Gordon Institute of Business Science
University of Pretoria

TITLE:

An investigation into the individual antecedents that enable women leaders to adopt a paradox mindset to achieve leadership effectiveness

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A **research project** submitted to the Gordon Institute of Business Science, University of Pretoria, in partial fulfilment of the requirements for the degree of Master of Philosophy in Corporate Strategy.

Date: 29 November 2021

Abstract

This study investigated the “strengths of the individual antecedents that shape the experience of women leaders and stimulate a paradox mindset” (Zheng et al., 2018, p.584). Zheng et al., (2018) suggested that women leaders may be capable of adopting a paradox mindset that embraces both agency and communion simultaneously in response to tensions fuelled by dual demands for agency and communion. Research into what activates and strengthens a paradox mindset becomes increasingly useful in tackling the fast-paced, dynamic, interconnected organisational ecosystem, thus strengthening it could have long-term implications.

The dependent variables were employee engagement, innovation climate and Paradox Leadership Behaviour. The paradox mindset was the mediating variable. The independent variables were the individual antecedents, identified through extensive review of the literature as: openness to experience, exposure to role models and exposure to organisational learning orientation.

Data was gathered using an online questionnaire based on existing leadership scales. The research approach was quantitative and explanatory, and the method positivist and deductive. Regression analysis was used to test the six hypotheses.

Only divergent thinking was found to have a positive relationship with activating the paradox mindset in women leaders. The study also found a significant relationship between both exposure to role models and organisational learning orientation and activating the paradox mindset in women leaders. Statistical evidence was provided to support Zheng et al.,’s (2018) propositions. Moreover, the study identified the antecedents that may enable women leaders to activate a paradox mindset.

The evidence supports that women are more likely to achieve leadership effectiveness through the activation of the paradox mindset. This should eradicate the perception that women are effective. Instead, women leaders should be acknowledged as effective leaders without any preconceived stereotypes and perceptions.

Keywords

Paradox; Women Leadership; Openness to Experience; Role Models; Organisational Learning Orientation

Declaration

I declare that this research project is my own work. It is submitted in partial fulfilment of the requirements for the degree of Master of Philosophy in Corporate Strategy at the Gordon Institute of Business Science, University of Pretoria. It has not been submitted before for any degree or examination in any other University. I further declare that I have obtained the necessary authorisation and consent to carry out this research.

Naadira Lahri

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Name & Surname Signature

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1. Introduction

1.1 Background

How often is one told ‘to do more with less’ or ‘to maintain control, you need to let go’ (Kearney, Shemla, Knippenberg & Scholz, 2019, p.20)? As contradictory as these may appear, paradoxes (conflicting demands) can either enable possibility or heighten problems, depending on how one deals with them (Lewis, 2000).

Faced with increased digitalisation, technological advancements and changing working models (Thomas, 2020; PwC, 2020), most organisations are embarking on a new era of transformation (Garcia, James, Restubog, Ocampo, Wang et al., 2019; Waldman, Putnam, Miron-Spektor et al., 2019). As a result, business ecosystems have evolved which have intensified conflicting demands on individuals (Smith & Lewis, 2011; Miron-Spektor, Smith & Lewis et al., 2018) who now, for example, must manage multiple competing requests, act in a gender-neutral way and manage a work-life balance (Miron-Spektor et al., 2018; Waldman et al., 2019).

These competing demands have recently been exacerbated for women leaders (Thomas, 2020; PwC, 2020). According to the 2020 McKinsey Global Institute and PwC reports, there is a risk that the pipeline of future women leaders in the workforce will be reduced substantially as more women opt out and choose to stay home because of the challenges they faced during the Covid-19 pandemic in 2020. Women leaders tend to try to master their environments, be assertive, competent and achieve power, thus being agentic. By contrast, they also desire to collaborate, cooperate, and relate to others, thus being communal.

As work-life-family and agency-communion are opposing, yet interconnected requirements that exist simultaneously, a paradox is created (Smith & Lewis, 2011; Lewis, Andriopoulos & Smith, 2014; Keyser, Guiette & Vandenbempt, 2019). Similarly, gender stereotypes and bias (Kalev & Deutsch, 2018) continue to place expectations on women leaders to act in both an agentic and communal manner (Eagly & Carli, 2007; Guillard & Okonjo-Iweala, 2021). Agency and communion can be differentiated by describing agency in terms of how a leader emphasises goals and directs followers to align, whereas communal leaders defer to the needs and interests of followers (Kearney et al., 2019).

It is feared that, because of the challenges of managing work-life balance, together with gender stereotypes, the women leadership pipeline may dry up unless organisations, leadership styles and mindsets evolve (Thomas, 2020; PwC, 2020). Women leaders tend to have limited access to 'openness to experience' and organisational learning orientation programmes, as well as limited exposure to role models.

While organisations prioritise effective leadership outcomes (Carter & Greer, 2013; Perera & Mcilveen, 2017; Waldman et al., 2019), they also expect their leaders to effectively manage conflicts within this paradoxical 'labyrinth' (Smith & Lewis, 2011; Carli & Eagly, 2016, p.518; Perera & McIlveen, 2017). As a result, some scholars (Smith & Lewis, 2011, p.381; Shao, Nijstad & Tauber, 2019; Waldman et al., 2019; Keyser et al., 2019) embrace a 'paradox lens' (Smith & Lewis, 2011) and suggest the paradox theory and mindset as essential to achieve effective leadership (Lewis et al., 2014; Miron-Spektor & Beenen, 2015; Cunha & Putnam, 2019).

This research study addresses what the "strengths of the individual antecedents are that shape the experience of women leaders and stimulate a paradox mindset?" (Zheng et al., 2018, p.584).

Zheng et al., (2018) suggests that to address the tensions that are triggered by the dual demands for agency and communion, women leaders can adopt a paradox mindset, embracing both simultaneously. Knowledge about the factors that could effectively activate and strengthen paradox mindsets will have a wide ranging impact (Schad, Lewis, Raisch & Smith, 2016).

Paradox theory and paradox mindset (Smith & Tushman, 2005; Smith & Lewis, 2011; Miron-Spektor & Beenen, 2015) are thus approaches to managing responses and embracing tensions that enable sustainable, effective performance that potentially results in the effective leadership outcomes of employee engagement and an innovation climate (Miron-Spektor et al., 2018). The fields of paradox theory (Schad et al., 2016, Shao et.al., 2019; Cunha & Putnam, 2019), paradox mindsets (Schad, Lewis & Smith, 2019; Pradies, Tunarose, Lewis & Courtois, 2020) and Paradox Leadership Behaviour (Zhang, Waldman, Han & Bei Li, 2015; Waldman & Bowen, 2016; Shao et al., 2019; Zhang & Han, 2019) have emerged as areas which require further research.

Paradox theorists (Miron-Spektor et al., 2018) propose that it depends on how well individual leaders manage the tensions caused by paradoxes which determines their

success. Sleesman (2019) suggests that some individuals adopt the paradox mindset with a sense of optimism and do not experience conflict. Zheng et al., (2018) propose that a paradox mindset increases women's leadership effectiveness (Zheng et al., 2018; Miron-Spektor et al., 2018; Schad et al., 2016) and this proposition is investigated in the current study. Similarly, a more recent study (Schock, Gruber, Scherndl & Ortner, 2019) suggests that women will most likely be effective leaders when they balance their agentic and communal qualities.

'Women in leadership' is therefore one of the central constructs for this research study and hypotheses have been formulated to test the propositions made by Zheng et al., (2018). These propositions focus on the three antecedents identified: openness to experience, exposure to role models and organisational learning orientation. The propositions effectively state that these antecedents moderate the relationship between tensions between agency and community experienced by women leaders and their adoption of a paradoxical mindset. That is, women leaders who are high in openness to experience, or are exposed to role models, or in organisations with high levels of learning orientation, are more likely to adopt a paradox mindset when they experience the tensions from conflicting demands. This research study therefore aims to determine what the "strengths of the individual antecedents are that shape the experience of women leaders and stimulate a paradox mindset?" (Zheng et al., 2018, p.584).

Various other scholars (Rosette, Koval, Ma & Livingston et al., 2016; Carli & Eagly, 2015; Schock et al., 2019; Miron-Spektor et al., 2018; Schad et al., 2016) also call for further research in this field. Both scholars and business (Sinha et al., 2020), acknowledge that leadership mindsets need to evolve (Zhang et al., 2015; Zhang et al., 2019) to achieve the desired leadership outcomes. As a result, this study aims to not only examine the strengths of the individual antecedents that shape the experience of women leaders and stimulate a paradox mindset (Schad et al., 2016; Zheng et al., 2018) but also to test how leveraging this capability could achieve the leadership outcomes of employee engagement (Delacour & Leca, 2017), an innovation climate (Sheep, Fairhurst & Khazanchi, 2017; Diesel & Scheepers, 2019) and Paradox Leadership Behaviour (Zhang et al., 2015).

1.2 Research Problem

The 2020 McKinsey Global Institute and PwC reports shed light on the likely reduction of the pipeline of future women leaders in the workforce. This, coupled with earlier

studies on gender stereotypes and bias (Kalev & Deutsch, 2018), highlights the significant risks faced by organisations. In addition, studies record that constant tensions and conflicting mandates, such as the demand for increased performance with reduced budgets, are one of the biggest challenges executives face (Miron-Spektor et al., 2018).

Earlier studies (Miron-Spektor & Beenen, 2015; Hughes et al., 2018; Khan & Khan, 2019) show the relationship between an innovation climate and employee engagement, and how these are influenced by the application of paradox theories (Zhang et al., 2015; Popli & Rizvi, 2016; Schad et al., 2016; Shao et al., 2019). The outcomes and discussions from these initial studies remain relevant today. More recently though, a study conducted by the McKinsey Global Institute (2020) focused on how the pandemic affected women leaders in the workplace as they faced increased tensions, often having to choose between child-care, home-schooling and their careers (Thomas, 2020).

Despite the paradoxical tensions the workforce has faced since the start of the Covid-19 pandemic in 2020, according to a 2020 Deloitte survey, more than 60% of organisations reported increased innovation (Sinha et al., 2020). However, there is growing concern about how leaders can be more effective in ensuring sustainable employee engagement (Stubbings & Sethi, 2020) and fostering an innovation climate while remote workforces are having to manage conflicting tensions (McKinsey, 2020). To ensure business continuity, organisations increasingly need to foster engagement and an innovative climate (Khan & Khan, 2019; Sinha et al., 2020).

Paradox theorists provide suggestions for managing conflict (Putnam, Fairhurst & Banghart, 2016; Schad et al., 2016; Miron-spektor et al., 2018) and perceive contradiction as a ‘double-edged sword’ (Shao et al., 2019; Waldman et al., 2019, p.2). This is because it embraces inconsistency and achieves an innovation climate (Miron-Spektor & Paletz, 2020), thus achieving leadership effectiveness. However, it simultaneously creates anxiety and stress (Lewis, 2000; Miron-Spektor et al., 2018) as employees feel pressure to be available constantly and women, as primary caregivers, battle to manage work-life balance (Thomas, 2020; PwC, 2020).

The Economist supports the call for increased employee engagement as well as an innovation climate (Vaithheeswaran, 2020) and this is validated by the 2020 Deloitte survey findings (Sinha et al., 2020). However, there is concern as to whether business has considered implementing measures to ensure these outcomes are sustainable. Furthermore, it needs to be determined what is required to empower leaders to achieve

these outcomes (Vaithheeswaran, 2020). These findings highlight both the requirements and challenges faced by organisations today (Sinha et al., 2020).

Various scholars have pointed to the research gap to understand the strengths of the individual antecedents that shape the experience of women leaders and stimulate a paradox mindset (Schad et al., 2016; Zheng et al., 2018; Miron-Spektor et al., 2018), as this would enable women leaders to manage tensions and thus achieve effective leadership outcomes. Linking this business need with the research gap, Zheng et al., (2018) propose that, to manage the tensions and ensure effective leadership, women leaders need to understand how to activate the paradox mindset and inspire their employees to remain engaged. Indeed, a paradox mindset (Sleesman, 2019; Miron-Spektor et al., 2018; Cuganesan, 2017; Zheng et al., 2018) could enable and empower women leaders to manage the conflicting tensions to successfully achieve effective leadership.

Since the start of the pandemic in 2020, however, both organisations and individuals have been faced with the challenges of achieving work-life balance and the outcomes desired by the organisation (Sinha et al., 2020). These challenges often result in narrow-minded views that: prevent openness to experience; lead to lack of accountability, which disrupts the exposure to, and the influence of, role models; and reduce knowledge-sharing, which hampers organisational learning orientation efforts. This research study focussed primarily on examining the strengths of the individual antecedents that shape the experience of women leaders and stimulate the paradox mindset necessary to address these challenges.

1.3 Research Purpose

The literature reviewed in sections 1.1 (Background) and 1.2 (Research Problem) above shows that most of the academic theory and research on paradox has been conducted on the organisational, or macro, level. However, individuals and their social, cognitive and leadership skills feed the organisational paradoxes of achieving effective leadership while having policies that allow women leaders to have a more balanced work-life. Organisational paradoxes thus stem from micro-foundations (Waldman et al., 2019). It is therefore apparent that to have a more complete understanding of paradox theory (Schad et al., 2016; Shao et.al., 2019; Cunha & Putnam, 2019) and its effect on management and organisations, increased focus needs to be paid to the individual, or micro-foundational level. Further insights and research that links the micro-foundation to

the macro level is fundamental to advancing paradox theories (Waldman et al., 2019).

The leadership outcomes of employee engagement (Bailey, Madden, Alfes & Fletcher, 2017; Schneider et al., 2018; Nikolova, Schaufeli & Notelaers, 2019) and an innovation climate (Diesel & Scheepers 2019) are other aspects critical for organisations to succeed. Various scholars have established that balancing tensions can improve engagement and innovation (Hahn, Pinkse, Preuss, & Figge, 2014; Lewis, 2000; Smith, 2014; Miron-Spektor et al., 2018; Miron-Spektor & Paletz, 2020). It has also been suggested that the paradox mindset (Zheng et al., 2018) could yield these leadership outcomes (Miron-Spektor et al., 2018; Pradies et al., 2020).

A conceptual model is provided (Figure 10) that identifies the six hypotheses formulated to test the propositions of Zheng et al., (2018) and summarised in Table 1. This shows that when women leaders adopt a paradox mindset, the outcomes could be employee engagement (Bailey et al., 2017; Nikolova et al., 2019), an innovation climate (Miron-Spektor & Paletz, 2020; Diesel & Scheepers, 2019) and Paradox Leadership Behaviour (Zhang et al., 2015).

A quantitative survey, using existing scales built to test Paradox Leadership Behaviour (Zhang et al., 2015) and paradox mindsets (Miron-Spektor et al., 2018; Miron-Spektor & Beenen, 2015), was developed to test the identified constructs. Existing scales which test the individual antecedents of openness to experience (Basadur & Hausdorf, 1996; Avolio, Gardner & Walumbwa, 2007; Avolio, Wernsing & Gardner, 2018; Gardner, Cogliser, Davis & Dickens, 2011; Martin & Rubin, 1995; Sheng & Chien, 2016), exposure to role models (Savickas & Porfeli, 2012) and organisational learning orientation (Yang, Watkins & Marsick, 2004) were also included to test the hypotheses. Lastly, the leadership effectiveness outcomes of employee engagement and an innovation climate were also tested, using two existing scales by Schaufeli, Bakker & Salanova (2006) and Diesel & Scheepers (2019).

In conclusion, various scholars have pointed to the research gap to examine the strengths of the individual antecedents that shape the experience of women leaders and stimulate a paradox mindset (Schad et al., 2016; Zheng et al., 2018; Miron-Spektor et al., 2018). Consequently, the objective of this study is to assess the strength of each individual antecedent (Zheng et al., 2018). This study not only addresses this research gap, but also shows the relationship between effective leadership and the business requirement for employee engagement and innovation climate.

1.4 Chapter Summary and Structure of Report

This report is divided into seven chapters. The first provides context for the research problem and justifies its goal. The second section includes a thorough evaluation of the existing literature in order to give a solid theoretical foundation for the development of the research question and hypotheses. The third chapter summarises the research question, propositions, and hypotheses. The fourth chapter describes the research approach used to obtain empirical evidence to confirm or reject the hypothesis. In chapter five, the results from the main data gathering and analysis are provided, and in chapter six, they are addressed in respect to prevalent hypotheses. The seventh and final chapter offers findings and recommendations, as well as proposals for further study into paradox theory and leadership behaviours.

2. Literature Review

This chapter details the academic literature, analyses the key concepts from the various literature sources and follows the roadmap as depicted in Figure 1 below. This study aims to investigate the strengths of the individual antecedents (Zheng et al., 2018). For this reason, the roadmap highlights only the main headings focussing on the individual antecedents.

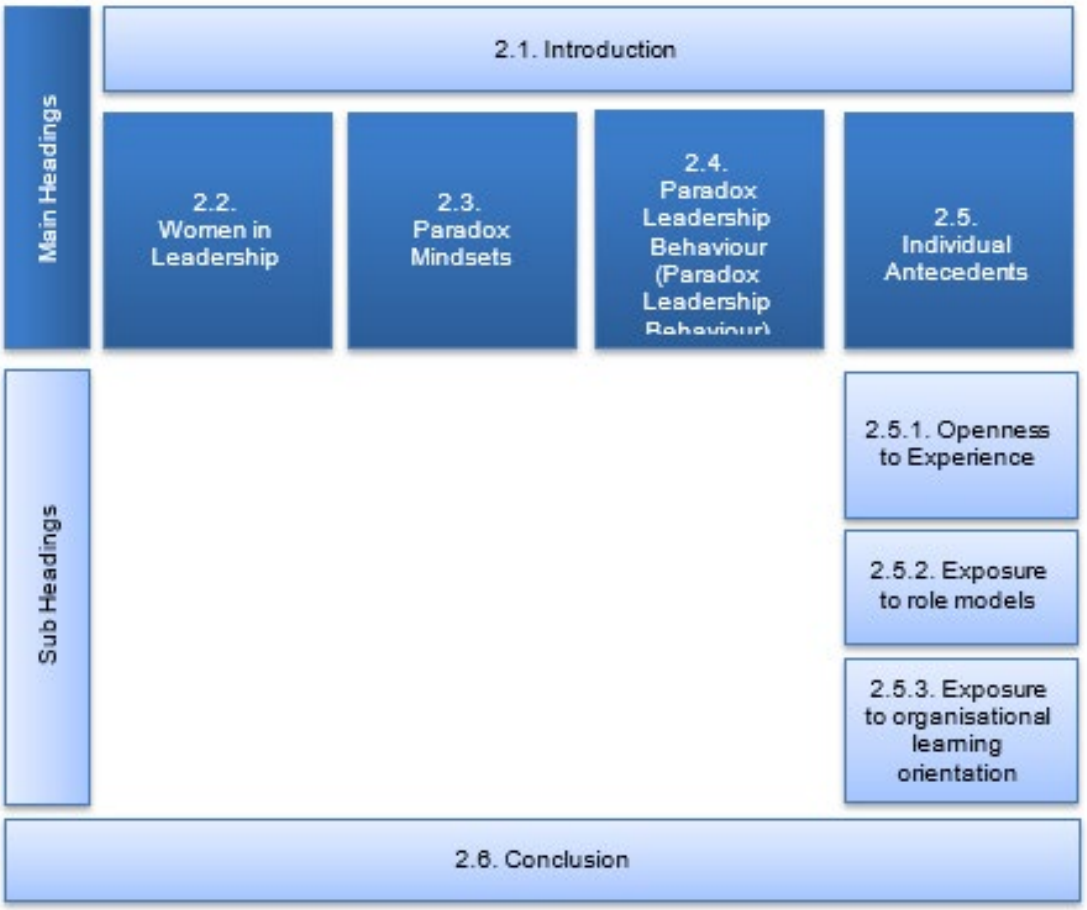

Figure 1: Structure of the Literature Review

Source: Author's compilation

2.1 Introduction

To value paradox is to accept that contradictions can become synergistic (Cunha & Clegg, 2018) and yield value. 'The appreciation of paradox entails an acquired taste for infinity' (Cunha & Clegg, 2018, p.1).

Paradox theories are intriguing and paradox leadership studies (Zhang et al., 2015; Schad et al., 2016; Zheng et al., 2018; Miron-Spektor et al., 2018; Zhang & Han, 2019)

provide key insights into the strategic leadership literature. Individuals are faced with contradictions and tensions daily, which ultimately affect organisations (Keyser et al., 2019). The body of literature on paradox is immense. The researcher analysed 120 articles to understand the concept and how it can be leveraged for women leaders to achieve leadership effectiveness.

Paradox theory refers to the approach of managing and organising responses to conflicting paradigms to enable sustainable and effective performance (Smith & Lewis, 2011; Lewis et al., 2014; Cunha & Putnam, 2019). This study examines women leaders from a paradox perspective: how women can be effective leaders by simultaneously managing both opposing and interrelated tensions (Miron-Spektor et al., 2018; Zheng et al., 2018; Cunha & Putnam, 2019; Pradies et al., 2020) to achieve Paradox Leadership Behaviour as described by Zhang et al., (2015). Furthermore, it explores the research gap identified by Zheng et al., (2018) to understand the strengths of the individual antecedents "that shape the experience of women leaders and stimulate a paradox mindset" (p.584). Figure 2 illustrates the intricacies of paradox theory and leadership behaviours as described by Zheng et al., (p.586).

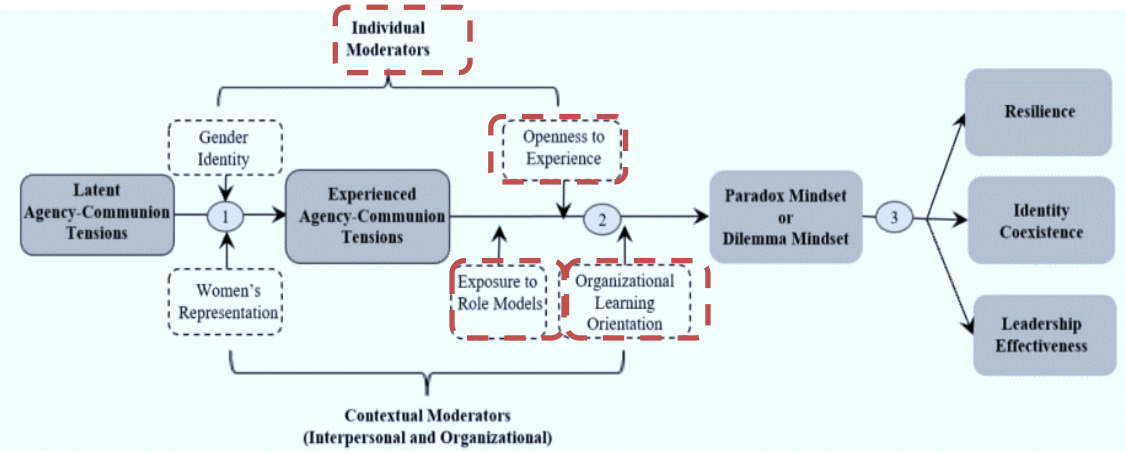

Figure 2: Paradox Mindset Theoretical Framework

Source: Zheng et al., (2018) (p.586)

This study focused on the individual level and each of the antecedents highlighted in red above are discussed in detail. Excerpts from the propositions made by Zheng et al., (2018) are given in Table 1 below.

Table 1: Summary of Propositions

No.	Proposition	Description
1	2a	Women leaders' experience of agency-communion tensions and their adoption of a paradox mindset are moderated by their openness to experience. Therefore, women who exhibit a high level of openness to experience are likely to adopt a paradox mindset as they wrestle with the tensions between agentic and communal demands.
2	2b	The relationship between women leaders' experience of tensions and their adoption of a paradox mindset is moderated by exposure to role models who demonstrate both agency and communion. As a result, women leaders who have a greater exposure to role models (who demonstrate both agency and communion) are more likely to adopt a paradox mindset as they continuously deal with tensions from agency and community.
3	2c	Women's experience of agency-communion tensions and the use of paradox mindsets are moderated by organisational learning. Therefore, women who lead organizations with a high degree of learning orientation are more likely to adopt a paradox mindset as they experience tension between agentic and communal demands.
4	3c	The paradox mindset increases women's leadership effectiveness, whereas the dilemma mindset inhibits it.
5	4	Using a paradox mindset to embrace both agency and communion, Zheng et al., (2018) propose that women leaders who experience tensions driven by the dual demands of agency and communion can respond to these situations by embracing a paradox mindset.

Source: Author's extraction from Zheng et al., (2018), p. 587

Traditionally, stereotypical communal traits of women leaders were considered irrelevant for management and leadership success (Kark, Waismel-Manor & Shamir, 2012). The research then began to recognise that women leaders tend to experience role incongruity (Schock et al., 2019) and conflict between their leadership roles versus their stereotypical feminine roles (Kalev & Deutsch, 2018). Increasingly, recent research has shown how the successful management of tensions can lead to employee engagement, an innovation climate (Bailey et al., 2017; Nikolova et al., 2019) and Paradox Leadership Behaviour (Zhang et al., 2015; Zhang & Han, 2019).

The effective leadership outcome of employee engagement relates to an employee's mental state and is generally associated with positive employer-employee relationships in which teams work in an agile, diverse, and empowered environment (Schaufeli, 2012; Bailey et al., 2017). An innovation climate can be defined as an environment in which employees are free to implement new and improved ideas that represent better ways of doing things (Van de Ven, 2017; Hughes, Lee, Tian et al., 2018). Both these leadership outcomes were investigated as outcomes to the activation of the paradox mindset in this study.

Efforts to eliminate or avoid paradox and incongruity only lead to 'vicious cycles' (Miron-Spektor & Paletz, 2020, p. 6) and are usually counter-productive. As our world becomes increasingly complex with paradoxical demands and conflicts (Waldman et al., 2019), there is a greater need to understand how women leaders can activate a paradox mindset (Zheng et al., 2018) and be energised by these conflicts (Miron-spektor et al., 2018). In the next section, this paper delves deeper into the constructs of women in leadership and role congruity theory. It discusses how women leaders manage tensions to become effective leaders by engaging with the paradox to find work-life balance (Kalev & Deutsch, 2018) as well as balancing their agentic and communal traits (Miron-Spektor et al., 2018; Waldman et al., 2019).

2.2 Women in Leadership

It is widely understood and appreciated that organisations benefit from gender diversity (Chen & Houser, 2019). Research into women in leadership and gender disparity (Kalev & Deutsch, 2018; Wang, Markóczy, Li Sun & Peng, 2019; Bodalina & Mestry, 2020; Guillard & Okonjo-Iweala, 2021) has been extensive and, together with role congruity theory (Eagly & Karau, 2002; Schock et al., 2019), shows that people stereotypically associate gender-biased traits with certain leadership roles (Javidan et al., 2016). In leadership roles, women often struggle with managing how others perceive them (Meister et al., 2017). Leadership has been conceptualised as a stereotypically masculine endeavour that requires agentic qualities and behaviour (Meister et al., 2017). Stereotypical beliefs that women are less competent in leadership roles, and in performing tasks requiring agency, remain persistent, (Samuelson, Levine, Bath, Wessel et al., 2019, p.2).

Role congruity theory (Eagly & Karau, 2002) claims that when the expectations of what it means to be a leader are in conflict with female gender stereotypes, women are less

likely to be perceived as leaders. Contemporary authors (Schultheiss, 2021) delve deeper into the paradoxes faced by women leaders. The expectations of masculine traits within leadership roles, because of the misalignment of feminine stereotypes and leadership expectations, pose a challenge for female leaders (Eagly & Karau, 2002; Samuelson et al., 2019). Eagly & Karau (2002) suggest that females need to manage both their agentic (male) and communal (female) characteristics to achieve effective leadership and be perceived as competent (Schock et al., 2019). Women in leadership roles therefore need to perform with mindfulness and self-awareness (Gardner et al., 2011) to manage the conflicts between their agentic and communal qualities (Kulich et al., 2018; Samuelson et al., 2019).

Women leaders have always had to manage inconsistent, often divergent, expectations (Eagly & Carli, 2007; Guillard & Okonjo-Iweala, 2021; Schultheiss, 2021) and have had to make difficult choices (Smith & Lewis, 2011; Carli & Eagly, 2016, p.518). They therefore need to develop and adapt their leadership styles and mindsets to empower them to be successful in this paradoxical 'labyrinth' (Smith & Lewis, 2011; Carli & Eagly, 2015, p.518) of contradictory perspectives (Zhang et al., 2015; Zhang et al., 2019; Kearney, Shemla, Knippenberg & Scholz, 2019).

In this 'labyrinth', women leaders may be perceived as not acting in accordance with "good leader" stereotypes (Javidan et al., 2016) and, in parallel, as not acting as women when they portray the typical leadership stereotype by adopting more agentic characteristics. Women may be disparaged for not displaying the communal qualities stereotypically associated with women (Mavin, 2001; Kark et al., 2012; Guillard & Okonjo-Iweala, 2021). Figure 3 below illustrates this gender and executive roles paradox.

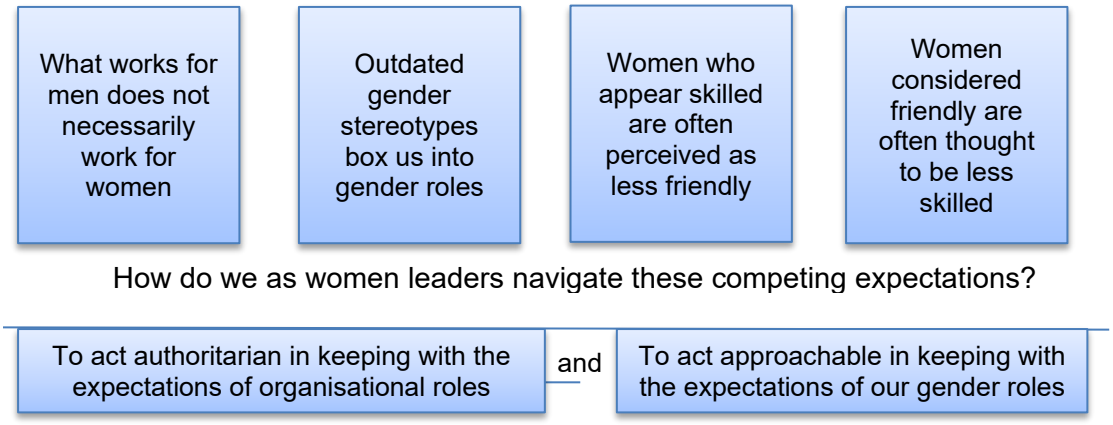

Figure 3: Gender and Executive Roles Paradox

Source: Researcher's own construction, based on de Valk (2019)

Successful male leaders are often described as displaying traits such as competitive, powerful, and decisive (Javidan et al., 2016; Zheng et al., 2018). However, empathy, collaboration and open, transparent communication (Koenig, Eagly, Mitchell & Ristikari, 2011) are key in the business landscape today (Sinha, Garg & Agarwal, 2020) and complement a decisive, structured (Javidan et al., 2016) leadership approach.

Women leaders appear to manage these inconsistent and often divergent expectations. They tend to act in an agentic manner, thus fulfilling the stereotypical leadership role. In parallel, they act with a sense of community, thus satisfying the stereotypical female role (Chen & Houser, 2019; Zheng et al., 2018). This demonstrates that women leaders could activate a paradox mindset (Zheng et al., 2018) to achieve leadership effectiveness. The hypotheses in this study were developed to explain the constructs of paradox mindset and leadership effectiveness as they pertain to women leaders specifically. The next section discusses the paradox mindset and how women leaders could effectively activate this.

2.3 Paradox Mindsets

The definition of a mindset is the intellectual ability of an individual to psychologically organise information and direct and shape the reaction to experiences and responses (Zheng et al., 2018). It is the structure through which individuals understand and interpret complex events (Miron-Spektor et al., 2018) and encounters in their lives.

Paradoxes are contradictory (Smith & Lewis, 2011), interdependent (Schad et al., 2016) and not easily resolved (Putnam, Fairhurst & Banghart, 2016). A paradox mindset is a style which simultaneously embraces both agentic and communal traits (De Keyser et al., 2019). It assists women leaders to create mental resilience (Sleesman, 2019) and thus achieve leadership effectiveness (Schock et al., 2019).

Proponents of the paradox mindset encourage individuals to embrace tensions as well as conflicts and view them as opportunities for learning and growth (Smith, Lewis & Tushman, 2016; Putnam, Fairhurst & Banghart, 2016; Shao et al., 2019). A paradox mindset is one in which the individual employs self-awareness to adequately manage the tensions and displays integrative and holistic thinking as well as decision-making (Miron-Spektor et al., 2018). Individuals who adopt a paradox mindset search for solutions, show increased cognitive flexibility and are open to ambiguity (Waldman et al., 2019). Figure 4 illustrates the machinations involved within the paradox mindset.

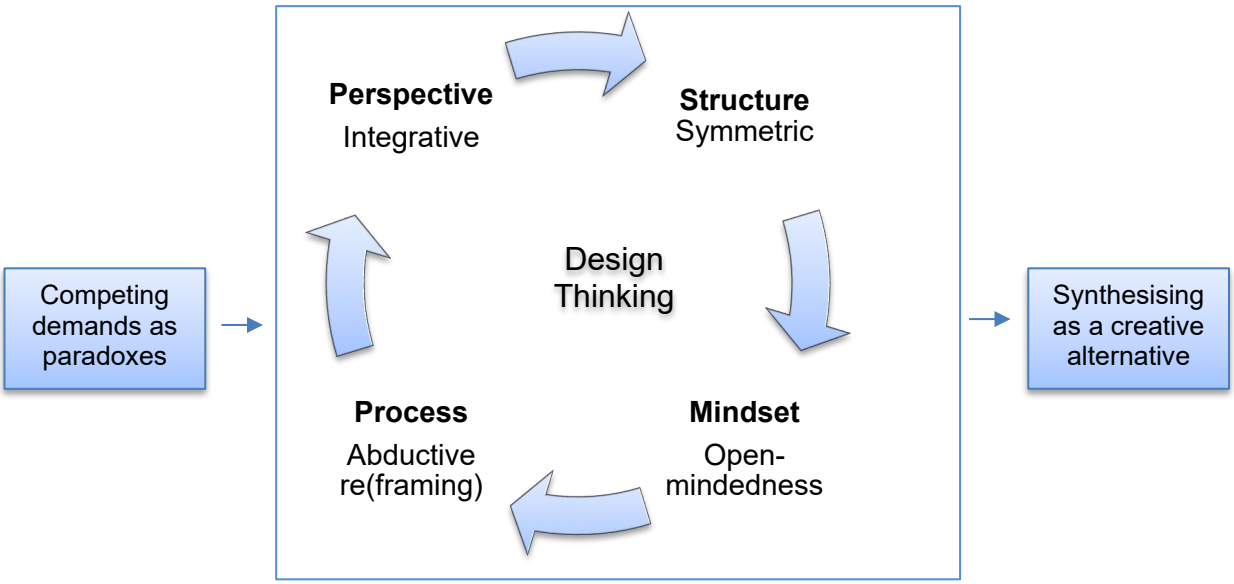

Figure 4: Synthesising the Paradox Mindset

Source: (Gaim & Wåhlin, 2016, p.38)

Cognitive flexibility is the ability to adapt the mindset and thinking patterns that enable the innovative and creative methods necessary to switch between different tasks (Braem & Egner, 2018). Leaders need to be able to display communal, collaborative and relationship-building attributes as well as the agentic attributes of focused decision-making (Kark, Waismel-Manor and Shamir, 2012; Smith et al., 2016; Huq, Reay & Chreim, 2017).

Paradox theory suggests that individuals who adopt this paradox mindset tend to be more open to accept the conflict (Miron-Spektor et al., 2018) between agentic and communal character traits and better able to manage tensions of various kinds (Smith & Lewis, 2011). Paradox theory thus calls for a 'both/and' approach (Smith et al., 2016) that acknowledges that paradoxes are both contradictory and interdependent (Miron-Spektor & Paletz, 2020). Integrative complexity (Miron-Spektor et al., 2018), defined as having a higher propensity to distinguish and consolidate (integrate) various viewpoints, may also be related to having a paradox mindset.

Leaders with paradox mindsets are more prone to view conflict as an opportunity to face challenges and learn from the experience, which shapes the way they deal with crises (Miron-Spektor et al., 2018). Holistic thinking is also key to leadership success (Miron-Spektor et al., 2018) and can be defined as the capacity to see the bigger picture, or

achieve a holistic perspective, by consolidating different perspectives through integrative thinking. Embracing paradox enables leaders to be more collaborative and open to exploring new ways of doing things (Pradies et al., 2020; Toukas & Cunha, 2017). New learning experiences are created (Huq et al., 2017) that enable leaders to embrace holistic thinking and become resilient (Sleesman, 2019; Zheng et al., 2018), which results in leadership effectiveness.

The early work of Poole & Van de Ven (1989) suggests that acknowledgement of conflicting pressures enables individuals to increase self-awareness of their competences and thus increase their cognitive flexibility, which contributes to an innovation climate. Therefore, individuals with paradox mindsets manage to live with paradoxical conflicts by analysing, inspecting and challenging the tensions to inspire innovative ideas (Poole & Van de Ven, 1989). Recent work by Rothman & Melwani (2017) shows that individuals with a paradox mindset tend to increase focus, explore broadly for solutions, and have increased cognitive flexibility and divergent thinking perspectives (Miron-Spektor et al., 2018).

Aligned to Gaim & Wåhlin's (2016) description of design thinking, divergent thinking is defined as the ease with which individuals can broaden their perspectives and balance divergent views (Rothman & Melwani, 2017). As a result of divergent thinking, individuals start to accept tensions and resort to adapting and embracing conflict instead of perceiving the tensions as threats (Miron-Spektor et al., 2018). Once divergent thinking is embraced, leaders tend to seek innovative ways to overcome the conflicts (Miron-Spektor et al., 2018; Miron-Spektor & Paletz, 2020).

It must be noted that while the paradox mindset can bring about positive resilience in leaders (Miron-Spektor et al., 2018; Cuganesan, 2017; Zheng, et al., 2018), the dilemma mindset (Lewis, 2000) brings about the converse. The latter is the mindset adopted when an individual views paradoxical tensions as separate, is incapable of harmonising these tensions and thus chooses one or the other (Lewis, 2000; Smith & Lewis, 2011; Smith, 2014; Zheng et al., 2018). Similarly, a fixed mindset (Lewis, 2000), which is firm and prearranged, is not inclined to change and cannot find a balance between tensions, instead also choosing an ‘either-or’ scenario (Smith & Lewis, 2011).

Leaders with dilemma or fixed mindsets (Lewis, 2000) are generally uncomfortable in conflicting environments (Wong & Kwong, 2018; Sleesman, 2019). This explains why these individuals resort to an ‘either-or’ scenario and avoid tensions that create anxiety

(Miron-Spektor et al., 2018). This results in depleted resilience (Sleesman, 2019) and reduces leadership effectiveness. In summary, the paradox mindset leads to leadership resilience and effectiveness (Zheng et al., 2018; Sleesman, 2019), while the dilemma mindset achieves the opposite (Zheng et al., 2018). This study therefore focuses on paradox, and not dilemma, mindsets. Hypotheses have thus been developed to investigate the propositions of Zheng et al., (2018) and examine the strengths of the individual antecedents that shape the experience of women leaders and stimulate a paradox mindset. The next section explains Paradox Leadership Behaviour and how this could help women leaders.

2.4 Paradox Leadership Behaviour

'The style of leaders should be both empathetic and gentle, but also decisive, firm and powerful' (Lee, Han, Byron, & Fan, 2008, p.93).

The last four decades have seen an evolution of leadership styles and theories. One such theory is that of androgynous leadership (Kark et al., 2012). This is defined as the leadership style in which agency and communion are effectively balanced (Eagly & Karau, 2002; Schock et al., 2019). It has been suggested that androgyny is more common among female than male leaders (Kark et al., 2012). Furthermore, studies (Kark et al., 2012) show that female leaders can increase leadership effectiveness when they flexibly combine and balance both communal and agentic character traits (Kark et al., 2012). Zheng et al., (2018), synthesised the concepts of androgyny and paradox. They thus proposed that once androgyny is achieved, the path to an improved paradox mindset (Zheng et al., 2018) is set and this can positively influence leadership effectiveness.

A second theory relates to Carter & Greer's (2013) suggestion that leaders who adopt an authentic leadership style often take a balanced view of situations before making decisions. Authentic leaders are self-aware, confident, resilient, know who they are, and are perceived by their followers to be understanding (Avolio & Luthans, 2006; Gardner et al., 2011). Self-awareness (Avolio & Luthans, 2006; Gardner et al., 2011) has been identified as one of the main constructs underpinning authentic leadership (Avolio et al., 2009) and it is closely aligned to openness to experience, one of the antecedents examined in this study.

A third theory, by Zhang et al., (2015), concerns Paradox Leadership Behaviour. This is defined as leadership conduct or behaviours that appear to be conflicting yet are

interconnected and enable leaders to meet challenging workplace mandates simultaneously and over time (Zhang et al., 2015, p.538). This type of leadership style becomes relevant as leaders in dynamic, multifaceted, and complicated business environments are challenged daily by paradoxical demands (Smith, Lewis & Tushman, 2016; Waldman & Bowen, 2016; Zhang et al., 2015; Zhang & Han, 2019). For example, in addition to meeting the organisational requirements for order, structure, control and stability, leaders must also address employee requirements, such as freedom, autonomy and flexibility (Zhang et al., 2015). Situational leadership approaches focus primarily on short-term leadership (Zhang et al., 2015) but only paradoxical leadership can ensure effective leadership over the long term (Waldman et al., 2019).

Paradox Leadership Behaviour has been characterised as being both competing and interconnected (Zhang et al., 2015; Zhang & Han, 2019; Waldman et al., 2019). A “both/and” (Smith et al., 2016) cognitive and holistic mindset is therefore the basis for paradoxical behaviour. The ability to endure contradictory states (Leung et al., 2018; Miron-Spektor et al., 2011) and maintain the high cognitive abilities required to manage contradictory elements is essential to manage paradoxical, complex, and uncertain issues (Miron-Spektor et al., 2018).

Paradox Leadership Behaviour consists of five dimensions (Zhang et al., 2015; Zhang & Han, 2019), namely: (1) a combination of egocentricity with other centeredness, (2) continuing to maintain both detachment and familiarity, (3) Maintaining both control of direction while also enabling independence, (4) implementing work parameters, while enabling flexibility, and (5) practicing fair, unbiased management, while accepting individualisation. These five dimensions address different paradoxes. Studies have found that Paradox Leadership Behaviour also contributes positively to employee proactivity, resilience (Sleesman, 2019), competence and adaptivity (Shao et al., 2019).

Past research studies have focused on Paradox Leadership Behaviour at the macro-organisational level (Zhang & Han, 2019; Pearce et al., 2019). By contrast, this study uses the Paradox Leadership Behaviour scale developed by Zhang et al., (2015) to focus on the micro-individual level. This scale was also used in a study conducted by Shao et al., (2019) to identify boundaries and situations optimal for Paradox Leadership Behaviour. Their findings reveal a complex relationship, and that Paradox Leadership Behaviour could be a ‘double-edged sword’ (Waldman et al., 2019, p.2), depending on the context.

In the current study the Paradox Leadership Behaviour scale was used to test hypotheses concerning effective leadership outcomes. Similarly, a study by Kearney, Shemla, van Knippenberg & Scholz (2019) used the Paradox Leadership Behaviour scale to test visionary and empowering leadership. The authors argue that Paradox Leadership Behaviour is inherently both agentic and communal, and thus contradictory. In contrast to the studies by Zhang et al., (2015) and Shao et al., (2019), the study by Kearney et al., (2019) does not measure Paradox Leadership Behaviour as a unified construct. Instead, it measures the interaction of different constructs and thus provides evidence for a 'both/and' approach, described in an earlier paper by Smith et al., (2016).

This research study is similar to previous Paradox Leadership Behaviour research (Zhang et al., 2015; Shao et al., 2019; Kearney et al., 2019; Pearce et al., 2019; Waldman et al., 2019) in that the overarching paradox of agency versus communion is central. Women leaders are faced with having to manage both the paradox between the agentic and communal traits integral to leadership behaviour, and the paradox between the stability and transformation essential in changing environments (Waldman & Bowen, 2016). For women leaders to successfully manage paradoxical challenges it is essential they perform paradoxical roles (Lewis, Andriopoulos & Smith, 2014) and adopt paradoxical behaviour (Waldman & Bowen, 2016; Zhang et al., 2015) to activate the paradox mindset (Zheng et al., 2018).

Zheng et al., (2018) put forward proposition 3c which states that a paradox mindset increases women's leadership effectiveness, whereas a dilemma mindset inhibits it. Paradox Leadership Behaviour not only achieves effective leadership, but also acknowledges the constant inconsistencies of dealing with challenges and pursuing opportunities. This behaviour empowers organisations to move beyond survival mode and strive for continuous innovation (Smith & Lewis, 2011; Shao et al., 2019). Engaging with paradoxical tensions fosters creativity among teams (Miron-Spektor, Gino, & Argote, 2011).

This study further aims to investigate the leadership effectiveness outcomes of employee engagement and an innovation climate. Previous studies have found that individuals with the paradox mindset often feel energised by working through the tensions (Miron-spektor et al., 2018). They are optimistic and resilient (Sleesman, 2019), perceiving tensions as an opportunity for growth, learning and innovation (Miron-Spektor & Paletz, 2020). Another study, however, found that these tensions increase complexity and uncertainty

(Calic, Heilie, Bontis et al., 2019) which causes confusion and does not lead to an innovation climate.

In conclusion, the construct of self-awareness in authentic leaders (Avolio et al., 2009; Carter & Greer, 2013; Gardner et al., 2011), together with the paradox mindset that influences Paradox Leadership Behaviour (Zhang et al., 2015), led us to formulate hypotheses to support the four propositions of Zheng et al., (2018).

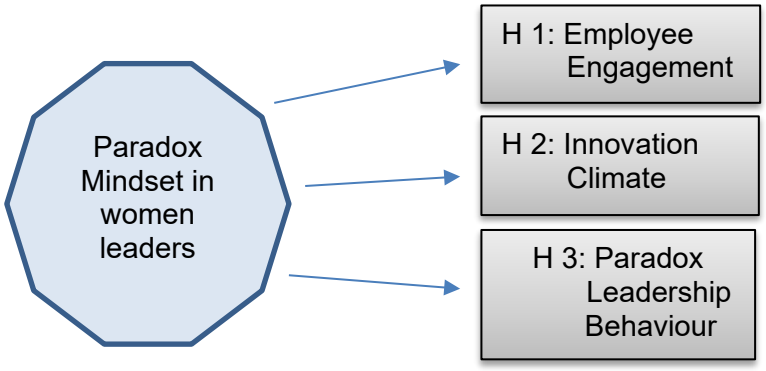

Figure 5: Conceptual Model Representing Dependent Variables

Source: Author's compilation

Based on the above discussion, the following hypotheses were formulated.

Hypothesis 1

$H1_a$: A paradox mindset in women leaders results in employee engagement.

$H1_0$: A paradox mindset in women leaders does not result in employee engagement.

Hypothesis 2

$H2_a$: A paradox mindset in women leaders results in an innovation climate.

$H2_0$: A paradox mindset in women leaders does not result in an innovation climate

Hypothesis 3

$H3_a$: A paradox mindset in women leaders results in Paradox Leadership Behaviour.

$H3_0$: A paradox mindset in women leaders does not result in Paradox Leadership Behaviour.

The next section discusses the strengths of the individual antecedents that may activate a paradox mindset in women leaders.

2.5 The Individual Antecedents

If 70% of leadership style is influenced by environmental factors, life context and learning

experiences (Avolio et al., 2009; Avolio & Luthans, 2006), the growing need to develop leadership mindsets (Jeanes, 2021) must be addressed with urgency as organisations increasingly face complex global challenges. In the last few years, there has been increased interest in how individual differences (Tuncdogan, Acar & Stam, 2017) may influence leadership behaviours. The three individual antecedents which may strengthen women leaders' ability to activate a paradox mindset (Zheng et al., 2018) are the focus of this section.

2.5.1 Openness to Experience

Openness to experience refers to the self-awareness and mindfulness (McCrae, 1987) in an individual's quest to expand knowledge, gain experience and be broad-minded as well as curious (Rothman & Melwani, 2017). The personality trait of openness to experience has been significantly associated with creativity (Liu, Jiang, Shalley, Keem et al., 2016). It is similar to divergent thinking (Miron-Spektor et al., 2011), which also supports this quest for knowledge and being open to experiences (McCrae 1987). Zheng et al., (2018) suggest that open-minded leaders tend to develop cognitive flexibility and seek diverse experiences. Open-minded people also tend to be adaptive (Rothman & Melwani, 2017) in situations of uncertainty and thus capable of adopting paradoxical frames (Miron-Spektor et al., 2011).

Open individuals embrace new experiences, enjoy variety and initiate change (Costa & McCrae, 1997). They tend to be willing to explore new experiences (Rothman & Melwani, 2017). It is this ability to adapt to uncertainty (Miron-Spektor et al., 2011) that women leaders could use to manage incongruencies as well as temper agency and community (Zheng et al., 2018). The constructs of divergent creative thinking (McCrae 1987), self-awareness (Avolio & Luthans, 2006; Gardner et al., 2011), cognitive flexibility (Braem & Egner, 2018) and absorptive capacity (Yildiz et al., 2019) are discussed below.

As open people are inspired by innovation and the intricacy of problem-solving, their divergent thinking, creativity and cognitive flexibility develop organically (McCrae, 1987). Divergent thinking (Miron-Spektor et al., 2011) is an attribute of intellect (Guilford, 1967). Open people have the intellectual reasoning capacity that enables them to structure their thoughts in an adaptable manner such that they identify and respond to perceived internal tensions and divergences amicably (Costa & McCrae, 1997). The divergent thinking scale developed by Basadur & Hausdorf (1996) was used in this study to measure this construct.

Gender biases do exist and women in leadership roles are required to perform at the level of mindfulness and self-awareness at which they manage the conflicts of both their agentic and communal qualities. Self-awareness is one of the main constructs that underpins authentic leadership as it is exhibited through the display of a leader's strengths, weaknesses and sense-making of the world (Avolio et al., 2009). McCrae (1987) defines openness to experience as the extensiveness of self-awareness and mindfulness in an individual's quest to expand knowledge and experience. This supports the definition by Zheng et al., (2018) as mindfulness allows individuals to manage their reactions to conflicting situations and adapt accordingly (McCrae, 1987).

Cognitive flexibility is the capability to discontinue archaic models and adopt the mindset as well as thinking patterns that use the more innovative and creative methods necessary to switch between different tasks (Braem & Egner, 2018). Costa & McCrae (1997) hypothesise that employees who are strong on creativity and cognitively flexible are open to embrace diverse experiences and are thus capable of androgyny (Kark et al., 2012). Supporting this hypothesis, Rothman & Melwani (2017) note that, at the individual level, leaders who experience emotional complexity tend to be more cognitively flexible and thus more adaptive. The cognitive flexibility scale developed and tested by Martin & Rubin (1995) was used to test this construct.

Absorptive capacity is the third construct of openness to experience. Earlier studies defined it as an individual's aptitude to use information from the external environment (Cohen & Levinthal, 1990), while a recent study by Yildiz et al., (2019) defines absorptive capacity as a competence that can be nurtured and improved over time. Barrick & Mount (1991) note that although absorptive capacity is a skill that can be fostered over time, openness to experience, which they describe as one of the big five personality traits, is a fixed characteristic specific to individuals. An absorptive capacity scale, developed by Sheng & Chien (2016), was used in this study.

Paradox literature (Miron-Spektor & Erez, 2017; Leung et al., 2018) suggests mindsets that embrace tensions seek opportunities to disrupt and enhance creativity (Miron-spektor et al., 2018). Paradoxical frames (Hahn et al., 2014); Leung et al., 2018) structure how people perceive contradictions, acting as cognitive filters that may increase an individual's awareness of tensions which is essential for creativity. Individuals with a paradox mindset tend to be optimistic about working through tensions (Sleesman, 2019), often changing a negative situation into a positive one. Similarly, Miron-Spektor & Paletz, (2020) suggest that individuals who reframe the negative tension often confront the

contradiction as an opportunity for growth and learning.

Various studies (McCrae, 1987; Sleesman, 2019) suggest that individuals high on openness embrace cognitive conflicts rather than deny them; this helps to develop cognitive, flexible, divergent and creative thinking. However, some researchers (Rothman & Melwani, 2017; Sleesman, 2019; Waldman et al., 2019) suggest that individuals high on openness, who embrace cognitive conflicts, could become rigid, unless they push through the conflict. A leader's emotional maturity (Rothman & Melwani, 2017) determines whether he or she can manage contradictions and adopt a paradox mindset (Zheng et al., 2018).

Zheng et al., (2018) puts forward proposition 2a, that states that women leaders' experience of agency-communion tensions and their adoption of a paradox mindset are moderated by their openness to experience. Therefore, women who exhibit a high level of openness to experience are likely to adopt a paradox mindset as they wrestle with the tensions between agentic and communal demands (p. 588).

Lewis, (2000) and Miron-Spektor et al., (2018) support the view of Zheng et al., (2018) that, when open women leaders experience tensions between agency and communion, this most likely activates a paradox mindset and fosters an innovation climate (Lewis, 2000). These two constructs are therefore investigated in this study and used to support the formulated hypotheses on the individual antecedents to address the research gap identified by Zheng et al., (2018).

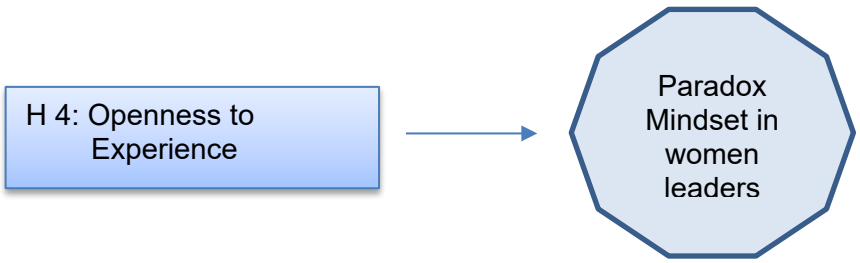

Figure 6: Conceptual Model Representing Openness to Experience

Source: Author's compilation

Hypothesis 4 was formulated based on the above discussion:

$H4_a$: The individual's openness to experience influences a paradox mindset in women

leaders.

$H4_0$: The individual's openness to experience does not influence a paradox mindset in women leaders.

However, based on the literature review, openness to experience is made up of four constructs that should be tested. Further hypotheses have therefore been formulated, as illustrated below:

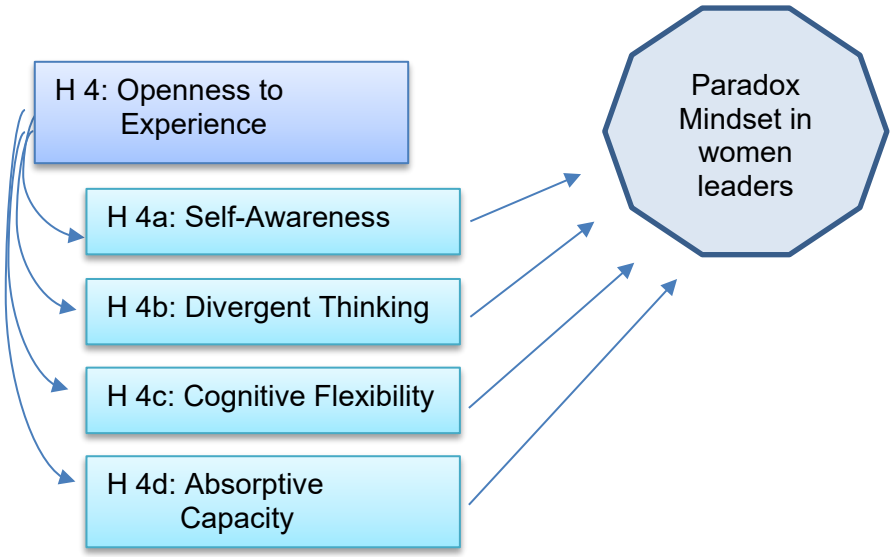

Figure 7: Conceptual Model Representing Openness to Experience broken down by Constructs

Source: Author's compilation

Hypothesis 4a Self-Awareness

$H4a_a$: The individual's self-awareness influences a paradox mindset in women leaders.

$H4a_0$: The individual's self-awareness does not influence a paradox mindset in women leaders.

Hypothesis 4b Divergent Thinking

$H4b_a$: The individual's divergent thinking influences a paradox mindset in women leaders.

$H4b_0$: The individual's divergent thinking does not influence a paradox mindset in women leaders.

Hypothesis 4c Cognitive Flexibility

$H4c_a$: The individual's cognitive flexibility influences a paradox mindset in women leaders.

$H4c_0$: The individual's cognitive flexibility does not influence a paradox mindset

in women leaders.

Hypothesis 4d Absorptive Capacity

$H4d_a$: The individual's absorptive capacity influences a paradox mindset in women leaders.

$H4d_0$: The individual's absorptive capacity does not influence a paradox mindset in women leaders.

The next section discusses the individual antecedent of exposure to role models that may activate a paradox mindset in women leaders.

2.5.2 Exposure to Role Models

Exposure to role models is the second antecedent which may strengthen women leaders' ability to activate a paradox mindset. Role models are those people whose character traits and achievements are admired; these individuals often encourage, motivate and inspire people through their behaviour (Guillard & Okonjo-Iweala, 2021). Kark et al., (2012) suggest that one of the main ways of creating leadership effectiveness is by creating a connection with role models.

Zheng et al., (2018) put forward proposition 2c, which states that women's experience of agency-communion tensions and the use of paradox mindsets are moderated by organisational learning. Therefore, women who lead organizations with a high degree of learning orientation are more likely to adopt a paradox mindset as they experience tension between agentic and communal demands.

Career construction theory links the concept of personal growth with how individuals use exposure to role models to achieve shifts in their mindsets and subsequently their careers (Savickas, 2013). Social cognitive theory (SCT) explains which character traits and competencies can be developed when an individual is exposed to role models and observes their behaviour as well as strategies when managing complex situations (Bandura, 1986).

Role modelling and experiential learning (Heslin & Keating, 2017) therefore provide a framework and effectively encourage leaders to achieve adaptability competencies (Garcia et al., 2019). As leaders can face cognitive, blind-spot and overconfidence bias (Yoon, Scopelliti & Morewedge, 2021) in their judgements and decisions, observational learning (Yoon et al., 2021) interventions may develop their judgement and decision-making abilities. By consulting mentors within the organisation, and listening to multiple

perspectives, women leaders can improve their decision-making abilities and hence manage their tensions more effectively (Rudolph et al., 2017).

Career adaptability is defined as the individual's capacity to manage multiple tasks, crises and relationships within his or her role (Garcia et al., 2019; Rudolph et al., 2017; Guan et al., 2017). This is a core construct of Career Construction Theory (Savickas, 2013) and a skill that can be developed through role modelling experiences (Rudolph et al., 2017). An important finding of Garcia et al., (2019) is that career adaptability can be influenced through personal experiences, via relationships and societal exchanges. The specific behaviours demonstrated by role models are adopted (Bandura, 1986). Exposure to roles models is thus key for individuals to learn how to balance tensions (Rudolph et al., 2017) which in turn can result in a paradox mindset. This antecedent is therefore an important construct in this study.

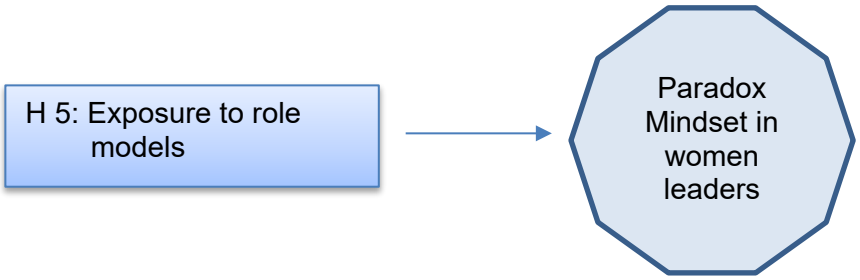

Figure 8: Conceptual Model Representing Exposure to Role Models

Source: Author's compilation

Hypothesis 5 was formulated based on the above discussion:

$H5_a$: The individual's exposure to role models influences a paradox mindset in women leaders.
$H5_0$: The individual's exposure to role models does not influence a paradox mindset in women leaders.

The next section discusses the individual antecedent of organisational learning orientation that may activate a paradox mindset in women leaders.

2.5.3 Exposure to Organisational Learning Orientation

Organisational learning (OL) is vital for the sustainability of the organisation (Alerasoul, Afeltra, Hakala et al., 2021). OL is the process whereby individuals, teams and the

broader organisation share information, knowledge and training across departments and individuals are guided through experiential learning experiences and interactions with others within the broader network (Van Wijk et al., 2008).

There is however a distinction between OL (Alerasoul et al., 2021) and organisational learning orientation (Alerasoul et al., 2021). OL is based on the individual's experiential learning (Van Wijk et al., 2008) while organisational learning orientation is more closely linked to vision, mental models (Jiang, Xu, Houghton & Kulich, 2021) and a cultural dimension of OL in which an organisation's values influence proactive learning paths for individuals (Alerasoul et al., 2021).

For example, an organisation's values can influence leaders' mental models (Jiang et al., 2021) to explore concepts and be creative in their methods; as a result, individual leaders naturally progress towards the paradox mindset (Zheng et al., 2018). Individuals tend to proactively search for self-development opportunities (Jiang et al., 2021) and explore ways to develop their leadership abilities to manage the various tensions they encounter.

Zheng et al., (2018) put forward proposition 2c, that states that women's experience of agency-communion tensions and the use of paradox mindsets are moderated by organisational learning. Therefore, women who lead organizations with a high degree of learning orientation are more likely to adopt a paradox mindset as they experience tension between agentic and communal demands.

Jiang et al., (2021) identify decentralisation and networks as constructs that facilitate an individual's exposure to organisational learning. In the case of decentralisation (Jiang et al., 2021), decision-making is shared across business departments, authority is distributed, and the organisational hierarchy is flattened (Lee & Edmondson, 2017). This leads to a sense of autonomy, a self-managed organisation (Lee & Edmondson, 2017) as well as independence between departments, and results in increased employee inspiration, innovation (Ojha et al., 2018) and willingness to share organisational information, all of which facilitate an individual's learning experience (Van Wijk et al., 2008).

Networks between people within the organisation support trust and knowledge-sharing (Van Wijk et al., 2008). The open connections facilitate increased information-sharing and enhance employee willingness to problem-solve innovatively (Ojha et al., 2018). In

addition, trust fosters openness in teams as well as business partners, and enables the transfer of organisational knowledge, thus enhancing the individual's learning experience (Lee & Edmondson, 2017). In particular, the inclination of the organisation to create knowledge-sharing platforms, be open to new ideas and create purpose among teams, contributes to the individual's learning experience, and this shapes employee priorities, values and behaviours (Cohen & Levinthal, 1990, Van Wijk et al., 2008, Zheng et al., 2018). Exposure to organisational learning orientation is therefore an additional construct in this study.

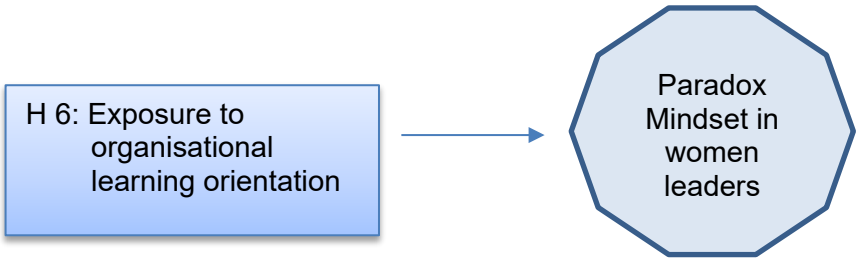

Figure 9: Conceptual Model Representing Exposure to Organisational Learning Orientation

Source: Author's compilation

Hypothesis 6 was formulated based on the above discussion:

$H6_a$: The individual's exposure to organisational learning orientation influences a paradox mindset in women leaders.

$H6_0$: The individual's exposure to organisational learning orientation does not influence a paradox mindset in women leaders.

2.6 Chapter Conclusion

Various researchers (Miron-Spektor et al., 2018; Zhang et al., 2015; Raisch et al., 2018) have written about the paradox mindset and the strength of its individual antecedents (Zheng et al., 2018), and suggested that individuals should be courageous (Guillard & Okonjo-Iweala, 2021) and not follow the norms of leader and gender stereotypes (Kalev & Deutsch, 2018). Instead, individuals should embrace learning (Alerasoul et al., 2021) and follow role models (Rudolph et al., 2017) who will empower them to activate the paradox mindset (Zheng et al., 2018). Like the study of Shao et al., (2019), which identified boundaries and situations optimal for Paradox Leadership Behaviour, this study aims to identify the antecedents that strengthen women leaders' ability to activate a paradox mindset. The next chapter sets out the research question and subsequent hypotheses based on the constructs discussed in the literature review.

3. Research Question and Hypotheses

The focus of this study was to examine the strength of the individual antecedents that could activate a paradox mindset in women leaders. The influence of each of these forms the basis of the main research question and hypotheses. A hypothesis, as defined by Bell et al., (2019), is an educated assumption, which is established to be tested, about the likely relationship between two or more variables. To test the hypotheses, one needs to move from the conceptual domain into the observable domain (Field, 2018), and measure variables. The research question and formulated hypotheses are based on, and were used to test the propositions and research gap of Zheng et al., (2018).

3.1 Research Question

What are the “strengths of the individual antecedents that would enable women leaders to activate a paradox mindset?” (Zheng et al., 2018, p.584).

Six hypotheses were formulated based on the propositions (Zheng et al., 2018) and the literature review to develop the conceptual model in Figure 10 below, which illustrates the potential relationships between each of the identified constructs. Figure 10 below depicts the independent and dependent variable types and interactions through hypotheses. While independent variables influence dependent variables (Creswell, 2017), a dependent variable can also be indirectly influenced by mediating variables; that is, variation in the independent variable produces variation in the mediator, which then produces variation in the dependent variable (Hayes & Rockwood, 2017). This is illustrated in Figure 10.

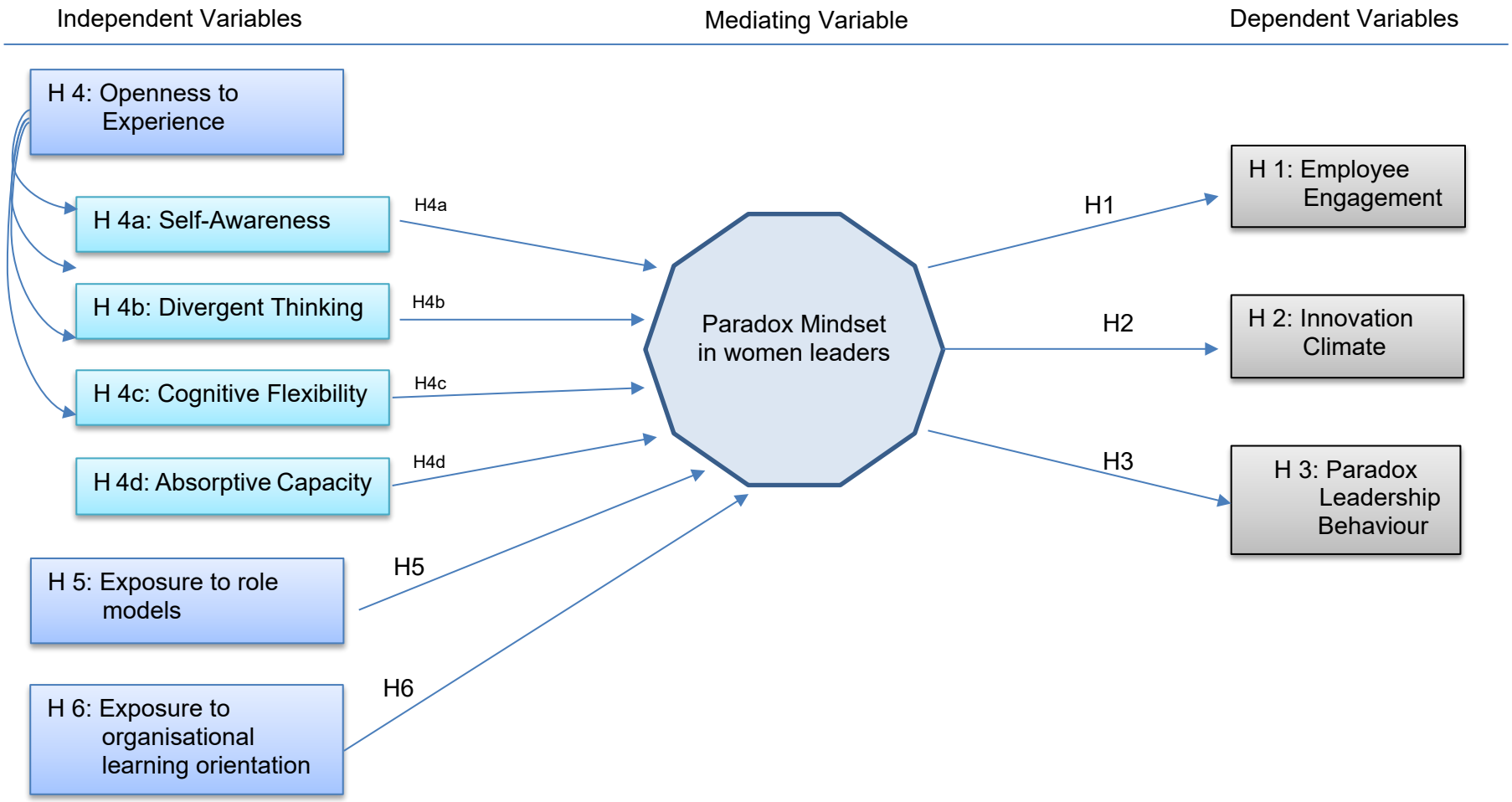

Figure 10: Conceptual Model

Source: Author's compilation

The research question, propositions, formulated hypothesised relationships and constructs discussed in Chapters 1 and 2 are summarised in Table 2 below:

Table 2: Propositions, Hypotheses and Construct Summary

Proposition	**Hypotheses**	**Construct**
3c	$H1_a$: A paradox mindset in women leaders results in employee engagement. $H1_0$: A paradox mindset in women leaders does not result in employee engagement.	Employee engagement
3c	$H2_a$: A paradox mindset in women leaders results in an innovation climate. $H2_0$: A paradox mindset in women leaders does not result in an innovation climate.	Innovation climate
4	$H3_a$: A paradox mindset in women leaders results in Paradox Leadership Behaviour (PLB). $H3_0$: A paradox mindset in women leaders does not result in Paradox Leadership Behaviour (PLB).	Paradox Leadership Behaviour
2a	$H4_a$: The individual's openness to experience influences a paradox mindset in women leaders. $H4_0$: The individual's openness to experience does not influence a paradox mindset in women leaders.	Openness to Experience
	H4a: The individual's self-awareness influences a paradox mindset in women leaders. $H4_0$: The individual's self-awareness does not influence a paradox mindset in women leaders.	Self-awareness
	H4b: The individual's divergent thinking influences a paradox mindset in women leaders.	Divergent thinking

Proposition	**Hypotheses**	**Construct**
	$H4_0$: The individual's divergent thinking does not influence a paradox mindset in women leaders.	
	H4c: The individual's cognitive flexibility influences a paradox mindset in women leaders. $H4_0$: The individual's cognitive flexibility does not influence a paradox mindset in women leaders.	Cognitive flexibility
	H4d: The individual's absorptive capacity influences a paradox mindset in women leaders. $H4_0$: The individual's absorptive capacity does not influence a paradox mindset in women leaders.	Absorptive capacity
2b	$H5_a$: The individual's exposure to role models influences a paradox mindset in women leaders. $H5_0$: The individual's exposure to role models does not influence a paradox mindset in women leaders.	Role Models
2c	$H6_a$: The individual's exposure to organisational learning orientation influences a paradox mindset in women leaders. $H6_0$: The individual's exposure to organisational learning orientation does not influence a paradox mindset in women leaders.	Organisational Learning Orientation

3.2 Research Contribution

Understanding the strengths of the individual antecedents, and the influence of these on the ability of women leaders to activate a paradox mindset, as highlighted by Zheng et al., (2018) and Miron-Spektor et al., (2018), could potentially contribute to the strategic leadership body of knowledge, specifically for women in leadership. This research could enable women leaders to acknowledge and embrace contradictions (Miron-Spektor et al., 2018). In addition, it could also provide insights into how leveraging contradictions can enhance employee engagement and foster innovation within teams by creating an innovation climate (Miron-Spektor & Paletz, 2020).

3.3 Chapter Conclusion

The Miron-Spektor et al., (2018) scale validation process confirms that a paradox mindset is most certainly, yet relatively, associated with acceptance for uncertainty, integrative intricacies, acceptance of paradoxes, and openness to experiences. The Zhang et al., (2015) scale measure whether a leader's paradoxical behaviours could beneficially impact subordinates, which may result in the leadership outcomes of employee engagement and an innovation climate. The research question and subsequent hypotheses were formulated with the aim of building on existing quantitative research into paradox mindsets and 'decoding the antecedents', as called for by Zheng et al., (2018) p. 593. The research design and methodology are discussed in the next chapter.

4. Research Methodology

4.1 Introduction

This chapter describes the research methodology used to examine the hypotheses developed in Chapters 2 and 3. The choice of research design, population and sampling approach were informed by the extant literature. Figure 11 depicts a high-level overview of the research methodology chapter.

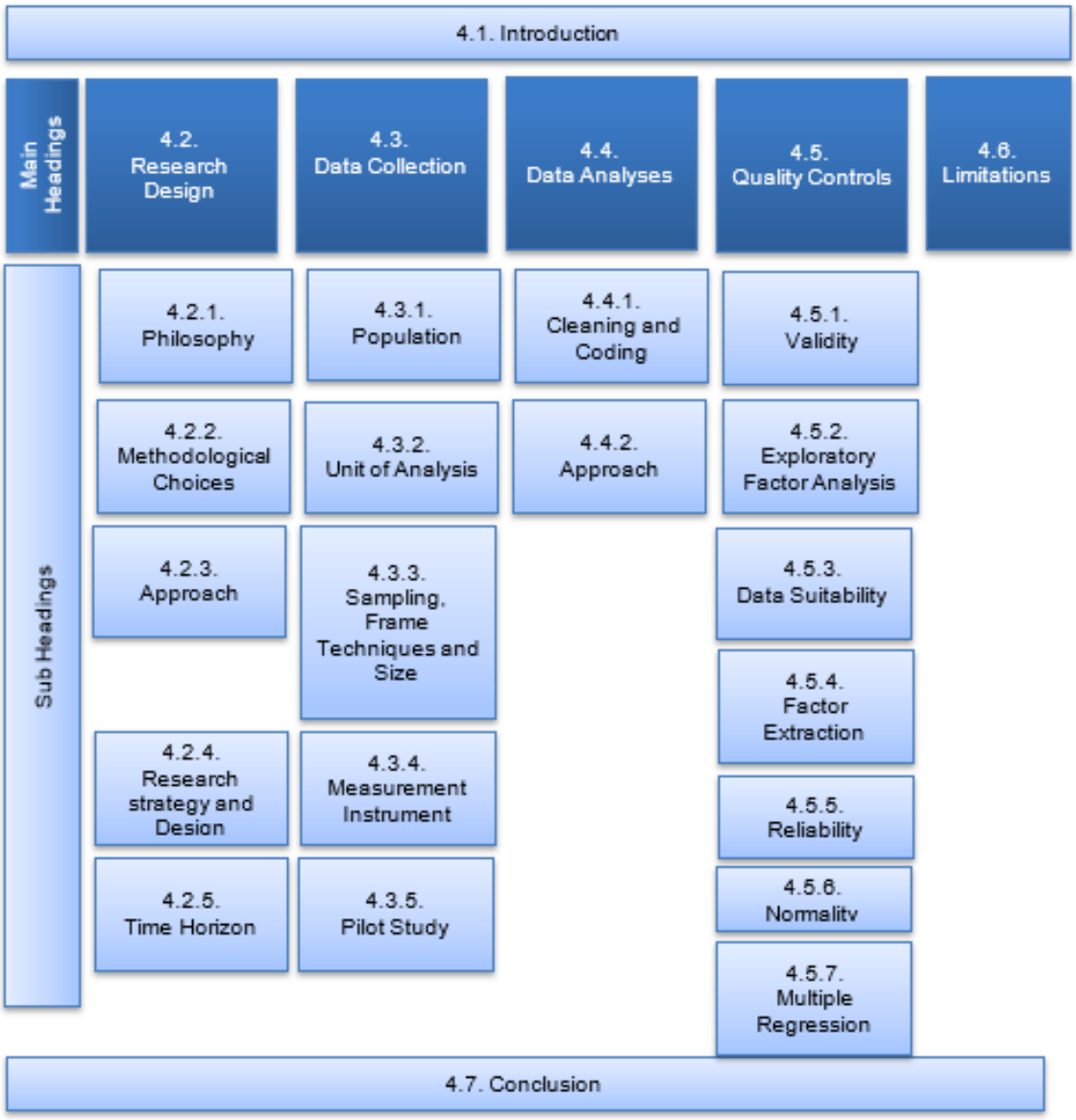

Figure 11: Outline of Research Methodology and Design Chapter

Source: Author's compilation

4.2 Research Design

The research design provides a framework for generating evidence that fulfils certain quality standards (Bell, Bryman & Harley, 2019, p. 111). Figure 12 shows the research

onion (Saunders & Lewis 2018; Saunders et al., 2009, p. 124) that outlines the approach to developing an appropriate research design.

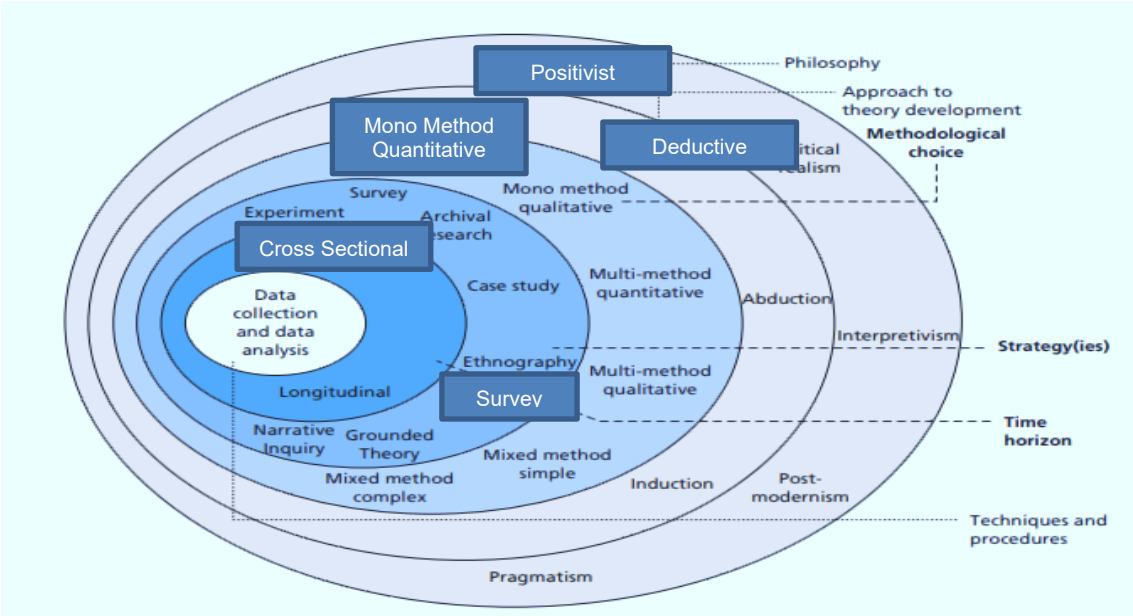

Figure 12: Research Onion

Source: Author's compilation adapted from Saunders et al. (2009, pp 124)

In accordance with the research onion above, the sections below detail the methodological theory and considerations around the choice of research philosophy, approach, strategy and design.

4.2.1 Philosophy

Philosophical considerations empower the researcher to think carefully about premises and assumptions about reality. This is key to formulating and presenting knowledge about business problems, as well as applying it to empirical research and academic theories (Bell et al., 2019). It is vital to think about the philosophical foundation before embarking on research as this ensures rational as well as logical hypotheses and provides compelling evidence to support arguments (Bougie & Sekaran, 2016). Epistemology is key when conducting research in a business context as it informs the appropriate choices for research methodology, data collection and analysis, and as a result, helps to make sense of business-related phenomena (Bell et al., 2019).

"Positivism is an epistemological position that advocates the application of the methods of the natural sciences to the study of social reality" (Bell et al., 2019, p. 91). A positivist

philosophy was applied in this study (See Figure 12 above) as it supports the idea that knowledge can be derived from science and confirmed by the senses (Sekaran & Bougie, 2016). This epistemological position enables a causal association between the hypotheses and mediators to be established, and the validity of the conclusions drawn to be tested. Positivism supports using surveys to gather data which was thus the method used for this research study.

4.2.2 Methodological Choices

A paradigm is a grouping of beliefs that predominantly determines what should be studied and how the research should be conducted and interpreted (Bell et al., 2019). A quantitative methodology focuses on the process of data collection (Babin & Zikmund, 2016). The phrasing of the research gap, to “empirically examine the strengths of the individual antecedents” (Zheng et al., 2018, p. 593), itself indicates that quantitative analysis is required. According to Crane, Henriques & Husted (2018), quantitative methods predominantly utilise and require empirical analysis. Approaches to research can be either qualitative or quantitative in nature; however, the quantitative method seems to be more common (Crane et al., 2018). Because of the limited time available to complete this research investigation, a single technique, or mono-method, was used to collect data, and an online survey tool was employed to achieve maximum reach into the desired sample group.

4.2.3 Approach

The deductive approach was ideal for this study because it "involves the development of a theory that is subjected to rigorous testing" (Bell et al., 2019; Saunders et al., 2009, p. 124). This technique was therefore used to investigate the characteristics of the individual antecedents that allow female leaders to adopt a paradox mentality (Zheng et al., 2018).

4.2.4 Research Strategy and Design

According to Bell et al., (2019), the research design directs the execution of a research technique and the subsequent data analysis. A quantitative and explanatory research approach, together with a positivist and deductive method, were adopted for this study in terms of philosophical paradigms. Bono & McNamara (2011) highlight the importance of matching the research design to the research question. The choice of data collection, sample method, population size and unit of analysis was therefore made to ensure that thorough analysis could be conducted to successfully satisfy the research question and

test the hypotheses.

4.2.5 Time horizon

A “cross-sectional design involves the gathering of data on multiple cases and at a single point in time” to draw quantifiable data (Bell et al., 2019, p. 132). The survey was disseminated at a single moment in time and hence this research was cross-sectional.

4.3 Data Collection

A quantitative method is structured and, as such, the questionnaire method is recommended (Bell et al., 2019). The questions were specially prepared by the researcher to test the hypotheses and answer specific questions about the research (Sekaran & Bougie, 2016). The questionnaire was created using SurveyMonkey, an online survey platform.

The completed questionnaire was sent via email and LinkedIn post to the researcher's selected demographic sample. Each survey respondent got an email detailing the purpose of the survey. It also emphasised that participation was voluntary, that their privacy and data confidentiality would be maintained. In addition, the contribution of their involvement was reinforced and they were informed that they had one week to complete the survey. The URL for the online survey was given in the email, and a link to it was also included in the LinkedIn post. Appendix 7 contains the email sent to the researcher's network, and Appendix 8 the LinkedIn post.

Most surveys have a certain level of non-response. Failure to distribute surveys to the target audience (e.g., email bounces back because of an inactive or incorrect email address, or absence from work) and people's unwillingness to reply are among the reasons for non-response. (Bell et al., 2019). This study took steps to improve the response rate, as advised by Bell et al., (2019).

4.3.1 Population

The population, in research terms, refers to the units the researcher plans to include in the sample. According to Bell et al., (2019), the population is the formation of parts from which the sample will be drawn. The term ‘units’ above refers to anything the researcher wants to sample and thus has a broader meaning than is found in everyday use (Bell et al., 2019). The research question was based on the research gap identified by Zheng et al., (2018), who called for an empirical examination of the strengths of the individual

antecedents that would enable women leaders to activate a paradox mindset. Respondents therefore had to indicate their gender so that the researcher could compare both male and female outcomes to the overall sample outcome. The study did not have any restrictions for participants with regards to age, geographic location or race, and questions about these demographics were therefore not included.

4.3.2 Unit of Analysis

As the study was on the micro, or individual level, the unit of analysis was the individual member of an organisation. It is critical to determine the unit of analysis accurately (Bell et al., 2019). The research question and hypotheses also determine which unit is best for coding and subsequent analysis (Srnka & Koeszegi, 2007). The survey was sent out to a general group of employees which included managers and department heads. The results for the male participants were compared to those for the female participants. The reason for this was to test Zheng et al.,'s (2018) propositions and the hypotheses to examine the strengths of the antecedents that enable women leaders to activate a paradox mindset.

4.3.3 Sampling Frame, Technique and Size

According to Robinson (2014), sampling is the deliberate and scientific process of determining the sample's inclusion and exclusion qualifying criteria, as well as its size. Robinson (2014) asserts that the requirement for rigour as one of the criteria for assessing research validity is not determined by the size of the sample but rather by the adequacy of the subjects to provide enough information for rich analysis. The sample must clearly match the research question (Bono & McNamara, 2011). Based on the unit of analysis, a purposive, probability sampling technique was adopted for this research study.

A probability sample, as defined by Bell et al., (2019), is a sample selected to offer a representative sample while attempting to eliminate selection bias. This sort of sampling is typically associated with best practises and keeps sampling error to a minimum because there is an equal chance for sampling units within the population from being selected to be included in the study. Utilising the researcher's existing network provided an advantage in terms of expected turnaround time for the responses, which proved to be fast and reliable. Several logical and rational steps were taken to ensure that this was not merely convenience sampling and that it would yield the correct population evaluations and estimates (Cornesse, Blom, Dutwin et al., 2020). The findings were

evaluated using regression analysis (Cornesse et al., 2020). Van Voorhis & Morgan (2007) recommend having at least 30 participants per variable. This study thus aimed for a target sample size of 250 respondents.

4.3.4 Measurement Instrument

The measuring instrument was an online questionnaire and statements were measured using a Likert scale. This survey was formulated by extracting relevant questions from the standardised questions of validated scales developed by various academic authors. These questions were posed using the five-point Likert scale. Furthermore, the online questionnaire was posted to the researcher's LinkedIn network and emailed to the researcher's work department. To evaluate both leadership and employee outcomes, the survey consisted of two sections: one to be completed from a leader's perspective, and a second to be completed from an employee perspective. The questionnaire was split into further sub-sections that contained questions relating to specific constructs linked to specific hypotheses.

The decision to use an online survey made the data collection process easier and simpler as the data could be analysed using spreadsheets and software. The survey needed to be completed by leaders and people in senior positions, most of whom have limited time. Sending an online questionnaire meant that they were not rushed and could complete it in their own time, regardless of where they were. Online surveys also ensure a larger response rate than questionnaires sent via post, as people are likely to have access to devices such as PCs, smartphones or tablets.

Table 3 below gives an overview of the survey as well as references to the original authors who created the scales. See Appendix 10 for the survey. Creswell (2017) advises that where an instrument is modified or combined with other instruments, the validity and reliability need to be re-established, and permission needs to be granted for the use of these instruments. See consent letters from the respective authors authorising the use of their scales in Appendix D.

The modified questionnaire was split into two sections. Survey Section One covered the constructs of a paradox mindset, Paradox Leadership Behaviour and the individual antecedents. Survey Section Two covered the leadership outcomes of employee engagement and innovation climate. Each section in the survey was linked to the formulated hypotheses in Chapter 3 and further aligned to address the propositions put forward by Zheng et al., (2018).

Prior to sending the questionnaire to possible respondents, the questionnaire was reconfigured into an attractive layout as advised by Bell et al., (2019). This enhanced the responses rate. Furthermore, the questionnaire included clear directions on how to respond. The survey started by outlining the objective of the research study, the goal of the research, and the benefits of participating in the study. Table 3 below gives a summary of the constructs per survey question.

Table 3: Summary of constructs per question as per survey

Section one	Example questions
Paradox mindsets This section used the scale from the paradox mindset questionnaire (Miron-Spektor et al., 2018).	Two examples of the six questions are, 'As a leader, I feel energised when I manage to address contradictory issues' and, 'I feel uplifted when I realize that two opposites can be true'. A five-point Likert scale was used, ranging from 0 (strongly disagree) to 5 (strongly agree).
Paradox Leadership Behaviour This section utilised the scale from the second study conducted by Zhang et al., (2015) which tested the antecedents and consequences of Paradox Leadership Behaviour in people management. Four questions were used to test the main constructs of holistic and integrative thinking.	For example, 'As a leader, I have high requirements but allow subordinates to make mistakes' and, 'I maintain position differences but uphold subordinates' dignity'. A five-point Likert scale was used, ranging from 0 (not at all) to 5 (frequently).
Openness to experience **Divergent thinking** This construct was tested using the divergent thinking scale (four questions) from Basadur & Hausdorf (1996).	Examples include, 'As a leader, I enjoy the challenge of finding alternative ways to solve a problem' and, 'When I get a new idea, I really get excited'. A five-point Likert scale was used, ranging from 0 (not at all) to 5 (frequently).
Self-awareness Four questions from the authentic leadership questionnaire (ALQ) by Avolio	Two examples are, 'As a leader, I seek feedback to improve interactions with others' and, 'I show I understand how

Section one	Example questions
et al., (2007) & Gardner et al., (2011) were used to test this construct.	specific actions impact others.' A five-point Likert scale was used, ranging from 0 (not at all) to 4 (frequently, if not always).
Cognitive flexibility Four questions from the scale validated by Martin & Rubin (1995) were used to test this construct.	For example, 'As a leader, I am willing to listen and consider alternatives for handling a problem' and, 'I have the self-confidence to try the different ways of behaving'. A five-point Likert scale was used, ranging from 0 (not at all) to 5 (frequently).
Absorptive capacity Four questions from the scale validated by Sheng & Chien (2016) were used to test this construct.	For example, 'As a leader, I constantly consider how to better exploit knowledge' and, 'I recognise shifts and new opportunities. A five-point Likert scale was used, ranging from 0 (not at all) to 5 (frequently).
Exposure to role models Four questions from the career adapt-abilities scale (CAAS) by Savickas & Porfeli (2012) were used to test this construct. Minor amendments were made to increase relevance for the individual's exposure to role models.	Two examples of the questions are, 'As a leader, I look for opportunities to grow as a person' and, 'Through having role models, I observe different ways of doing things'. A five-point Likert scale was used, ranging from 0 (strongly disagree) to 5 (strongly agree).
Exposure to organisational learning orientation Four questions from the scale by Yang et al. (2004) were used to test this construct. Minor amendments were made to make them more relevant for the individual's exposure to organisational learning orientation.	Two of the questions were, 'In my organisation people are encouraged to get answers from across the organisation when solving problems' and 'In my organisation lessons learned are made available to all employees'. A five-point Likert scale was used, ranging from 0 (strongly disagree) to 5 (strongly agree).

Section two	Example questions
Employee engagement This construct was tested using the nine	Examples include, 'I am bursting with energy in my work' (which could prove

questions from the Utrecht work engagement scale (UWES-9) by Schaufeli, Bakker & Salanova (2006).	vigour) and, 'I am enthusiastic about my job'. According to Schaufeli et al. (2006), the measure has been shown to have a good internal consistency. The UWES has a seven-point Likert scale, ranging from 0 (never) to 6 (always), but was amended for this survey to a five-point Likert scale ranging from 0 (not at all) to 5 (frequently).
Innovation climate This construct was tested using six questions from the scale published in the Diesel & Scheepers (2019) article used to measure the organisational innovation climate.	Two examples of the questions are, 'Our organisation has an enabling climate for innovation' and, 'Informal groupings are a valuable source for effective change'. A five-point Likert scale was used, ranging from 0 (not at all) to 5 (frequently).

Source: Author's compilation

4.3.5 Pilot Study

The survey questionnaire was pre-tested to confirm validity and reliability, as well as to ensure that the questions asked were easy to understand (Saunders & Lewis, 2018). A pilot test questionnaire was created and sent to ten respondents from the researcher's personal network. The purpose of the test questionnaire was to ensure accuracy of questions and address any usability issues prior to the questionnaire being sent out to the larger group. This ensured that it could be corrected as part of the pre-testing process.

The feedback from the pilot group enabled modifications to the final questionnaire prior to its distribution. The pilot group also reported on the amount of time required to answer the questionnaire and verified that they understood all questions and that no further clarification or explanations were necessary. Based on the pilot survey results, the reliability of the constructs was checked. After evaluation of the reliability results, a decision was made to remove Paradox Leadership Behaviour as a potential mediator and to reposition this as one of the leadership outcome variables. This created a more robust set of regression results using a single mediator variable. The pilot survey results are presented in Table 4 below.

Table 4: Pilot Survey Construct Reliability Checks

Construct	Variable Type	Cronbach Alpha	Number of Items	Comments
Paradox Mindset	Mediators	0.623	6	Reliable
Paradox Leadership Behaviour (PLB)		0.797	4	Excellent Reliability
Divergent Thinking	Openness to Experience	0.648	4	Reliable
Self-Awareness		0.405	4	Not reliable
Cognitive Flexibility		-0.333	4	Probably Multi-dimensional
Absorptive Capacity		0.665	4	Reliable
Exposure to Role Models	Individual Antecedent	0.927	4	Excellent Reliability
Exposure to Organisational Learning		0.592	4	Reliable
Engagement	Leadership Outcomes	0.762	9	Good Reliability
Innovation Climate		0.700	6	Good Reliability

Source: Author's compilation

4.4 Data Analysis

4.4.1 Data Cleaning and Coding

A variety of statistical data analysis approaches were used to analyse the data. However, prior to statistical analysis, the researcher was obliged to review the data for evident defects, inconsistencies and mistakes that may have jeopardised the validity of the sample; in other words, carefully manage the consistency of the data (Bell et al., 2019). The data collected was quantitatively coded which involved breaking it down and transforming it numerically to facilitate its analysis using a specific data analysis tool (Babin & Zikmund. 2016). The data was coded based on the two types of Likert scales used for this study which were used by researchers in the original scales. The scale anchors and their corresponding codes are shown in Table 5 and Table 6 below.

Table 5: Five-point Likert Scale Anchors for the Paradox Mindset, Exposure to Role Models and Organisational Learning Orientation sections of the survey

Scale number	**Descriptor**
1	Strongly disagree
2	Disagree
3	Neither agree / disagree
4	Agree
5	Strongly agree

Source: Researcher's own construction based on referenced scales

Table 6: Five-point Scale Anchors for the Paradox Leadership Behaviour, Openness to Experience, Engagement and Innovation Climate sections of the survey

Scale number	**Descriptor**
1	Never
2	Occasionally
3	Sometimes
4	Often
5	Always

Source: Researcher's own construction based on referenced scales

4.4.2 Approach

For quantitative research, the Statistical Package for the Social Sciences (SPSS) Version 27 software is suggested, and this was used for data analysis (Bell et al., 2019). Furthermore, numerous regression tests were used to validate the hypotheses and discover the relationships between the variables. According to Hayes & Rockwood (2017), mediation analysis is used to test hypotheses. Taking into account the research propositions posed by Zheng et al., (2018), and the hypotheses based on this literature review, the researcher applied mediation analysis to first understand the causal relationships between the antecedents and the paradox mindset (Hayes & Rockwood, 2017). The first draft of potential relationships to depict the causal relationships can be seen in Figure 10: Conceptual Model. The replies of female and male participants were compared for all constructs to determine if antecedents and mindsets were more prominent among female than male respondents.

The data gathered was analysed in four main phases, namely (1) data preparation, (2) descriptive statistics, (3) data validation, (4) comparisons of means across genders, and (5) hypothesis testing through multiple regression analysis. Various statistical studies were performed on the data using SPSS to verify reliability and validity. The different tests are described in detail below, starting with the test for quality control, followed by the tests for the regression analysis. The main analysis follows in Chapter 5.

These high-level phases, along with the selected tools and key steps, are tabulated in Table 7.

Table 7: Data Analysis Phases

Phase	Tools	Key Steps
Preliminary Analysis	Excel, IBM SPSS 27	Data Preparation and Coding
		Data Cleansing
Descriptive Statistics	IBM SPSS 27	Demographic Frequencies and Proportions
Data Validation	IBM SPSS 27	Exploratory Factor Analysis
		Cronbach Alpha
		Central Tendency, Variability, Skewness, Kurtosis
Comparing Male and Female Samples	IBM SPSS 27	Analysis of Variance (Comparing means of constructs)
Hypothesis Testing	IBM SPSS 27	Multiple Regression (Relationships)
		Hierarchical Multiple Regression (Mediation)

Source: Researcher's own construction

The data analysis phases shown in Table 7 were applied firstly to the complete sample of respondents (N = 295), and then only to the female subset of the data collected (N = 116). The preliminary analysis, descriptive statistics, data validation and comparing male and female sample phases used the complete sample (N = 295); whereas the hypothesis-testing phase, comprising the multiple and hierarchical regression analyses, was applied to the female only sample (N = 116).

Partial support for a hypothesis was indicated when at least one of the constructs had a significant relationship with the paradox mindset dependent variable in the female only sample. A fully supported hypothesis was indicated when the female only sample clearly demonstrated a significant regression result.

4.5 Quality Controls

For the purposes of this study, a series of quality control measures was conducted to ensure that data quality was sound and would generate credible findings and results. Reliability can be defined as consistency, stability and uniformity (Heale & Twycross, 2015) and ensures that measurement can be redone across various samples yet maintain stability. The reliability of the constructs was tested using Cronbach's Alpha.

The validity and credibility of the findings were vetted by using SPSS (Noble & Smith, 2015) for exploratory factor analysis (EFA). While statistics and mediation techniques offer more rigour, they only form part of the argument (Hayes & Rockwood, 2017). It is essential that the rigour and credibility of the results is supported by accurate data (Noble & Smith, 2015); to ensure this, prior to performing any regression analysis for hypothesis testing, tests for normality were conducted.

4.5.1 Validity

When an instrument measures what it is supposed to measure, it maintains its validity. (Bougie & Sekaran, 2016). Internal validity is concerned with reaching correct conclusions regarding data connections, such as a cause-and-effect link (Bougie & Sekaran, 2016). External validity, on the other hand, relates to how well the results may be used in other ('external') situations.

As the particular goal of experiments is to establish a causal connection, internal validity is a key issue (Leedy & Ormrod, 2005). An EFA was performed to check that the survey data accurately measured what it was designed to measure. The most important research criteria is validity, which concerns the integrity of the results obtained as a consequence of a piece of research (Bell et al., 2019). Validity refers to whether an indicator or set of indicators accurately assesses the notion for which it was designed (Bell et al., 2019). An EFA was performed for the purposes of this study to confirm that the survey data measured what it was designed to measure. In the next sections, we will look at the parts of the EFA that affect the validity of the constructs, such as data appropriateness using the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and the factor extraction and loading procedures.

4.5.2 Confirmatory Factor Analysis (CFA)

In SEM, the measurement model displays the data factor analysis, which is performed using Confirmatory Factor Analysis (CFA). CFA is a more complex and comprehensive

set of procedures than EFA, which is simplified by the AMOS application (Pallant, 2011). CFA investigates a measurement model in which the quantity of factors and the items put onto those factors are specified (Hair et al., 2020). As a result, the researcher used the preliminary analysis's EFA results to identify the structures and factors that load onto those constructs. CFA then provided the measurement contribution of each item in the construct, as reflected by its factor loading estimate (Hair et al., 2020).

These CFA factor loadings are a statistical evaluation of the latent variable's causal effect on the observed scores, and they are interpreted as regression coefficients; simply, they address how much that factor measures the construct. CFA also provided correlation estimates for the model's components, which indicate how strongly the constructs are related to one another. Factor loading estimates should be 0.5 or higher, ideally 0.7 or higher, and statistically significant (Hair et al., 2020). Estimates of correlation must be less than 0.7 and statistically significant. These results are illustrated graphically in the form of a path diagram and the different model fit estimate indicators (e.g. RMSEA, CFI) are typically presented in tabular form.

4.5.3 Exploratory Factor Analysis (EFA)

An EFA seeks to identify the underlying structure of variables (Hair et al., 2020) by investigating their common unobserved sources of influence, which are linked into groups, also known as factors (Cudeck, 2000). In an EFA, indications from all components are free to load together. As a reminder, the questionnaire was constructed using existing scales as well as freshly generated questions developed by the author. As a result, an EFA was done to determine how those observable objects were grouped together in order to guarantee the validity of the constructs that were included as part of this research. Pallant's (2001) three stages, data appropriateness, factor extraction as well as factor rotation and interpretation, were used to perform EFA on all constructs, namely divergent thinking, self-awareness, cognitive flexibility, absorptive capacity, exposure to role models, exposure to organisational learning orientation, employee engagement, innovation climate and Paradox Leadership Behaviour.

4.5.4 Data suitability

Two crucial requirements for an EFA are a sufficiently high sample size (more than 150) and the strength of the intercorrelations among the questionnaire items, as determined by Bartlett's test of sphericity and the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy (Pallant, 2001). If the data passes Bartlett's sphericity test (p. 157), it is suitable

for inclusion in an EFA (Pallant, 2001). When evaluating the magnitude of KMO values to evaluate appropriateness for an EFA, Kaiser proposed the following thresholds: KMO values over 0.90 are "marvellous," 0.80s are "meritorious," 0.70s are "middling," and less than 0.60 is "mediocre, miserable, or unacceptable" (Pett, Lackey, & Sullivan, 2003, p. 111). For the purposes of this study, the KMO measure was calculated for all constructs to ensure that the data collected was suitable for an EFA.

4.5.5 Factor extraction

During factor extraction, factor loadings are estimated, which link the measures/indicators to the latent constructs/factors (Wegner, 2016). While there are many extraction methods, the principal components method was used in the EFA. An adjustment to Kaiser's criterion ('eigenvalue-greater-than-one rule') as recommended by Jolliffe (Field, 2018, p. 1005) assisted to establish exactly how many factors were needed for extraction (Pallant, 2001). The eigenvalues representing the explained variation of each statement making up a construct, as well as their corresponding factor loadings, were reviewed to determine the construct validity of each factor extracted. Extraction of too many factors may result in undesired error variance, while extraction of too few components may result in the loss of beneficial common variance. Factors with less than three variables and factor loadings less than.32 are typically regarded as undesirable (Yong & Pearce, 2013).

4.5.6 Reliability

Reliability is of particular concern in a quantitative study as the researcher is likely to be concerned about the stability of a measure and whether the results of the study are repeatable. Bell et al., (2019) define reliability as "the consistency of a measure of a concept". In determining if a measure is reliable or not, the Cronbach Alpha test for internal reliability was conducted. According to Bell et al., (2019), the Cronbach's alpha estimates the average of all possible split-half reliability coefficients. A figure of 0.8 is used to designate excellent levels of reliability, while figures of 0.7 indicate acceptable levels of reliability. Although no lower limit has been identified for Cronbach's alpha (Baruch, 1999), figures below 0.6 are generally considered to exhibit poor levels of reliability. Measures below the 0.6 threshold were considered to exhibit poor levels of internal reliability and would not be suitable to use for further analysis. The Cronbach alpha test was used to the determine the reliability of all constructs.

4.5.7 Normality

The assumption that variables are normally distributed is an important one that requires testing prior to conducting any parametric statistical techniques. Several descriptive statistical measures, both numerical and graphical, can be used to establish whether variables follow a normal, or an approximately normal, distribution. For the purposes of this study, descriptive statistics including Central Tendency, Variability, Skewness and Kurtosis were used to establish normality. Both George & Mallery (2010) and Trochim & Donnelly (2006) proposed that skewness beyond +/-2 suggests a non-normal distribution.

4.5.8 Multiple Regression

Regression analysis aims to quantify a relationship between variables by giving a measure of how strong that relationship is (Wegner, 2016). In line with each of the research hypotheses, specific combinations of dependent and independent variables were included in the regression analysis to establish the connections between them. Multiple regression has a single dependent variable, designated as Y, and many independent variables (Wegner, 2016), making it suitable for testing hypotheses 1 to 3.

A positive coefficient b1 implies that the connection is linear. In linear regression, the technique of least squares is used to lead the regression analysis to identify the best-fitting straight-line equation by minimising the total of the squared deviations of all data points from the line (Creswell, 2017 & Wegner, 2016). SPSS V27 was used to run the test. The magnitude of the R^2 statistic calibrates the model's prediction accuracy as well as the overall statistical significance. This indicates the importance of the suggested hypothesised relationships.

The term ‘mediation’ refers to the underlying mechanisms and processes that link antecedents and results (Hayes & Rockwood, 2017). To understand how an impact of X on Y works, mediation analysis was employed (Hayes & Rockwood, 2017). A mediation model is a collection of two or more causal events connected in the sequence X → M → Y. The mediator variable (M) must be causally situated between X and Y, be influenced by X, and then affect Y (Hayes & Rockwood, 2017). When the mediator is included in the model, the connection between the predictor and the result is eliminated. For this study, multiple regression analysis was used based on the numerical codes illustrated in Tables 5 and 6 above, as suggested by Bell et al., (2019), to test the data and identify the relationships between variables. Partial support for a hypothesis was indicated when

at least one of the constructs had a significant relationship with the paradox mindset dependent variable in the female only sample. A fully supported hypothesis was indicated when the female only sample clearly demonstrated a significant regression result.

4.6 Limitations

This research study had some limitations, including the following, which is not an exhaustive list.

Because this was a cross-sectional study, the data obtained may not have had the depth that a longitudinal study would have provided over time due to time restrictions (Diesel & Scheepers, 2019). It is also possible that, because of the researcher's lack of research and academic experience, the depth and scope of the discussion in Chapter 6 is limited.

The mediation analysis that was conducted may not be as extensive as it could have been, and thus could be challenged (Babin & Svensson, 2012). Furthermore, the research focused on paradox leadership and did not analyse other styles and mindsets, such as complexity leadership (Uhl-Bien & Arena, 2017) or servant leadership (Chiniara & Bentein, 2018).

It is also worth mentioning that this study employed a paradox lens to examine leadership and mindset (Smith & Lewis, 2011). Furthermore, it only focused on the leadership outcomes of employee engagement (Bailey et al., 2017) and an innovation climate (Diesel & Scheepers, 2019). Finally, it did not address culture, which may also have a significant impact on engagement and performance (Keller et al., 2017).

4.7 Conclusion

This chapter described the research methodology and design that were chosen. The data was acquired using an online survey instrument based on leadership measures developed by a group of academics. It was designed to test hypotheses and provide answers to research questions. In other words, to identify the strengths of individual antecedents that shape or enhance the experience of female leaders in order to generate a paradox mindset. The research topic necessitated a quantitative assessment, which the researcher carried out while maintaining academic rigour and validity. To examine the six hypotheses, regression analysis was used. The research analysis and a full discussion of the findings are included in Chapters 5 and 6, followed by the conclusion in Chapter 7.

5. Chapter 5: Results

5.1 Introduction

This chapter presents the key research results in response to the research questions and hypotheses formulated in Chapter 3. It also presents the results as per the methodological choices stipulated in Chapter 4. The aim of this study was to examine the strengths of the individual antecedents which could activate a paradox mindset in women leaders. The validity, reliability and normality results are presented for each construct prior to the hypothesis testing results using hierarchical multiple regression. The key results are analysed following the organisation and summation of the data collected by the survey questionnaires. The contents of this chapter are outlined in Figure 13 below.

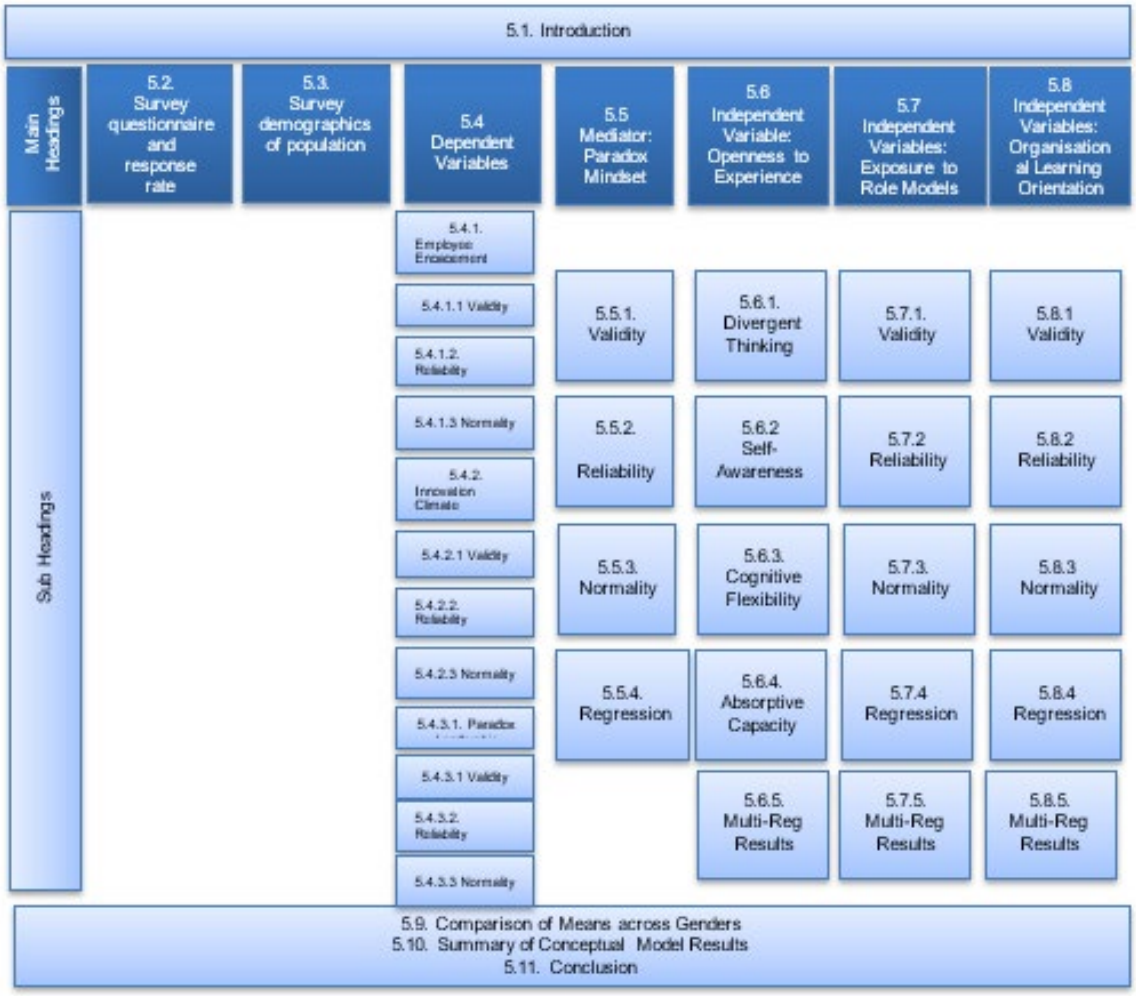

Figure 13: Outline of Research Discussion Chapter

Source: Author's compilation

5.2 Survey questionnaire and response rate

Data was collected over a one-month period from 21 July to 29 August 2021. A total of 430 responses were collected. The data was extracted from SurveyMonkey. Each response was automatically coded (refer to Table 5 and Table 6) and assigned a numerical response ID. All partially completed or incomplete responses were removed and a grand total of 295 fully completed questionnaires was used to generate the findings of the study.

5.3 Survey demographics of population

This study included data from both male and female leaders who responded to the survey. The gender split is illustrated in the Figure 14 below.

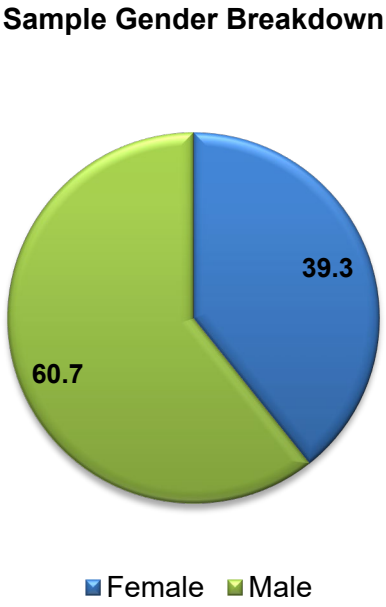

Figure 14: Gender breakdown of sample

Source: Author's compilation

The majority of respondents was male (N = 179); however, the total number of female (N = 116) respondents was more than 100, hence the validity of the sample to test the hypotheses remained valid (Pallant, 2001). The number of female participants is also sufficient to maintain a ratio of at least ten cases to each statement across all the constructs under investigation (Tabachnick & Fidell, 2013). As mentioned in the discussion around the analysis approach in section 4.4.2, and the phases of analysis outlined in Table 7, the hypothesis tests were conducted using the female only sample

(N = 116). The results shown in the following sections, prior to the hypothesis testing, are those for the overall complete sample, comprising both male and female leaders (N = 295). This breakdown of the sample for this research, illustrated in Figure 14 above, allows the author to compare and contrast the results between male and female leaders, and their perceptions of the paradox mindset.

5.4 Dependent Variables

The validity, reliability, and normality results for each of the dependent variables are presented in the sections below.

5.4.1 Employee Engagement

5.4.1.1 Validity Results

The validity results are split between the tests conducted to determine data appropriateness, factor extraction and factor loadings for the construct of employee engagement. Firstly, the data appropriateness results are shown in Table 8 below.

Table 8: Data appropriateness

Employee Engagement: KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.899
Bartlett's Test of Sphericity	Approx. Chi-Square	1408.697
	df	36
	Sig.	.000

Source: Author's compilation

Table 8 shows that the KMO statistic achieved was 0.899, which is very close to marvellous. Therefore, the data was appropriate for an EFA because the KMO statistic was greater than 0.6 and the Chi-square statistic was significant. The next set of results illustrates how many factors were extracted.

Table 9: Number of Factors Extracted

Employee Engagement: Total Variance Explained						
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.923	54.698	54.698	4.923	54.698	54.698
2	1.041	11.568	66.266			
3	.691	7.674	73.939			
4	.608	6.755	80.694			
5	.538	5.976	86.670			
6	.428	4.759	91.429			
7	.326	3.626	95.055			
8	.259	2.881	97.936			
9	.186	2.064	100.000			
Extraction Method: Principal Component Analysis.						

Source: Author's compilation

Table 9 clearly shows that the eigenvalue of the first factor extracted explains 54.698% of the variance among all the statements. This means that this construct is uni-dimensional in nature and theoretically explains what it is meant to explain. Only one factor was required to be extracted because the single factor comfortably explained over 50% of the variance among all the statements in this construct. The next table illustrates the factor loadings for each statement against the factor extracted.

Table 10: Factor Loadings per Statement for Employee Engagement

Employee Engagement: Component Matrix[a]	
	Component
	1
At my work, I feel vibrant with energy.	.837
At my job, I feel confident, strong and energetic.	.826
I am enthusiastic about my job.	.843
My job inspires me.	.833
When I get up in the morning, I feel like going to work.	.838
I feel happy when I am working intensely.	.692
I am proud of the work that I do.	.675
I am immersed in my work.	.643
I get carried away when I am working.	.290
Extraction Method: Principal Component Analysis.	
a. 1 components extracted.	

Source: Author's compilation

As Table 10 clearly illustrates, component 1 contains all the questions that relate to the construct of employee engagement. Interestingly, the statement “I get carried away when I am working” only had a factor loading of 0.290. This indicates that it did not fit in as well as the other statements in terms of resonance with this factor. Despite this, more than three other questions had acceptable coefficient values (> 0.32) therefore illustrating that this construct demonstrates acceptable validity.

5.4.1.2 Reliability Results

The internal reliability of this construct was established through the calculation of the Cronbach Alpha statistic shown in Table 11 below.

Table 11: Employee Engagement internal reliability

Employee Engagement: Reliability Statistics	
Cronbach's Alpha	N of Items
.882	9

Source: Author’s compilation

Table 11 shows that the Cronbach Alpha statistic of 0.882 is acceptable because the figure is greater than 0.6. The next set of results demonstrates the impact that each statement would have on the Cronbach alpha if it were removed.

Table 12: Cronbach Impact

Employee Engagement: Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
At my work, I feel vibrant with energy.	33.28	19.374	.745	.859
At my job, I feel confident, strong and energetic.	33.16	19.851	.735	.861
I am enthusiastic about my job.	33.00	19.187	.763	.857
My job inspires me.	33.11	18.904	.751	.858
When I get up in the morning, I feel like going to work.	33.24	18.930	.750	.858
I feel happy when I am working intensely.	32.95	20.001	.613	.870
I am proud of the work that I do.	32.68	21.124	.585	.873
I am immersed in my work.	33.02	20.493	.573	.874
I get carried away when I am working.	33.49	22.142	.242	.905

Source: Author’s compilation

The statement “I get carried away when I am working” would increase the Cronbach alpha statistic to 0.905 if it were removed. However, based on the results set out in Table 12, this construct already demonstrates acceptable levels of reliability because deleting any of the items would not substantially improve the Cronbach alpha statistic. Therefore, all questions for the employee engagement construct corresponding to component 1 are appropriate and were used to test the hypotheses that relate to this construct.

5.4.1.3 Normality Results

The distribution of this construct is centered around a mean of 4.138 and a standard deviation of 0.555. Hence, this construct is approximately normally distributed and meets the assumptions for multiple regression analysis as can be seen in Table 13.

Table 13: Normality Results for Employee Engagement

Employee Engagement: Descriptives				
			Statistic	Std. Error
Engagement	Mean		4.138	0.032
	95% Confidence Interval for Mean	Lower Bound	4.074	
		Upper Bound	4.201	
	5% Trimmed Mean		4.172	
	Median		4.222	
	Variance		0.308	
	Std. Deviation		0.555	
	Minimum		1.444	
	Maximum		5.000	
	Range		3.556	
	Interquartile Range		0.556	
	Skewness		-1.087	0.142
	Kurtosis		2.551	0.283

Source: Author’s compilation

5.4.2 Innovation Climate

5.4.2.1 Validity Results

The validity results are split between the tests conducted to determine data appropriateness, factor extraction and factor loadings for the construct of innovation climate. Firstly, the data appropriateness results are shown in Table 14 below.

Table 14: Data appropriateness Innovation Climate

Innovation Climate: KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.864
Bartlett's Test of Sphericity	Approx. Chi-Square	839.885
	df	15
	Sig.	.000

Source: Author's compilation

Table 14 shows that the KMO statistic achieved was 0.864, which is meritorious. Therefore, the data was appropriate for an EFA because the KMO statistic was greater than 0.6 and the Chi-square statistic was significant. The next set of results illustrates how many factors were extracted.

Table 15: Factors extracted Innovation Climate

Innovation Climate: Total Variance Explained						
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.547	59.122	59.122	3.547	59.122	59.122
2	.999	16.642	75.764			
3	.468	7.799	83.563			
4	.411	6.854	90.417			
5	.313	5.221	95.639			
6	.262	4.361	100.000			
Extraction Method: Principal Component Analysis.						

Source: Author's compilation

Table 15 clearly shows that the eigenvalue of the first factor extracted explains 59.122% of the variance among all the statements. This means that this construct is uni-dimensional in nature and theoretically explains what it is meant to explain. Interestingly, this construct could have a second dimension to it; however, because the second component had an eigenvalue of 0.999 and the first factor explained almost 60% of the variation in all the statements, only a single factor was required to be extracted. The next table illustrates the factor loadings for each statement against the factor extracted.

Table 16: Factor loadings Innovation Climate

Innovation Climate: Component Matrix[a]	
	Component
	2
Informal groupings are a valuable source for effective change.	.102
Our organisation has effective systems for integrating new innovative products and processes back into the organisational systems and structures.	.809
Our organisation has an enabling climate for innovation.	.863
Our organisation involves employees on the frontline and customers to innovate our products and services.	.852
Our organisation values experimentation with new ideas and processes.	.850
Our organisation protects innovative groups and processes against the bureaucratic organisational forces.	.830
Extraction Method: Principal Component Analysis.	
a. 1 components extracted.	

Source: Author's compilation

As Table 16 clearly illustrates, component 2 contains all the questions that relate to the construct of innovation climate. Interestingly, the statement "Informal groupings are a valuable source for effective change" only had a factor loading of 0.102. This indicates that it did not fit in as well as the other statements in terms of resonance with this factor. Despite this, more than three other questions had acceptable coefficient values (> 0.32) therefore illustrating that this construct demonstrates acceptable validity.

5.4.2.2 Reliability Results

The internal reliability of this construct was established through the calculation of the Cronbach Alpha statistic, shown in the table below.

Table 17: Reliability

Innovation Climate: Reliability Statistics	
Cronbach's Alpha	N of Items
.837	6

Source: Author's compilation

Table 17 shows that the Cronbach Alpha statistic of 0.837 is acceptable because the figure is greater than 0.6. The next set of results demonstrates the impact that each statement would have on the Cronbach alpha if it were removed.

Table 18: Cronbach impact

Innovation Climate: Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Informal groupings are a valuable source for effective change.	18.49	14.815	.074	.897
Our organisation has effective systems for integrating new innovative products and processes back into the organisational systems and structures.	18.76	11.095	.692	.795
Our organisation has an enabling climate for innovation.	18.56	10.499	.750	.781
Our organisation involves employees on the frontline and customers to innovate our products and services.	18.68	10.396	.737	.783
Our organisation values experimentation with new ideas and processes.	18.62	10.589	.747	.782
Our organisation protects innovative groups and processes against the bureaucratic organisational forces.	18.93	10.906	.701	.792

Source: Author's compilation

The statement "Informal groupings are a valuable source for effective change" would increase the Cronbach alpha statistic to 0.897 if it were removed. However, based on the results set out in Table 18, this construct still demonstrates acceptable levels of reliability because deleting any of the items would not substantially improve the Cronbach alpha statistic. Therefore, all questions for the innovation climate construct corresponding to component 2 are appropriate and were used to test the hypotheses that relate to this construct.

5.4.2.3 Normality Results

The distribution of this construct is centred around a mean of 3.734 and a standard deviation of 0.664. Hence, this construct is approximately normally distributed and meets the assumptions for multiple regression analysis.

Table 19: Normality Results for Innovation Climate

Innovation Climate: Descriptives				
			Statistic	Std. Error
Innovation Climate	Mean		3.734	0.039
	95% Confidence Interval for Mean	Lower Bound	3.658	
		Upper Bound	3.811	
	5% Trimmed Mean		3.748	
	Median		3.833	
	Variance		0.441	
	Std. Deviation		0.664	
	Minimum		1.333	
	Maximum		5.000	
	Range		3.667	
	Interquartile Range		0.833	
	Skewness		-0.301	0.142
	Kurtosis		0.098	0.283

Source: Author's compilation

5.4.3 Paradox Leadership Behaviour

5.4.3.1 Validity Results

The validity results are split between the tests conducted to determine data appropriateness, factor extraction and factor loadings for the construct of Paradox Leadership Behaviour. Firstly, the data appropriateness results are shown in the table below.

Table 20: Data Appropriateness

Paradox Leadership Behaviour: KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.669
Bartlett's Test of Sphericity	Approx. Chi-Square	118.487
	df	6
	Sig.	.000

Source: Author's compilation

Table 20 indicates the KMO statistic achieved was 0.669, which is middling. Therefore, the data was appropriate for an EFA because the KMO statistic was greater than 0.6 and the Chi-square statistic was significant. The next set of results illustrates how many factors were extracted.

Table 21: Factors Extracted

Paradox Leadership Behaviour: Total Variance Explained						
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.827	45.667	45.667	1.827	45.667	45.667
2	.872	21.809	67.476			
3	.721	18.028	85.504			
4	.580	14.496	100.000			
Extraction Method: Principal Component Analysis.						

Source: Author's compilation

Table 21 clearly shows that the eigenvalue of the first factor extracted explains 45.667% of the variance among all the statements. This single factor was extracted because it had the highest eigenvalue of 1.827. Therefore, this construct is uni-dimensional in nature and theoretically explains what it is meant to explain. The next table illustrates the factor loadings for each statement against the factor extracted.

Table 22: Factor loadings

Paradox Leadership Behaviour: Component Matrix[a]	
	Component
	3
I maintain overall control but give subordinates appropriate autonomy.	.770
I stress conformity in task performance but allow for exceptions.	.667
I have high requirements but allow subordinates to make mistakes.	.705
I maintain position differences but uphold subordinates' dignity.	.541
Extraction Method: Principal Component Analysis.	
a. 1 components extracted.	

Source: Author's compilation

As Table 22 clearly illustrates, component 3 contains all the questions that relate to the construct of Paradox Leadership Behaviour. Interestingly, the statement "I maintain position differences but uphold subordinates' dignity" had a lower factor loading (0.541) relative to all the other statements. All the questions had acceptable coefficient values therefore illustrating that this construct demonstrates acceptable validity.

5.4.3.2 Reliability Results

The internal reliability of this construct was established through the calculation of the Cronbach Alpha statistic, shown in the table below.

Table 23: Reliability

Paradox Leadership Behaviour: Reliability Statistics	
Cronbach's Alpha	N of Items
.606	4

Source: Author's compilation

Table 23 shows that the Cronbach Alpha statistic of 0.606 is acceptable because the figure is greater than 0.6. The next set of results demonstrates the impact that each statement would have on the Cronbach alpha if it were removed.

Table 24: Cronbach Impact

Paradox Leadership Behaviour: Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
I maintain overall control but give subordinates appropriate autonomy.	12.18	3.087	.479	.451
I stress conformity in task performance but allow for exceptions.	12.50	2.856	.372	.519
I have high requirements but allow subordinates to make mistakes.	12.36	2.681	.392	.504
I maintain position differences but uphold subordinates' dignity.	11.86	3.453	.267	.590

Source: Author's compilation

The statement "I maintain overall control but give subordinates appropriate autonomy" would increase the Cronbach alpha statistic to 0.451 if it were removed. This highlights the importance this statement carries when reflecting the construct of Paradox Leadership Behaviour. Based on the results set out in Table 24, this construct demonstrates acceptable levels of reliability because deleting any of the items would not substantially improve the Cronbach alpha statistic. Therefore, all questions for the Paradox Leadership Behaviour construct corresponding to component 3 are appropriate and were used to test the hypotheses that relate to this construct.

5.4.3.3 Normality Results

Table 25: Normality Results for Paradox Leadership Behaviour

Paradox Leadership Behaviour: Descriptives				
			Statistic	Std. Error
Paradox Leadership Behaviour	Mean		4.075	0.032
	95% Confidence Interval for Mean	Lower Bound	4.013	
		Upper Bound	4.138	
	5% Trimmed Mean		4.092	
	Median		4.000	
	Variance		0.295	
	Std. Deviation		0.543	
	Minimum		2.000	
	Maximum		5.000	
	Range		3.000	
	Interquartile Range		0.750	
	Skewness		-0.450	0.142
	Kurtosis		0.118	0.283

Source: Author's compilation

The distribution of this construct is centred around a mean of 4.075 and a standard deviation of 0.543. Hence, this construct is approximately normally distributed and meets the assumptions for multiple regression analysis.

5.4.4 Summary of Validity and Reliability Results

The reliability and validity of the dependent variables were assessed in this section. The table below summarises the results.

Table 26: Summary of Reliability and Validity of Dependent Variables

Construct	Cronbach's Alpha	N of Items	KMO Statistics	Eigen value	Explained Variation
Employee Engagement	0.882	9	0.899	4.923	54.698%
Innovation Climate	0.837	6	0.864	3.547	59.122%
Paradox Leadership Behaviour	0.606	4	0.669	1.827	45.667%

Source: Author's compilation

Table 26 clearly indicates that all dependent variables have met the criteria for acceptable levels of reliability and validity.

5.5 Paradox Mindset

The validity, reliability and normality results for the Paradox Mindset mediator construct are presented below.

5.5.1 Validity Results

The validity results are split between the tests conducted to determine data appropriateness, factor extraction and factor loadings for the construct of the paradox mindset. Firstly, the data appropriateness results are shown in the table below.

Table 27: Data appropriateness

Paradox Mindset: KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.753
Bartlett's Test of Sphericity	Approx. Chi-Square	265.289
	df	15
	Sig.	.000

Source: Author's compilation

Table 27 shows that the KMO statistic achieved was 0.753, which is middling. Therefore, this data was appropriate for an EFA because the KMO statistic was greater than 0.6 and the Chi-square statistic was significant. The next set of results illustrates how many factors were extracted.

Table 28: Factors Extracted

Paradox Mindset: Total Variance Explained						
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.400	39.997	39.997	2.400	39.997	39.997
2	.988	16.463	56.460			
3	.786	13.105	69.565			
4	.756	12.607	82.172			
5	.565	9.409	91.581			
6	.505	8.419	100.000			
Extraction Method: Principal Component Analysis.						

Source: Author's compilation

Table 28 clearly shows that the eigenvalue of the first factor extracted explains 39.997% of the variance among all the statements. The single factor extracted had an eigenvalue of 2.400 which was greater than 1 and higher than all the other components' eigenvalues. Therefore, the single factor extracted for this construct was shown to demonstrate uni-dimensionality and theoretically explains what it is meant to explain. The next table illustrates the factor loadings for each statement against the factor extracted.

Table 29: Factor loadings

Paradox Mindset: Component Matrix[a]	
	Component
	4
When I consider conflicting perspectives, I gain a better understanding of an issue.	.381
I am comfortable dealing with and embracing conflicting demands simultaneously.	.621
Accepting contradictions is essential for my success.	.629
I feel energised when I manage to pursue and address contradictory goals and issues.	.748
I am comfortable working on tasks that contradict each other.	.701
I feel uplifted when I realise that two opposites can be true.	.650
Extraction Method: Principal Component Analysis.	
a. 1 components extracted.	

Source: Author's compilation

As Table 29 clearly illustrates, component 4 contains all the questions that relate to the construct of paradox mindset. Interestingly, the statement "When I consider conflicting perspectives, I gain a better understanding of an issue" had the lowest factor loading of 0.381. This indicates that this statement reflects a lower level of validity than the other statements when reflecting the paradox mindset. Despite this, more than three other questions had acceptable coefficient values (> 0.32) therefore illustrating that this construct demonstrates acceptable validity.

5.5.2 Reliability Results

The internal reliability of this construct was established through the calculation of the Cronbach Alpha statistic, shown in the table below.

Table 30: Reliability Results

Paradox Mindset: Reliability Statistics	
Cronbach's Alpha	N of Items
.690	6

Source: Author's compilation

Table 30 shows that the Cronbach Alpha statistic of 0.690 is acceptable because the figure is greater than 0.6. The next set of results demonstrates the impact that each statement would have on the Cronbach alpha if it were removed.

Table 31: Cronbach impact

Paradox Mindset: Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
When I consider conflicting perspectives, I gain a better understanding of an issue.	18.08	10.997	.231	.706
I am comfortable dealing with and embracing conflicting demands simultaneously.	18.63	9.772	.416	.651
Accepting contradictions is essential for my success.	18.53	9.617	.427	.647
I feel energised when I manage to pursue and address contradictory goals and issues.	18.44	8.968	.545	.605
I am comfortable working on tasks that contradict each other.	19.24	9.109	.473	.631
I feel uplifted when I realise that two opposites can be true.	18.53	10.304	.441	.646

Source: Author's compilation

The statement "When I consider conflicting perspectives, I gain a better understanding of an issue." would increase the Cronbach alpha statistic to 0.451 if it were removed. But based on the results set out in Table 31, this construct still demonstrates acceptable levels of reliability because deleting any of the items would not substantially improve the Cronbach alpha statistic. Therefore, all questions for the paradox mindset construct corresponding to component 4 are appropriate and were used to test the hypotheses that relate to this construct.

5.5.3 Normality Results

Table 32: Normality Results

Paradox Mindset: Descriptives				
			Statistic	Std. Error
Paradox_Mindset	Mean		3.715	0.035
	95% Confidence Interval for Mean	Lower Bound	3.645	
		Upper Bound	3.784	
	5% Trimmed Mean		3.737	
	Median		3.667	
	Variance		0.369	
	Std. Deviation		0.607	
	Minimum		1.000	
	Maximum		5.000	
	Range		4.000	
	Interquartile Range		0.833	
	Skewness		-0.620	0.142
	Kurtosis		1.512	0.283

Source: Author's compilation

The distribution of this construct is centred around a mean of 3.715 and a standard deviation of 0.607. Hence, this construct is approximately normally distributed and meets the assumptions for multiple regression analysis.

5.6 Openness to Experience

The openness to experience antecedent consisted of four individual constructs, namely, divergent thinking, self-awareness, cognitive flexibility, and absorptive capacity. The validity, reliability, and normality results for each of the constructs which showed appropriate levels of data quality are presented below.

5.6.1 Confirmatory Factor Analysis Results for Openness to Experience

The latent factor structure of the openness to experience construct is demonstrated in the figure below:

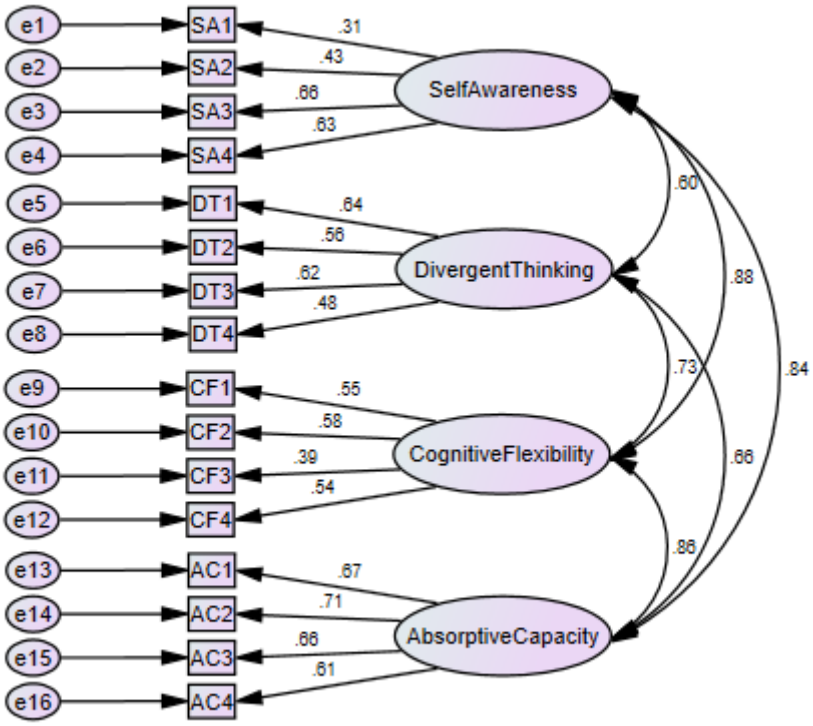

Figure 15: CFA for Openness to Experience

Figure 15 illustrates the factor structure of the openness to experience antecedent. This antecedent is composed of four individual constructs. The CFA model exhibits acceptable fit as the SRMR (0.029), RMSEA (0.056), CFI (0.916) and ratio of Chi-Square to Degree of Freedom (1.928) are within the required thresholds (Hair et al., 2020).

5.6.2 Divergent Thinking

The validity, reliability, and normality results for the first construct for openness to experience is presented below.

5.6.2.1 Validity Results

The validity results are split between the tests conducted to determine data appropriateness, factor extraction and factor loadings for the construct of divergent thinking. Firstly, the data appropriateness results are shown in the table below.

Table 33: Data Appropriateness

Divergent Thinking: KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.715
Bartlett's Test of Sphericity	Approx. Chi-Square	158.318
	df	6
	Sig.	.000

Source: Author's compilation

Table 33 shows that the KMO statistic achieved was 0.715, which is middling. Therefore, the data was appropriate for an EFA because the KMO statistic was greater than 0.6 and the Chi-square statistic was significant. The next set of results illustrates how many factors were extracted.

Table 34: Factors Extracted

Divergent Thinking: Total Variance Explained						
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.994	49.839	49.839	1.994	49.839	49.839
2	.784	19.595	69.435			
3	.652	16.310	85.744			
4	.570	14.256	100.000			
Extraction Method: Principal Component Analysis.						

Source: Author's compilation

Table 34 clearly shows that the eigenvalue of the first factor extracted explains 49.839% of the variance amongall the statements. The single factor extracted demonstrated an eigenvalue of 1.994 which was greater than 1 and higher than the other components' eigenvalues. This means that this construct is uni-dimensional in nature and theoretically explains what it is meant to explain. The next table illustrates the factor loadings for each statement against the factor extracted.

Table 35: Factor loadings

Divergent Thinking: Component Matrix[a]	
	Component
	5
I enjoy the challenge of finding alternative ways to solve a problem.	.757
When I get a new idea, I really get excited.	.711
The more problems I have, the more opportunities I have.	.716
New ideas foster change.	.634
Extraction Method: Principal Component Analysis.	
a. 1 components extracted.	

Source: Author's compilation

As Table 35 clearly illustrates, component 5 contains all the questions that relate to the construct of divergent thinking. Only the statement "New ideas foster change" had a factor loading less than 0.7; however, this does not detract from the overall validity levels of the construct because the questions had acceptable coefficient values (>0.32), therefore illustrating that this construct demonstrates acceptable validity.

5.6.2.2 Reliability Results

The internal reliability of this construct was established through the calculation of the Cronbach Alpha statistic, shown in the table below.

Table 36: Reliability Results

Divergent Thinking: Reliability Statistics	
Cronbach's Alpha	N of Items
.646	4

Source: Author's compilation

Table 36 shows that the Cronbach Alpha statistic of 0.646 is acceptable because the figure is greater than 0.6. The next set of results demonstrates the impact that each statement would have on the Cronbach alpha if it were removed.

Table 37: Cronbach Impact

Divergent Thinking: Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
I enjoy the challenge of finding alternative ways to solve a problem.	12.63	2.559	.487	.548
When I get a new idea, I really get excited.	12.62	2.720	.434	.583
The more problems I have, the more opportunities I have.	13.41	1.944	.455	.573
New ideas foster change.	13.04	2.451	.383	.609

Source: Author's compilation

The statement "I enjoy the challenge of finding alternative ways to solve a problem." would increase the Cronbach alpha statistic to 0.548 if it were removed. This highlights the importance of this statement to this construct because its wording reflects divergent thinking. Based on the results set out in Table 37, this construct demonstrates acceptable levels of reliability because deleting any of the items would not substantially improve the Cronbach alpha statistic. Therefore, all questions for the divergent thinking construct corresponding to component 5 are appropriate and were used to test the hypotheses that relate to this construct.

5.6.2.3 Normality Results

Table 38: Normality Results

Divergent Thinking: Descriptives				
			Statistic	Std. Error
Divergent_Thinking	Mean		4.308	0.029
	95% Confidence Interval for Mean	Lower Bound	4.252	
		Upper Bound	4.365	
	5% Trimmed Mean		4.328	
	Median		4.250	
	Variance		0.240	
	Std. Deviation		0.490	
	Minimum		3.000	
	Maximum		5.000	
	Range		2.000	
	Interquartile Range		0.750	
	Skewness		-0.388	0.142
	Kurtosis		-0.547	0.283

Source: Author's compilation

The distribution of this construct is centred around a mean of 4.308 and a standard deviation of 0.490. Hence, this construct is approximately normally distributed and meets the assumptions for multiple regression analysis.

5.6.2.4 Regression Results

Table 39: H1 Divergent Thinking: Model Summary

Divergent Thinking: Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.456[a]	.207	.201	.576
2	.487[b]	.237	.224	.568
a. Predictors: (Constant), Divergent_Thinking				
b. Predictors: (Constant), Divergent_Thinking, Paradox_Mindset				

Source: Author's compilation

Table 40: H1 Divergent Thinking: ANOVA

Divergent Thinking: ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	9.919	1	9.919	29.848	.000[b]
	Residual	37.885	114	.332		
	Total	47.804	115			
2	Regression	11.332	2	5.666	17.555	.000[c]
	Residual	36.472	113	.323		
	Total	47.804	115			
a. Dependent Variable: Engagement						
b. Predictors: (Constant), Divergent_Thinking						
c. Predictors: (Constant), Divergent_Thinking, Paradox_Mindset						

Source: Author's compilation

Table 41: H1 Divergent Thinking: Coefficients

Divergent Thinking: Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.640	.464		3.535	.001
	Divergent_Thinking	.579	.106	.456	5.463	.000
2	(Constant)	1.222	.499		2.449	.016
	Divergent_Thinking	.505	.110	.398	4.587	.000
	Paradox_Mindset	.197	.094	.181	2.092	.039
a. Dependent Variable: Engagement						

Source: Author's compilation

A significant regression model fit was found with a significant F-statistic of 17.555 and an R^2 of 0.237. The adjusted R-square statistic shows that 22.4% of the dependent variable is explained by the independent variables. The regression coefficient for paradox mindset as a mediator variable was found to be significant with a Beta coefficient of 0.181 and a p-value of less than 0.05. Therefore, the null hypothesis is rejected at the 5% significance level.

5.6.3 Self-Awareness

The validity, reliability, and normality results for the second construct for openness to experience are presented below.

5.6.3.1 Validity Results

The validity results are split between the tests conducted to determine data appropriateness, factor extraction and factor loadings for the construct of self-awareness. Firstly, the data appropriateness results are shown in the table below.

Table 42: Data appropriateness

Self-Awareness: KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.616
Bartlett's Test of Sphericity	Approx. Chi-Square	125.778
	df	6
	Sig.	.000

Source: Author's compilation

Table 42 highlights that the KMO statistic achieved was 0.616, which is borderline middling; however, the data was still appropriate for an EFA because the KMO statistic was greater than 0.6 and the Chi-square statistic was significant. The KMO statistic achieved for self-awareness was relatively weaker when compared to all other constructs. The next set of results illustrates how many factors were extracted.

Table 43: Factors extracted

Self-Awareness: Total Variance Explained						
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.791	44.772	44.772	1.791	44.772	44.772
2	.999	24.970	69.742			
3	.659	16.478	86.220			
4	.551	13.780	100.000			
Extraction Method: Principal Component Analysis.						

Source: Author's compilation

Table 43 clearly shows that the eigenvalue of the first factor extracted explains 44.772% of the variance among all the statements. There are potentially four factors representing each of the four statements that could be extracted, which indicates that this construct might not comprehensively load into a single factor. The next table illustrates the factor loadings for each statement against the single factor that was extracted to further investigate if there are any issues related to the validity of this construct.

Table 44: Factor loadings

Self-Awareness: Component Matrix[a]	
	Component
	6
I seek feedback to improve interactions with others.	.532
I accurately describe how others view my capabilities.	.689
I know when it is time to re-evaluate my position on important issues.	.747
I show I understand how specific actions impact others.	.689
Extraction Method: Principal Component Analysis.	
a. 1 components extracted.	

Source: Author's compilation

As Table 44 clearly illustrates, component 6 contains all the questions that relate to the construct of self-awareness. Interestingly, the statement "I seek feedback to improve interactions with others" has the lowest factor loading of 0.532 relative to the other statements. This indicates that the interaction aspect of the wording of this statement might have detracted from what the self-awareness construct was expected to measure. Despite this, all the questions had acceptable coefficient values (> 0.32), therefore illustrating that this construct demonstrates acceptable validity. There could, however, be looming issues relating to reliability.

5.6.3.2 Reliability Results

The internal reliability of this construct is established through the calculation of the Cronbach Alpha statistic in the table below.

Table 45: Reliability Results

Self-Awareness: Reliability Statistics	
Cronbach's Alpha	N of Items
.574	4

Source: Author's compilation

Table 45 shows that the Cronbach Alpha statistic of 0.574 is unacceptable because the figure is lower than 0.6. The next set of results demonstrates the impact that each statement would have on the Cronbach alpha if it were removed.

Table 46: Cronbach impact

Self-Awareness: Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
I seek feedback to improve interactions with others.	11.61	2.435	.280	.572
I accurately describe how others view my capabilities.	12.33	2.234	.404	.461
I know when it is time to re-evaluate my position on important issues.	11.90	2.538	.415	.464
I show I understand how specific actions impact others.	11.65	2.595	.347	.510

Source: Author's compilation

Even though the removal of none of the statements would increase the Cronbach alpha to higher than 0.6, it is still interesting to note that the statement "I accurately describe how others view my capabilities." would increase the Cronbach alpha statistic to 0.461 if it were removed. This emphasises the importance of this statement to the self-awareness construct; the wording reflects how participants reflect on their own self-awareness. Unfortunately, based on the results set out in Table 46, the self-awareness construct demonstrates unacceptable levels of reliability because deleting any of the items would not substantially improve the Cronbach alpha statistic. This construct did not meet the quality control requirements established in the methodology chapter and was therefore not used to test the hypotheses that relate to this construct.

5.6.3.3 Normality Results

Table 47: Normality Results

Self-Awareness: Descriptives				
			Statistic	Std. Error
Self_Awareness	Mean		3.958	0.028
	95% Confidence Interval for Mean	Lower Bound	3.902	
		Upper Bound	4.014	
	5% Trimmed Mean		3.963	
	Median		4.000	
	Variance		0.238	
	Std. Deviation		0.488	
	Minimum		2.500	
	Maximum		5.000	
	Range		2.500	
	Interquartile Range		0.500	
	Skewness		-0.099	0.142
	Kurtosis		-0.097	0.283

Source: Author's compilation

The distribution of this construct is centered around a mean of 3.958 and a standard deviation of 0.488. Hence, this construct is approximately normally distributed and meets the assumptions for multiple regression analysis. However, due to poor reliability, no further hypothesis testing was carried out for this construct.

5.6.4 Cognitive Flexibility

The validity, reliability, and normality results for the third construct for openness to experience are presented below.

5.6.4.1 Validity Results

The validity results are split between the tests conducted to determine data appropriateness, factor extraction and factor loadings for the construct of Cognitive Flexibility. Firstly, the data appropriateness results are shown in the table below.

Table 48: Data Appropriateness

Cognitive Flexibility: KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.660
Bartlett's Test of Sphericity	Approx. Chi-Square	110.997
	df	6
	Sig.	.000

Source: Author's compilation

Table 48 shows that the KMO statistic achieved was 0.660, which is middling. Hence, the data was appropriate for an EFA because the KMO statistic was greater than 0.6 and the Chi-square statistic was significant. The next set of results illustrates how many factors were extracted.

Table 49: Factors extracted

Cognitive Flexibility: Total Variance Explained						
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.795	44.871	44.871	1.795	44.871	44.871
2	.903	22.571	67.442			
3	.697	17.433	84.875			
4	.605	15.125	100.000			
Extraction Method: Principal Component Analysis.						

Source: Author's compilation

Table 49 clearly shows that the eigenvalue of the first factor extracted explains 44.871% of the variance among all the statements. The single factor extracted had an eigenvalue of 1.795 which is greater than 1 and much higher than any of the other components. This means that this construct is uni-dimensional in nature and theoretically explains what it is meant to explain. The next table illustrates the factor loadings for each statement against the factor extracted.

Table 50: Factor loadings

Cognitive Flexibility: Component Matrix[a]	
	Component
	7
I can communicate an idea in many ways.	.717
I can find workable solutions to seemingly unsolvable problems.	.717
I am willing to listen and consider alternatives for handling a problem.	.536
I have the self-confidence to try the different ways of behaving.	.693
Extraction Method: Principal Component Analysis.	
a. 1 components extracted.	

Source: Author's compilation

As Table 50 clearly illustrates, component 7 contains all the questions that relate to the construct of cognitive flexibility. Interestingly, the statement "I am willing to listen and consider alternatives for handling a problem." had a factor loading of 0.536, which is relatively lower than all the other statements' factor loadings. Despite this, all the questions had acceptable coefficient values (>0.32) therefore illustrating that this construct demonstrates acceptable validity.

5.6.4.2 Reliability Results

The internal reliability of this construct was established through the calculation of the Cronbach Alpha statistic shown in the table below.

Table 51: Reliability

Cognitive Flexibility: Reliability Statistics	
Cronbach's Alpha	N of Items
.659	4

Source: Author's compilation

Table 51 shows that the Cronbach Alpha statistic of 0.659 is acceptable because the figure is greater than 0.6. The next set of results demonstrates the impact that each statement would have on the Cronbach alpha if it were removed.

Table 52: Cronbach impact

Cognitive Flexibility: Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
I can communicate an idea in many ways.	12.61	2.361	.438	.603
I can find workable solutions to seemingly unsolvable problems.	12.63	2.357	.575	.489
I am willing to listen and consider alternatives for handling a problem.	12.03	3.278	.351	.647
I have the self-confidence to try the different ways of behaving.	12.44	2.822	.422	.603

Source: Author's compilation

The statement "I can find workable solutions to seemingly unsolvable problems." would increase the Cronbach alpha statistic to 0.489 if it were removed. This highlights the importance of this statement to the cognitive flexibility construct as it reflects how participants perceive their own cognitive flexibility when rating the statement. Based on the results set out in Table 52, this construct demonstrates acceptable levels of reliability because deleting any of the items would not substantially improve the Cronbach alpha statistic. Therefore, all questions for the cognitive flexibility construct corresponding to component 7 are appropriate and were used to test the hypotheses that relate to this construct.

5.6.4.3 Normality Results

Table 53: Normality Results

Cognitive Flexibility: Descriptives				
			Statistic	Std. Error
Cognitive_Flexibility	Mean		4.139	0.028
	95% Confidence Interval for Mean	Lower Bound	4.085	
		Upper Bound	4.193	
	5% Trimmed Mean		4.147	
	Median		4.250	
	Variance		0.226	
	Std. Deviation		0.475	
	Minimum		2.000	
	Maximum		5.000	
	Range		3.000	
	Interquartile Range		0.750	
	Skewness		-0.336	0.142
	Kurtosis		0.534	0.283

Source: Author's compilation

The distribution of this construct is centred around a mean of 4.139 and a standard deviation of 0.475. Hence, this construct is approximately normally distributed and meets the assumptions for multiple regression analysis.

5.6.4.4 Regression Results

Table 54: H1 Cognitive Flexibility: Model Summary

Cognitive Flexibility: Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.391[a]	.153	.146	.595
2	.482[b]	.232	.219	.569
a. Predictors: (Constant), Cognitive_Flexibility				
b. Predictors: (Constant), Cognitive_Flexibility , Paradox_Mindset				

Source: Author's compilation

Table 55: H1 Cognitive Flexibility: ANOVA

Cognitive Flexibility: ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	7.324	1	7.324	20.626	.000[b]
	Residual	40.480	114	.355		
	Total	47.804	115			
2	Regression	11.109	2	5.554	17.105	.000[c]
	Residual	36.695	113	.325		
	Total	47.804	115			
a. Dependent Variable: Engagement						
b. Predictors: (Constant), Cognitive_Flexibility						
c. Predictors: (Constant), Cognitive_Flexibility , Paradox_Mindset						

Source: Author's compilation

Table 56: H1 Cognitive Flexibility: Coefficients

Cognitive Flexibility: Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.145	.447		4.802	.000
	Cognitive_Flexibility	.486	.107	.391	4.542	.000
2	(Constant)	1.099	.525		2.092	.039
	Cognitive_Flexibility	.461	.103	.372	4.497	.000
	Paradox_Mindset	.307	.090	.282	3.414	.001
a. Dependent Variable: Engagement						

Source: Author's compilation

A significant regression model fit was found with a significant F-statistic of 17.105 and an R^2 of 0.232. The adjusted R-square statistic highlights that 21.9% of the dependent variable is explained by the independent variables. The regression coefficient for paradox mindset as a mediator variable was found to be significant with a Beta coefficient of 0.282 and a p-value of less than 0.05. Therefore, the null hypothesis is rejected at the 5% significance level and these findings lend support to H1.

Table 57: H2 Cognitive Flexibility: Model Summary

Cognitive Flexibility: Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.317[a]	.100	.092	.705
2	.386[b]	.149	.134	.689
a. Predictors: (Constant), Cognitive_Flexibility				
b. Predictors: (Constant), Cognitive_Flexibility , Paradox_Mindset				

Source: Author's compilation

Table 58: H2 Cognitive Flexibility: ANOVA

Cognitive Flexibility: ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6.333	1	6.333	12.710	.001[b]
	Residual	56.806	114	.498		
	Total	63.139	115			
2	Regression	9.407	2	4.703	9.891	.000[c]
	Residual	53.732	113	.476		
	Total	63.139	115			
a. Dependent Variable: Innovation Climate						
b. Predictors: (Constant), Cognitive_Flexibility						
c. Predictors: (Constant), Cognitive_Flexibility , Paradox_Mindset						

Source: Author's compilation

Table 59: H2 Cognitive Flexibility: Coefficients

Cognitive Flexibility: Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.880	.529		3.554	.001
	Cognitive_Flexibility	.452	.127	.317	3.565	.001
2	(Constant)	.938	.636		1.475	.143
	Cognitive_Flexibility	.430	.124	.301	3.462	.001
	Paradox_Mindset	.276	.109	.221	2.542	.012
a. Dependent Variable: Innovation Climate						

Source: Author's compilation

A significant regression model fit was found with a significant F-statistic of 9.891 and an R^2 of 0.149. The adjusted R-square statistic highlights that 13.4% of the dependent variable is explained by the independent variables. The regression coefficient for paradox mindset as a mediator variable was found to be significant with a Beta coefficient of 0.221 and a p-value of less than 0.05. Therefore, the null hypothesis is rejected at the 5% significance level and these findings lend support to H2.

Table 60: H3 Cognitive Flexibility: Model Summary

Cognitive Flexibility: Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.257[a]	.066	.058	.56309
2	.328[b]	.108	.092	.55284
a. Predictors: (Constant), Cognitive_Flexibility				
b. Predictors: (Constant), Cognitive_Flexibility , Paradox_Mindset				

Source: Author's compilation

Table 61: H3 Cognitive Flexibility: ANOVA

Cognitive Flexibility: ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.550	1	2.550	8.041	.005[b]
	Residual	36.146	114	.317		
	Total	38.696	115			
2	Regression	4.160	2	2.080	6.806	.002[c]
	Residual	34.536	113	.306		
	Total	38.696	115			
a. Dependent Variable: Paradox_Leadership_Behaviour						
b. Predictors: (Constant), Cognitive_Flexibility						
c. Predictors: (Constant), Cognitive_Flexibility , Paradox_Mindset						

Source: Author's compilation

Table 62: H3 Cognitive Flexibility: Coefficients

Cognitive Flexibility: Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.834	.422		6.716	.000
	Cognitive_Flexibility	.287	.101	.257	2.836	.005
2	(Constant)	2.152	.510		4.222	.000
	Cognitive_Flexibility	.271	.099	.242	2.720	.008
	Paradox_Mindset	.200	.087	.205	2.296	.024
a. Dependent Variable: Paradox_Leadership_Behaviour						

Source: Author's compilation

A significant regression model fit was found with a significant F-statistic of 6.806 and an R^2 of 0.108. The adjusted R-square statistic highlights that 9.2% of the dependent variable is explained by the independent variables. The regression coefficient for Paradox Mindset as a mediator variable was found to be significant with a Beta coefficient of 0.205 and a p-value of less than 0.05. Therefore, the null hypothesis is rejected at the 5% significance level and these findings lend support to H3.

5.6.5 Absorptive Capacity

The validity, reliability, and normality results for the third construct for openness to experience is presented below.

5.6.5.1 Validity Results

The validity results are split between the tests conducted to determine data appropriateness, factor extraction and factor loadings for the construct of absorptive capacity. Firstly, the data appropriateness results are shown in the table below.

Table 63: Data Appropriateness

Absorptive Capacity: KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.776
Bartlett's Test of Sphericity	Approx. Chi-Square	265.662
	df	6
	Sig.	.000

Source: Author's compilation

Table 63 highlights that the KMO statistic achieved was 0.776, which is middling. The data was therefore appropriate for an EFA because the KMO statistic was greater than 0.6 and the Chi-square statistic was significant. The next set of results illustrates how many factors were extracted.

Table 64: Factors Extracted

Absorptive Capacity: Total Variance Explained						
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.324	58.099	58.099	2.324	58.099	58.099
2	.598	14.943	73.042			
3	.571	14.275	87.317			
4	.507	12.683	100.000			
Extraction Method: Principal Component Analysis.						

Source: Author's compilation

Table 64 clearly shows that the eigenvalue of the first factor extracted explains 58.099% of the variance among all the statements. This means that this construct is uni-dimensional in nature and theoretically explains what it is meant to explain. The next table illustrates the factor loadings for each statement against the factor extracted.

Table 65: Factors Extracted

Absorptive Capacity: Component Matrix[a]	
	Component
	8
I analyse and interpret changing demands.	.756
I recognise shifts and new opportunities.	.780
I have frequent interactions with clients, colleagues, and competitors to acquire new knowledge.	.769
I constantly consider how to better exploit knowledge.	.744
Extraction Method: Principal Component Analysis.	
a. 1 components extracted.	

Source: Author's compilation

As Table 65 clearly illustrates, component 8 contains all the questions that relate to the construct of absorptive capacity. All the questions had coefficient values > 0.70, illustrating that this construct demonstrates healthy levels of validity. The factor loadings, all of which are around 0.7, show that all the statements are very reflective of absorptive

capacity.

5.6.5.2 Reliability Results

The internal reliability of this construct was established through the calculation of the Cronbach Alpha statistic, shown in the table below.

Table 66: Reliability

Absorptive Capacity: Reliability Statistics	
Cronbach's Alpha	N of Items
.756	4

Source: Author's compilation

Table 66 shows that the Cronbach Alpha statistic of 0.756 is acceptable because the figure is greater than 0.6. The next set of results demonstrates the impact that each statement would have on the Cronbach alpha if it were removed.

Table 67: Cronbach impact

Absorptive Capacity: Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
I analyse and interpret changing demands.	12.31	3.229	.546	.703
I recognise shifts and new opportunities.	12.43	3.286	.577	.690
I have frequent interactions with clients, colleagues, and competitors to acquire new knowledge.	12.44	2.961	.564	.694
I constantly consider how to better exploit knowledge.	12.40	2.982	.537	.711

Source: Author's compilation

The statement "I recognise shifts and new opportunities." would increase the Cronbach alpha statistic to 0.690 if it were removed. This highlights the relative importance of this statement in terms of how participants resonated with it, compared to the other statements. Based on the results set out in Table 67, this construct demonstrates acceptable levels of reliability because deleting any of the items would not substantially

improve the Cronbach alpha statistic. Therefore, all questions for the absorptive capacity construct corresponding to component 8 are appropriate and were used to test the hypotheses that relate to this construct.

5.6.5.3 Normality Results

Table 68: Normality

Absorptive Capacity: Descriptives				
			Statistic	Std. Error
Absorptive_Capacity	Mean		4.131	0.033
	95% Confidence Interval for Mean	Lower Bound	4.067	
		Upper Bound	4.196	
	5% Trimmed Mean		4.152	
	Median		4.000	
	Variance		0.320	
	Std. Deviation		0.566	
	Minimum		2.250	
	Maximum		5.000	
	Range		2.750	
	Interquartile Range		0.750	
	Skewness		-0.393	0.142
	Kurtosis		-0.190	0.283

Source: Author's compilation

The distribution of this construct is centred around a mean of 4.131 and a standard deviation of 0.566. Hence, this construct is approximately normally distributed and meets the assumptions for multiple regression analysis.

5.6.5.4 Regression Results

Table 69: H1 Absorptive Capacity: Model Summary

Absorptive Capacity: Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.325[a]	.105	.097	.612
2	.418[b]	.175	.160	.590
a. Predictors: (Constant), Absorptive_Capacity				
b. Predictors: (Constant), Absorptive_Capacity, Paradox_Mindset				

Source: Author's compilation

Table 70: H1 Absorptive Capacity: ANOVA

Absorptive Capacity: ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5.035	1	5.035	13.420	.000[b]
	Residual	42.769	114	.375		
	Total	47.804	115			
2	Regression	8.365	2	4.183	11.984	.000[c]
	Residual	39.439	113	.349		
	Total	47.804	115			
a. Dependent Variable: Engagement						
b. Predictors: (Constant), Absorptive_Capacity						
c. Predictors: (Constant), Absorptive_Capacity, Paradox_Mindset						

Source: Author's compilation

Table 71: H1 Absorptive Capacity: Coefficients

Absorptive Capacity: Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.626	.422		6.224	.000
	Absorptive_Capacity	.363	.099	.325	3.663	.000
2	(Constant)	1.723	.501		3.440	.001
	Absorptive_Capacity	.320	.097	.286	3.310	.001
	Paradox_Mindset	.290	.094	.267	3.089	.003
a. Dependent Variable: Engagement						

Source: Author's compilation

A significant regression model fit was found with a significant F-statistic of 11.984 and an R^2 of 0.175. The adjusted R-square statistic highlights that 16.0% of the dependent variable is explained by the independent variables. The regression coefficient for paradox mindset as a mediator variable was found to be significant with a Beta coefficient of 0.267 and a p-value of less than 0.05. Therefore, the null hypothesis is rejected at the 5% significance level.

Table 72: H2 Absorptive Capacity: Model Summary

Absorptive Capacity: Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.275[a]	.075	.067	.715
2	.343[b]	.117	.102	.702
a. Predictors: (Constant), Absorptive_Capacity				
b. Predictors: (Constant), Absorptive_Capacity, Paradox_Mindset				

Source: Author's compilation

Table 73: H2 Absorptive Capacity: ANOVA

Absorptive Capacity: ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4.761	1	4.761	9.298	.003[b]
	Residual	58.378	114	.512		
	Total	63.139	115			
2	Regression	7.407	2	3.703	7.509	.001[c]
	Residual	55.732	113	.493		
	Total	63.139	115			
a. Dependent Variable: Innovation Climate						
b. Predictors: (Constant), Absorptive_Capacity						
c. Predictors: (Constant), Absorptive_Capacity, Paradox_Mindset						

Source: Author's compilation

Table 74: H2 Absorptive Capacity: Coefficients

Absorptive Capacity: Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.262	.493		4.590	.000
	Absorptive_Capacity	.353	.116	.275	3.049	.003
2	(Constant)	1.458	.596		2.448	.016
	Absorptive_Capacity	.314	.115	.245	2.738	.007
	Paradox_Mindset	.258	.112	.207	2.316	.022
a. Dependent Variable: Innovation Climate						

Source: Author's compilation

A significant regression model fit was found with a significant F-statistic of 7.509 and an R^2 of 0.117. The adjusted R-square statistic highlights that 10.2% of the dependent variable is explained by the independent variables. The regression coefficient for paradox mindset as a mediator variable was found to be significant with a Beta coefficient of 0.207 and a p-value of less than 0.05. Therefore, the null hypothesis is rejected at the 5% significance level.

Table 75: H3 Absorptive Capacity: Model Summary

Absorptive Capacity: Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.210[a]	.044	.036	.56960
2	.285[b]	.081	.065	.56084
a. Predictors: (Constant), Absorptive_Capacity				
b. Predictors: (Constant), Absorptive_Capacity, Paradox_Mindset				

Source: Author's compilation

Table 76: H3 Absorptive Capacity: ANOVA

Absorptive Capacity: ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.710	1	1.710	5.270	.024[b]
	Residual	36.986	114	.324		
	Total	38.696	115			
2	Regression	3.153	2	1.577	5.012	.008[c]
	Residual	35.543	113	.315		
	Total	38.696	115			
a. Dependent Variable: Paradox_Leadership_Behaviour						
b. Predictors: (Constant), Absorptive_Capacity						
c. Predictors: (Constant), Absorptive_Capacity, Paradox_Mindset						

Source: Author's compilation

Table 77: H3 Absorptive Capacity: Coefficients

Absorptive Capacity: Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.129	.392		7.976	.000
	Absorptive_Capacity	.212	.092	.210	2.296	.024
2	(Constant)	2.535	.476		5.330	.000
	Absorptive_Capacity	.183	.092	.182	1.996	.048
	Paradox_Mindset	.191	.089	.195	2.142	.034
a. Dependent Variable: Paradox_Leadership_Behaviour						

Source: Author's compilation

A significant regression model fit was found with a significant F-statistic of 5.012 and an R^2 of 0.285. The adjusted R-square statistic highlights that 6.5% of the dependent variable is explained by the independent variables. The regression coefficient for Paradox Mindset as a mediator variable was found to be significant with a Beta coefficient of 0.195 and a p-value of less than 0.05. Therefore, the null hypothesis is rejected at the 5% significance level.

5.6.6 Summary of Validity and Reliability Results

The reliability and validity of the openness to experience construct were assessed in this section. The table below summarises the results.

Table 78: Summary of Validity and Reliability Results

Construct	Cronbach's Alpha	N of Items	KMO Statistics	Eigen value	Explained Variation
Divergent Thinking	0.646	4	0.715	1.994	49.839%
Self-Awareness	0.574	4	0.616	1.791	44.772%
Cognitive Flexibility	0.659	4	0.660	1.795	44.871%
Absorptive Capacity	0.756	4	0.776	2.324	58.099%

Table 78 clearly indicates that only the self-awareness construct failed to demonstrate acceptable levels of reliability and validity.

5.6.7 Multiple Regression Results

Table 79 below provides a summary of all the multiple regression results carried out to test the hypotheses related to the openness to experience constructs.

Table 79: H4 Openness to Experience construct summary

Constructs	Sample Breakdown	Main Effects		Paradox Mindset as a Mediator Results					
		Model 1		Model 2		Model 3		Model 4	
		Dependent Variable: Paradox Mindset		Dependent Variable: Employee Engagement		Dependent Variable: Innovation Climate		Dependent Variable: Paradox Leadership Behaviour	
		Beta	p-value	Beta	p-value	Beta	p-value	Beta	p-value
Divergent Thinking	Full Sample	0.208*	0.002	0.114*	0.036	0.079	0.183	0.123*	0.037
	Female Only	0.271*	0.008	0.181*	0.039	0.143	0.121	0.111	0.226
	Male Only	0.133	0.130	0.063	0.369	0.030	0.701	0.133	0.083
Cognitive Flexibility	Full Sample	-0.022	0.756	0.172*	0.002	0.094	0.096	0.137*	0.015
	Female Only	-0.193	0.118	0.282*	0.001	0.221*	0.012	0.205*	0.024
	Male Only	0.092	0.315	0.086	0.231	-0.004	0.953	0.087	0.233
Absorptive Capacity	Full Sample	0.098	0.195	0.153*	0.005	0.079	0.166	0.146*	0.013
	Female Only	0.141	0.287	0.267*	0.003	0.207*	0.022	0.195*	0.034
	Male Only	0.136	0.152	0.056	0.421	-0.023	0.757	0.113	0.137

* p-value < 0.05

Source: Author's compilation

5.7 Exposure to Role Models

The validity, reliability and normality results for this construct are presented below.

5.7.1 Validity Results

The validity results are split between the tests conducted to determine data appropriateness, factor extraction and factor loadings for the construct of exposure to role models. Firstly, the data appropriateness results are shown in Table 80 below.

Table 80: Data Appropriateness

Exposure to Role Models: KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.832
Bartlett's Test of Sphericity	Approx. Chi-Square	701.029
	df	6
	Sig.	.000

Source: Author's compilation

Table 80 shows that the KMO statistic achieved was 0.832, which is meritorious. Therefore, the data was appropriate for an EFA because the KMO statistic was greater than 0.6 and the Chi-square statistic was significant. The next set of results illustrates how many factors were extracted.

Table 81: Factors Extracted

Exposure to Role Models: Total Variance Explained						
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.037	75.936	75.936	3.037	75.936	75.936
2	.416	10.400	86.336			
3	.328	8.211	94.547			
4	.218	5.453	100.000			
Extraction Method: Principal Component Analysis.						

Source: Author's compilation

Table 81 clearly shows that the eigenvalue of the first factor extracted explains 75.936% of the variance among all the statements. The eigenvalue of 3.037 was much higher than all other components highlighting that the first factor was the most representative of all the statements. This also means that this construct is uni-dimensional in nature and theoretically explains what it is meant to explain. The next table illustrates the factor loadings for each statement against the factor extracted.

Table 82: Factor Loadings

Exposure to Role Models: Component Matrix[a]	
	Component
	9
Role models enlighten me as to think about today's choices and how they shape my future.	.838
Roles models prove to me that it is important to take responsibility for my actions and lead by example.	.905
Roles models inspire me to look for opportunities to grow as a person.	.897
Through having role models, I observe different ways of doing things.	.845
Extraction Method: Principal Component Analysis.	
a. 1 components extracted.	

Source: Author's compilation

As Table 82 clearly illustrates, component 9 contains all the questions that relate to the construct of exposure to role models. All the questions had coefficient values > 0.8 therefore illustrating that this construct demonstrates excellent levels of validity. All the statements resonate around the impact that role models had on respondents, therefore exhibiting excellent levels of reliability.

5.7.2 Reliability Results

The internal reliability of this construct was established through the calculation of the Cronbach Alpha statistic, shown in the table below.

Table 83: Reliability

Exposure to Role Models: Reliability Statistics	
Cronbach's Alpha	N of Items
.894	4

Source: Author's compilation

Table 83 shows that the Cronbach Alpha statistic of 0.894 is acceptable because the figure is greater than 0.6. The next set of results demonstrates the impact that each statement would have on the Cronbach alpha if it were removed.

Table 84: Cronbach impact

Exposure to Role Models: Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Role models enlighten me as to think about today's choices and how they shape my future.	12.64	4.148	.716	.881
Roles models prove to me that it is important to take responsibility for my actions and lead by example.	12.47	4.039	.818	.844
Roles models inspire me to look for opportunities to grow as a person.	12.49	3.945	.803	.848
Through having role models, I observe different ways of doing things.	12.51	4.203	.726	.877

Source: Author's compilation

The statement "Role models prove to me that it is important to take responsibility for my actions and lead by example." would increase the Cronbach alpha statistic to 0.844 if it were removed. This highlights the relative importance of this statement when compared to the other statements. Based on the results set out in Table 84, this construct demonstrates acceptable levels of reliability because deleting any of the items would not substantially improve the Cronbach alpha statistic. Therefore, all questions for the exposure to role models construct corresponding to component 9 are appropriate and were used to test the hypotheses that relate to this construct.

5.7.3 Normality Results

Table 85: Normality

Exposure to Role Models: Descriptives				
			Statistic	Std. Error
Exposure_to_Role Models	Mean		4.176	0.039
	95% Confidence Interval for Mean	Lower Bound	4.100	
		Upper Bound	4.252	
	5% Trimmed Mean		4.224	
	Median		4.000	
	Variance		0.438	

Exposure to Role Models: Descriptives				
	Std. Deviation		0.662	
	Minimum		1.500	
	Maximum		5.000	
	Range		3.500	
	Interquartile Range		0.750	
	Skewness		-0.994	0.142
	Kurtosis		1.863	0.283

Source: Author's compilation

The distribution of this construct is centred around a mean of 4.176 and a standard deviation of 0.662. Hence, this construct is approximately normally distributed and meets the assumptions for multiple regression analysis.

5.7.4 Regression Results

Table 86: H5 Exposure to Role Models: Model Summary

Exposure to Role Models: Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.373[a]	.139	.131	.600
2	.431[b]	.186	.172	.586
a. Predictors: (Constant), Exposure_to_Role Models				
b. Predictors: (Constant), Exposure_to_Role Models, Paradox_Mindset				

Source: Author's compilation

Table 87: H5 Exposure to Role Models: ANOVA

Exposure to Role Models: ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6.643	1	6.643	18.399	.000[b]
	Residual	41.161	114	.361		
	Total	47.804	115			
2	Regression	8.896	2	4.448	12.919	.000[c]
	Residual	38.908	113	.344		
	Total	47.804	115			
a. Dependent Variable: Engagement						
b. Predictors: (Constant), Exposure_to_Role Models						
c. Predictors: (Constant), Exposure_to_Role Models, Paradox_Mindset						

Source: Author's compilation

Table 88: H5 Exposure to Role Models: Coefficients

Exposure to Role Models: Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.645	.357		7.408	.000
	Exposure_to_Role Models	.357	.083	.373	4.289	.000
2	(Constant)	1.971	.437		4.512	.000
	Exposure_to_Role Models	.299	.084	.313	3.556	.001
	Paradox_Mindset	.245	.096	.225	2.558	.012
a. Dependent Variable: Engagement						

Source: Author's compilation

A significant regression model fit was found with a significant F-statistic of 12.919 and an R^2 of 0.186. The adjusted R-square statistic highlights that 17.2% of the dependent variable is explained by the independent variables. The regression coefficient for paradox mindset as a mediator variable was found to be significant with a Beta coefficient of 0.225 and a p-value of less than 0.05. Therefore, the null hypothesis is rejected at the 5% significance level.

5.7.5 Summary of Multiple Regression Results

Table 87 below provides a summary of all the multiple regression results carried out to test hypotheses related to the Exposure to Role Models construct.

Table 89: Exposure to role models regression summary

Constructs	Sample Breakdown	Main Effects		Paradox Mindset as a Mediator Results					
		Model 1		Model 2		Model 3		Model 4	
		Dependent Variable: Paradox Mindset		Dependent Variable: Engagement		Dependent Variable: Innovation Climate		Dependent Variable: Paradox Leadership Behaviour	
		Beta	p-value	Beta	p-value	Beta	p-value	Beta	p-value
Exposure to Role Models	Full Sample	0.092	0.195	0.182*	0.001	0.101	0.080	0.145*	0.012
	Female Only	0.193*	0.050	0.225*	0.012	0.165	0.071	0.157	0.092
	Male Only	0.037	0.640	0.144*	0.050	0.048	0.525	0.139	0.060

* p-value < 0.05

Source: Author's compilation

Table 89 provides clear evidence that a significant relationship exists (Beta = 0.272; p-value = 0.003) between organisational learning orientation and the paradox mindset amongst women leaders.

5.8 Exposure to Organisational Learning Orientation

The validity, reliability and normality results for this construct are presented as follows:

5.8.1 Validity Results

The validity results are split between the tests conducted to determine data appropriateness, factor extraction and factor loadings for the construct of exposure to organisational learning orientation. Firstly, the data appropriateness results are shown in the table below.

Table 90: Data Appropriateness

Exposure to Organisational Learning Orientation: KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.787
Bartlett's Test of Sphericity	Approx. Chi-Square	415.645
	df	6
	Sig.	.000

Source: Author's compilation

Table 90 highlights that the KMO statistic achieved was 0.787, which is close to being meritorious. Therefore, the data was appropriate for an EFA because the KMO statistic

was greater than 0.6 and the Chi-square statistic was significant. The next set of results illustrates how many factors were extracted.

Table 91: Factors Extracted

Exposure to Organisational Learning Orientation: Total Variance Explained						
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.622	65.542	65.542	2.622	65.542	65.542
2	.581	14.532	80.073			
3	.428	10.707	90.781			
4	.369	9.219	100.000			
Extraction Method: Principal Component Analysis.						

Source: Author's compilation

Table 91 clearly shows that the eigenvalue of the first factor extracted explains 65.542% of the variance among all the statements. This means that this construct is uni-dimensional in nature because only one factor is required to be representative of all the statements making up the factor. Hence, this single factor theoretically explains what it is meant to explain. The next table illustrates the factor loadings for each statement against the factor extracted.

Table 92: Factor Loadings

Exposure to Organisational Learning Orientation: Component Matrix[a]	
	Component
	10
In my organisation lessons learned are made available to all employees.	.817
In my organisation, teams/groups revise their thinking because of group discussions or information collected.	.780
In my organisation alignment of visions across different levels and work groups are shared.	.836
In my organisation people are encouraged to get answers from across the organisation when solving problems.	.804
Extraction Method: Principal Component Analysis.	
a. 1 components extracted.	

Source: Author's compilation

As Table 92 clearly illustrates, component 10 contains all the questions that relate to the construct of exposure to organisational learning orientation. Interestingly, the statement

“In my organisation alignment of visions across different levels and work groups are shared” had the highest factor loading. This indicates that the wording of this statement resonates closest to what this construct intends to measure. All the questions had acceptable coefficient values therefore illustrating that this construct demonstrates acceptable validity.

5.8.2 Reliability Results

The internal reliability of this construct was established through the calculation of the Cronbach Alpha statistic, shown in the table below.

Table 93: Reliability

Exposure to Organisational Learning Orientation: Reliability Statistics	
Cronbach's Alpha	N of Items
.823	4

Source: Author’s compilation

Table 93 shows that the Cronbach Alpha statistic of 0.823 is acceptable because the figure is greater than 0.6. The next set of results demonstrates the impact that each statement would have on the Cronbach alpha if it were removed.

Table 94: Cronbach Impact

Exposure to Organisational Learning Orientation: Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
In my organisation lessons learned are made available to all employees.	11.16	4.794	.659	.774
In my organisation, teams/groups revise their thinking because of group discussions or information collected.	10.83	5.681	.613	.793
In my organisation alignment of visions across different levels and work groups are shared.	10.91	5.121	.685	.759

Exposure to Organisational Learning Orientation: Item-Total Statistics				
In my organisation people are encouraged to get answers from across the organisation when solving problems.	10.78	5.254	.641	.779

Source: Author's compilation

The statement "In my organisation alignment of visions across different levels and work groups are shared." would increase the Cronbach alpha statistic to 0.759 if it were removed. This highlights the relative importance of this statement when compared to the other statements. Based on the results set out in Table 94, this construct demonstrates acceptable levels of reliability because deleting any of the items would not substantially improve the Cronbach alpha statistic. Therefore, all questions for the exposure to organisational learning orientation construct corresponding to component 10 are appropriate and were used to test the hypotheses that relate to this construct.

5.8.3 Normality Results

Table 95: Normality Results

Exposure to Organisational Learning Orientation: Descriptives				
			Statistic	Std. Error
Organisational_Learning_Orientation	Mean		3.640	0.043
	95% Confidence Interval for Mean	Lower Bound	3.555	
		Upper Bound	3.725	
	5% Trimmed Mean		3.665	
	Median		3.750	
	Variance		0.547	
	Std. Deviation		0.740	
	Minimum		1.000	
	Maximum		5.000	
	Range		4.000	
	Interquartile Range		0.750	
	Skewness		-0.616	0.142
	Kurtosis		0.797	0.283

Source: Author's compilation

The distribution of this construct is centred around a mean of 3.640 and a standard deviation of 0.740. Hence, this construct is approximately normally distributed and meets the assumptions for multiple regression analysis.

5.8.4 Regression Results

Table 96: H6 Exposure to Organisational Learning Orientation: Model Summary

Exposure to Organisational Learning Orientation: Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.472[a]	.223	.180	.537
a. Predictors: (Constant), Organisational_Learning_Orientation, Absorptive_Capacity, Exposure_to_Role Models, Divergent_Thinking, Self_Awareness , Cognitive_Flexibility				

Source: Author's compilation

Table 97: H6 Exposure to Organisational Learning Orientation: ANOVA

Exposure to Organisational Learning Orientation: ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	9.021	6	1.504	5.212	.000[b]
	Residual	31.445	109	.288		
	Total	40.466	115			
a. Dependent Variable: Paradox_Mindset						
b. Predictors: (Constant), Organisational_Learning_Orientation, Absorptive_Capacity, Exposure_to_Role Models, Divergent_Thinking, Self_Awareness , Cognitive_Flexibility						

Source: Author's compilation

Table 98: H6 Exposure to Organisational Learning Orientation: Coefficients

Exposure to Organisational Learning Orientation: Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.059	.537		3.831	.000
	Divergent_Thinking	.317	.118	.271	2.686	.008
	Self_Awareness	-.198	.138	-.160	-1.430	.156
	Cognitive_Flexibility	-.221	.140	-.193	-1.577	.118

	Absorptive_Capacity	.145	.136	.141	1.069	.287
	Exposure_to_Role Models	.170	.086	.193	1.975	.051
	Organisational_Learning_Orientation	.189	.063	.272	3.004	.003
a. Dependent Variable: Paradox_Mindset						

Source: Author's compilation

A significant regression model fit was found with a significant F-statistic of 5.212 and an R^2 of 0.223. The adjusted R-square statistic highlights that 18.0% of the dependent variable is explained by the independent variables. The regression coefficient for the organisational learning orientation construct was found to be significant with a Beta coefficient of 0.272 and a p-value of less than 0.05. Therefore, the null hypothesis is rejected at the 5% significance level.

5.8.5 Summary of Multiple Regression Results

Table 99: Organisational Learning Orientation regression summary

Constructs	Sample Breakdown	Main Effects		Paradox Mindset as a Mediator Results					
		Model 1		Model 2		Model 3		Model 4	
		Dependent Variable: Paradox Mindset		Dependent Variable: Engagement		Dependent Variable: Innovation Climate		Dependent Variable: Paradox Leadership Behaviour	
		Beta	p-value	Beta	p-value	Beta	p-value	Beta	p-value
Organisational Learning Orientation	Full Sample	0.161*	0.007	0.123	0.018	-0.015	0.738	0.154*	0.009
	Female Only	0.272*	0.003	0.119	0.134	-0.003	0.960	0.176	0.071
	Male Only	0.046	0.567	0.117	0.095	-0.028	0.642	0.148*	0.049

* p-value < 0.05

Source: Author's compilation

Table 99 provides clear evidence that a significant relationship exists, both in the female (Beta = 0.272; p-value = 0.003) and overall samples (Beta = 0161; p-value = 0.007), between organisational learning orientation and the paradox mindset.

5.9 Comparison of Means across Genders

A One-Way Analysis of Variance (ANOVA) was conducted to determine whether any significant differences existed between male and female leaders across each of the constructs. The results are presented in the table below.

Table 100: Comparison of Construct Means across Genders

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
Paradox_Mindset	Between Groups	.151	1	.151	.409	.523
	Within Groups	108.307	293	.370		
	Total	108.459	294			
Paradox_Leadership_Behaviour	Between Groups	.555	1	.555	1.886	.171
	Within Groups	86.205	293	.294		
	Total	86.759	294			
Divergent_Thinking	Between Groups	.316	1	.316	1.316	.252
	Within Groups	70.363	293	.240		
	Total	70.679	294			
Cognitive_Flexibility	Between Groups	.002	1	.002	.009	.925
	Within Groups	66.300	293	.226		
	Total	66.302	294			
Absorptive_Capacity	Between Groups	1.424	1	1.424	4.503	.035
	Within Groups	92.673	293	.316		
	Total	94.097	294			
Exposure_to_Role Models	Between Groups	.810	1	.810	1.855	.174
	Within Groups	128.024	293	.437		
	Total	128.834	294			

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
Organisational_Learning_Orientation	Between Groups	.007	1	.007	.013	.908
	Within Groups	160.787	293	.549		
	Total	160.794	294			
Engagement	Between Groups	.071	1	.071	.229	.633
	Within Groups	90.471	293	.309		
	Total	90.542	294			
Innovation Climate	Between Groups	.055	1	.055	.125	.724
	Within Groups	129.589	293	.442		
	Total	129.644	294			

Source: Author's compilation

The results indicate that males and female leaders have differing perceptions with regard to their openness to experience, specifically regarding absorptive capacity. The F-statistic (4.503) and corresponding p-value (0.035) indicate that there is a significant difference in the mean values of male and female leaders' levels of absorptive capacity. Female leaders had a significantly higher mean for absorptive capacity than males. Hence, the multiple regression results in Table 79 for absorptive capacity across the four models highlight significant relationships for females but show no significant relationships among the male only sample.

5.10 Summary of Conceptual Model Results

Table 101 summarises which constructs are reliable and which are not, based on the results. Thereafter, Figure 16 illustrates which hypotheses are supported within the conceptual model. Partial support for a hypothesis is indicated when at least one of the constructs had a significant relationship with the paradox mindset dependent variable in the female only sample. A fully supported hypothesis is indicated when the female only sample clearly demonstrated a significant regression result.

Table 101: Summary of Conceptual Model Results

Proposition	**Hypotheses**	**Construct**	**Reliable**	**Supported**
3c	$H1_a$: A paradox mindset in women leaders results in employee engagement. $H1_0$: A paradox mindset in women leaders does not result in employee engagement.	Employee engagement	Yes	Fully The significance of the mediated regression results among women leaders lends support to the rejection of the null hypothesis.
3c	$H2_a$: A paradox mindset in women leaders results in an innovation climate. $H2_0$: A paradox mindset in women leaders does not result in an innovation climate.	Innovation climate	Yes	Fully The significance of the mediated regression results amongst women leaders lends support to the rejection of the null hypothesis.

Proposition	Hypotheses	Construct	Reliable	Supported
4	$H3_a$: A paradox mindset in women leaders results in Paradox Leadership Behaviour. $H3_0$: A paradox mindset in women leaders does not result in Paradox Leadership Behaviour.	Paradox Leadership Behaviour	Yes	Fully The significance of the mediated regression results amongst women leaders lends support to the rejection of the null hypothesis.
2a	$H4_a$: The individual's openness to experience influences a paradox mindset in women leaders. $H4_0$: The individual's openness to experience does not influence a paradox mindset in women leaders.			Partially This hypothesis was only partially supported because only one of the regression results were significant.
	$H4a_a$: The individual's self-awareness influences a paradox mindset in women leaders. $H4a_0$: The individual's self-awareness does not influence a paradox mindset in women leaders.	Self-awareness	No	This hypothesis was not tested due to the poor reliability of the self-awareness construct.
	$H4b_a$: The individual's divergent thinking influences a paradox mindset in women leaders. $H4b_0$: The individual's divergent	Divergent thinking	Yes	Fully The significance of the regression results among women leaders lends

Proposition	**Hypotheses**	**Construct**	**Reliable**	**Supported**
	thinking does not influence a paradox mindset in women leaders.			support to the rejection of the null hypothesis.
	$H4c_a$: The individual's cognitive flexibility influences a paradox mindset in women leaders. $H4c_0$: The individual's cognitive flexibility does not influence a paradox mindset in women leaders.	Cognitive flexibility	Yes	Not Supported There was no significant relationship between these constructs and the null hypothesis was not rejected.
	$H4d_a$: The individual's absorptive capacity influences a paradox mindset in women leaders. $H4d_0$: The individual's absorptive capacity does not influence a paradox mindset in women leaders.	Absorptive capacity	Yes	Not Supported There was no significant relationship between these constructs and the null hypothesis was not rejected.
2b	$H5_a$: The individual's exposure to role models influences a paradox mindset in women leaders. $H5_0$: The individual's exposure to role models does not influence a paradox mindset in women leaders.	Role Models	Yes	Partially This hypothesis was only partially supported because only one of the regression results were significant.

Proposition	**Hypotheses**	**Construct**	**Reliable**	**Supported**
2c	$H6_a$: The individual's exposure to organisational learning orientation influences a paradox mindset in women leaders. $H6_0$: The individual's exposure to organisational learning orientation does not influence a paradox mindset in women leaders.	Organisational Learning Orientation	Yes	Fully The significance of the regression results among women leaders lends support to the rejection of the null hypothesis.

Source: Author's compilation

Based on the data analyses and results, the researcher has highlighted the evidence which supports the formulated hypotheses. This can be seen in Figure 16 which illustrates the updated conceptual model.

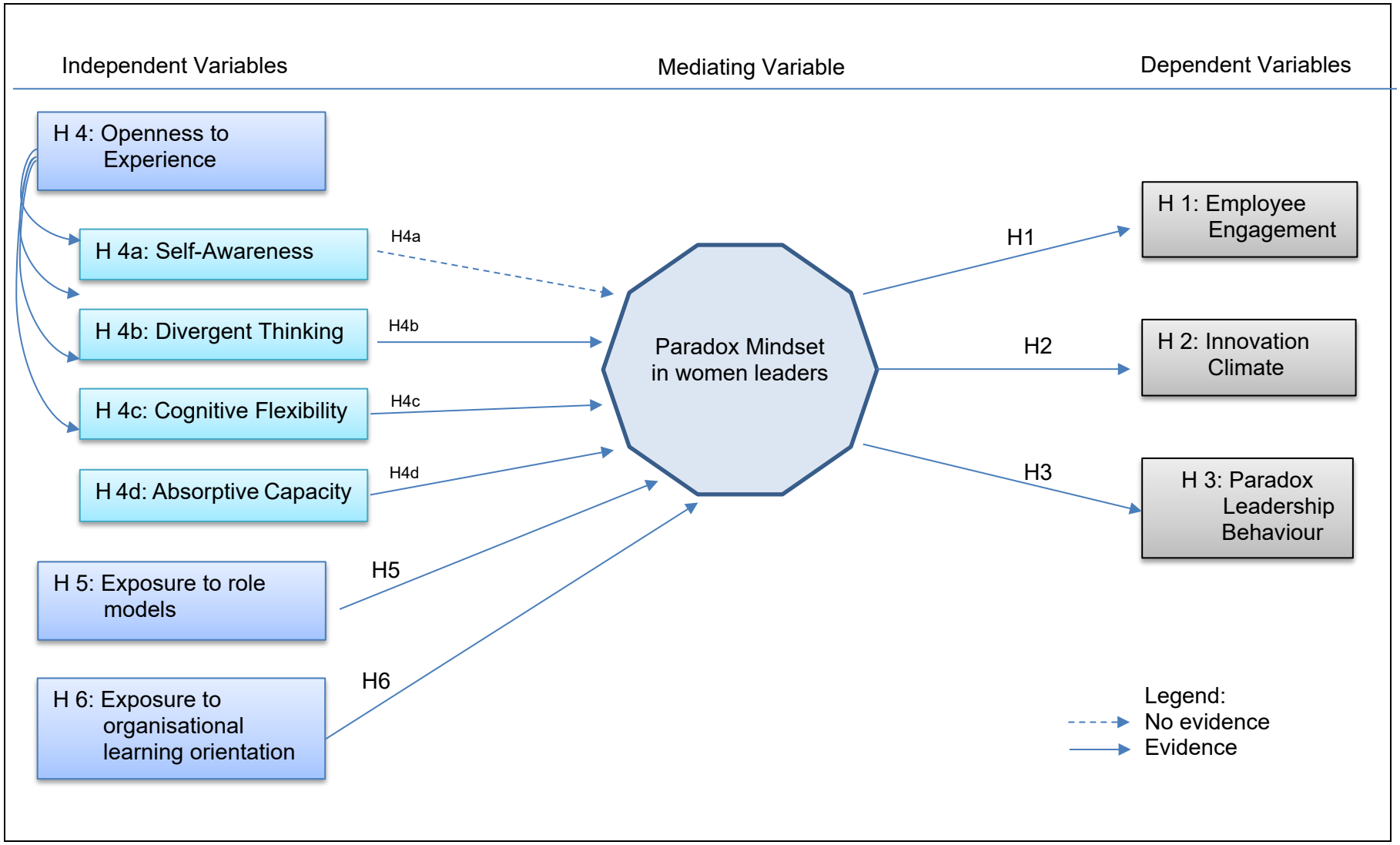

Figure 16: Conceptual Model with Hypothesis Results

Source: Author's own

5.11 Chapter Conclusion

In this chapter, the results for the various analyses for each hypothesis were presented. Firstly, the quality of the data was established by conducting specific analyses aimed at determining the construct validity, reliability and normality of the constructs prior to testing of the hypotheses. The study hypothesised that the independent variables (antecedents), H4 openness to experience, H5 exposure to role models and H6 exposure to organisational learning orientation, would strengthen the mediator, that is, the paradox mindset, in women leaders. The study therefore hypothesised further that a paradox mindset had a mediator effect on the relationship between the independent variables of H4 openness to experience, H5 exposure to role models and H6 exposure to organisational learning orientation; and the dependent variables, H1 employee engagement, H2 innovation climate and H3 Paradox Leadership Behaviour.

Table 101 and the updated conceptual model in Figure 16 summarise the outcomes of the hypotheses testing that was conducted and show the hypotheses that were reliable and fully supported. There were no regression analyses conducted between H4a self-awareness and influencing/activating a paradox mindset in women leaders because of its inappropriate levels of reliability. However, the multiple regression analyses conducted on the other independent variables showed a significant relationship between the antecedents, divergent thinking, exposure to role models and exposure to organisational learning orientation, to a paradox mindset in women leaders. The results presented in this chapter, together with a summarised comparison to the literature reviewed in Chapter 2, is discussed further in Chapter 6.

6. Chapter 6: Discussion of Results

6.1 Introduction

This chapter discusses the research results set out in Chapter 5 and compares these to the literature reviewed in Chapter 2. Table 102 below provides a summary per hypothesis and the key results. Furthermore, each hypothesis and respective construct is discussed in detail. This chapter is set out in sections, per hypothesis, each of which is compared to key themes from the literature, thus providing new insights and potentially adding to the existing literature on paradox theories specific to women leaders. The layout of Chapter 6 is shown in Figure 17 below.

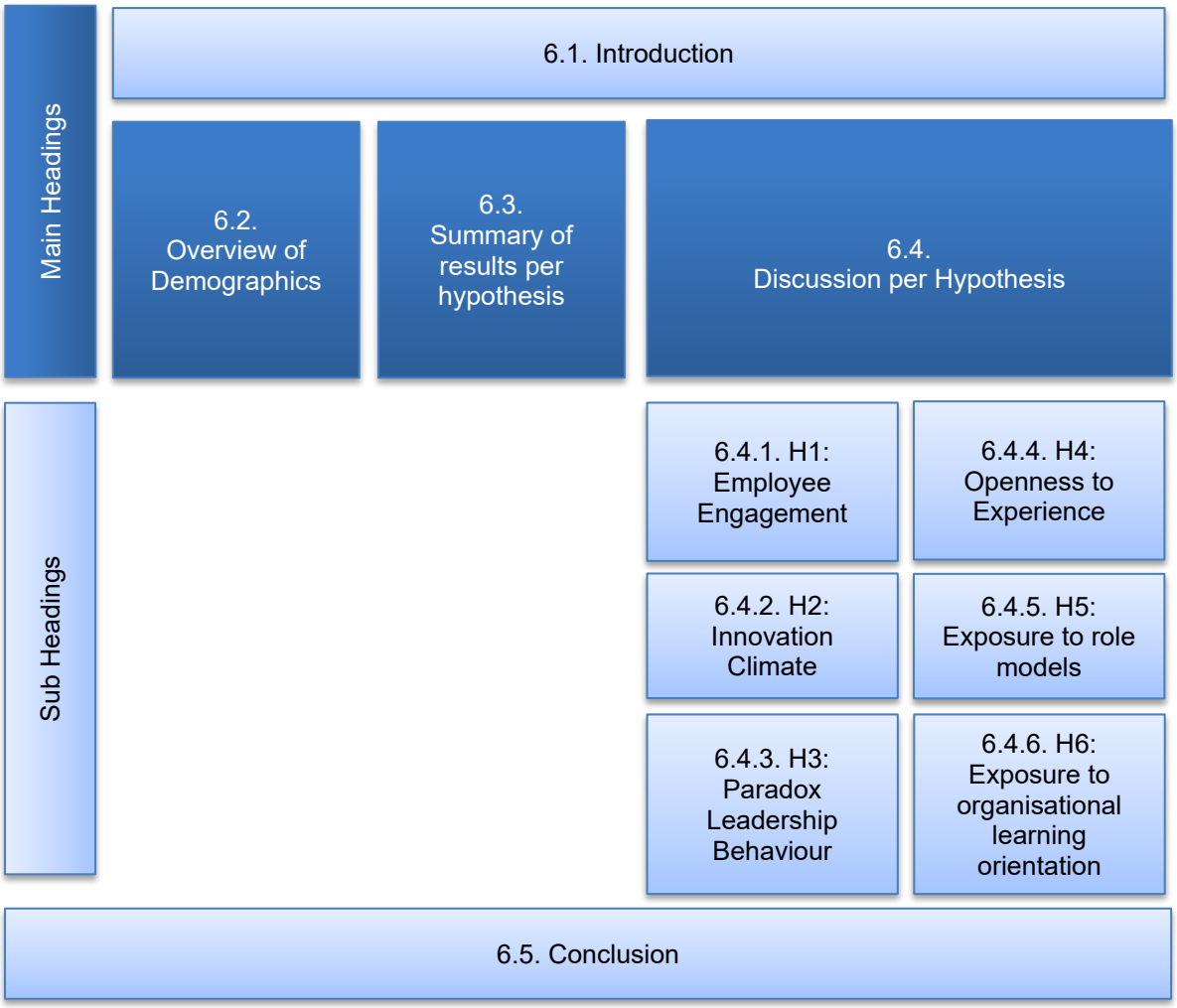

Figure 17: Outline of Discussion Chapter

Source: Author's compilation

6.2 Overview of Demographics

Respondents were asked to specify their gender to provide a demographic breakdown of the results. Figure 14 shows that 60.7% of respondents were male (N=179). However, the total number of female (N=116) respondents was more than 100 (Pallant, 2001) and was sufficient to maintain a ratio of at least ten cases to each statement across all the constructs under investigation (Tabachnick & Fidell, 2013). The female sample was therefore valid.

It was found that female respondents showed higher levels of divergent thinking and absorptive capacity, as reflected in Table 98. This means that within the context of this study, female leaders were found to be marginally more open to experience than male leaders in those areas. Several studies supported the results with claims that gender biases exist, and women in leadership positions must operate at a level of mindfulness and divergent thinking to handle the conflict between their agentic and communal traits.

McCrae (1987) describes openness to experience as the extent of one's mindfulness in one's desire to broaden one's knowledge and experience. This awareness supports Zheng et al.,'s (2018) description as it enables people to control their responses to contradictory circumstances and adjust appropriately (McCrae, 1987). Table 102 summarises the results per hypothesis and forms the basis of the discussion in this chapter.

6.3 Summary of results per Hypotheses

Table 102: Summary of results per hypotheses

Proposition	Hypotheses	Summary of results
3c	$H1_a$: A paradox mindset in women leaders results in employee engagement. $H1_0$: A paradox mindset in women leaders does not result in employee engagement.	▪ This hypothesis looked at the ability of the paradox mindset to act as a mediator in the relationships with employee engagement as the dependent variable. ▪ The mediating effects were tested across all three sample levels. ▪ Interestingly, the paradox mindset was not found to exhibit any form of mediating behaviour for the male leaders' sample except when it acted as a mediator in the exposure to role models relationship. ▪ The mediating effect was predominantly among female leaders thus providing sufficient evidence to support the hypothesis that the paradox mindset does have a mediating relationship with the employee engagement construct. ▪ Based on the analyses, this hypothesis appears to be fully supported.
3c	$H2_a$: A paradox mindset in women leaders results in an innovation climate. $H2_0$: A paradox mindset in women leaders does not result in an innovation climate.	▪ This hypothesis looked at the ability of the paradox mindset to act as a mediator in the relationships with innovation climate as the dependent variable. ▪ The mediating effects were tested across all three sample levels. ▪ Interestingly, the paradox mindset was only found to exhibit some form of mediating relationships within the female leaders' sample with the innovation climate construct as the dependent variable. ▪ Based on the analyses, this hypothesis appears to be fully supported.

Proposition	**Hypotheses**	**Summary of results**
4	$H3_a$: A paradox mindset in women leaders results in Paradox Leadership Behaviour. $H3_0$: A paradox mindset in women leaders does not result in Paradox Leadership Behaviour.	▪ This hypothesis looked at the ability of the paradox mindset to act as a mediator in the relationships with Paradox Leadership Behaviour as the dependent variable. ▪ The mediating effects were tested across all three sample levels. ▪ Interestingly, the paradox mindset was found to exhibit some form of mediating relationship between the cognitive flexibility and absorptive capacity constructs of openness to experience, whereas among the male leaders a significant paradox mindset relationship was found within the organisational learning orientation relationship. ▪ Overall, there appeared to be sufficient evidence to support this hypothesis.
2a	$H4_a$: The individual's openness to experience influences a paradox mindset in women leaders. $H1_0$: The individual's openness to experience does not influence a paradox mindset in women leaders. Constructs: self-awareness; divergent thinking cognitive flexibility; absorptive capacity	▪ This hypothesis was tested across all three reliable constructs of divergent thinking, cognitive flexibility and absorptive capacity. ▪ It was found that out of the three reliable constructs, only divergent thinking had a positive relationship with the paradox mindset. ▪ Based on the analyses, this hypothesis therefore appears to be only partially supported.
	H4a: The individual's self-awareness influences a paradox mindset in women leaders. $H4_0$: The individual's self-awareness does not influence a paradox mindset in women leaders.	▪ This hypothesis looked at the direct relationship between self-awareness and the paradox mindset mediator. ▪ Unfortunately, due to the poor reliability of this construct, this hypothesis was unable to be tested as the results would be inconclusive.
	H4b: The individual's divergent thinking	▪ This hypothesis looked at the direct relationship between divergent thinking and

Proposition	Hypotheses	Summary of results
	influences a paradox mindset in women leaders. $H4_0$: The individual's divergent thinking does not influence a paradox mindset in women leaders.	the paradox mindset mediator. ▪ It was found that a significant positive relationship does exist between divergent thinking and a paradox mindset in women leaders. ▪ Based on the analyses, this hypothesis therefore appears to be only partially supported for H4 overall and the evidence supporting this hypothesis appears to be conclusive.
	H4c: The individual's cognitive flexibility influences a paradox mindset in women leaders. $H4_0$: The individual's cognitive flexibility does not influence a paradox mindset in women leaders.	▪ This hypothesis looked at the direct relationship between cognitive flexibility and the paradox mindset mediator. ▪ It was found that no relationship exists between these constructs. ▪ Based on the analyses, the evidence supporting this hypothesis appears to be inconclusive.
	H4d: The individual's absorptive capacity influences a paradox mindset in women leaders. $H4_0$: The individual's absorptive capacity does not influence a paradox mindset in women leaders.	▪ This hypothesis looked at the direct relationship between absorptive capacity and the paradox mindset mediator. ▪ It was found that no relationship exists between these constructs. ▪ Based on the analyses, the evidence supporting this hypothesis appears to be inconclusive.
2b	$H5_a$: The individual's exposure to role models influences a paradox mindset in women leaders. $H5_0$: The individual's exposure to role models does not influence a paradox mindset in women leaders.	▪ This hypothesis looked at whether an individual's exposure to role models had an influence on the paradox mindset. ▪ It was found that only amongst female leaders there was a positive relationship between exposure to role models and the paradox mindset. ▪ Based on the analyses, it appears that this hypothesis is fully supported and the evidence supporting this hypothesis appears to be conclusive.

Proposition	**Hypotheses**	**Summary of results**
2c	$H6_a$: The individual's exposure to organisational learning orientation influences a paradox mindset in women leaders. $H6_0$: The individual's exposure to organisational learning orientation does not influence a paradox mindset in women leaders.	▪ This hypothesis looked at whether an individual's exposure to organisational learning orientation had an influence on the paradox mindset. ▪ It was found that in both the full sample, and the female sample levels that a relationship appears to exist between organisational learning orientation and the paradox mindset. ▪ Interestingly, amongst male leaders this relationship was not found to exist. ▪ However, based on the analyses, it appears that this hypothesis is fully supported and the evidence supporting this hypothesis appears to be conclusive.

Source: Author's compilation

6.4 Discussion per Hypothesis

6.4.1 Hypothesis 1 – Employee Engagement

This hypothesis looked at the ability of the paradox mindset to act as a mediator in the relationship with employee engagement as the dependent variable. Table 101 illustrates all the significant relationships that were found between the antecedents and employee engagement where the paradox mindset could act as a mediator

Table 103: Excerpt from Results for H1

	Hypothesised relationships (Paradox Mindset)	Standardised estimates	S.E.	t-values (critical ratios)	p-values
H1	**Divergent Thinking**	**0.181***	**0.094**	**2.092**	**0.039**
	Cognitive Flexibility	**0.282***	**0.090**	**3.414**	**0.001**
	Absorptive Capacity	**0.267***	**0.094**	**3.089**	**0.003**
	Exposure to Role Models	**0.225***	**0.096**	**2.558**	**0.012**

* p-value < 0.05

Source: Author's compilation

As illustrated in Table 103, the constructs of the antecedent openness to experience, namely divergent thinking, cognitive flexibility and absorptive capacity, all showed a significance, with a p-value < 0.05. Similarly, the antecedent of exposure to role models also demonstrated a significant relationship to activating the paradox mindset, with a p-value < 0.05. It therefore appears that, based on the statistical evidence, this study found that the paradox mindset does have a mediating relationship with the employee engagement construct.

Historically, traditional communal characteristics of female executives were thought to be less significant for business and leadership performance (Kark, Waismel-Manor & Shamir, 2012). A study by Schock et al., (2019) recognises that women leaders often suffer role incongruity and conflict between their leadership responsibilities and

conventional feminine roles. However, Zheng et al., (2018) propose that women leaders could activate the paradox mindset and thus achieve employee engagement. Based on the analyses, it appears there is sufficient evidence to conclusively support this proposition.

It appears that the strength of the openness to experience and exposure to role models antecedents in women leaders supports effective leadership outcomes, except for self-awareness. This becomes increasingly relevant as employee engagement is linked to good employer-employee interactions in which teams operate in an agile, diverse and empowered environment (Schaufeli, 2012; Bailey, Madden, Alfes & Fletcher, 2017). Furthermore, this engaged atmosphere is one in which employees are encouraged to adopt new and improved ideas that reflect better ways of doing things, which in turn also contributes to an innovation climate (Van de Ven, 2017; Hughes, Lee, Tian, et al., 2018).

The impact of the Covid-19 pandemic in 2020 (Pradies et al., 2020) on women leaders (Thomas & McKinsey & Company, 2020) also emphasised the need for women leaders to be able to activate a paradox mindset. Consequently, as our society grows more complicated, with paradoxical demands and conflicts (Waldman et al., 2019), there is an increased need to investigate the strengths of the antecedents that may enable women leaders to activate this paradox mindset (Zheng et al., 2018) and manage these conflicts (Miron-spektor et al., 2018). The findings appear to support the literature as well as Zheng et al.,'s (2018) propositions.

6.4.2 Hypothesis 2 – Innovation Climate

This hypothesis looked at the ability of the paradox mindset to act as a mediator in the relationship with innovation climate as the dependent variable. Table 102 illustrates all the significant relationships found between the antecedents and innovation climate where the paradox mindset could act as a mediator.

Table 104: Excerpt from Results for H2

	Hypothesised relationships (Paradox Mindset)	Standardised estimates	S.E.	t-values (critical ratios)	p-values
H2	**Cognitive Flexibility**	**0.221***	**0.109**	**2.542**	**0.012**
	Absorptive Capacity	**0.207***	**0.112**	**2.316**	**0.022**

* p-value < 0.05

Source: Author's compilation

As illustrated in Table 104, this study found that there is a partial relationship between openness to experience and the paradox mindset. Cognitive flexibility (p-value 0.012) and absorptive capacity (p-value 0.022) featured strongly with the leadership effectiveness outcome of an innovation climate, as both constructs showed a p-value < 0.05. However, the divergent thinking construct provided conclusive evidence to influence the paradox mindset in women leaders. This finding was further supported by Miron-Spektor et al., (2011) who state that divergent thinking promotes the pursuit of knowledge and the ability to be open to new experiences (McCrae 1987). According to Zheng et al., (2018), open-minded leaders acquire cognitive flexibility and seek different experiences. In times of uncertainty, open-minded individuals tend to be adaptable (Rothman & Melwani, 2017), and therefore capable of adopting paradoxical frames (Miron-Spektor et al., 2011). Once again, this is an imperative capability that women leaders require in the current dynamic environment.

This study found that the paradox mindset does exhibit mediator behaviour in the relationship between female leaders' openness to experience and the innovation climate construct. Furthermore, the evidence is supported by Zheng et al.,'s (2018) proposition which states that women leaders who exhibit a high level of openness to experience are likely to adopt a paradox mindset as they wrestle with the tensions between agentic and communal demands.

In addition, the evidence for this hypothesis is further supported by Miron-Spektor et al., (2018) who assert that leaders with paradox mindsets are more likely to see conflict as a chance to confront difficulties and learn from the experience, which influences how they handle crises. Holistic thinking is also crucial for leadership performance (Miron-

Spektor et al., 2018), and may be described as the ability to conceive the bigger picture, or attain a holistic view, by integrating various perspectives via integrative thinking. Accepting contradiction allows leaders to be more collaborative and open to new ways of doing things, especially vital considering the impact of the pandemic in 2020 (Pradies et al., 2020; Toukas & Cunha, 2017).

These new learning experiences result in increased leadership effectiveness, thus fostering an innovation climate. Poole and Van de Ven's (1989) earlier study supports this as it indicates that acknowledging competing demands allows people to improve their cognitive flexibility, which leads to an innovation environment. Individuals with paradox mindsets embrace paradoxical conflicts by analysing, examining and questioning the tensions, and, in this way, they generate new ideas (Poole & Van de Ven, 1989; Rothman & Melwani, 2017; Miron-Spektor et al., 2018).

Consequently, as organisations face increasing complexity from the dynamic environment, and growing paradoxical demands as well as conflicts (Waldman et al., 2019), the need to investigate the strengths of the antecedents that may enable women leaders to activate a paradox mindset (Zheng et al., 2018) and achieve leadership effectiveness outcomes, such as fostering an innovation climate, becomes significant. The findings from the research study appear to support the literature and the propositions of Zheng et al., (2018).

6.4.3 Hypothesis 3 – Paradox Leadership Behaviour

This hypothesis looked at the ability of the paradox mindset to act as a mediator in the relationships with Paradox Leadership Behaviour as the dependent variable. Table 103 illustrates all the significant relationships that were found, from all the possible relationships, between the antecedents and Paradox Leadership Behaviour where the paradox mindset could act as a mediator.

Table 105: Excerpt from Results for H3

	Hypothesised relationships (Paradox Mindset)	Standardised estimates	S.E.	t-values (critical ratios)	p-values
H3	**Cognitive Flexibility**	**0.205***	**0.087**	**2.296**	**0.024**
	Absorptive Capacity	**0.195***	**0.089**	**2.142**	**0.034**

* p-value < 0.05

Source: Author's compilation

As illustrated in Table 105, this study found that the paradox mindset does have a mediating relationship with the Paradox Leadership Behaviour construct. Cognitive flexibility (p-value 0.024) and absorptive capacity (p-value 0.034) featured strongly with the leadership effectiveness outcome of Paradox Leadership Behaviour as they both had a p-value < 0.05.

Interestingly, Carter and Greer (2013) argue that leaders with an authentic leadership style typically take a balanced perspective of circumstances before making choices. However, the construct of self-awareness, which was tested using the Authentic Leadership Scale, was unreliable. However, the constructs of absorptive capacity and cognitive flexibility featured strongly with the leadership effectiveness outcome of paradox leadership behaviour.

The hypothesis is thus further supported by Zhang et al., (2015), who describe Paradox Leadership Behaviour as leadership conduct that seems to be contradictory but is in fact linked and enables leaders to fulfil difficult workplace requirements concurrently and over time (Zhang et al., 2015, p.538).

This leadership style becomes important when leaders in dynamic, diverse and complex corporate settings confront contradictory expectations on a regular basis (Smith, Lewis & Tushman, 2016; Waldman & Bowen, 2016; Zhang et al., 2015; Zhang & Han, 2019). For example, in addition to fulfilling organisational requirements for order, structure, control and stability, leaders must also accommodate employee needs for freedom, autonomy and flexibility (Zhang et al., 2015). Situational leadership methods are mainly concerned with short-term leadership (Zhang et al., 2015). The evidence from this

research study appears to support the notion that paradoxical leadership can guarantee successful long-term leadership effectiveness (Waldman et al., 2019) and the Zheng et al., (2018) propositions.

6.4.4 Hypothesis 4 – Openness to Experience

This hypothesis looked at whether an individual's openness to experience influences a paradox mindset in women leaders. The investigation and analyses were run across the four constructs of self-awareness, divergent thinking, cognitive flexibility and absorptive capacity. The results for each sub-component of Hypothesis 4 are presented in sequence.

Firstly, Hypothesis 4a looked at the direct relationship between self-awareness and the paradox mindset mediator. Table 104 illustrates the poor levels of reliability exhibited for this construct at all three sample levels (full sample, female only sample and male only sample).

Table 106: Excerpt from Results for H4a

	Hypothesised relationships	Overall Cronbach Alpha	Female Only Cronbach Alpha	Male Only Cronbach Alpha
H4a	**Self-Awareness**	**0.574**	**0.526**	**0.594**

Source: Author's compilation

As illustrated in Table 106, the Cronbach Alpha statistic was below the 0.6 threshold, indicating poor levels of reliability. Therefore, it was not possible to include this construct in any of the multiple regression analyses to test any of the relevant hypotheses.

According to Carter and Greer (2013), authentic leaders are self-aware, confident, resilient, know who they are, and are regarded as understanding by their followers (Avolio & Luthans, 2006; Gardner et al., 2011). Self-awareness (Avolio & Luthans, 2006; Gardner et al., 2011) has been recognised as one of the key characteristics underlying authentic leadership (Avolio et al., 2009), and is strongly associated with openness to experience, one of the antecedents investigated in this research. Unfortunately, due to the poor reliability of this construct, this hypothesis could not be tested as the results would be inconclusive. Interestingly, this research study tested for Paradox Leadership

Behaviour and as Carter & Greer (2013) point out, self-awareness is mainly associated with authentic leadership. This could be the reason why it proved to be inconclusive in this study.

Secondly, Hypothesis 4b looked at the direct relationship between divergent thinking and the paradox mindset mediator. Table 105 highlights the significant regression results.

Table 107: Excerpt from Results for H4b

	Hypothesised relationships	Standardised estimates	S.E.	t-values (critical ratios)	p-values
H4b	**Divergent Thinking**	**0.271***	**0.118**	**2.686**	**0.008**

* p-value < 0.05

Source: Author's compilation

As illustrated in Table 107, this study found a significant positive relationship between divergent thinking (p-value 0.008) and a paradox mindset in women leaders, which leads to partial support for hypothesis H4 overall. This finding is supported by Rothman and Melwani (2017), who argue that people with a paradox mindset have enhanced concentration, broaden their search for answers and have increased cognitive flexibility as well as diverse thinking views (Miron-Spektor et al., 2018).

Based on the analyses, it appears that there is sufficient evidence to conclusively support the Zheng et al., (2018) propositions. It appears that the strength of the openness to experience (divergent thinking) antecedent in women leaders could enable women leaders to activate a paradox mindset and thus achieve leadership effectiveness.

Furthermore, conflicting thinking, according to Gaim & Wåhlin's (2016) definition of design thinking, is described as the ease with which people may expand their viewpoints and balance divergent ideas (Rothman & Melwani, 2017). It could be put forward that the effective leadership outcome yielded by divergent thinking may be an innovation climate.

This is supported by the literature (Miron-Spektor et al., 2018) which proposed that because of diverse thinking, people begin to embrace tensions and resort to adjusting

and embracing conflict rather than seeing tensions as threats. Similarly, when leaders encourage diverse thinking, they are more likely to seek creative solutions to disputes (Miron-Spektor et al., 2018; Miron-Spektor & Paletz, 2020). Leaders who embrace this paradox mindset may ultimately foster employee engagement and an innovation climate. Based on the analyses of data and findings of this research study, there appears to be sufficient evidence to support this.

Thirdly, Hypothesis 4c looked at the direct relationship between cognitive flexibility and the paradox mindset mediator. Table 106 highlights the lack of significance in the regression results.

Table 108: Excerpt from Results for H4c

	Hypothesised relationships	Standardised estimates	S.E.	t-values (critical ratios)	p-values
H4c	**Cognitive Flexibility**	**-0.193**	**0.140**	**-1.577**	**0.118**

Source: Author's compilation

As illustrated in Table 108, this study found no relationship between cognitive flexibility (p-value 0.118) and the paradox mindset. There appears to be a contradiction between the academic literature and this finding. The literature describes cognitive flexibility as the capacity to change one's mentality and thinking processes, and use inventive and creative ways to transition between activities (Braem & Egner, 2018). This description implies that cognitive flexibility is a key construct to strengthen the openness to experience antecedent. Furthermore, this result also appears to contradict the findings of Waldman et al., (2019) who state that individuals with a paradox mindset have more cognitive flexibility and are open to uncertainty.

Lastly, Hypothesis 4d looked at the direct relationship between absorptive capacity and the paradox mindset mediator. Table 107 highlights the lack of significance in the regression results.

Table 109: Excerpt from Results for H4d

	Hypothesised relationships	Standardised estimates	S.E.	t-values (critical ratios)	p-values
H4d	**Absorptive Capacity**	**0.141**	**0.136**	**1.069**	**0.287**

Source: Author's compilation

As illustrated in Table 109, this study found no relationship between absorptive capacity (p-value 0.287) and the paradox mindset. Absorptive capacity is described as an individual's ability to utilise knowledge from their surroundings (Cohen & Levinthal, 1990). Based on the analyses of the data and the findings, there appears to be a level of consistency between the findings and the literature. According to Barrick and Mount (1991), the antecedent of openness to experience is defined as one of the big five personality characteristics and is a fixed feature unique to each individual, implying that it is not a talent that is developed over time (Yildiz et al., 2019).

The inconclusive evidence for this hypothesis appears to indicate that the strength of the antecedent openness to experience cannot be influenced by absorptive capacity. This could be because paradox mindsets and behaviour support a 'both/and' (Smith et al., 2016) perspective, whereas the literature likens them to fixed features (Barrick & Mount, 1991).

6.4.5 Hypothesis 5 – Exposure to Role Models

This hypothesis looked at whether an individual's exposure to role models had an influence on the paradox mindset. Table 108 shows the significant regression results.

Table 110: Excerpt from Results for H5

	Hypothesised relationships	Standardised estimates	S.E.	t-values (critical ratios)	p-values
H5	**Exposure to Role Models**	**0.193***	**0.086**	**1.975**	**0.05**

* p-value < 0.05

Source: Author's compilation

As illustrated in Table 110, this study found that there is a partial relationship between exposure to role models (p-value 0.05) and the paradox mindset. Table 87 in Chapter 5 summarises the regression results for this antecedent. Interestingly, this relationship was strongest among the female leader sample.

Furthermore, based on the analysis, it appears that this finding supports the proposition 2b of Zheng et al., (2018) which states that exposure to role models who display both agency and communion moderates the association between women leaders' experience of conflicts and their adoption of a paradox mindset. As a consequence, women leaders who are exposed to more role models (who display both agency and communion) are more prone to adopt a paradox mindset as they cope with conflicts from agency and community on a daily basis.

There appears to be consistency between the literature, career construction (Savickas, 2013) and social cognitive (Bandura, 1986) theories, and the findings of this research study. As a result, the strength of the antecedent exposure to role models may positively influence and thus enable women leaders to activate a paradox mindset.

6.4.6 Hypothesis 6 – Exposure to Organisational Learning Orientation

This hypothesis looked at whether an individual's exposure to organisational learning orientation had an influence on the paradox mindset. Table 109 highlights the significant regression results.

Table 111: Excerpt from Results for H6

	Hypothesised relationships	Standardised estimates	S.E.	t-values (critical ratios)	p-values
H6	**Exposure to Organisational Learning Orientation**	**0.272***	**0.063**	**3.004**	**0.003**

* p-value < 0.05

Source: Author's compilation

As illustrated in Table 111, this study found that there is a relationship between organisational learning orientation (p-value 0.003) and the paradox mindset. Table 97 in Chapter 5 summarises the regression results for this antecedent.

Furthermore, this finding appears to support Zheng et al.,'s (2018) proposition that organizational learning moderates a woman's experience of agency-communion conflicts and the adoption of paradox mindsets. As a result of the conflict between agentic and community needs, women who manage companies with a high degree of learning orientation are more prone to adopt a paradox mindset.

This finding is further supported by the work of Jiang et al., (2021), who assert that shared decision-making among corporate divisions, distribution of power and the flattening of the organisational structure enhance an individual's exposure to organisational learning orientation. Furthermore, exposure to organisational learning orientation results in a sense of autonomy, a self-managed organisation (Lee & Edmondson, 2017), and departmental independence, as well as increased employee inspiration, innovation (Ojha et al., 2018), and willingness to share organisational information, all of which facilitate an individual's learning experience within the organisation (Van Wijk et al., 2008).

The data from this research study, as well as its coherence with the literature, suggests that the antecedent of organisational learning orientation might increase women leaders' capacity to activate a paradox mindset. According to Zheng et al., (2018), organizational learning moderates women's experience of agency-communion conflicts and employment of paradox mindsets. As a result of the conflict between agentic and community needs, women who manage companies with a high degree of learning orientation are more prone to adopt a paradox mindset.

6.5 Chapter Conclusion

Based on the results presented in Chapter 5 and compared to the literature reviewed in Chapter 2, it can be concluded that Zheng et al.,'s (2018) propositions and research gap appear to have been addressed. This is summarised in Table 112 below and will be further explained in Chapter 7.

Table 112: Summary of Propositions Addressed

Proposition	Description	Addressed
2a	Openness to experience moderates the relationship between women leaders … and their adoption of a paradox mindset.	Hypotheses 4b, 4c, 4d provided evidence supporting proposition 2a. The construct of divergent thinking showed the strongest relationship with activating the paradox mindset in women leaders.
2b	Exposure to role models … moderates the relationship between women leaders … and their adoption of a paradox mindset.	Hypotheses 5 provided evidence supporting proposition 2b.
2c	Organisational learning orientation moderates the relationship between women's experience … and their adoption of a paradox mindset.	Hypotheses 6 provided evidence supporting proposition 2c.
3c	A paradox mindset increases women's leadership effectiveness…	Hypotheses 1, 2, 3 provided evidence supporting proposition 3c. The female only sample displayed the most significant results when compared to the male and the full sample.
4	Zheng proposes …women leaders can adopt a paradox mindset that simultaneously embraces agency and communion.	The female sample of data was used to test all the above hypotheses which further provided evidence supporting the propositions 2a, 2b, 2c and 3c. Based on this, the researcher concluded that it subsequently provided sufficient evidence to support proposition 4.

Source: Author's compilation

It is interesting to note that the mediating effect of the paradox mindset on the leadership effectiveness outcomes of employee engagement, an innovation climate and Paradox Leadership Behaviour was highlighted where the antecedents displayed the highest significance in H1-H3.

The construct of divergent thinking had the strongest influence on the antecedent of openness to experience to activate a paradox mindset. Furthermore, the antecedent of exposure to organisational leadership orientation also showed significance in activating

the paradox mindset.

The self-awareness construct in this study was unreliable; however, it was found that paradox leaders were able to use divergent thinking, absorptive capacity and cognitive flexibility to influence Paradox Leadership Behaviour. An interesting note is that it is often cited in the literature that authentic leaders leverage self-awareness to achieve leadership effectiveness; this supports the notion that paradox leadership leverages divergent thinking, absorptive capacity, and cognitive flexibility.

The revised conceptual model depicted in Figure 18 below summarises the research findings. It illustrates which hypotheses provided significant evidence to support the research question. The figures with an asterisk indicate significant correlation with women leaders who have divergent thinking, exposure to role models and exposure to organisational learning orientation and are thus capable of activating a paradox mindset.

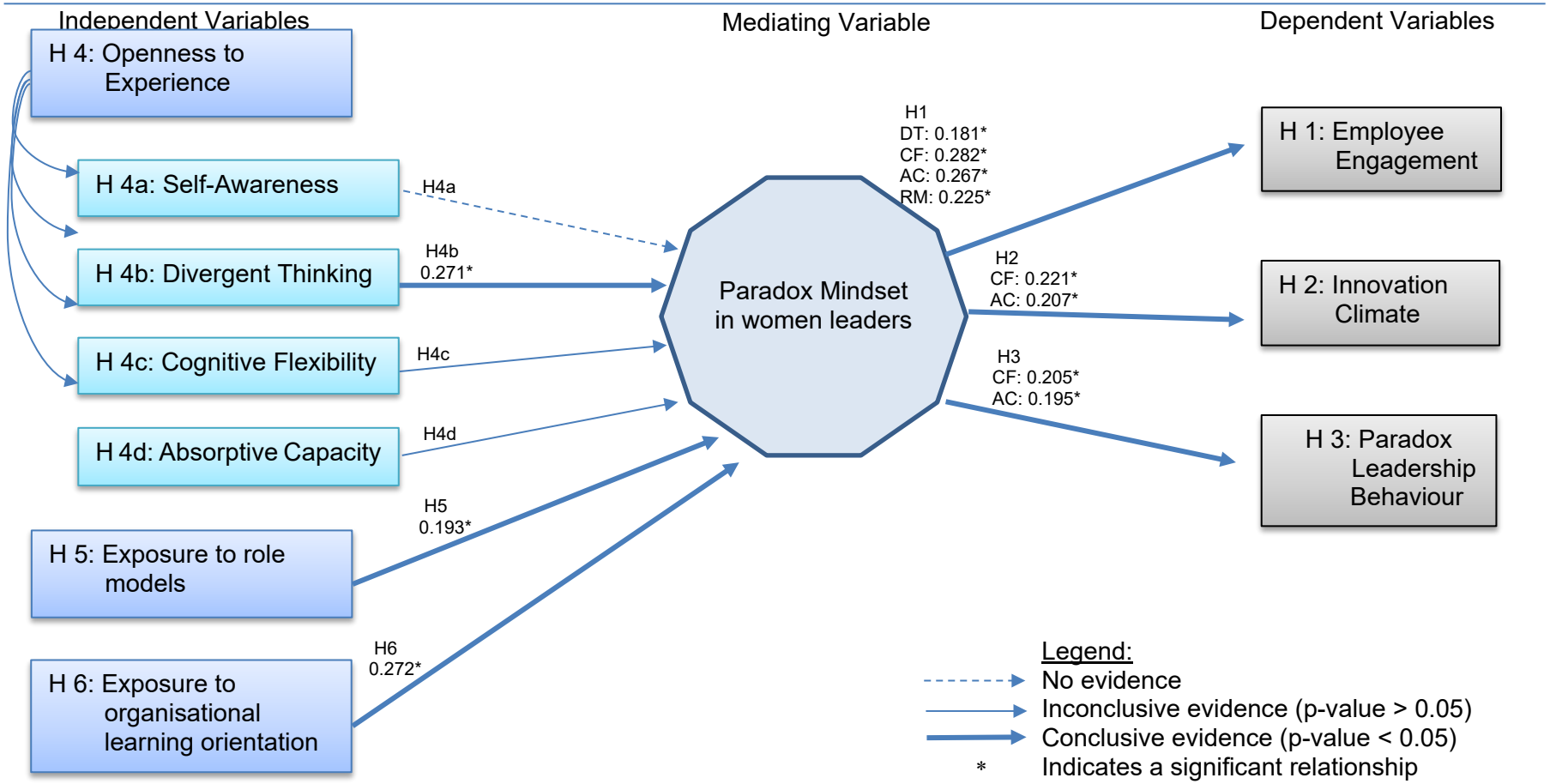

Figure 18: Revised Conceptual Model

Source: Author's compilation

Figure 18 forms the basis for the conclusions and recommendations presented in Chapter 7, as does Table 113, which shows which of the Zheng et al., (2018) propositions were addressed by the formulated hypotheses.

7. Chapter 7: Conclusion

7.1 Introduction

This chapter summarises the conclusions of this research study and provides a summary of its research contribution in Table 111 below. It discusses implications for stakeholders, recommendations, limitations, and suggestions for future research.

7.2 Principal Conclusions

This section explains the outcomes of the investigation into the strengths of the antecedents that would enable women leaders to activate a paradox mindset.

7.2.1 Theoretical Implications

The implications for theory from the research study are structured around the research question and the propositions based on the research gap identified by Zheng et al., (2018), which was introduced in Chapter 1.

RQ: What are the “strengths of the individual antecedents that would enable women leaders to activate a paradox mindset?” (Zheng et al., 2018, p.584).

In response to the overall research question, it can be concluded that the individual antecedents of openness to experience, exposure to role models and organisational learning orientation do lead to the mediated outcome of activating a paradox mindset in women leaders.

The strengths of the antecedents from a statistical perspective are shown in Figure 18. Divergent thinking, as a sub-construct within openness to experience, showed conclusive evidence supporting the activation of the paradox mindset in women leaders, with a p-value < 0.05. Furthermore, although both antecedents of exposure to role models and exposure to organisational learning orientation activated the paradox mindset in women leaders, the individual antecedent of exposure to organisational learning orientation had a higher statistical value. There appears to be sufficient conclusive evidence to show that (1) divergent thinking (2) exposure to organisational learning orientation and (3) exposure to role models are the strongest individual antecedents to activate a paradox mindset.

The theory reviewed in Chapter 2 pointed to the sub-constructs of self-awareness, cognitive flexibility, and absorptive capacity within openness to experience. However, this quantitative research study found that only divergent thinking would strengthen the individual antecedent of openness to experience to enable women leaders to activate the paradox mindset.

In addition, empirical quantitative research has not previously been conducted to provide conclusive evidence of the strength of the relationships between the individual antecedents and its mediation with a paradox mindset. Furthermore, the mediation of the paradox mindset to increase the achievement of the leadership effectiveness outcomes of employee engagement, an innovation climate and Paradox Leadership Behaviour has also not been quantitatively tested. As illustrated in Figure 18, there is conclusive evidence that supports H1 (employee engagement), H2 (innovation climate) and H3 (Paradox Leadership Behaviour).

7.3 Research Contribution

Various scholars, introduced in Chapter 1 and Chapter 2, have pointed to the research gap of examining the strengths of the individual antecedents that shape the experience of women leaders and stimulate a paradox mindset (Schad et al., 2016; Zheng et al., 2018; Miron-Spektor et al., 2018). This research study therefore aimed to examine these. In addition to addressing this research gap, this study also used existing scales to test and demonstrate the link between effective leadership and the identified business needs of achieving employee engagement and an innovation climate.

More importantly, the literature reviewed in Chapter 2 did not reveal any previous quantitative studies conducted to provide statistical evidence to conclusively support the hypotheses formulated for this study. This research therefore explores new ground, which could make a valuable contribution to the field of paradox research. It was also found that the male sample of respondents did not reflect significant relationships with the antecedents or leadership outcomes.

Table 113 below summarises the research question, mapping the findings of this research study, together with its potential contribution to the literature, to supporting excerpts from Chapter 2.

Table 113: Research Contribution

RQ and Individual Antecedents (Zheng et al., 2018, p.584).	**Literature Review**	**Contribution**
What are the "strengths of the individual antecedents that would enable women leaders to activate a paradox mindset?" (Zheng et al., 2018)	Excerpt from Chapter 2 Literature review: A next step for future research could be to empirically examine the strengths of these individual, interpersonal, and organisational antecedents. Zheng et al., (2018) suggests that to address the tensions that are triggered by the dual demands for agency and communion, women leaders can adopt a paradox mindset, embracing both simultaneously. Knowledge about the factors that could effectively activate and strengthen paradox mindsets will have wide ranging impact (Schad, Lewis, Raisch & Smith, 2016).	The literature stated that previous studies had not quantitatively tested and provided evidence to support the relationship between women leaders, the antecedents, a paradox mindset and the achievement of the leadership effectiveness outcomes. Based on the statistical evidence provided in Chapter 5, and the discussion of these results in Chapter 6, it appears that sufficient conclusive evidence has been provided by this research study. Furthermore, Wendy Smith also displayed an interest in the research outcomes of this study which indicates that there could be a potential contribution to be made. Refer to Appendix 9.
Individual Antecedent – Openness to Experience	Excerpt from Chapter 2 Literature review: ▪ Rothman and Melwani (2017) argue that people with a paradox mindset had enhanced concentration, broadened their search for answers, increased cognitive flexibility, and divergent thinking (Miron-Spektor et al., 2018). ▪ Openness to experience refers to the self-awareness and mindfulness (McCrae, 1987) in an individual's quest to expand knowledge, gain experience and be broad-minded as well	▪ Hypothesis 4 was tested across all three reliable constructs of divergent thinking, cognitive flexibility and absorptive capacity. ▪ It was found that out of the three reliable constructs, only divergent thinking had a positive relationship with activating the paradox mindset in women leaders. ▪ In addition, it was found that the scales that were used to test this construct proved to be reliable and future research studies could utilise these scales.

RQ and Individual Antecedents (Zheng et al., 2018, p.584).	**Literature Review**	**Contribution**
	as curious (Rothman & Melwani, 2017).	The limitations and proposed future recommendations are discussed later in this chapter. ▪ It is interesting to note that the construct of self-awareness, which is mainly associated with authentic leadership, did not have any reliability and validity and hence no regression analysis was run on this construct. ▪ Self-awareness was therefore not tested for H1, H2, H3 or H4. ▪ Based on the statistical evidence, it appears that self-awareness did not have a relationship with a paradox mindset and it could potentially be concluded that it therefore has no relationship with Paradox Leadership Behaviour.
Individual Antecedent - Exposure to Role Models	Excerpt from Chapter 2 Literature review: ▪ An important finding of Garcia et al. (2019) is that career adaptability can be influenced through personal experiences, via relationships and societal exchanges. ▪ The specific behaviours demonstrated by role models could be adopted (Bandura, 1986). ▪ It is thus interpreted that exposure to roles models is key for individuals to learn how to balance contradictions (Rudolph et al., 2017) which in turn could result in a paradox mindset.	▪ Hypothesis 5 was tested across all three samples, and it was found to be the strongest within the female only sample. ▪ As the reliability was not within the full sample, only the female sample, there is a partial relationship between exposure to role models and the activation of the paradox mindset. The relationship was found to be strongest among the female sample of respondents. ▪ In addition, the scales used to test this construct proved to be reliable. The author of the CaaS scale, Erik Porfeli, indicated that he was not familiar with

RQ and Individual Antecedents (Zheng et al., 2018, p.584).	**Literature Review**	**Contribution**
	▪ Based on literature extracts from various scholars, it becomes clear that this antecedent is therefore an important construct in this study to activate the paradox mindset in women leaders.	work in which the Career Adaptability Scale (CaaS) was used to measure how the exposure to role models would influence a paradox mindset. Refer to Appendix 8. ▪ Based on the statistical evidence, it appears that the findings of this study provide conclusive evidence to support that the strength of the antecedent, exposure to role models, positively influences the paradox mindset in women leaders.
Exposure to Organisational Learning Orientation	Excerpt from Chapter 2 Literature review: ▪ Organisational learning is based on the individual's experiential learning (Van Wijk et al., 2008). ▪ Organisational learning orientation is more closely linked to vision and mental models (Jiang, Xu, Houghton & Kulich, 2021) and thus becomes relevant with mindsets. ▪ Organisational learning orientation involves a distribution of power (Jiang et al., 2021). ▪ Organisational learning orientation results in a sense of autonomy, self-management (Lee & Edmondson, 2017). ▪ There is an increase in employee inspiration, innovation (Ojha et al., 2018), and willingness to share organisational information. ▪ Organisational learning orientation facilitates	▪ Hypothesis 6 was tested across all three samples, and it was found to be the strongest within the female only sample. ▪ Based on the statistical evidence the study found a significant relationship between organisational learning orientation and activating the paradox mindset in women leaders. ▪ In addition, it was found that the scales used to test this construct proved to be reliable.

RQ and Individual Antecedents (Zheng et al., 2018, p.584).	**Literature Review**	**Contribution**
	an individual's learning experience (Van Wijk et al., 2008). ▪ Based on literature extracts from various scholars, it becomes clear that this antecedent is therefore important to activate the paradox mindset in women leaders.	

Source: Author's compilation

7.4 Recommendations

Recommendations, which are specific measures or directions that can be taken based on the conclusions of the research, are noted below.

7.4.1 Openness to Experience

Zheng et al., (2018) put forward proposition 3c which states that a paradox mindset increases women's leadership effectiveness, whereas a dilemma mindset inhibits this. Based on the findings of this research study, it is recommended that organisations create an environment that fosters openness to experience, thus creating opportunities for leaders to engage and interact in ways that cultivate a paradox mindset. By contrast, organisations should steer away from creating scenarios that encourage dilemma mindsets, as these limit leadership effectiveness in general, resulting in low employee engagement and the lack of an innovation climate.

Fostering an environment of openness to experience empowers individuals to raise concerns and actively speak out when they encounter situations that could lead to a dilemma mindset and hinder Paradox Leadership Behaviour. In addition, because of diverse thinking, people begin to embrace tensions and resort to adjusting and embracing conflict rather than seeing tensions as threats (Miron-Spektor et al., 2018). The ability and freedom to raise concerns could result in defined measures to create interventions that channel these scenarios to become opportunities for paradox mindsets and achieve the effective leadership outcomes of employee engagement and an innovation climate.

7.4.2 Exposure to Role Models

Zheng et al., (2018) proposed in proposition 2b that the relationship between women leaders' experience of tensions and their adoption of a paradox mindset is moderated by exposure to role models who demonstrate both agency and communion. As a result, women leaders who have a greater exposure to role models (who demonstrate both agency and communion) are more likely to adopt a paradox mindset as they continuously deal with tensions from agency and community.

Earlier studies by Bandura (1986) support this by showing that behaviours demonstrated by role models could be adopted by individuals seeking support from these role models.

The literature indicates that exposure to roles models is key for individuals to learn how to balance contradictions (Rudolph et al., 2017), which in turn could result in a paradox mindset.

Based on the literature reviewed in Chapter 2, and the statistical evidence from this research study, it is recommended that individuals seek out mentorship from role models who exude Paradox Leadership Behaviour. Similarly, leaders should volunteer mentorship to encourage the growth of individuals, particularly on the mindset level, so that they actively seek opportunities to embrace contradictions and develop a paradox mindset.

Earlier studies (Miron-Spektor & Beenen, 2015) show a relationship between an innovation climate and employee engagement, and how these are influenced by the application of paradox theories (Zhang et al., 2015; Schad et al., 2016; Shao et al., 2019). The outcomes and discussions from these initial studies remain relevant today. Organisations could foster a paradox mindset within the business by exposing their employees to role models which could then also support employee engagement and encourage an innovation climate.

7.4.3 Exposure to Organisational Learning Orientation

Zheng et al.,'s (2018) proposition 2c proposed that, in organisations with high levels of learning orientation, women leaders are more likely to adopt a paradox mindset as they experience conflicts. Organisational learning orientation results in a sense of autonomy and self-management (Lee & Edmondson, 2017). In addition, scholars have suggested that there is an increase in employee inspiration, innovation (Ojha et al., 2018) and willingness to share organisational information.

It is therefore recommended that organisations encourage knowledge-sharing, break down silos and create a non-hierarchical structure in which teams and leaders collaborate autonomously. This in turn would not only contribute to activating the paradox mindset in women leaders but would also indirectly influence the effective leadership outcomes of employee engagement and an innovation climate.

7.5 Limitations

Limitations are inherent in any research study (Creswell, 2014) and the limitations of this one is noted below.

Self-awareness, a key construct for openness to experience, was found to be unreliable and as a result could not be tested. In terms of demographics, this study only confirmed the gender of the survey participants and thus a more holistic demographic breakdown was not evaluated.

In addition, the survey was sent out to a general population of the researcher's network and thus did not target a specific industry or organisation.

7.6 Future Research

Given the limited research into paradox theories pertaining to women in leadership, several research recommendations are presented.

Future research could refine the questions pertaining to self-awareness, or define the context, to ensure a reliable result is achieved. It could also gather more demographic details to add control variables to achieve deeper insights into the influence these factors may have on influencing the strengths of the antecedents to activate a paradox mindset.

Case studies could also be conducted at the individual level within specific industries and incorporate cultural elements to further expand on the contribution of this study and determine whether culture impacts the mediating properties of the paradox mindset.

Future researchers could also focus on general leadership (not only on women leadership) to examine adoption of the paradox mindset and investigate which leader qualities strengthen the antecedents to activate a paradox mindset.

In addition, future researchers could use the scales developed for this research study. However, there were certain questions within the existing scales that did not provide useful data, and these should be excluded. A summary of the questions with no reliability and validity can be found in Appendix 12.

Future research could also test Paradox Leadership Behaviour to investigate if this is the

leadership style required in today's complex business environment and to test its superiority over other leadership styles. Alternatively, both authentic and paradox leadership styles could be investigated to determine the optimal configuration of the antecedents to achieve maximum leadership effectiveness. This research could empirically test how the strengths of the antecedents differ based on the leadership style.

7.7 Conclusion

Various challenges, including work-life balance, gender stereotypes and depletion of the women leadership pipeline (Thomas, 2020; PwC, 2020), were highlighted in Chapter 1. Amid these challenges, organisations continue to prioritise effective leadership outcomes, and expect women leaders to manage effectively. Scholars suggest embracing a paradox lens to cope with these trials and, as a result, the focus of this study was to examine the strength of the individual antecedents that could activate a paradox mindset in women leaders to achieve leadership effectiveness. The influence of each of these antecedents formed the basis of the main research question and hypotheses, to address the business need from an academic perspective.

As quoted in Chapter 2, 'To value paradox is to accept that contradictions can become synergistic (Cunha & Clegg, 2018) and yield value'.

This research study provided statistical evidence to support this quote and Zheng et al.,'s (2018) propositions, which formed the basis for this quantitative study. It identified the antecedents that enable women leaders to activate a paradox mindset, thus addressing the research question and making a contribution to the existing literature on women in leadership and paradox theories. Proposals for future research to further explore the subject of paradox were also provided.

Women leaders could use the findings as a platform or framework that could support and validate why the business environment should adapt. We now have evidence that supports that women are more likely to achieve leadership effectiveness through the activation of the paradox mindset. This should eradicate the perception that women are effective. Instead, women leaders should be acknowledged as effective leaders without any preconceived stereotypes and perceptions.

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9. Appendices

9.1 Appendix 1: GIBS Ethical Clearance Form

Note: GIBS shall do everything in its power to protect the personal information supplied herein, in accordance with its company privacy policies as well the Protection of Personal Information Act, 2013. Access to all the above provided personal information is restricted, only employees who need the information to perform a specific job are granted access to this information. Kindly refer to the GIBS Ethical Clearance Form posted on Aspire under Additional Material. Please contact the Research team for the UP-Health Ethics process and application form.

9.2 Appendix 2: Ethical Clearance Approved

Gordon Institute of Business Science
University of Pretoria

Ethical Clearance Approved

Dear Naadira Lahri,

Please be advised that your application for Ethical Clearance has been approved.
You are therefore allowed to continue collecting your data.
We wish you everything of the best for the rest of the project.

Ethical Clearance Form

Kind Regards

Masters Research

Gordon Institute of Business Science, University of Pretoria

Main Tel: +27 11 771 4000
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9.3 Appendix 3: GIBS Ethical Clearance Application form

GIBS ETHICAL CLEARANCE APPLICATION FORM 2021/22

RESEARCH PROJECT INFORMATION

NAME:	Naadira Lahri
STUDENT NUMBER:	24445780
PHONE NUMBER:	
E-MAIL ADDRESS:	24445780@mygibs.co.za
PROPOSED TITLE OF STUDY:	Individual antecedents may strengthen women leaders' ability to adopt a paradox mindset.
RESEARCH SUPERVISOR:	Caren Scheepers
E-MAIL OF SUPERVISOR:	Scheepersc@gibs.co.za
RESEARCH CO-SUPERVISOR	
E-MAIL OF CO-SUPERVISOR	

The purpose of this Research Ethics process is to ensure that all research conducted under the auspices of GIBS is done so in an ethical manner, in accordance with the University's policy and in such a way that **the rights of all stakeholders** associated with the research are protected.

In order for the GIBS Research Ethics Committee to assess your application, you are required to submit a **description of your Research Methodology** that must contain sufficient detail to ensure that the required steps have been taken to achieve this purpose, in the research design, data collection, analysis and storage of data used in the conduct of this research.

Please indicate the nature of the output your research is aimed at producing (mark one box only):

- ☐ ABP Applied Business Project
- ☑ MBA/MPhil Research Report
- ☐ MBA Project Publish Article
- ☐ MBA Teaching Case Study
- ☐ MBA Entrepreneurship Stream Portfolio
- ☐ MBA Consulting Stream Portfolio/MBA Health Stream
- ☐ GIBS Faculty/Research Associate/Staff member or others undertaking research under the GIBS affiliation

GIBS Ethics Policy distinguishes between FOUR main types of data and THREE main types of methodology. Please complete the table for ALL the data types that you plan to use. Note that all applications must be accompanied by a description of the methodology to be used in the study. Initial all sections that apply to your research

GIBS ETHICAL CLEARANCE APPLICATION FORM 2021/22

Section of form and type of data or methodology	Attachments – including methodology chapter (please mark that they are included)
A **Pre-existing personal records of human subjects,** e.g. performance reviews	☐ Methodology section of proposal ☐ Description of the nature of the records to be used ☐ Signed permission letter from appropriately authorised person in the organisation to use the data
B **New data solicited from human subjects,** e.g. through interviews or surveys	☑ Methodology section of proposal ☑ Informed consent statement attach proforma (separate for qualitative data collection; as part of survey questionnaire for quantitative data collection) ☑ Interview guide / survey questionnaire / pre-existing proprietary test instrument / description of intervention ☑ IF pre-existing proprietary test instrument, letter of permission from the owner/copyright holder (e.g. the MBTI)
C **Public non-human data,** e.g. World Bank or other databases (no letter needed)	☐ Methodology section of proposal ☐ Explanation of the nature of the data, how you will source it and how you will use it
D **Private Organisation-specific non-human data,** e.g. financial statements, marketing or safety records	☐ Methodology section of proposal ☐ Explanation of the nature of the data, how you will source it and how you will use it ☐ Permission letter from the owner/organisation to use the data
E **Indicate which methodology** you will be using. Choose one only	☐ Qualitative ☑ Quantitative ☐ Mixed methods

GIBS ETHICAL CLEARANCE APPLICATION FORM 2021/22

SECTION A. PRE-EXISTING PERSONAL RECORDS OF HUMAN SUBJECTS

1. Specify the nature of records and how they will be used

2. Confirm that permission has been obtained from an appropriately authorised person to study and report on these records.
Remember to attach permission letter(s).

☐ I confirm

3. Provide the name and job title of the person in the organisation who has authorised the use of the records.

Name: Job Title:

4. How will **confidentiality** (when the identity of the respondent is known to the researcher e.g. when data collection is via interviews) and/or **anonymity** (when the identity of the interviewer is not known to the researcher e.g. when data collection is via surveys) of the respondents and their data be assured?
Mark all that apply – ensure this is included in your methodology chapter.

☐ No names will be requested

☐ No names will be reported

☐ Data will be stored without identifiers

☐ Only aggregated information will be provided

☐ Other. Please specify

SECTION B. NEW DATA OBTAINED FROM HUMAN SUBJECTS

5. Does the nature of your research require you to collect data from respondents who constitute a 'vulnerable population' (defined as those who are particularly susceptible to coercion or undue influence or who have difficulty giving free and informed consent to being the subjects of research)

☑ No

☐ Yes.
IF yes, explain the nature of the population and what measures will be put in place done to reduce or minimise this vulnerability. Ensure this is included in your methodology chapter.

6. Please confirm that no incentive is to be offered to respondents to participate in the study.

☑ I confirm

7. Mark the applicable box(es) to identify the proposed procedure(s) to be carried out to obtain data.

☐ Interview guide Attach if applicable

☑ Survey questionnaire Attach if applicable

☑ Pre-existing proprietary test instrument, e.g. MBTI Attach if applicable
IF a pre-existing proprietary test instrument is used, confirm that permission has been obtained to use it.

☑

GIBS ETHICAL CLEARANCE APPLICATION FORM 2021/22

I confirm
Remember to attach permission letter(s) to use proprietary test instrument/s from an appropriately authorised person.

☐ • Intervention, e.g. training or experiment Describe in full in methodology chapter

8. Confirm that the data gathering is accompanied by a consent statement.

☑ I confirm

9. Where is the consent statement found?

☑ As part of the survey questionnaire, if quantitative data collection, in the introduction section of the questionnaire.

☐ As a separate document, if qualitative data collection, remember to attach.

10. Is there a risk that the respondents may not fully understand the nature of the study, or instructions or questions, or their rights as a result of language barriers between themselves and the researcher?

☑ No, there is not a risk

☐ Yes, there is a risk.
IF yes, how will the subjects' full comprehension of the content of the research, including giving consent, be ensured? Please specify, and include in methodology chapter

11. Do any respondents risk possible harm or disadvantage (e.g. financial, legal, reputational or social) by participating in the research?

☑ No

☐ Yes.
IF yes, explain what types of risk and what is done to minimise and mitigate those risks and include in methodology chapter.

12. Are there any aspects of the research about which subjects are not to be informed?

☑ No

☐ Yes.
IF yes, explain why, and how subjects will be debriefed, and include in methodology chapter.

13. Will the audio or video recorded data be transcribed and/or translated by an independent transcriber and/or translator?

☑ No

☐ Yes.
If yes, confirm that the transcriber and/or translator will be required to sign a non-disclosure agreement to protect the respondent's confidentiality, and include in methodology chapter

☐ I confirm. Remember to attach a pro-forma non-disclosure agreement

14. How will **confidentiality** (when the identity of the respondent is known to the researcher e.g. when data collection is via interviews) and/or **anonymity** (when the identity of the interviewer is not known to the researcher e.g. when data collection is via surveys) of the respondents and their data be assured? Include in methodology chapter

☑ No names will be requested, relevant when the identity of the respondent is not known to the researcher

- ☑ No names of individuals or organisations will be reported, relevant when the identity of the respondent is known to the researcher
- ☑ Only aggregated information will be reported
- ☑ Data will be stored without identifiers
- ☐ Other. Please specify

15. Is the topic of your research and the nature of the interview or survey questions about one or more particular organisations or to be conducted within one or more particular organisations?

- ☑ No
- ☐ Yes. If yes, confirm that appropriately authorised person/s have provided written permission for you to conduct this research
- ☐ I confirm. Remember to attach signed permission letter/s

SECTION C. PUBLIC NON-HUMAN DATA

16. Specify the nature of records to be used: Explain how they will be selected, where the data will be sourced and how the data will be used, and include in methodology chapter:

17. Confirm that this pre-existing non-human data is in the public domain, is legally accessible and is free of any copyright.

- ☐ I confirm

GIBS ETHICAL CLEARANCE APPLICATION FORM 2021/22

SECTION D. PRIVATE ORGANISATION-SPECIFIC NON-HUMAN DATA

18. Specify the nature of records (e.g. financial reports, marketing reports or safety records) and how they will be used.

19. Confirm that permission has been obtained to study and report on these records.

☐ I confirm. Remember to attach a signed permission letter(s).

20. Provide the name and job title of the person in the organisation who has authorised the use of the records.

Name: Job Title:

21. Do companies risk possible harm or disadvantage (e.g. financial, legal, reputational or social) by participating in the research?

☐ No

☐ Yes. Explain what types of risk and what is done to minimise and mitigate those risks. Include explanation in methodology chapter

22. How will **confidentiality** (when the identity of the respondent is known to the researcher e.g. when data collection is via interviews) and/or **anonymity** (when the identity of the interviewer is not known to the researcher e.g. when data collection is via surveys) of the respondents and their data be assured? Include in methodology chapter

☐ No names will be requested, relevant when the identity of the respondent is not known to the researcher

☐ No names of individuals or organisations will be reported, relevant when the identity of the respondent is known to the researcher

☐ • Only aggregated information will be reported

☐ • Data will be stored without identifiers

☐ Other. Please specify

GIBS ETHICAL CLEARANCE APPLICATION FORM 2021/22

ALL APPLICANTS MUST COMPLETE SECTIONS E AND F

E. CONFIDENTIALITY OF RESEARCH REPORT SUBMITTED FOR EXAMINATION OR PUBLICATION

23. Please select the relevant option relating to the confidentiality of the research report you will submit for examination:

☑ Free access, i.e. report not embargoed

☐ No access for a period of two years after research report is submitted for examination
Note that in exceptional circumstances, GIBS, being the copyright holder of the published research, may consent to an embargo of the report submitted for examination for a period of no more than two years. If you wish to apply for such an embargo, please provide reasons for this in a separate attachment.

☐ No access under any circumstance for an undetermined period.
A letter of permission from the Vice- principal: Research and Postgraduate Studies at the University of Pretoria must be obtained prior to making this application – and attached to this application for ethical clearance.

F. DATA STORAGE AND DISSEMINATION OF RESEARCH REPORT SUBMITTED FOR EXAMINATION

24. Please conform that you will use appropriate methods to ensure your data is safely stored in an accessible format for a minimum period of 10 years

☑ I confirm

25. Confirm that the details of your data storage method are set out in your attached methodology chapter

☑ I confirm

26. It is a goal of GIBS to make research available as broadly as possible. Mark the boxes below for the medium/media in which you do NOT wish results to be made available.

Academic dissemination	**Popular dissemination**
☐ Research report	☐ TV
☐ Scientific article	☐ Radio
☐ Conference paper	☐ Lay article
☐ Book	☐ Podcast
	☐ Book

Provide reasons for any limitation on publication marked above

27. Confirm that the consent obtained reason from participant in the research is aligned with the extent of dissemination, specified in question 26. For example, consent if you are planning to use the research to launch a consulting career will be more comprehensive than in the case of research that is intended only for a scientific audience.

☑ I confirm

28. IF you wish to describe any other information which may be of value to the committee in reviewing your application

☑ No

☐ Yes. Provide details in a separate sheet attached to this application

GIBS ETHICAL CLEARANCE APPLICATION FORM 2021/22

G. APPROVALS FOR/OF THIS APPLICATION

When the applicant is a student of GIBS, the applicant must please ensure that the supervisor and co-supervisor (where relevant) has signed the form before submission

STUDENT RESEARCHER/APPLICANT:

29. I affirm that all relevant information has been provided in this form and its attachments and that all statements made are correct.

Student Researcher's Name in capital letters:	NAADIRA LAHRI
Date:	28 Jun 2021
Supervisor Name in capital letters:	CAREN BRENDA SCHEEPERS
Date:	01 Jul 2021
Co-supervisor Name in capital letters:	
Date:	28 Jun 2021

Note: GIBS shall do everything in its power to protect the personal information supplied herein, in accordance to its company privacy policies as well the Protection of Personal Information Act, 2013. Access to all of the above provided personal information is restricted, only employees who need the information to perform a specific job are granted access to this information.

Decision:

Approved

REC comments:

Date: 08 Jul 2021

9.4 Appendix 4: Signed Copyright Form

Gordon Institute of Business Science
University of Pretoria

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

COPYRIGHT DECLARATION FORM

Student details			
Surname:	Lahri	Initials:	N
Student number:	24445780		
Email:	nlahri@gmail.com		
Phone:	082 805 5544		
Qualification details			
Degree:	MPhil	Year completed:	2021
Title of research:	GIBS An investigation into the individual antecedents that enable women leaders to adopt a paradox mindset to achieve leadership effectiveness.		
Supervisor:	Caren Scheepers		
Supervisor email:	scheepersc@gibs.co.za		

Access

A. ✓	My research is not confidential and may be made available in the GIBS Information Centre and on UPSpace.

I give permission to display my email address on the UPSpace website

Yes ✓		No	

B.	My research is confidential and may NOT be made available in the GIBS Information Centre nor on UPSpace.

Please indicate embargo period requested

Two years		Please attach a letter of motivation to substantiate your request. Without a letter, embargo will not be granted.
Permanent		Permission from the Vice-Principal: Research and Postgraduate Studies at UP is required for permanent embargo. Please attach a copy permission letter. Without a letter permanent embargo will not be granted.

Copyright declaration

I hereby declare that I have not used unethical research practices nor gained material dishonesty in this electronic version of my research submitted. Where appropriate, written permission statement(s) were obtained from the owner(s) of third-party copyrighted matter included in my research, allowing distribution as specified below.

I hereby assign, transfer and make over to the University of Pretoria my rights of copyright in the submitted work to the extent that it has not already been affected in terms of the contract I entered into at registration. I understand that all rights with regard to the intellectual property of my research, vest in the University who has the right to reproduce, distribute and/or publish the work in any manner it may deem fit.

Signature:	Date: 23 October 2021
Supervisor signature: C B Scheepers	Date: 25 Oct 2021

9.5 Appendix 5: Additional support acknowledgement

(Additional support retained or not – to be **completed by all students**.)

Please note that failure to comply and report on this honestly will result in disciplinary action.

I hereby certify that (please indicate which statement applies):

- *I DID NOT RECEIVE any additional/outside assistance (that is, statistical, transcriptional, thematic, coding, and/or editorial services) on my research report:* .....

✓ *I RECEIVED additional/outside assistance (that is, statistical, transcriptional, thematic, coding, and/or editorial services) on my research report:* .....

If any additional services were retained, ***please indicate below which:***

- ☑ ***Statistician***
- ☐ ***Coding (quantitative and qualitative)***
- ☐ ***Transcriber***
- ☑ ***Editor***

Please provide the name(s) and contact details of all retained:

NAME: Muhammad Jamal .....
EMAIL ADDRESS: statsninja@gmail.com .....
CONTACT NUMBER: 061 531 1992 .....
TYPE OF SERVICE: Statistician .....

NAME: Su Purbrick .....
EMAIL ADDRESS: suep@global.co.za .....
CONTACT NUMBER: .....
TYPE OF SERVICE: Editor .....

I hereby declare that all *interpretations (statistical and/or thematic) arising from the analysis and write-up of the results for* **my study were completed by myself without outside assistance**.

STUDENT NUMBER:

24445780 .....

9.6 Appendix 6: Survey email

From: Lahri Naadira, FG-Z-63
To: DL-FG-Z_ZA-HUB
Subject: Paradox Mindsets - MBA Research Survey
Date: 12 August 2021 10:11:33
Attachments: image001.png
image003.png

BMW GROUP South Africa

PARADOX MINDSETS AND EMPLOYEE ENGAGEMENT.

Thursday, 12 August 2021.

Imagine embracing contradictions and unlocking creativity and innovation.

Assist me in finding the link between **Paradox Leadership Mindsets and Employee Engagement** and how we can enable leaders to cultivate this mindset.

It will take **less than 10 minutes** of your time to complete the survey.

All responses are completely anonymous, and none of the results can be tracked back to any individuals or business. All data collected is strictly confidential and will only be used for research purposes.

Please click here or copy the link below onto your favourite browser to proceed to the survey:

https://www.surveymonkey.com/r/GIBS_Paradox_Mindsets

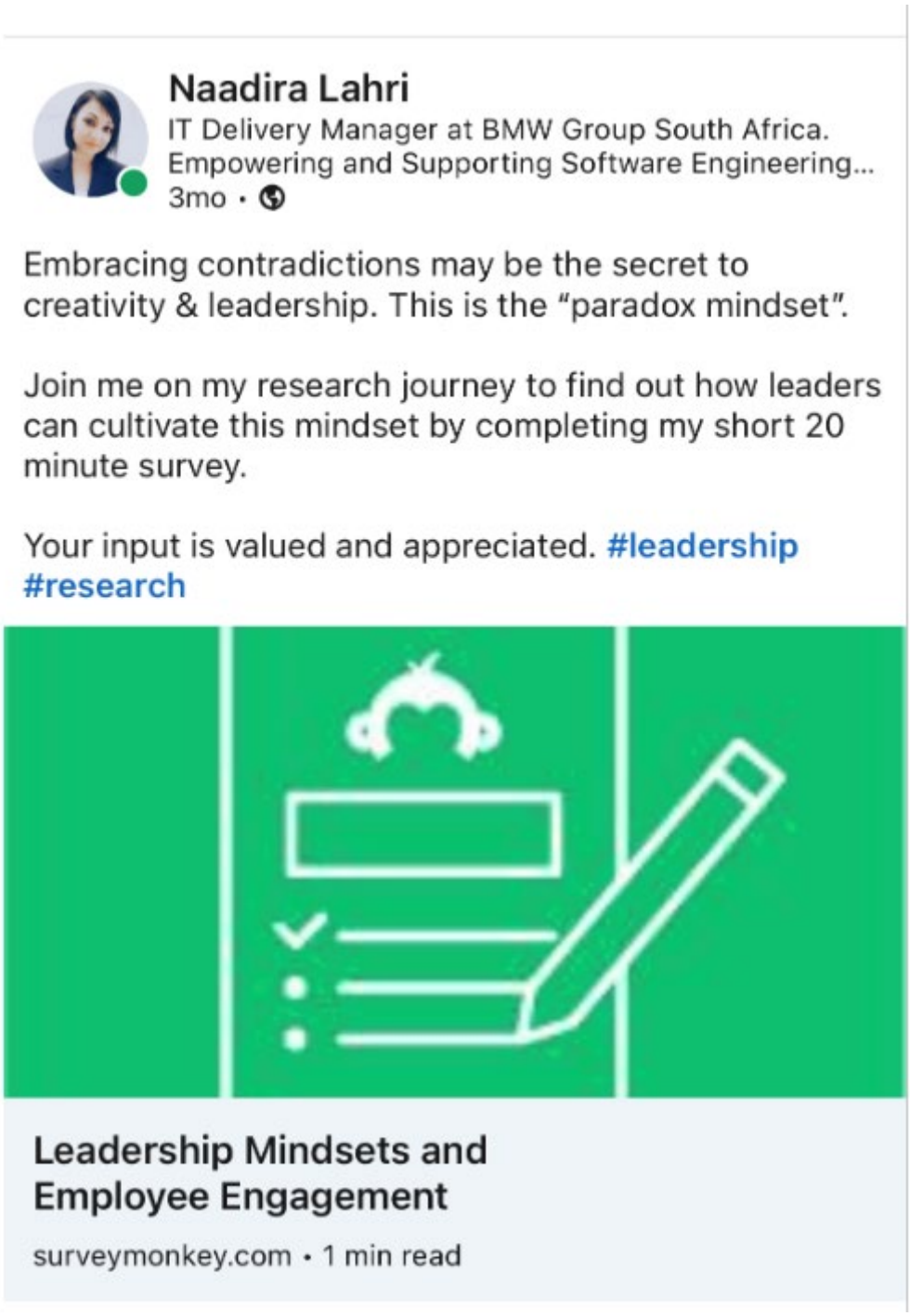
The survey will remain open until the **25 August 2021.**
Please complete at your earliest convenience and feel free to forward this email to your network.

Thank you in advance for your participation.
Your feedback is valuable and is highly appreciated.

Kind regards,

Naadira Lahri

9.7 Appendix 7: Survey LinkedIn Post



9.8 Appendix 8: Scale permission and indication of potential research contribution

From: "Porfeli, Erik J." <porfeli.1@osu.edu>
Date: 02 June 2021 at 21:26:36 SAST
To: Naadira <nlahri@gmail.com>
Subject: RE: Permission to use the Career Adaptabilities (CAAS) Scale

Hi Naadira,

I am not familiar with the literature devoted to assessing the influence of role models on paradox mindset. I wish I could offer more help. I also wish you all the best in your research. Your
an interesting and important topic.

Best,
Erik

9.9 Appendix 9: Scale permission and indication of potential research contribution

Reference from Wendy Smith (Author of Paradox …and Paradox Mindset Scale) indicating that she is interested in the research outcomes and findings regarding women's leadership. This indicates that there is a potential research contribution to existing academic literature.

On 02 Jun 2021, at 19:55, Wendy Smith <smithw@udel.edu> wrote:

Naadira -

Thanks so much for reaching out. Congrats on this research. I am personally really interested in what you find about women's leadership, given that I run a women's leadership center. I look forward to it.

The paradox mindset scale is available for anyone to use, so no need to have formal approval from us. Please do feel free to us it in your study.

Best -
Wendy

9.10 Appendix 10: Survey as per SurveyMonkey

Paradox Mindsets and Employee Engagement

1. Introduction

Hi, I'm Naadira Lahri. A student at the Gordon Institute of Business Science. As part of the Masters Degree, I am conducting research on Paradox Leadership and Mindsets and to quantitatively understand what the antecedents are that may strengthen women leaders' ability to adopt a paradox mindset.

I would like to gather data from both males and females so that I can compare the results and use this to validate the hypotheses that I have formulated.

Please join me on this journey to uncover how to cultivate this mindset in leaders by taking this short 10 minute survey.

Your participation is voluntary, anonymous, and you can withdraw at any time without penalty. No names or identifiers will be used and only aggregated data will be reported. Data confidentiality will be adhered to. By completing the survey, you indicate that you voluntarily participate in this research. If you have any concerns, please contact me or my supervisor.

Our details are:
Researcher name: Naadira Lahri
Email: Naadira.lahri@bmw.co.za
Phone: 0828055544
Research supervisor: Caren Scheepers
Email: scheepersc@gibs.co.za
Phone: 0829227072

Paradox Mindsets and Employee Engagement

2. Instructions

The following survey items refer to your leadership style, as you perceive it.

Our world is filled with multiple, often competing demands. We need to solve problems creatively but in a timely manner, to be planned yet adaptive, to learn new skills while also taking advantage of existing capabilities, to perform at our best while also helping others. Our success in the workplace depends on how we understand and manage these competing demands.

Before you take this survey, think about some of the competing demands that you experience. Consider these competing demands as you answer the questions below. Judge how frequently each statement fits your leadership style/mindset using the respective scales.

Before you start the survey, you would need to indicate your gender.

* 1. What is your gender?

- Female
- Male

Paradox Mindsets and Employee Engagement

3. As a Leader,

* 2. When I consider conflicting perspectives, I gain a better understanding of an issue.

- Strongly disagree
- Disagree
- Neither agree nor disagree
- Agree
- Strongly agree

* 3. I am comfortable dealing with and embracing conflicting demands simultaneously.

- Strongly disagree
- Disagree
- Neither agree nor disagree
- Agree
- Strongly agree

* 4. Accepting contradictions is essential for my success.

- Strongly disagree
- Disagree
- Neither agree nor disagree
- Agree
- Strongly agree

* 5. I feel energised when I manage to pursue and address contradictory goals and issues.

- Strongly disagree
- Disagree
- Neither agree nor disagree
- Agree
- Strongly agree

* 6. I am comfortable working on tasks that contradict each other.

- Strongly disagree
- Disagree
- Neither agree nor disagree
- Agree
- Strongly agree

* 7. I feel uplifted when I realise that two opposites can be true.

- Strongly disagree
- Disagree
- Neither agree nor disagree
- Agree
- Strongly agree

* 8. I maintain overall control but give subordinates appropriate autonomy.

- Never
- Rarely
- Sometimes
- Usually
- Always

* 9. I stress conformity in task performance but allow for exceptions.

- Never
- Rarely
- Sometimes
- Usually
- Always

* 10. I have high requirements but allow subordinates to make mistakes.

- Never
- Rarely
- Sometimes
- Usually
- Always

* 11. I maintain position differences but uphold subordinates' dignity.

- Never
- Rarely
- Sometimes
- Usually
- Always

* 12. I enjoy the challenge of finding alternative ways to solve a problem.

- Never
- Rarely
- Sometimes
- Usually
- Always

* 13. When I get a new idea, I really get excited.

- Never
- Rarely
- Sometimes
- Usually
- Always

* 14. The more problems I have, the more opportunities I have.

- Never
- Rarely
- Sometimes
- Usually
- Always

* 15. New ideas foster change.

- Never
- Rarely
- Sometimes
- Usually
- Always

* 16. I seek feedback to improve interactions with others.

- Never
- Rarely
- Sometimes
- Usually
- Always

* 17. I accurately describe how others view my capabilities.

- Never
- Rarely
- Sometimes
- Usually
- Always

* 18. I know when it is time to re-evaluate my position on important issues.

- Never
- Rarely
- Sometimes
- Usually
- Always

* 19. I show I understand how specific actions impact others.

- Never
- Rarely
- Sometimes
- Usually
- Always

* 20. I can communicate an idea in many ways.

- Never
- Rarely
- Sometimes
- Usually
- Always

* 21. I can find workable solutions to seemingly unsolvable problems.

- Never
- Rarely
- Sometimes
- Usually
- Always

* 22. I am willing to listen and consider alternatives for handling a problem.

- Never
- Rarely
- Sometimes
- Usually
- Always

* 23. I have the self-confidence to try the different ways of behaving.

- Never
- Rarely
- Sometimes
- Usually
- Always

* 24. I analyse and interpret changing demands.

- Never
- Rarely
- Sometimes
- Usually
- Always

* 25. I recognise shifts and new opportunities.

- Never
- Rarely
- Sometimes
- Usually
- Always

* 26. I have frequent interactions with clients, colleagues, and competitors to acquire new knowledge.

- Never
- Rarely
- Sometimes
- Usually
- Always

* 27. I constantly consider how to better exploit knowledge.

- Never
- Rarely
- Sometimes
- Usually
- Always

* 28. Role models enlighten me as to think about today's choices and how they shape my future.

- Strongly disagree
- Disagree
- Neither agree nor disagree
- Agree
- Strongly agree

* 29. Roles models prove to me that it is important to take responsibility for my actions and lead by example.

- Strongly disagree
- Disagree
- Neither agree nor disagree
- Agree
- Strongly agree

* 30. Roles models inspire me to look for opportunities to grow as a person.

- Strongly disagree
- Disagree
- Neither agree nor disagree
- Agree
- Strongly agree

* 31. Through having role models, I observe different ways of doing things.

- Strongly disagree
- Disagree
- Neither agree nor disagree
- Agree
- Strongly agree

* 32. In my organization lessons learned are made available to all employees.

- Strongly disagree
- Disagree
- Neither agree nor disagree
- Agree
- Strongly agree

* 33. In my organization, teams/groups revise their thinking because of group discussions or information collected.

- Strongly disagree
- Disagree
- Neither agree nor disagree
- Agree
- Strongly agree

* 34. In my organization alignment of visions across different levels and work groups are shared.

- Strongly disagree
- Disagree
- Neither agree nor disagree
- Agree
- Strongly agree

* 35. In my organization people are encouraged to get answers from across the organization when solving problems.

- Strongly disagree
- Disagree
- Neither agree nor disagree
- Agree
- Strongly agree

Paradox Mindsets and Employee Engagement

4. As an Employee

* 36. At my work, I feel vibrant with energy.

- Never
- Rarely
- Sometimes
- Usually
- Always

* 37. At my job, I feel confident, strong and energetic.

- Never
- Rarely
- Sometimes
- Usually
- Always

* 38. I am enthusiastic about my job.

- Never
- Rarely
- Sometimes
- Usually
- Always

* 39. My job inspires me.

- Never
- Rarely
- Sometimes
- Usually
- Always

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

- Never
- Rarely
- Sometimes
- Usually
- Always

* 41. I feel happy when I am working intensely.

- Never
- Rarely
- Sometimes
- Usually
- Always

* 42. I am proud of the work that I do.

- Never
- Rarely
- Sometimes
- Usually
- Always

* 43. I am immersed in my work.

- Never
- Rarely
- Sometimes
- Usually
- Always

* 44. I get carried away when I am working.

- Never
- Rarely
- Sometimes
- Usually
- Always

* 45. Informal groupings are a valuable source for effective change.

- Never
- Rarely
- Sometimes
- Usually
- Always

* 46. Our organisation has effective systems for integrating new innovative products and processes back into the organisational systems and structures.

- Never
- Rarely
- Sometimes
- Usually
- Always

* 47. Our organisation has an enabling climate for innovation.

- Never
- Rarely
- Sometimes
- Usually
- Always

* 48. Our organisation involves employees on the frontline and customers to innovate our products and services.

- Never
- Rarely
- Sometimes
- Usually
- Always

* 49. Our organisation values experimentation with new ideas and processes.

- Never
- Rarely
- Sometimes
- Usually
- Always

* 50. Our organisation protects innovative groups and processes against the bureaucratic organisational forces.

- Never
- Rarely
- Sometimes
- Usually
- Always

9.11 Appendix 11: Mphil Student and Supervisor agreement

Contract between student and supervisor

MPhil STUDENT/ SUPERVISOR AGREEMENT

This document must be read in conjunction with the following GIBS policy documents:

The GIBS MPhil Student Regulations

The GIBS Masters Research Regulations – i.e. Purple Pages

Any grievances, personal problems or disagreements that may arise between a postgraduate candidate and the supervisor must be referred to the GIBS MPHIL Research Management team,

Name of student:
Naadira Lahri

Student number:
24445780

Student email address:
24445780@mygibs.co.za

Name of Supervisor:
Caren Scheepers

Supervisor email address:
scheepersc@gibs.co.za

Agreement undertaken by THE STUDENT

Naadira Lahri (insert name)

accepts and undertakes the following roles and responsibilities:

1. Abiding by the relevant rules and regulations of the Gordon Institute of Business Science.
2. Ensure that all interactions with the Supervisor – either written or in person, remains cordial at all times.
3. Working independently under the guidance of the supervisor and ensuring that she or he stays abreast of the latest developments in the field of study.
4. Agreeing with the supervisor, and abiding by, a time schedule which outlines the expected completion dates of various stages of the research work, i.e. prepare and submit a detailed project plan (See Supervisor section, #5 below).
5. Attending pre-scheduled meetings with the supervisor (via video call and/or in person) and being adequately prepared for these consultation sessions (See Supervisor section, #6 below).

6. Submitting written work at times agreed upon by the student and the supervisor.
7. Taking account of the feedback provided by the supervisor before subsequent submission of written work.
8. Undertaking to submit the proposal and final report within the prescribed time for the completion of the degree and to plan accordingly.
9. Accepting responsibility for the overall coherent structure of the final dissertation or report and, as far as possible, submitting written work that is free of spelling mistakes, grammatical errors and incorrect punctuation.
10. Informing the supervisor of any absence or circumstances that may affect the research progress and timeline.

Agreement undertaken by THE SUPERVISOR

Caren Scheepers ..... (insert name)

accepts and undertakes the following roles and responsibilities:

1. Abiding by the relevant rules and regulations of the University.
2. Ensuring that all interactions with the Student – either written or in person, remains cordial at all times.
3. Assisting the student in building knowledge and research skills in the specific area of postgraduate study and relevant to the level of the degree.
4. Ensuring that the proposed research project is feasible, of an appropriate level for the degree under consideration, and that the necessary resources and facilities will be available to enable the student to complete the research timeously.
5. Providing information on the conditions to be met in order to achieve satisfactory progress/performance and assisting with the construction of a
1. written time schedule which outlines the expected completion dates of various stages of the research work.
6. Being accessible to the student by attending meetings in line with a schedule agreed upon in advance by the supervisor and the student and being prepared for the meetings.
7. Implementing an arrangement for student supervision in cases where the supervisor is away from the University e.g. sick leave, sabbatical leave, or leaves the employ of the University, and communicating these arrangements to the student timeously.
8. Accepting submission of written work at intervals agreed on by the student and supervisor, providing constructive comment and criticism within a time frame jointly agreed on at the start of the research, and informing the student, in writing, of any inadequacy relating to progress or work, in relation to the expectations previously agreed on by the student and supervisor. 9. Assisting the student with the production of the dissertation or report, providing guidance on technical aspects of writing including discipline-specific requirements.
9. Meeting all assessment and pre-arranged feedback deadlines.

THE STUDENT AND THE SUPERVISOR:

Confirm that we have read and understood this Memorandum of Agreement and agree to accept its content for the duration of the period of study in respect of the degree as specified below.

Name of student:
Naadira Lahri

Student number:
24445780

Signed at Midstream

on 8 April 2021 (date)

Student's signature:

Name of supervisor:
Caren Scheepers

Supervisor's signature: C B Scheepers

Signed at

on 19 April 2021 (date)

9.12 Appendix 12: Table summary of scale questions that showed no reliability and validity

Scale	Question
Employee engagement	I get carried away when I am working.
Innovation climate	Informal groupings are a valuable source for effective change.
Paradox leadership behaviour	I maintain position differences but uphold subordinates' dignity.
Paradox mindset	When I consider conflicting perspectives, I gain a better understanding of an issue.