 1. The regression analysis showed that the higher a participant rated their leader as authentic, the more engaged they were. Similar findings have been reported throughout multiple studies albeit with slightly higher effect sizes found in studies using larger sample sizes and alternative analyses (e.g. Hierarchical Linear Modelling or Structural Equation Modelling) (Grande, 2026; Hsieh & Wang, 2015; Towsen et al., 2020). Although this is not a new finding for general associations between authentic leadership and worker engagement, the finding is important in relation to the fields in which the sample was taken. As discussed in chapter 7, historically emergency services and military organisations have employed leadership models that are still heavily intertwined with ‘great man theories’ of leadership and constrained to command-and-control or authoritarian structures (Flynn & Herrington, 2016). These results provide more evidence that models that include more authentic styles, which are still compatible with command-and-control methods when the situation dictates, may be of benefit to these sectors.

The finding that engagement was higher for employees who rated their leaders as more authentic within these organisations indicates that authenticity, trust, transparency, and self-awareness are important in the unique conditions that these employees work under.

**Authentic Leadership and Basic Psychological Need Satisfaction**

With generally strong hierarchical structures, leaders within emergency services and military organisations have the potential to have considerable impact on their employees on several levels as staff are often greatly dependent on leaders (Stowers, 2026). In support of hypothesis 4, the analysis revealed that authentic leadership was positively and significantly associated with basic psychological need satisfaction, adding weight to this argument. It also strengthens Schaufeli's (2021) argument that leaders are in a position to be able to boost staff psychological need satisfaction by allowing an element of freedom and role ownership. These results are important in the context of military and emergency services roles which have had historically tight supervisory controls. There is the potential that these results indicate a switch from controlling styles of leadership to more supportive styles are likely to build the confidence and feelings of competence that employees within these fields require when faced with high-stress situations. Instead of losing 'control' of staff by allowing freedom and being a more approachable leader, it is proposed that authenticity builds psychological need satisfaction while still providing strong direction by demonstrating ideal behaviours and leading by example (Schaufeli, 2021; Stowers, 2026). The honesty often missing from authoritarian styles of leadership not only paves the way for more knowledgeable leaders who learn from mistakes and build on areas of improvement but also encourages honesty and self-reflection in subordinates (Schoofs et al., 2024).

### Basic Psychological Need Satisfaction and Psychological Capital

Hypothesis 5 was supported by the regression analysis, showing that basic psychological need satisfaction was significantly and positively associated with PsyCap. This result was an important one due to conflicting evidence across the literature regarding the direction of this relationship and because it suggests that need satisfaction, although an indispensable as a standalone construct, is also useful as a precursor. Although there is no causal inference due to the cross-sectional design of this study, the outcome provides additional support for the argument suggesting that need satisfaction is an antecedent to PsyCap (Maunz et al., 2024; Verleysen et al., 2015) and specifically that PsyCap is built *from* need satisfaction (Mazzetti and Schaufeli, 2022). This is not to discount the possibility that this may be a bi-directional relationship suggested by previous research as discussed in chapter 5 (Elbers et al., 2023; Rahmadani et al., 2020; van Wingerden et al., 2018). However, the hypothesis was developed under the perspective that of PsyCap is a learnable resource. The results offer further support for the assertion that when PsyCap is conceptualised as an acquirable resource rather than an intrinsic trait, psychological need satisfaction may cultivate that resource. This then indicates that on top of building competence, confidence and comradery as discussed above, the satisfaction of basic psychological needs may also then increase military and emergency services workers PsyCap. The high workload, trauma exposure, shift fatigue, and high-stress nature of many emergency service and military roles have long dictated the requirement for staff to possess high PsyCap to maintain their health and effectiveness (Cahyono et al., 2025; Hazan-Liran & Walter, 2025; Wu et al., 2026; Xie et al., 2025).

### Psychological Capital and Worker Engagement

A thorough literature review indicated that worker engagement was positively related to the four components of PsyCap and that higher PsyCap is associated with increased worker

engagement as stated in hypothesis 2. The results supported this hypothesis, revealing a significant and positive relationship and relatively large effect size within the regression model (b = .722). The results from this study provide further support for building PsyCap to not only assist in military and emergency services employees' ability to survive and thrive in the challenging conditions and environments they're exposed to but to also boost long-term performance.

**The Sequential Mediation**

As is becoming clear, leadership has profound effects on worker engagement, especially more follower-centric styles such as authentic leadership (Basaran & Kiral 2020; Carasco-Saul et al., 2015; Decuypere & Schaufeli, 2020; Hsieh & Wang, 2015; Mabekoje et al., 2016; Towsen et al., 2020). This research not only intended to test that relationship but was also concerned with the 'how' behind it. The overall aim was to assist the field of organisational psychology and organisations in working towards gaining a clearer direction and transparent pathways to high worker engagement. It is predicted that organisations with more comprehensible pathways to engagement will be in a better position to design pragmatic programmes and frameworks in leadership development. The mediation model hypothesised distinct and sequential pathways from authentic leadership to basic psychological need satisfaction to PsyCap to worker engagement. This hypothesis was supported by the mediation analysis showing that psychological need satisfaction and PsyCap sequentially mediated the relationship between authentic leadership and worker engagement. Although research has shown that each of the proposed direct and positive pathways between the variables is supported by various findings (Cahyono et al., 2025; Hazan-Liran & Walter, 2025; Maunz et al., 2024; Schaufeli, 2021; Stajkovic and Luthans 1998; Stowers, 2026; Sweetman & Luthans, 2010; Verleysen et al., 2015; Wu et al., 2026; Xie et al., 2025), to the

researcher's knowledge, this specific sequencing has not yet been tested in the sample population.

Although these results cannot determine causal pathways, it indicates that authentic leadership is not just capable of building worker engagement, but it is doing it via identifiable motivational and practical processes. Furthermore, the relationship between authentic leadership and PsyCap was found to be non-significant with need satisfaction controlled for, suggesting that basic psychological need satisfaction fully mediated the relationship between authentic leadership and PsyCap. Hypothesis 3 therefore, was not supported. This finding may be a crucial development on previous research indicating that there is a direct positive correlation between authentic leadership and PsyCap (Avey, 2014; Brunetto et al, 2024; Kong et al., 2018; Luthans et al., 2007; Yollu & Korkmaz, 2024), and opens up the possibility that this relationship has more depth. This full mediation heavily implies that need satisfaction may be a vital explanatory component of the relationship between authentic leadership and PsyCap. As this was an initial step towards unravelling the full understanding of these relationships and specific sequencing, further testing would be required to come to any definitive conclusion. However, they do reveal an important avenue to be further explored. Similarly, there is the possibility that these results are unique to the population sampled which may then indicate a very specific future direction for the science within these sectors.

**Neuroticism**

Neuroticism was hypothesised to moderate the relationship between authentic leadership and worker engagement (hypothesis 7) and between PsyCap and worker engagement (hypothesis 8). Neither of these hypotheses were supported. As stated, research into the effects of character traits is still building (Kim et al., 2009). Therefore, an unsupported hypothesis still adds value to the field. Although there was significant evidence

to support the hypothesis development (Fukuzaki & Iwata, 2024; Tewfik et al., 2024), there are several potential reasons for this outcome and several reasons why researchers may still want to incorporate this measure in future studies. Firstly, it is likely that neuroticism may act directly on PsyCap or that PsyCap may inversely impact the relationship between personality traits and outcomes, including between neuroticism and work experiences or outcomes as found in Zewude et al.'s (2024) and Deng et al.'s (2025) studies. Furthermore, it is plausible that neuroticism acts directly on a leader's ability to carry out their work effectively and so while this may be an important factor in the explored relationships, this was not able to be sufficiently factored into this study (Blatný et al., 2018; Shahzad et al., 2021). Equally, neuroticism may only act as a moderator under certain conditions and on certain variables. Fukuzaki and Iwata (2024) found evidence of neuroticism acting as a moderator in their study but the relationship under investigation was between work environment and engagement. They believe their results were attributable to the proposition that people with higher levels of neuroticism are more likely to perceive stressors as threats meaning positive relationships sometimes found between demands and engagement would be weakened. In this study, psychological capital was conceptualised as a resource and so although neuroticism may act as a moderator between demands and engagement, it may not act as a moderator between resources and engagement. Although Fukuzaki and Iwata (2024) found that neuroticism acted negatively on a positive relationship, it appears that in many studies, neuroticism acts through other variables, or as more of an exacerbating factor on negative relationships (Leung et al., 2011; Elbguir & Benmarrakchi, 2026).

**Organisational Implications**

A majority of research into worker engagement indicates that organisations should be devoting significant time and resources into building engagement to produce beneficial outcomes regarding both wellbeing and organisational performance (Alolayyan & Alyahya,

2023; De-La-calle-durán & Rodríguez-Sánchez 2021; Dudasova et al., 2024; Gupta & Shaheen, 2018; Hodkinson et al., 2022;  Lee et al., 2024; Robertson & Cooper, 2010; Robijn et al., 2020; Schaufeli, Salanova et al., 2002; Shabangu & Jonck, 2026; Shuck & Reio, 2014). As military and emergency services continue to unpack the many complexities involved in successfully running their organisations, research into how they may best engage their employees is fundamental to their success. This research has provided cross-sectional evidence that time and effort may be well spent on developing authentic leaders who through honesty, communication, respect, self-awareness and genuine care, can build feelings of autonomy, self-competence, and relatedness. The study also revealed that the reason this is so important may be because the satisfaction of these needs is a crucial component in building psychological capital and consequently, engaged workers. It, therefore, not only adds to the growing body of knowledge by providing further evidence that authentic leadership predicts worker engagement, but it also provides a pragmatic first step towards understanding how organisations can tailor strategies to amplify this relationship.

To build a strong foundation and consistency for an organisation-wide effort to boost engagement through leadership, it is recommended that leadership policies are addressed first. These would reflect a drive for continuous improvement and lay out expectations of leader behaviour that align with authenticity and align leader goals with the organisational goals. Organisations may then improve leadership development by integrating authentic behaviour training for supervisors into any pre-existing programmes which should include a strong focus on building their direct reports' need satisfaction. Programmes can provide leaders with specific methods and practices that they can include in their daily interactions to do this. For example, in their study investigating how authentic leadership behaviours affect job satisfaction, employee trust, and organisational commitment, Spector et al. (2025) used a training intervention to increase supervisor authenticity. The intervention used mainly

activity-based training that was deemed appropriate for the adult learning environment. Training included face to face teaching, group work, scenarios, discussions, goal setting and a 4-month accountability programme in which participants were allocated an accountability partner to frequently discuss progress. Supervisors were given specific behaviours to practice and incorporate regularly in their leadership. For example, they were told to frequently check in with their direct reports and ask how they were doing which was to be treated as a task-based exercise until the behaviour was ingrained. The pre-test post-test study showed that the intervention significantly increased their authentic behaviour over a 4-month period. Knowing that building need satisfaction specifically may be an important factor in the motivational pathway to engagement, customised authentic leadership training with a focus on building need satisfaction may strengthen those pathways.

An important part of any intervention or training would be the appreciation of the time it may take for the behaviours to take effect, in terms of how long it will take for the behaviour to influence need satisfaction. As Puhakka et al. (2025) and Szulawski et al. (2021) highlighted, when considering need satisfaction, the emphasis is on how an individual feels and each person will be unique in how long they take to feel that their needs are satisfied. Simply telling someone a few times that their work is appreciated and that they are doing well may not be enough to satisfy their need for relatedness and competence, especially if they are coming from an initial starting point in which these needs are frustrated. Similarly, foreseeing the need for careful change management when these initiatives are implemented and potentially large shifts in mindset, the evidence gathered in this study can also support leader buy-in and provide information for those who seek further understanding. By increasing need satisfaction, this study showed that psychological capital may be increased. This may be crucial in boosting engagement, and as a by-product it will also likely assist in other aspects of roles that rely on employees having access to an abundance of personal

resources which could be very appealing to employers (Cahyono et al., 2025; Hazan-Liran & Walter, 2025; Wu et al., 2026; Xie et al., 2025).

The study also aided in building clarification around the role of neuroticism. It indicated that while some research suggests neuroticism plays a moderating role due to the impact it has on resource allocation (Tewfik et al., 2024), in this case it did not weaken the relationship between authentic leadership and engagement or between PsyCap and engagement. It did however, correlate negatively with all of the constructs within the model. This suggests that organisations may still want to consider neuroticism as an important factor when looking at building engagement, but rather than concerning themselves with interaction effects, this study indicates they would want to focus on how it affects the constructs directly or on alternative relationships. Responses could include further research, the initiation or continuation of individual measurement of neuroticism for recruitment purposes, or career guidance and development.

**Research Limitations and Future Directions**

As highlighted by Acuña and Male (2024) one of the limitations in cross-sectional analyses is the potential for compounding variables that may not be possible to control for, or which cannot be measured. In their study revealing that toxic leadership did not decrease worker engagement, they point to the fact that they were not able to measure or control for variables such as value in organisational outcomes and vocation which may outweigh leadership effects. This study served as an initial quantitative exploration of if and how authentic leadership is related to worker engagement both directly, and through the mediating variables. However, it is acknowledged that confounding variables that could not be measured and therefore controlled for due to the constraints on this project including survey fatigue and sampling method. As mentioned above, it is expected that value in organisational outcomes and vocation may influence engagement despite leadership influence. Other

potential issues include many factors outside of work may also influence engagement or moderate the relationships measured in this study such as work-life balance, personal issues such as family conflict as found by Li (2014), or financial stress. Therefore, given that the cross-sectional design serves as a starting platform, it is recommended that future research includes experimental designs to explore causal pathways and to better control for confounding variables. Two-time point data collection studies in which there is a control group such as the design used by Spector et al. (2025) as discussed is one possibility. However, based on the prediction that changing these behaviours may take more than a few months, a longitudinal design measuring the mediation results over more than one year may also be a good option.

The quantitative, cross-sectional nature of the study also limited the level of inference that the information gathered could provide. Individual meaning from the answers was not able to be explored due to categorical answer options given to the participants, and interpretative detail is likely be an important element when investigating concepts such as need satisfaction and authentic behaviours. Therefore, a mixed method or qualitative extension of this study using methods that focus on individual experiences and interpretation would allow for more robust conclusions.

Tang et al. (2020) discuss limitations of almost all need satisfaction wellbeing studies being based in western societies. Similarly, most engagement studies have been conducted amongst western populations (Aman et al., 2023). Study participants were selected from only English-speaking countries, and it is predicted that the results would not be replicated cross-culturally based on the differences between collectivist and individualised societies, and differences in organisational functioning of emergency services and military between these societies. Equally, it is recommended that future studies distinguish and compare results between front line and non-frontline staff due to the differences in working environments. As

discussed, the stressors experienced by staff, the complexities involved in leadership, and the requirement for engagement may not alter in degree across these work types, but the nuances to the roles may affect the relationships and their outcomes.

Berkovich and Gueta (2022) found that self-reports on authentic leadership could not replicate previous findings from follower perspectives. This may be a key consideration for future research as it is important to make clear what the researcher is measuring and that results may not be comparable to studies using alternate perspectives. Similarly, the intervention study conducted by Spector et al. (2025) showed that perceived authentic leadership training did not show any increase in perceived authentic leadership when the participants had a pre-existing relationship with their leader. However, when the pre-test post-test was conducted with team members who were new to the supervisor, they revealed a significant increase. This has important implications for any future studies measuring authentic behaviour interventions and perceived authentic leadership in general. Their study suggests that there may be a crystallisation of perceptions at some stage in the supervisor-report relationship which will potentially dampen the effects of interventions or have a compounding influence in cross-sectional studies. This further indicates that future research should include longitudinal designs that test if this effect is genuine, if it is permanent, or if it is genuine but malleable.

Finally, the factor analyses revealed there is work to be done on the theoretical construct of the scales used. Principal Component Analyses indicated single-factor solutions for the Utrecht Engagement Scale – 9, the Authentic Leadership Questionnaire, and the Emotional Stability 10-item scale used from the IPIP representation of the Goldberg (1992) Big-Five markers. Although, each was designed so they could be used as a single factor measure, they were developed in accordance with theory suggesting they are composed of several distinct first-order factors and can be measured as such. The Basic Psychological

Need Satisfaction Scale – Work Domain is comprised theoretically of three subscales: autonomy, competence, and relatedness but the principal component analysis revealed a five-factor solution with one predominant factor and four smaller factors made up of mainly reversed items that cross-loaded onto the one dominant factor. Even after excluding the reverse coded items, the scale did not provide evidence that the measure was made up of the three first-order factors as suggested in literature. Similarly, a principal component analysis on the Psychological Capital Questionnaire also produced a five-factor solution with one predominant factor but literature indicates it theoretically made up of four distinct components. Measurement issues pertaining to the challenges in replicating the theoretical constructs in research is not unique to this study and does not remove the overall implications of the results. Studies such as Towsen et al.'s (2020) paper which also specified a single first-order factor when utilising the Authentic Leadership Questionnaire due to difficulties measuring authentic leadership as a second-order factors and Stander et al. (2015) who did the same, show that the questionnaires may be used as a reliable measure of the overall construct. However, there is clearly a conflict between theoretical structure and the use of this structure in practice. Therefore, further research is required to determine clear theoretical definitions of all the psychological constructs used in this study to reduce the misalignment between theoretical make-up and the reality of measurability of latent variables.

**Conclusion**

Levels of worker engagement can make or break an organisation. When there are strong hierarchical structures in place, leadership has a vital role in how high those levels are. The results from this study imply that not only are leaders capable of lifting engagement directly but also through basic psychological need satisfaction and psychological capital. Furthermore, it has shown this to be the case in military and emergency services sectors where historically, a 'good' leader portrays behaviours of an authoritarian. This is in sharp

contrast to an emotionally intelligent and reflective leader who is able to influence others through their honesty and genuine commitment to their employees and organisational goals. This research provides a strong argument for these sectors to continue shifting away from 'great man' theories of leadership. It should inspire them to build an organisation of leaders who are situationally flexible and multi-skilled, but equally capable of trusting others when needed. Finally, it is encouraged that organisations strive toward developing authentic leaders who are effective because they instigate the motivational and practical pathways discussed in this paper for the positive outcomes, they undoubtedly desire.

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# Appendix A

# Study Survey

## Brief

**Leadership and Engagement:**

Thank you for showing interest in being part of this research study. The study is conducted by Alaina Brent from the School of Psychology at Massey University, New Zealand and supervised by Dr Anja Roemer (a.roemer@massey.ac.nz).

**What is involved?** The aim of our study is to understand how leadership affects worker engagement. Should you choose to continue, you will be asked to complete a questionnaire about how you see yourself and your work and to what extent you are feeling engaged at work. Study completion will take about 10 minutes and to take part in the study, you must reside in either the USA, the United Kingdom, Canada, New Zealand, Ireland, or Australia. You must also be currently employed within the fields of emergency services, police, or military.

Your payment will be processed after the submission has been reviewed.

**Confidentiality/Anonymity:** The data we collect does not contain any identifying information about you. All your responses go directly to the researchers via the survey software Qualtrics provided by Massey University. You will be directed to the survey through Prolific. The researchers will keep all electronic study records with demographic data protected by a password for a period of five years after the publication of results. Only members of the principal investigator's research team will have access to the original data. At the conclusion of this study, the researchers might publish findings in an aggregated or anonymous form in academic journals or at conferences.

**Potential risks and questions:** This study does not involve any known risks.

**Summary of results:** After responding to the last question of the survey, you will receive a summary of the study hypotheses. You can also contact the researcher directly if you wish to receive the results once data has been analysed by emailing the principal investigator Alaina Brent ([redacted]@massey.ac.nz). Kindly note that by contacting the researcher your identity will not be anonymous anymore, however, no link between you and the responses you submitted can be made.

**Statement of rights:** You are under no obligation to accept this invitation. Completion and submission of the questionnaire implies consent. You have the right to decline to answer any particular question. You can quit the survey any time prior to submission. This project has been evaluated by peer review and judged to be low risk. Consequently, it has not been reviewed by one of the University's Human Ethics Committees. The researcher(s) named above are responsible for the ethical conduct of this research. If you have any concerns about the ethical conduct of this research

that you want to raise with someone other than the researcher(s), please contact Massey University Human Ethics by email: humanethics@massey.ac.nz.

**Contact details:** Please do not hesitate to get in touch with the principal investigator Alaina Brent if you require further information about this project ([redacted]@massey.ac.nz). **Summary:** By proceeding with the online survey, you are agreeing that: (1) you have read and understood this information (2) questions about your participation in this study have been answered satisfactorily (3) you are aware of the potential risks (4) you are taking part in this research study voluntarily

**Consent:**

Would you like to proceed

- ○ Yes (1)
- ○ No (2)

Pro ID What is your Prolific ID Please note that this response should auto-fill with the correct ID

_____
_____

D1. Select your age category

- ○ 18 - 24 (1)
- ○ 25 - 29 (2)
- ○ 30 - 39 (3)
- ○ 40 - 49 (4)
- ○ 50 - 59 (5)
- ○ 60 - 69 (6)
- ○ 70+ (7)

D2. Country of Residence

- ○ Australia (1)
- ○ United Kingdom (2)
- ○ New Zealand (4)
- ○ United States (5)
- ○ Ireland (6)
- ○ Canada (7)
- ○ Other (please specify) (8) _____

D3. With what gender do you identify?

- ○ Male (1)
- ○ Female (2)
- ○ Non-binary / third gender (3)
- ○ Prefer not to say (4)

D4. Industry

- ○ Police (1)
- ○ Fire Service (2)
- ○ Emergency Medical Service (3)
- ○ Military (4)

D5. Are you a frontline worker?

- ○ No (1)
- ○ Yes (2)

D6. Does any of your work include hybrid or remote work?

- ○ No (1)
- ○ Yes - hybrid (2)
- ○ Yes - remote (3)

D7. Select your current position level

- ○ Individual Contributor (1)
- ○ Team Leader (2)
- ○ Manager (3)
- ○ Director (4)

D8. Does your role regularly involve shift work?

- ○ Yes (1)
- ○ No (2)

**E Brief**: The following statements are about how you feel at work. Please read each statement carefully and decide if you ever feel this way about your job.

E1. At my work, I feel bursting with energy

- ○ Never (1)
- ○ Almost Never (2)
- ○ Rarely (3)
- ○ Sometimes (4)
- ○ Often (5)
- ○ Very Often (6)
- ○ Always (7)

E2. At my job, I feel strong and vigorous

- ○ Never (1)
- ○ Almost Never (2)
- ○ Rarely (3)
- ○ Sometimes (4)
- ○ Often (5)
- ○ Very Often (6)
- ○ Always (7)

E3. I am enthusiastic about my job

- ○ Never (1)
- ○ Almost Never (2)
- ○ Rarely (3)
- ○ Sometimes (4)
- ○ Often (5)
- ○ Very Often (6)
- ○ Always (7)

E4. My job inspires me

- ○ Never (1)
- ○ Almost Never (2)
- ○ Rarely (3)
- ○ Sometimes (4)
- ○ Often (5)
- ○ Very Often (6)
- ○ Always (7)

E5. When I get up in the morning, I feel like going to work

- ○ Never (1)
- ○ Almost Never (2)
- ○ Rarely (3)
- ○ Sometimes (4)
- ○ Often (5)
- ○ Very Often (6)
- ○ Always (7)

6. I feel happy when I am working intensely

- ○ Never (1)
- ○ Almost Never (2)
- ○ Rarely (3)
- ○ Sometimes (4)
- ○ Often (5)
- ○ Very Often (6)
- ○ Always (7)

E7. I am proud of the work that I do

- ○ Never (1)
- ○ Almost Never (2)
- ○ Rarely (3)
- ○ Sometimes (4)
- ○ Often (5)
- ○ Very Often (6)
- ○ Always (7)

E8. I am immersed in my work

- ○ Never (1)
- ○ Almost Never (2)
- ○ Rarely (3)
- ○ Sometimes (4)
- ○ Often (5)
- ○ Very Often (6)
- ○ Always (7)

E9. I get carried away when I'm working

- ○ Never (1)
- ○ Almost Never (2)
- ○ Rarely (3)
- ○ Sometimes (4)
- ○ Often (5)
- ○ Very Often (6)
- ○ Always (7)

**BP Brief:** The following questions concern your feelings about your job during the last year. (If you have been on this job for less than a year, this concerns the entire time you have been at this job.) Please indicate how true each of the following statements are for you on a scale of 1 to 7, given your experiences on this job. Remember that your boss will never know how you responded to the questions. Please use the following scale in responding to the items.

BP1. I feel like I can make a lot of inputs to deciding how my job gets done.

- ○ 1: Not at all true
- ○ 2
- ○ 3
- ○ 4: Somewhat True
- ○ 5
- ○ 6
- ○ 7: Very True

BP2. I really like the people I work with.

- ○ 1: Not at all true
- ○ 2
- ○ 3
- ○ 4: Somewhat True
- ○ 5
- ○ 6
- ○ 7: Very True

BP3. I do not feel very competent when I am at work.

- ○ 1: Not at all true
- ○ 2
- ○ 3
- ○ 4: Somewhat True
- ○ 5
- ○ 6
- ○ 7: Very True

BP4. People at work tell me I am good at what I do.

- ○ 1: Not at all true
- ○ 2
- ○ 3
- ○ 4: Somewhat True
- ○ 5
- ○ 6
- ○ 7: Very True

BP5. I feel pressured at work.

- ○ 1: Not at all true
- ○ 2
- ○ 3
- ○ 4: Somewhat True
- ○ 5
- ○ 6
- ○ 7: Very True

BP6. I get along with people at work.

- ○ 1: Not at all true
- ○ 2
- ○ 3
- ○ 4: Somewhat True
- ○ 5
- ○ 6
- ○ 7: Very True

BP7. I pretty much keep to myself when I am at work.

- ○ 1: Not at all true
- ○ 2
- ○ 3
- ○ 4: Somewhat True
- ○ 5
- ○ 6
- ○ 7: Very True

BP8. I am free to express my ideas and opinions on the job.

- ○ 1: Not at all true
- ○ 2
- ○ 3
- ○ 4: Somewhat True
- ○ 5
- ○ 6
- ○ 7: Very True

BP9. I consider the people I work with to be my friends.

- ○ 1: Not at all true
- ○ 2
- ○ 3
- ○ 4: Somewhat True
- ○ 5
- ○ 6
- ○ 7: Very True

BP10. I have been able to learn interesting new skills on my job.

- ○ 1: Not at all true
- ○ 2
- ○ 3
- ○ 4: Somewhat True
- ○ 5
- ○ 6
- ○ 7: Very True

BP11. When I am at work, I have to do what I am told.

- ○ 1: Not at all true
- ○ 2
- ○ 3
- ○ 4: Somewhat True
- ○ 5
- ○ 6
- ○ 7: Very True

BP12. Most days I feel a sense of accomplishment from working.

- ○ 1: Not at all true
- ○ 2
- ○ 3
- ○ 4: Somewhat True
- ○ 5
- ○ 6
- ○ 7: Very True

BP13. My feelings are taken into consideration at work.

- ○ 1: Not at all true
- ○ 2
- ○ 3
- ○ 4: Somewhat True
- ○ 5
- ○ 6
- ○ 7: Very True

BP14. On my job I do not get much of a chance to show how capable I am.

- ○ 1: Not at all true
- ○ 2
- ○ 3
- ○ 4: Somewhat True
- ○ 5
- ○ 6
- ○ 7: Very True BP15. People at work care about me.
- ○ 1: Not at all true
- ○ 2
- ○ 3
- ○ 4: Somewhat True
- ○ 5
- ○ 6
- ○ 7: Very True

BP16. There are not many people at work that I am close to.

- ○ 1: Not at all true
- ○ 2
- ○ 3
- ○ 4: Somewhat True
- ○ 5
- ○ 6
- ○ 7: Very True

BP17. I feel like I can pretty much be myself at work.

- ○ 1: Not at all true
- ○ 2
- ○ 3
- ○ 4: Somewhat True
- ○ 5
- ○ 6
- ○ 7: Very True

BP18. The people I work with do not seem to like me much.

- ○ 1: Not at all true
- ○ 2
- ○ 3
- ○ 4: Somewhat True
- ○ 5
- ○ 6
- ○ 7: Very True

BP19. When I am working I often do not feel very capable.

- ○ 1: Not at all true
- ○ 2
- ○ 3
- ○ 4: Somewhat True
- ○ 5
- ○ 6
- ○ 7: Very True

BP20. There is not much opportunity for me to decide for myself how to go about my work

- ○ 1: Not at all true
- ○ 2
- ○ 3
- ○ 4: Somewhat True
- ○ 5
- ○ 6
- ○ 7: Very True

BP21 People at work are pretty friendly towards me.

- ○ 1: Not at all true
- ○ 2
- ○ 3
- ○ 4: Somewhat True
- ○ 5
- ○ 6
- ○ 7: Very True

**N Brief:** The following statements are about how you perceive yourself. Please read each statement carefully and decide how accurate each statement is about you.

N1 Am relaxed most of the time

- ○ Very inaccurate (1)
- ○ Moderately inaccurate (2)
- ○ Neither inaccurate nor accurate (3)
- ○ Moderately accurate (4)
- ○ Very accurate (5)

N2 Seldom feel blue

- ○ Very inaccurate (1)
- ○ Moderately inaccurate (2)
- ○ Neither inaccurate nor accurate (3)
- ○ Moderately accurate (4)
- ○ Very accurate (5)

N3 Get stressed out easily

- ○ Very inaccurate (1)
- ○ Moderately inaccurate (2)
- ○ Neither inaccurate nor accurate (3)
- ○ Moderately accurate (4)
- ○ Very accurate (5)

N4 Worry about things

- ○ Very inaccurate (1)
- ○ Moderately inaccurate (2)
- ○ Neither inaccurate nor accurate (3)
- ○ Moderately accurate (4)
- ○ Very accurate (5)

N5 Am easily disturbed

- ○ Very inaccurate (1)
- ○ Moderately inaccurate (2)
- ○ Neither inaccurate nor accurate (3)
- ○ Moderately accurate (4)
- ○ Very accurate (5)

N6 Get upset easily

- ○ Very inaccurate (1)
- ○ Moderately inaccurate (2)
- ○ Neither inaccurate nor accurate (3)
- ○ Moderately accurate (4)
- ○ Very accurate (5)

N7 Change my mood a lot

- ○ Very inaccurate (1)
- ○ Moderately inaccurate (2)
- ○ Neither inaccurate nor accurate (3)
- ○ Moderately accurate (4)
- ○ Very accurate (5)

N8 Have frequent mood swings

- ○ Very inaccurate (1)
- ○ Moderately inaccurate (2)
- ○ Neither inaccurate nor accurate (3)
- ○ Moderately accurate (4)
- ○ Very accurate (5)

N9 Get irritated easily

- ○ Very inaccurate (1)
- ○ Moderately inaccurate (2)
- ○ Neither inaccurate nor accurate (3)
- ○ Moderately accurate (4)
- ○ Very accurate (5)

N10 Often feel blue

- ○ Very inaccurate (1)
- ○ Moderately inaccurate (2)
- ○ Neither inaccurate nor accurate (3)
- ○ Moderately accurate (4)
- ○ Very accurate (5)

**Participant debriefing**: Thank you for your participation in this research study. This study aims to investigate the relationship between Authentic Leadership and worker engagement through psychological needs satisfaction and psychological capital. There has been a significant amount of research indicating that authentic leadership positively influences engagement but there is limited confirmatory research investigating *why* this may be the case, particularly within the fields of emergency services and military. The researcher hypotheses that authentic leaders satisfy psychological needs, thereby building psychological capital and, in turn, worker engagement. If you are interested in detailed results of this study, please get in touch with Alaina Brent ([redacted]@massey.ac.nz). Kindly note that by contacting the researcher your identity will not be anonymous anymore. However, your identity cannot be linked to the responses you submitted. Please click on the continue button below to be redirected back to Prolific and register your submission.

*Note.* The Authentic Leadership Questionnaire and Psychological Capital Questionnaire items are not included in the appendix due to copyright reasons.

# Appendix B

# Ethics Approval

TE KUNENGA KI PŪREHUROA | MASSEY UNIVERSITY
UNIVERSITY OF NEW ZEALAND

17/02/2025

Dear: Alaina Brent

**Re: Low Risk Notification - 4000028520 - The Effects of Authentic Leadership on Worker Engagement: Investigating the Roles of Basic Psychological Need Satisfaction, Psychological Capital, and Neuroticism**

Thank you for submitting a low risk notification for your research/teaching/evaluation.

This email is to acknowledge receipt of the low risk notification and to inform you that the details of your project have been recorded in our database for inclusion in the annual reports to the Health Research Council Ethics Committee (HRCEC) and the Massey University Research Committee (URC).

You may proceed with your research, though it is advisable to provide a couple of weeks before commencing, as all low risk notifications are checked for completeness and clarity by a Research Ethics Advisor. You may be contacted if your application is incomplete and/or further clarification is required.

The low risk notification for this project is valid for a maximum of three years.

Please notify me if situations subsequently occur which cause you to reconsider your initial ethical analysis.

*If a sponsoring organisation, funding authority (e.g., the Health Research Council) or a journal require evidence of ethical approval from a Human Ethics Committee (with an approval number), you need to complete a full Massey University Human Ethics application to be reviewed and approved by one of our Human Ethics Committees. Applications must be submitted and approved prior to the commencement of the research.*

Please note that travel undertaken by students must be approved by the supervisor and the relevant Pro Vice-Chancellor and be in accordance with the Policy and Procedures for Course-Related Student Travel Overseas. In addition, the supervisor must advise the University's Insurance Officer.

*If you have any concerns about the conduct of this research that you want to raise with someone other than the researcher(s), please contact the Research Ethics Office, email humanethics@massey.ac.nz. "*

*Please include the following statement on all public documents (e.g., information sheet, consent form) related to your project:*

> ***This project has been evaluated by peer review and judged to be low risk. Consequently, it has not been reviewed by one of the University's Human Ethics Committees. The researcher(s) named above are responsible for the ethical conduct of this research.***
>
> ***If you have any concerns about the ethical conduct of this research that you want to raise with someone other than the researcher(s), please contact Massey University Human Ethics by email: humanethics@massey.ac.nz.***

I wish you all the best in your research, teaching or evaluation activities and appreciate your thoughtful consideration of ethics principles and practices.

Ngā mihi nui,



Professor Tracy Riley
Acting Chair, Research Ethics Chair's Committee

Research Ethics, Graduate Research School and Ethics
Massey University, Private Bag 11 222, Palmerston North, 4442, New Zealand
E humanethics@massey.ac.nz; animalethics@massey.ac.nz
www.massey.ac.nz/research/ethics

# Appendix C

## Authentic Leadership Questionnaire Research Permission

For use by Alaina Brent only. Received from Mind Garden, Inc. on February 14, 2025

**Permission Letter**

mind garden

**www.mindgarden.com**

To Whom It May Concern,
The above-named person has made a license purchase from Mind Garden, Inc. and has permission to administer the following copyrighted instrument up to that quantity purchased:

**Authentic Leadership Questionnaire**

The license holder has permission to administer the complete instrument in their research, however, only four sample items from this instrument as specified below may be included in the research write-up, thesis, or dissertation. Any other use must receive prior written permission from Mind Garden. The entire instrument form may not be included or reproduced at any time in any other published material. Please understand that disclosing more than we have authorized will compromise the integrity and value of the test.

**Citation of the instrument must include the applicable copyright statement listed below.**

**Sample items:**

As a leader I….

- say exactly what I mean
- demonstrate beliefs that are consistent with actions
- solicit views that challenge my deeply held positions
- seek feedback to improve interactions with others

My leader….

- says exactly what he or she means
- demonstrates beliefs that are consistent actions
- solicits views that challenge his or her deeply held positions
- seeks feedback to improve interactions with others

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Sincerely,

Robert Most
Mind Garden, Inc.
www.mindgarden.com

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# Appendix D

# Psychological Capital Questionnaire Research Permission

For use by Alaina Brent only. Received from Mind Garden, Inc. on February 14, 2025

**Permission Letter**

mind garden

**www.mindgarden.com**

To Whom It May Concern,
The above-named person has made a license purchase from Mind Garden, Inc. and has permission to administer the following copyrighted instrument up to that quantity purchased:

**Psychological Capital Questionnaire**

The license holder has permission to administer the complete instrument in their research, however, only three sample items from this instrument as specified below may be included in the research write-up, thesis, or dissertation. Any other use must receive prior written permission from Mind Garden. The entire instrument form may not be included or reproduced at any time in any other published material. Please understand that disclosing more than we have authorized will compromise the integrity and value of the test.

**Citation of the instrument must include the applicable copyright statement listed below.**

**Sample items:**
Self-Rater Form :

I feel confident analyzing a long-term problem to find a solution.

If I should find myself in a jam at work, I could think of many ways to get out of it.

When I have a setback at work, I have trouble recovering from it, moving on.

Other Rater Form:

This person feels confident analyzing a long-term problem to find a solution.

If this person should find him/herself in a jam at work, he/she could think of many ways to get out of it.

When this person has a setback at work, he/she has trouble recovering from it, moving on.

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Sincerely,

Robert Most
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