

**Exploring Employee Creativity Behaviours at Work: The Impact of
Psychological, Organisational and Work Factors**

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ABSTRACT

Creativity is the crucial element for organisations to grow, survive and compete. Throughout decades, extensive research has disclosed many favourable and unfavourable predictors of creativity that can help managers and organisation promote creativity in the workplace. However, the complexity of creativity in the fast-paced competitive environment where multiple factors are likely at play, and their combined influences towards creativity, are not well understood. This thesis aims to focus on the complex and combined influence of positive and negative predictors of creativity through diverse methodologies; making theoretical and empirical contributions.

This is a thesis by manuscripts. Thus, the majority of the chapters, though related, are stand-alone papers. These papers are published, under review, or final manuscripts submitted to targeted journals, as indicated at the start of each chapter. Chapters 1 and 2 introduce the rationale, detail a literature review of key predictors of creativity and associated theoretical approaches to understand relationships. From this review, broad research questions are developed that bind all papers of the thesis. Chapter 3 briefly explains the methodology of the six separate papers.

Paper 1 (Chapter 4), a mapping review based on reviews dated 2014-2019, details the previous body of literature, its findings, and contributions, resulting in categorisation of predictors of creativity and innovation in themes: Psychological, Organisational, and Work (POW). This review proposes an integrative framework that helps shape a future research agenda for creativity and innovation research. Paper 1 also highlights looking at the influence of POW through the lens of Conservation of Resource (COR) theory (Hobfoll, 2001).

Building on Paper 1, the influence of POW factors is explored on creativity behaviours in Papers 2-6 (Chapter 5-9) using COR theory, the resource caravan effect

and crossover effects (Hobfoll, Halbesleben, Neveu, & Westman, 2018; Westman, 2001). Paper 2 and 3 focus on the combined influence of positive factors, and Papers 4 and 5 test the potential positive influence of negative factors (around stress) towards creativity when combined with positive factors. Theoretically, this tests the potential that negative resources can lead to positive outcomes but only in the presence of sufficient positive resources, which I term as ‘resource reservoir’. Paper 6 looks at the influence of crossover of resources from individual to teams and highlight the resource caravan effect combined with the crossover effect to provide new insights into creativity. Throughout the empirical papers, mediation, moderation and moderated mediations are tested and supported.

Overall, this thesis contributes to the literature by providing an integrative review which is then empirically tested. Findings based on five diverse samples, predominately from New Zealand, using various methodologies including repeat-measures and multi-level designs, provide robust evidence around the combined influence of POW factors on creativity behaviour. Under COR, this thesis contributes to understanding how various positive and negative POW factors work in combination, and ultimately positively influence creativity at the individual-level and team-level. These findings have strong theoretical implications, including testing much of the COR theory assertions around testing multiple resources simultaneously, and managerial implications around the promotion of these resources.

TABLE OF CONTENTS

Abstract	2
Attestation of Authorship	7
Acknowledgements	9
Chapter One: Introduction.....	11
1.1 Research Background	11
1.2 Rationale.....	12
1.3 Summary	19
Chapter Two: Literature Review and Theoretical Approaches.....	20
2.1 Section I: Literature Review	20
2.2 Section II: Theoretical Approaches	24
2.3 Summary	38
Chapter Three: Methodology	39
3.1 Rationale for Thesis Design	39
3.2 Methodology Brief for Papers	41
3.3 Constructs and Measures	43
3.4 Self-Reported Measures	43
3.5 Samples	45
3.6 Limitations.....	45
3.7 Summary and Outline.....	48
Chapter Four: Paper 1	49
Creativity and Innovation Predictors: Themes from the Past, Direction for the Future	49
Preface	49
Abstract	50
4.1 Introduction	51
4.2 Definitions: Creativity and Innovation and their Behaviours	55
4.3 Key Themes in Literature	56
4.4 Theoretical Approaches.....	68
4.5 Discussion and Future Research Agenda	71
4.6 References	78
Chapter Five: Paper 2.....	83
Organisational-Based Self Esteem, Meaningful Work, and Creativity Behaviours: A Moderated-Mediation Model with Supervisor Support	83
Preface	83
Abstract	84
5.1 Introduction	85

5.2 Theoretical Perspectives	86
5.3 Methods	95
5.4 Results	99
5.5 Discussion	107
5.6 References	113
Chapter Six: Paper 3.....	118
A Climate and Personality Approach towards Creativity Behaviours: A Moderated Mediation Study	118
Preface	118
Abstract	119
6.1 Introduction	120
6.2 Literature Review	122
6.3 Methods	130
6.4 Results	134
6.5 Discussion	139
6.6 References	144
Chapter Seven: Paper 4	149
Does Job Stress Enhance Employee Creativity? Exploring the Role of Psychological Capital	149
Preface	149
Abstract	151
7.1 Introduction	152
7.2 Theoretical Lens: Conservation of Resources (COR)	153
7.3 Methods	162
7.4 Results	166
7.5 Discussion	175
7.6 References	181
Chapter Eight: Paper 5	186
Under What Conditions Can Stressors-Strains Positively Influence Creativity? A Repeat-Measure Study of Psychological Resources	186
Preface	186
Abstract	187
8.1 Introduction	188
8.2 Theoretical Lens: Conservation of Resources (COR) Theory	189
8.3 Methods	198
8.4 Results	202
8.5 Discussion	207

8.6 References	212
Chapter Nine: Paper 6	217
Individual Proactive Personality on Team Factors towards Creativity	217
Preface	217
Abstract	218
9.1 Introduction	219
9.2 Literature Review	222
9.3 Methods	229
9.4 Results	232
9.5 Discussion	241
9.6 References	246
Chapter Ten: Discussion, Contributions, Conclusion	252
Chapter Overview	252
10.1 Summary of Thesis	252
10.2 Findings and Discussion	255
10.3 Contributions	260
10.4 Implications	262
10.5 Limitations and Future Directions	266
10.6. Conclusion	269
Chapter Eleven: References and Appendices	271
References	271
Appendix 1: Key Construct Definitions and measures items with source	279
Appendix 2: Supplementary Table for Paper 1	283
Appendix 3: Ethics Approval, Participant Sheets, Survey	304
Appendix 4: Publications and Presentations	349

ATTESTATION OF AUTHORSHIP

I hereby declare that this submission is my own work and that, to the best of my knowledge and belief, it contains no material previously published or written by another person (except where explicitly defined in the acknowledgements), nor material which to a substantial extent has been submitted for the award of any other degree or diploma of a university or other institution of higher learning.

Also, I declare that I am the principle author of the jointly authored manuscripts listed below and have engaged in initial writing up, data collection, analysis, journal article submission, and journal revise and resubmits where applicable. All data analysis and results were confirmed by the Chief Supervisor. The co-author/s, who are my chief and secondary supervisors, have assisted in the development of research idea, research design, clarification of analysis, editing, commenting on drafts and assisting with the review process. The agreed percentage contribution of each manuscript is given at the end of each reference/title of manuscript in parentheses, in the same order as the authors are listed below.

Following is the list of all paper/manuscripts undertaken for this thesis:

Paper 1: Creativity and Innovation Predictors: Themes from the Past, Direction for the Future. Under-review at *Organizational Psychology Review* (Ghafoor 80/Staniand 10/Haar 10)

Paper 2: Ghafoor, A. & Haar, J. M. (2020, forthcoming). Organisational-Based Self Esteem, Meaningful Work, and Creativity Behaviours: A Moderated-Mediation Model with Supervisor Support. *New Zealand Journal of Employment Relations*, 44 (3), 11-31. (Ghafoor 80/Haar 20)

Paper 3: Ghafoor, A. & Haar, J. M. (2020). A climate and personality approach towards creativity behaviours: A moderated mediation study. *International Journal of Innovation Management*, 24(6), 2050080, DOI: 10.1142/S1363919620500802 (Ghafoor 80/Haar 20)
Preprint of an article published in [International Journal of Innovation Management, 2020] [DOI: 10.1142/S1363919620500802] © [copyright World Scientific Publishing Company] [Journal URL: <https://www.worldscientific.com/worldscinet/ijim>]

Paper 4: Does Job Stress Enhance Employee Creativity? Exploring the Role of Psychological Capital. Under-review at *Personnel Review* (Ghafoor 80/Haar 20)

Paper 5: Under What Conditions Can Stressors-Strains Positively Influence Creativity? A Repeat-Measure Study of Psychological Resources. Under-review at *International Journal of Stress Management* (Ghafoor 80/Haar 20)

Paper 6: Individual Proactive Personality on Team Factors towards Creativity. Under-review at *Small Group Research* (Ghafoor 80/Haar 20)

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CHAPTER ONE: INTRODUCTION

1.1 Research Background

The perception of creativity and need for the development of individual creativity related behaviours in the workplace have shifted in the recent years due to global competition, growing international markets and requirements for a higher pace of innovation and implementation of novel ideas (Hon, 2011). Employee creativity allows organisations to remain equipped to face challenges and remain competitive in growing markets. Creativity is considered as the first step to innovation (Anderson, Potočnik & Zhou, 2014), and creativity and innovation are often used interchangeably (Khessina, Goncalo, & Krause, 2018). In this thesis, I do consider these in combination (see Paper 1, Chapter 4) but here I use the term creativity and specifically creativity behaviours (CB) as a ‘catch-all’ term that can also be considered to include innovation and innovative behaviours.

Since CB are essential for individual and organisational success and survival, how can such behaviours be promoted and enhanced for the benefit of individuals, teams and organisations? Organisations hire employees for their skills and ideas that allow the business to achieve creative solutions and ultimately lead to success (Tongchaiprasit & Ariyabuddhiphongs, 2016). But it is also essential for organisations to invest in individual’s through supportive leadership, knowledge sharing, and motivation to derive success of businesses (Carmeli & Paulus, 2015), and enable employees to apply their skills and resources towards creative outcomes. As the importance of the creativity at work is recognised, so too are the components that make it possible for businesses to derive CB and convert creativity into success (Anderson et al., 2014). In the simplest sense, creativity at the employee level works as the employee communicates the idea, develops the product or service, tests it, implements it, and then improves it. Ultimately, employee creativity leads to organisational-level creativity and greater performance (e.g., Tierney & Farmer, 2002), making it a vital factor for research. Consequently, this thesis

focuses on factors that can help promote or demote CB and how researchers might explore these factors collectively towards a better understanding of creative outcomes at individual and team levels of analysis.

1.2 Rationale

In a rapidly changing environment, creativity serves as a source of competitive position and is potentially an essential element for organisational survival (Amabile, 1988). For example, one firm that creates new ideas at higher levels or a faster rate than competitors is more likely to survive and grow. Indeed, it is established that creativity helps an organisation grow, survive and compete effectively (Anderson et al., 2014). Research suggests that employee CB are influenced by many factors including motivation (Grant & Berry, 2011), personality and thinking styles (Wu, Parker, & De Jong, 2014), as well as creative personal and role identities (Jaussi, Randel, & Dionne, 2007), and work-design elements (Gong, Cheung, Wang, & Huang, 2012). Though there has been considerable research on CB via psychological, organisational, and work factors in isolation (Amabile & Pratt, 2016), the question remains: *how do these factors work collectively to contribute to CB?* The literature which focuses on these factors typically does not consider combined influence of these factors, despite findings that show these factors can all play a role in the creative process. Indeed, in their review on creativity and innovation, Anderson et al. (2014) highlighted the need to further explore CB and specifically how these factors might work in combination towards CB. That is, by testing multiple factors simultaneously.

Stimulated by the work of Anderson et al. (2014), other reviews have also covered a plethora of predictors of creativity including individual traits, knowledge, abilities, and skills (Thayer, Petruzzelli, & McClurg, 2018), psychological and personality factors (Forgeard & Kaufman, 2016; Zhou & Hoever, 2014) and organisational factors like leadership and culture (Standing et al., 2016; Tian, Deng, Zhang, & Salmador, 2018).

Further, these reviews have also posed future directions to seek out the influence of these factors broadly in combination towards CB.

Although research on creativity has been extensive (see Paper 1, Chapter 4), it often does not adequately test the complexity of creativity in organisational environments. Consequently, an understanding of the factors that contribute to CB, particularly in the presence of increased competition, pressure and higher job demands, is essential. Answering to this call, de Jesus, Rus, Lens, and Imaginario (2013) conducted a meta-analytical review suggesting that intrinsic motivation is one of the key predictors of creativity, while another meta-analysis found that positive mood enhances creativity (Davis, 2009). Similarly, a meta-analysis across 25-year on the relationships between moods and creativity showed there was the favourable influence of positive moods and adverse influence of negative moods on creativity, with activating moods (e.g., fear and anxiety) being associated with lower creativity (Baas, De Dreu, & Nijstad, 2008). Thus, while we understand that negative moods may play a role, this thesis considers extending the focus to include such negative factors: stress and anxiety, and how these might shape the CB of individual employees.

Beyond these personal (motivation) and psychological (mood) factors, researchers have also conducted extensive research on organisational factors towards creativity. One meta-analysis focused on the role of organisational size, its culture and environment in enhancing creativity and leading to innovation (Sarooghi, Libaersa, & Burkemper, 2015). That meta-analysis found that organisation support and culture play important roles in advancing positive outcomes. However, these findings might be considered as predictable but serve ‘one side of the coin’ focusing only on positive factors. Organisational demands and pressure, on the other hand, are strong negative elements influencing creativity. The meta-analysis on stressors-creativity by Byron, Khazanchi, and Nazarian (2010) focused on social-evaluative threats referred to as an

aspect of self that is negatively judged [by others] (Dickerson & Kemeny, 2004) and uncontrollability referred to as an individual believes that their efforts do not affect the desired outcomes appreciably (Dickerson & Kemeny, 2004). Both these stress stimuli were found to relate to innate psychological needs and have a curvilinear effect on creativity (Byron et al., 2010). This highlights that potential stressors (conditions that cause stress/strain) may have unique effects on creativity. This also aligns with recent reviews (e.g., Acar, Tarakci, & van Knippenberg, 2019; Thurlings, Evers, & Vermeulen, 2015) which suggest that stress, stressors and strain are part of the environment where creative processes take place, and thus it is essential to understand the influence of stressor and strain on creative outcomes. This thesis focuses on job-stress, stressors (work-family conflict), its response strain (anxiety), how they influence CB, and if this influence can be changed in the presence of positive factors.

Reviews on creativity have also encouraged using diverse methodologies and approaches to study CB (e.g., Lukes & Stephan, 2017). However, there is also a lack of theoretical lens through which the combined influence of predictors of CB should be explored. This thesis offers an overarching theoretical lens using the Conservation of Resource (COR) Theory, to empirically test the combined influence of psychological, organisational and work (POW) factors on CB, as well as the crossover of these resources from the individual- to team-level factors and outcomes.

Based on these directions and the diverse predictors identified in the extensive literature, I have categorised these broadly as POW factors, which are the key themes in Paper 1 (Chapter 4). Then Papers 2-6 (Chapters 5-9) empirically test the relationship between selected POW factors and CB. These factors are tested in combination towards CB through diverse methodologies (see Chapter 3, Methodologies). My examination includes negative POW factors and highlights how exploring the influence of negative factors directly and in combination with positive factors towards CB, might provide

unique insights (see Papers 4 and 5). Consequently, findings of these papers contribute to COR theory, and especially the theoretical themes around resource caravan approach and crossover of resources (Hobfoll, Halbesleben, Neveu, & Westman, 2018).

1.2.1 Research Questions

Based on literature reviews and meta-analytical research directions (e.g., Anderson et al., 2014; Thayer et al., 2018), and the gaps identified towards understanding CB predictors on different levels of analysis (Byron et al., 2010; de Jesus et al., 2013; Sarooghi et al., 2015), the following research questions are proposed:

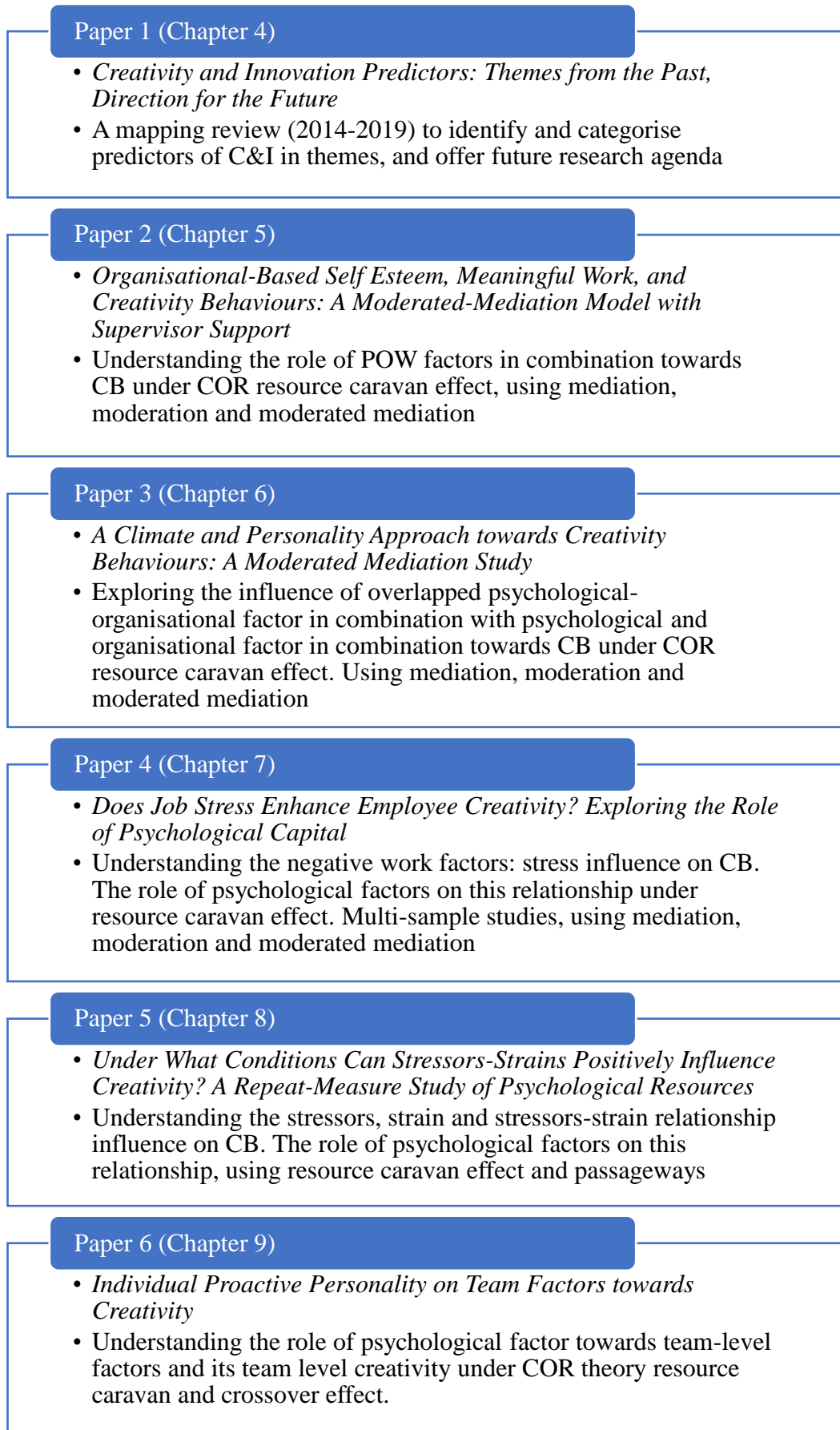
- 1. Do psychological, organisational and work (POW) factors influence employee CB?***
- 2. How do they operate in combination?***
- 3. Are there mediating and/or moderating effects at play?***
- 4. Do some POW factors play the role of boundary condition/s in explaining relationships towards CB?***
- 5. Do effects differ by methodology such as at the team level of analysis or change-over-time level of analysis?***

These overarching research questions are examined through a number of papers making up this thesis. Overall, the present thesis comprises of one review paper (Paper 1, Chapter 4), which addresses how broader literature around predictors of CB are categorised into themes: POW. Papers 2 and 3, test the combined influence of positive factors towards CB (Chapters 5 and 6). Papers 4 and 5, test the combined influence of both positive and negative factors towards CB (Chapters 7 and 8). Paper 6 tests the combined influence of factors on CB through multi-level analysis (Chapter 9).

Due to a wide range of factors identified in the literature, it is impossible to test all POW factors. However, a broad range of POW factors is tested including

psychological factors (e.g., self-esteem, psychological capital, psychological safety climate), organisational factors (e.g., supervision, climate), and work factors (e.g., stress, anxiety, meaningful work). This thesis aims to respond to calls from Anderson et al. (2014) around the need for further extensive research on factors promoting and demoting CB and the future directions of Hon and Lui (2016) and Acar et al. (2019) towards looking at the influence of negative factor in combination with other positive factors towards CB along with other extensive reviews on C&I (Further explained in Paper 1, Chapter 4). The following blueprint maps out which themes are focused on in each of the paper. These will be discussed in further detail in Chapter 2 onwards.

Figure 1.1. Blueprint to Papers in relation to Research Questions



Overall, the thesis seeks to make the following contributions:

- (1) Theoretically, it tests the argument of Hobfoll (2011) around the COR Theory and specifically the *resource caravan* approach regarding resources working in combinations and how their resource caravan passageways potentially benefit the resources nurturance and promotion towards outcomes. The thesis does this using diverse datasets (predominantly New Zealand, but also including data from the United States of America, Pakistan, and United Arab Emirates) and different methodologies (cross-sectional, repeat-measures, and time-lagged data). This is aimed to determine how previously tested factors in isolation can have a collective influence, specifically towards enhancing CB, which aligns with the COR theory.
- (2) The thesis also focuses on the crossover effects (Westman, 2001), which has recently been folded into the COR theory (Hobfoll et al., 2018). It does this by empirically testing the crossover of individual-level resources influencing team-level factors and CB using a multi-level study approach.
- (3) The thesis examines the role of negative factors like stress on CB, given this is a potentially unique factor in understanding the complexity of creativity predictors. This is because the literature suggests more stress, while universally detrimental, might be advantageous to CB (Byron et al., 2010). This thesis examines the role of stress (using two diverse samples), as well as stressor and anxiety (in one sample). Moreover, this thesis examines how these negative factors influence might potentially change when combined with positive factors towards CB and provide clarification around their potential.

The overall contributions are further addressed in detail in Chapter 10, along with the support of findings from each paper.

1.3 Summary

This chapter aimed to highlight the importance of CB and briefly discuss what the broad literature around creativity focuses on – and potentially ignores – and how CB research can be explored further. Following the research background and brief introduction of CB (detailed in Chapter 2), this chapter lays out the thesis approach along with key contributions that this thesis aims to make. Based on the literature and rationale, broad intertwined research questions are proposed which align with a blueprint for the review paper (Paper 1) and empirical papers (Papers 2-6) of the thesis. The key theoretical approaches used in this thesis and how these theories aid in investigating the relationships to answer the research questions posed are covered in Chapter 2.

Chapter 2 focuses on the literature on CB in more detail (Section I). The main theory and other related theories to this chapter and respective papers are discussed in Chapter 2 (Section II) as well. Chapter 3, overviews methodologies and samples used in each of the papers that are detailed through Chapter 4 to Chapter 9. Chapter 10 provides a general discussion and highlights the overall contributions of the thesis along with implications, limitations and future directions.

CHAPTER TWO: LITERATURE REVIEW AND THEORETICAL APPROACHES

This chapter, in section I, overviews literature on creativity and innovation, and their predictors, findings and contribution from previous researchers as well as few gaps indicated in the literature around predictors of creativity and innovation. This chapter also discusses, in section II, the theoretical approach used to explore the influence of predictors on C&I as outcomes.

The strategy to find literature for this thesis was to conduct a search using databases that include Scopus, Business Source Complete and ProQuest. Keywords based search was applied to titles and abstracts. The search mainly looked for studies that included creativity and innovation as outcomes. The initial search in addition to Anderson et al. (2014) review helped establish key terms for predictors (e.g., psychological, personality, traits, culture, climate, support, etc.) and that expanded the search but also provided a focus. Literature, including reviews from before Anderson et al. (2014) were also considered (included and explained in Paper 1, Chapter 4). As the thesis progressed, new literature was included where applicable in the thesis literature chapter as well as individual papers and around methodology and theoretical approaches.

2.1 Section I: Literature Review

2.1.1 Creativity Behaviour

Creativity behaviour (CB) is defined as the use of individual resources, potentially influenced by external factors, to innovate, make decisions and take control of tasks that help improve organisational processes and produce favourable outcomes (Anderson et al., 2014; Tongchaiprasit & Ariyabuddhiphongs, 2016). It is essentially when employees “produce novel, potentially useful ideas about organisational products, practices, services or procedures” (Shalley, Zhou, & Oldham, 2004, p. 933).

Generally, creativity is considered the “singularly complex human capacity” to develop creative solutions, ideas and express oneself in a manner that is not only unique but adds value to the surroundings (Abraham, 2016, p. 609). In terms of the research context, creativity essentially serves the promotion and advancement of novel ideas, practices, process, and behaviours that promote favourable outcomes. In the literature different terms are used to refer to creativity outcomes, including creative and innovative performance, creative thinking, and solutions as well as knowledge advancement-oriented outputs (Børing, 2017; Gutierrez-Gutierrez, Barrales-Molina, & Kaynak, 2018; Jaiswal & Dhar, 2017; Manresa, Bikfalvi, & Simon, 2018; Okoe, Boateng, Narteh, & Boakye, 2018; Shin, Jeong, & Bae, 2018). All these terms are mostly defined in similar ways and used interchangeably. Paper 1 (Chapter 4) discusses definitional differences of creativity and innovation (C&I) and their behaviours in the literature and provides an overall integrative definition.

From many decades of research, a large number of predictors of C&I have been explored. These predictors span from individual characteristics to organisational elements. CB can occur as a result of several personal factors that promote or suppress creativity. Knowledge and abilities are considered the main factor to derive individual CB (Amabile, Conti, Coon, Lazenby, & Herron, 1996) and so are brain neural functions (Beaty et al., 2018). The role of genetics and cognitive abilities (Kandler et al., 2016), and thinking styles (Groza, Locander, & Howlett, 2016; Milojevic, Girardello, Zhang, & Jin, 2016; Kandler et al., 2016) have also been found to relate to creativity significantly. Motivation (Grant & Berry, 2011) specifically intrinsic motivation (de Jesus et al., 2013), as well as positive and negative moods also influence creativity (Baas et al., 2008). Recently, gender-dependent adopted strategies and cognitive style have been found supportive towards individual-level creativity (Abraham, 2016).

In addition, mind-wandering and mindfulness have been found influential to creative performance and outcomes (Agnoli, Vanucci, Pelagatti, & Corazza, 2018). Influence of individual characteristics on creativity has also been explored within specific fields such as education. For instance, Choi, Payne, Hart and Brown (2019) assessed the influence of environment and challenges presented to students in order to encourage creative risk-taking, resilience, and self-efficacy that coincides with the career demands in creative industries. As emotions also derive behaviours, Siu and Wong (2016) focused on how teachers can help promote student's creativity by understanding their emotions and behaviours. Similarly, exploring creativity within services industries has found that high attention to details is crucial towards enhancing employee creativity (Sok, Sok, Danaher, & Danaher, 2018). Similarly, thinking styles and knowledge influence creative selling relationships towards sales performance (Groza et al., 2016). Ultimately, a number of personal factors play a role in influencing CB. The influence of psychological factors including individual characteristics and personalities are covered in more detail in Paper 1 (Chapter 4) and tested throughout Papers 2-6 (Chapters 5-9).

Organisational factors such as climate and managerial capabilities, empowerment, leadership, and values also contribute to the development of innovation outcomes (Volberda & Van Den Bosch, 2004) and CB (Basadur, 2004; Raykov, 2014). Leadership and supervision do not only play the role of stimulating employee's creativity (Detert & Burris, 2007) but also manage the bottom-up creativity by incorporating creative inputs of employees into the organisation (Ford & Gioia, 2000; Janssen, 2005). However, though leadership plays an important role in creative outcomes, not all leadership approaches have enhancing effects. For instance, a paper with two-studies on leadership approach to creativity by Sijbom, Janssen, and Van Yperen (2015) found that compared to mastery goal leaders, performance goal leaders were less receptive to subordinates voiced creative ideas and input. Other than supervision and leadership, organisational practices, including

differential learning and training approaches, also promote creativity components (Santos et al., 2018). The influence of a variety of organisational factors is discussed in Paper 1 (Chapter 4), whereas, factors like supervisor's support and climate are tested in Papers 2 and 3 (Chapters 5 and 6).

Extensive research on work design elements suggests that work factors, including job characteristics, satisfaction, role-ambiguity, stressors and other factors influence performance, strain as well as creativity as key outcomes (Parker, Morgeson, & Johns, 2017). Although, as expected, positive work factors are found to enhance creative outcomes, negative work factors such as stressors have also been recently explored to have contradictory results, specifically towards creative outcomes. Empirical findings show that stressors, their responses- stress and strain- have positive (e.g., Ohly & Fritz, 2010), negative (e.g., Ren & Zhang, 2015), and curvilinear effects (Byron et al., 2010; Sacramento, Fay, & West, 2013). For instance, Eldor (2017) focused on organisational politics as one of the stressors and found that engaged employees shared more ideas and collaborated effectively being more proactive, creative and adaptive which begs the exploration on stressors in relation to the supportive elements towards CB. Overall mixed findings on stressors influence towards CB has created difficulties in theory development and thus requires further exploration (Nguyen, Takahashi, & Nham, 2018). The influences of stressors, stress, and strains towards CB is explored using three distinct samples in Papers 4 and 5 (Chapters 7 and 8).

Moreover, predictors of CB are also explored at a team-level. Liou and Lan (2018) explored creativity at the team-level using two samples from different cultures (America and Taiwan) and found that creativity is influenced by team climate and cultural norms. Similarly, Imran, Ilyas, Aslam, and Fatima (2018) found that knowledge-intensive culture enhanced the relationship between knowledge process and employee creativity that further influences organisational performance. Moreover, at the team-level, Kong, Chiu

and Leung (2019) found that members' learning behaviours, learning goal orientations and understanding of creativity influenced their creative self-efficacy, which in turn enhanced creative performance. The influence of individual psychological and team-level factors towards team-level CB have been tested in Paper 6 (Chapter 9).

Though various factors predicting CB have been explored in research on multi-level of analysis (individual, team and organisation), the contextual antecedents influence on CB is still not well explored (Yuan & Woodman, 2010). Similarly, the psychological factors that contribute to individual CB when stressors are present (Korzilius, Bucker, & Beerlage, 2017) require more attention. Extensive research from past decades, patterns and various predictors at the individual, team and organisational levels are covered in Paper 1 (Chapter 4). Using the mapping review approach, Paper 1 identified predictors of C&I from 15 reviews (2014-2019) and categorised them into themes: Psychological, Organisational and Work (POW) factors. While the literature examined CB on individual, team and organisational level, this thesis did not look at the organisational level CB. However, Paper 1 (Chapter 4), did include and acknowledge organisational level CB through a proposed framework for future research.

2.2 Section II: Theoretical Approaches

This thesis considers POW factors spanning from positive to negative in relation to CB and their combined effect at the individual and team levels. In order to understand how factors, promote or demote CB, this thesis uses the Conservation of Resources (COR) Theory as its key theoretical approach (Hobfoll, 2011; Hobfoll et al., 2018). Beyond this key theory, a small number of other theories that are used in papers (where contextually appropriate), and alternative theories are also briefly discussed.

2.2.1 Conservation of Resources (COR) Theory

The COR theory emerged from the research on stress to better understand how external environment elements can affect one's sense of resource gain or resource loss (Hobfoll,

1989). The COR theory asserts that every individual strives to obtain, retain, foster and protect resources, as they value these resources to be crucial for overall success (Hobfoll et al., 2018). The COR theory is built on the understanding that individual “cognitions have an evolutionary-based built-in and powerful bias to overweight resource loss and underweight resource gain” (Hobfoll et al., 2018, p. 104). Thus, the COR theory is a motivational theory that explains human behaviour based on survival, by gaining required resources, preserving current resources and conserving these resources in response to day to day demands.

Hobfoll (2011) defines resources as anything that can help individuals in the process of achievement of goals. Halbesleben, Neveu, Paustian-Underdahl, and Westman (2014) recent review of COR also agree on the definition of resources as any factor that can contribute into the process of goal attainment irrespective of their positive or negative nature. Hence, in this thesis (specifically Paper 1, Chapter 4) under POW, both positive and negative factors are considered as potential resources with regard to promotion of CB. COR theory postulates that the stress occurs when (i) key resources are threatened to be lost, (b) key resources are lost, or (iii) when an individual fails to gain key resources following the loss. COR theory (Hobfoll, 1989) suggests that individuals perceive the environment cues as demands and relate these demands to the resources they have, which if deemed insufficient, causes stress. The assessment of resources and demands encourages individuals to look for better resources or to prevent their resources from depleting in order to meet higher demands from the environment (LePine, Zhang, Crawford, & Rich, 2016). Accordingly, Hobfoll (1989, 2001) notes that individuals seek to gain resources and protect these resources in order to achieve the desired consequences. These resources include autonomy, job-security, and career-security, as well as multiple forms of support, from social-, to supervision-, peer-, and organisational.

2.2.2 Principles of Conservation of Resources Theory

There are four principles of COR theory. The first principle of COR is that the “resource loss is disproportionately more salient than resource gain” (Hobfoll et al., 2018, p. 105). Resources for individuals can include personal resources (e.g., skills, traits), object resources (e.g., tools for work), condition resources (e.g., tenure, employment) and energy resources (e.g., knowledge, money) (Hobfoll et al., 2018). Under this principle, the disproportionate impact of resource loss compared to resource gain asserts that resource loss is not only more powerful compared to resource gain in terms of magnitude that increases over time, but also influences individuals more compared to resource gain (Hobfoll et al., 2018). Hence, the COR theory not only considers the magnitude of the impact but also the momentum of loss. According to Hobfoll et al. (2018), the experience of loss is primary to the human system, and as humans evolve, even small losses compile into failure to survive. Moreover, the attribute of momentum also has an evolutionary basis, as the slow loss of resources might not be noticed and may add up to be a major event (of overall resource loss) and thus the inability to manage demands due to resource depletion that occurred over time.

The second principle of COR theory suggests that individuals must constantly invest in their resources in order to protect these resources from loss (Hobfoll et al., 2018). Moreover, the investment in resources helps sustain current resources that are recovering from loss, and by acquiring new resources, individuals are able to deal with future demands. In this principle it is shown that individuals (a) replace the resources lost, for instance, saving for an unpredictable cost occurred; and (b) use indirect investment in resources in the form of skills and abilities to sustain current resources and gain more resources. For instance, individuals prepare for upcoming business challenges by acquiring new skills or improving existing skills for better potential and achievement maximisation. In this case, when an individual has more confidence and skills (which

represents resources themselves), the potential loss of resources is offset when it does occur.

The third principle of COR theory is paradoxical. Resource gain becomes more important in the context of resources loss (Hobfoll et al., 2018). Hence, when an individual faces events where resource loss is imminent, acquiring more resources gains value beyond the acquired resources. This way, individuals with few resources can have a significant impact on engaging in the gain momentum and strength when they infuse more resources. No other theory than COR theory focuses on this interaction as well as the momentum and strength of the resource loss.

The fourth principle of COR theory is that when individuals lose significant resources and are exhausted, they become defensive and aggressive, that can ultimately become irrational (Hobfoll et al., 2018). This principle suggests that this is a built-in evolutionary strategy where individuals may become defensive, that is to conserve their remaining resources. In the defensive stage, individuals may also seek out new resources that can help in alternative survival as well as strategies that can help sustain in the changing circumstances by using the same amount of resources. This way, when individuals defensively withdraw, it allows them to regroup, seek out help or simply wait for the stressor to pass. On the other hand, the aggressive and irrational responses may also pave the way to new coping strategies and ability to sustain the current resources until there are new resources available that can be gained without further resource loss. Empirically, these principles are not tested separately, and COR is broadly focused (e.g., Montani, Dagenais-Desmarais, Giorgi, & Grégoire, 2018). Hobfoll et al. (2018) also highlight the lack of understanding and exploration of these principles, especially around the fourth principle. Papers 2-6, discuss the applicability of these principles, specifically the fourth principle in Paper 4 (for more details, see Chapters 5-9).

2.2.3 Corollaries of Conservation of Resources Theory

The COR theory also proposes corollaries that, like principles, make specific but multifaceted predictions regarding resource gain and resource loss processes. These corollaries allow individuals to create complex strategies to deal with stressful events and conditions. The first corollary is that the possession and lack of resources suggest the fundamental condition of resilience and vulnerability, respectively (Hobfoll et al., 2018). Linking this to the second and third principle, individuals with greater resources are more able to sustain their resource and are less vulnerable to resource loss as well as able to orchestrate resource gain. For instance, employees with high resources are more likely to achieve higher CB, even in a situation where they face resource loss, such as stress. For more details, see Paper 4, Chapter 7.

The secondary corollary is that resource loss can spiral in nature. While it is already established that resource loss is more powerful compared to resource gain, this also means that as resources are lost, stress occurs along with the further continuous resource loss at each iteration of the stress spiral (Hobfoll et al., 2018). Thus, resource loss begets more losses. This way, during the loss-spiral individuals, have fewer resources to offset resource loss. According to Hobfoll et al. (2018) no other stress theories “propose such detailed predictions that are both testable and valuable in their application” (p.107), and this encourages time-lagged methodologies, as conducted in Paper 5 (for more details see Chapter 8).

The third corollary is that resource gain can also spiral in nature. But as the resource gain is slower in terms of magnitude when compared to resource losses, resource gain tends to be weak and takes more time than resource loss to occur (Hobfoll et al., 2018). As the gain cycle is sluggish, there is some amount of resources lost in order to gain the resources required to deal with the stressful condition. Though resource gain is slow, it is the only option other than escaping, which is not ideal or practical, in an

organisational setting. Resource gains might be sought (undertaken) by individuals to deal with stressful events, to counteract the losses and build resources. Thus, in the case of the high-loss-settings *causing high stress*, the resource-gain-spirals gain saliency as the individual dealing with high-loss-setting is motivated to build a resource gain cycle *to counteract this stress*. The influence of psychological resources, as resource reservoirs for individuals to tap into, in the presence of stressors, strain and stress is looked at in more detail in Papers 4 and 5 (Chapters 7 and 8).

2.2.4 Resource Caravans

COR theory has developed an understanding of how the process of creation and loss of resources takes place. In order to understand this process, the role of environment cannot be ignored as “both the interrelationship between resources and how environments and contexts create fertile or infertile ground for creation, maintenance, and limitation of resources” (Hobfoll et al., 2018, p. 107). This suggests that resources do not work individually but are dependent on their ecological environment and each other. The concept of resources working together in groups is referred to as the resource caravan approach, with Hobfoll (2011) suggesting that resources do not exist individually because resources automatically interact with the environment and have an influence on, or with, or are influenced by, factors around them. It is an extension to the general understanding of resources working individually towards a goal or outcome.

Through the individual resource concept, researchers typically ignore the possibility of how such resources are imparted, promoted, nurtured and frustrated in different contexts and environments and what factors help promote or demote these resources. Furthermore, resources tend to travel with each other as they are consequences of learned adaptation and nurturance. This way, individual personal resources, promoted by supportive environment resources, can collectively help obtain desired outcomes. For

instance, Paper 2 (Chapter 5) found supportive supervision, as organisational resources, can promote and nurture personal resources like self-esteem leading to higher CB.

Hobfoll et al. (2018) highlighted the importance of the resource's development and suppression in an environmental context suggesting that such conditions either "foster and nurture or limit and block resource creation and sustenance" (p. 107). Researchers typically use the COR theory to focus on the individual level (e.g., Monati et al., 2018). But even when individual-level outcomes are focused, such as productivity and stress, we must consider the influence of the environmental factors and work factors on the development of such productivity- and stress-related outcomes. Hence, focusing on individual-level outcomes means reflecting on the organisation and culture settings, facilitation, allowances, and transfer of support and resources that help create, retain and foster further resources. Environmental conditions create either resilience or fragility, ability or inability amongst individuals to be able to use their current resources and acquire more resources as they grow and progress.

2.2.5 The Crossover Model under COR

Crossover defined by Bolger, DeLongis, Kessler, and Wethington (1989) referred to the interpersonal process where psychological stress or strain experienced by one person affects the level of psychological stress or strain in another person in the same social setting. As crossover is the dyadic interindividual transmission of experiences and psychological states, this also operates well under COR theory and the exchange of resources within the *resource caravan* approach. Though the original definition of crossover concentrated on psychological stress and strain, Westman (2001) broadened the definition by including the transmission of positive experiences and states mechanism suggesting that crossover effect is equally applicable to positive and negative factors. Moreover, Westman (2001) extended the interindividual level of analysis of dyads

beyond couples (typically dual-career couples) to include work teams and potentially organisations.

Westman (2001, p. 743) observed that “just as crossover at the workplace can cause a burnout climate in the organisation, we can focus on positive crossover where positive experiences impact the team, the department, and the organisation.” For example, researchers have found a crossover of engagement amongst team members (Bakker, Emmerik, & Euwema, 2006; Bakker, Westman, & Hetty van Emmerik, 2009). Hence, the crossover of resources as essential elements for resource spiral gains under COR theory (Hobfoll et al., 2018) may lead from one individual to their team members and eventually to the organisation to be more engaged (Westman, 2001) or vigorous (Shirom, 2011). Importantly, more recently (Hobfoll et al., 2018), the COR theory has embraced both positive and negative resource crossover to facilitate a more comprehensive approach to understanding resources within and beyond the individual-level.

2.2.6 COR Theory Critiques

Hobfoll (1989) defined resources as objects, states, condition and other things that people value, which leaves the understanding of resources to be vague and treated in a wide variety of ways. The past literature has covered some of these resources such as self-esteem, and social support (Chen, Westman, & Eden 2009) suggesting that nearly anything good can be a resource (Gorgievski, Halbesleben, & Bakker, 2011; Halbesleben & Wheeler, 2015; Thompson & Cooper, 2001). However, this leads to two common criticisms of COR theory. (1) definition of resources: as nearly anything good can be a resource is too broad to be practical (Thompson & Cooper, 2001), and (2) value of resources: that anything that is of value to someone is a resource again makes the focus on resources too general (Gorgievski et al., 2011; Thompson & Cooper, 2001). Hence, it is critically important to COR theory to understand how the value of resources is

determined and how it can be different both within- and between-individuals (Leiblein, 2011; Maritan & Peteraf, 2011; Sirmon, Hitt, Ireland, & Gilbert, 2011).

In their review of COR theory, Halbesleben et al. (2014) discussed these criticisms and made two contributions. First, the resource being of value, suggests that resource must lead to a positive outcome for it to be a resource. Generally, only positive resources are considered to lead to positive outcomes. But it is not accurate since research has found good resources leading to negative outcomes (Halbesleben et al., 2014). For instance, high resources at work associated with engagement can lead to higher work-family conflict (Halbesleben, Harvey, & Bolino, 2009).

The second contribution to these critiques is the suggestion that the original definition of resources focuses on different categories of resources including states, objects, and conditions but identifying and categorising these resources is different from defining these resources in a context (Halbesleben et al., 2014). Thus, there is a possibility that even though these resources are perceived as supportive resources, they may not help in the process of goals attainment (Halbesleben et al., 2014). These aspects around resources defined in terms of goals provide a clearer understanding of situations where for one individual a resource is perceived helpful in the achievement of goals, but an outsider may perceive it otherwise. For instance, individual's engagement in extra-role behaviours at the expense of in-role behaviours in order to achieve outcomes (Halbesleben & Bowler, 2007) may seem ineffective for an outsider. Within the context of CB as an outcome, we might expect individuals to perceive negative factors as resources because such stressful conditions may motivate to exert more effort and gain higher resources to offset the influence of stressful conditions.

Finally, Halbesleben et al. (2014) suggest that most resources may not translate to positive outcomes, but the ability to allocate these resources correctly can help achieve goals. This is especially true as individuals strive to maximise the fit of resources by

correctly allocating these resources in a context. Thus, the fit of resources may change with the changes in the environment and the means by which the goals are attained (Kruglanski et al., 2013). Collectively, the COR theory critiques and contributions change the focus of exploring and understanding resources (a) beyond the (definitional) categorisation of positive and negative resources, and (b) explore the effects (and value) of these positive and negative resources based on context. This leads back to the Hobfoll (1989) description of resources operating and depending on the ecological context. For instance, in one context, a resource might be salient and positive, but in another context, it may be salient and negative (Hobfoll et al., 2018).

2.2.7 COR Theory and Creativity Behaviours

The effects and consequences of stress are not only internal but also external as the social and behavioural sciences research have demonstrated that individual factors can interact with external environment elements (e.g., leadership, climate) and affect individual stress (LePine et al., 2016). This suggests that, with adequate support and intrinsic motivation, individuals can recover from stress and strain caused by the environment and work factors. Hence, employees who perceive greater support from organisational sources might view these as resource additions which under COR theory would mean they engage more in creative behaviours to improve their resources or simply to gain their goals. The COR also suggests that in the face of negative elements and crisis, the individual tends to thrive and do their best to meet higher demands and stress (Principle 2 and 3, Hobfoll et al., 2018). Thus, we might assume that individuals with higher work stress might be more creative at work. However, the research lacks evidence in terms of how higher demands and stress can turn into positive, specifically creative outcomes. Where stress and support are the part of the workplace, findings from this thesis contribute evidence in the COR theory to help understand how work and psychological factors determine CB as an

outcome in reaction to higher demands or stressors. More on how COR approach can be utilised in understanding the C&I is expressed in Paper 1 (Chapter 4).

2.2.8 COR Theory Justification

Multiple theories have been used to explore creativity as an outcome at the individual- or team-level. Some of these theories are discussed and are explored in more detail in Paper 1 (Chapter 4), along with justification as to why looking at POW in relation with CB through the lens of COR theory can be more beneficial.

A further reason to use COR theory to look at the POW relationship towards CB is due to the new focus highlighted by Halbesleben et al. (2014) whereby resources can be beneficial beyond simply being positive factors. Furthermore, concluding the critical review of COR theory, Halbesleben et al. (2014) suggested that there is a need to understand how:

- (a) individuals determine the value of their resources,
- (b) resources fluctuate due to several trajectories that are not explored,
- (c) resource acquisition process takes place, especially when integrated with other theories, and
- (d) diverse research designs should be used to test the COR theory.

Based on these foci and recent refinement of the COR theory (Hobfoll et al., 2018), this thesis tested resource caravan and COR theory integration with crossover effect (Westman, 2001).

The mapping review (Paper 1, Chapter 4) further sheds light on exploring C&I under COR theory due to the lack of theoretical lens when exploring POW factors toward CB. Using the COR resource caravan effect, both positive and negative POW factors are explored towards CB through five empirical studies (Papers 2-6, Chapters 4-9). The first two empirical papers (Papers 2-3, Chapters 5-6) include positive POW factors and test their combined influence through resource caravan effect. Papers 4-5 (Chapters 7-8) also

look at the resource caravan effect through testing the combined influence of factors but also consider the effect of negative factors, specifically job stress (Paper 4, Chapter 7: Two samples) and stressors (work-family conflict) and strains (job anxiety) in Paper 5 (Chapter 8). Paper 5 (Chapter 8) also looks at the crossover effect within individuals, including the influence of stressors (i.e., work-family conflicts) on strain (i.e., anxiety) and CB. Paper 5 (Chapter 8) looks at the crossover of negative factors and how CB can be influenced in this crossover effect. Furthermore, leading from Westman, Shadach, and Keinan (2013) findings on positive crossover having a stronger impact on a group compared to negative crossover, Paper 6 (Chapter 9) tested the crossover of resources from the individual level in terms of psychological resource (i.e., proactive personality) to team-level factors (i.e., trust and cohesion) towards team creativity.

2.2.9 Other Related Theories

The following section provides a brief explanation of related theories that are used in different manuscripts beyond the COR theory.

2.2.9.1 Behavioural Plasticity Theory.

The Behavioural plasticity (BP) theory is included because it is used in the organisational-based self-esteem (OBSE) literature, and I use OBSE as an individual psychological factor towards CB. This specific theory is used to understand how employees react to external stimuli when tested in the presence of OBSE. BP theory is defined as the degree to which employees react to their situations, cues from environment and demands due to environmental factors (Brockner, 1988). In a workplace, the environmental cues span from the leadership approach, co-worker's relationship, support, climate and work structure that can influence the individual behaviours, performances and perception. Individuals OBSE is connected with BP theory as theoretically, individual self-esteem determines how much employees will react to external cues (Pierce & Gardner, 2004). Individuals with low self-esteem (i.e., low OBSE) are more plastic or

reactive to the external cues (Brockner, 1988). This is because they wish to improve their self-esteem and to be of more value to their peers, leaders, workplaces and thus will be more active in identifying such cues (Pierce & Gardner, 2004). Theoretically, BP theory means strong OBSE employees are expected to react less to external cues than weak OBSE employees. However, findings of Paper 2 challenge this theory and suggest that high OBSE interacts with high external stimulus towards CB (for more details see, Chapter 5).

2.2.9.2 Organisational Support Theory.

The Organisational Support Theory (OST) is included to understand the employee's beliefs and reaction to organisational support. Eisenberger, Huntington, Hutchison, and Sowa (1986) define OST as employee's global beliefs regarding the extent to which an organisation or supervisor values their contributions, and they respond accordingly. OST focusses on organisational and supervisor level support, with Rhoades and Eisenberger (2002) noting that with perceived supervisor support, employees "develop general views concerning the degree to which supervisors' value their contributions" (p. 700). In response, employees feel a greater felt obligation and reciprocate with more efforts (Haar & Spell, 2004). Overall, these support perceptions have meta-analytic support that greater support perceptions lead to stronger attitudes and behaviours (Rhoades & Eisenberger, 2002). I have included the OST in Paper 2 to understand the role of perceived supervisor support directly and also combined with psychological factors towards CB (for more details see, Chapter 5).

2.2.10 Alternative Theories

This section highlights alternative theories, (a) Stress-Appraisal theory and (b) Job-Demands Resources (JDR) theory, that have not been used in this thesis. I briefly define these theories and further reason to select COR theory over these.

According to the stress-appraisal theory, what is stressful is what is perceived to be stressful (Lazarus & Folkman, 1984). To better understand the stress-appraisal theory, challenge-hindrance stressors framework (CHF) is proposed (Crawford, LePine, & Rich, 2010). This framework suggests that demands or stressors from the environment are either understood as threats [hindrance] or opportunities [challenge] (Cavanaugh, Boswell, Roehling, & Boudreau, 2000). However, from the workplace perspective, in the work of social justice at workplace, maltreatment, and harassment, stress-appraisal theory, can easily be used as a source of victim-blaming where individuals are expected to adjust their appraisals when they face stressful events. This can lead to treating the cases of maltreatment at work, from a legal point of view, as “frivolous” (Hobfoll et al., 2018). Summarising the stress-appraisal theory classification of stress as appraised stressful is potentially sexist, racist and classist (Hobfoll et al., 2018). It is established that COR theory is important for understanding the role of stress at the workplace and how it influences behaviours in terms of resources, making it essentially opposite to the stress-appraisal theory (Hobfoll, 2001; Hobfoll et al., 2018). Hence, where stress-appraisal theory simply categorises stress based on individual perception, COR theory emphasises the “objectively stressful nature of the events” urging individuals to gain more resources and build a reservoir for times of future need (Hobfoll et al., 2018, p. 104).

The JDR theory is an extension of the job demands-resources model (Bakker & Demerouti, 2007; Demerouti, Bakker, Nachreiner, & Schaufeli, 2001). It is inspired by both job design theories that ignore the influence of stressors and demands, and stress theories that ignore the influence of job resources. In JDR loss or depletion of resources is considered leading to failure and frustration (Bakker, Demerouti, De Boer, & Schaufel, 2003). On the other hand, the COR theory looks beyond the loss of resources, towards (1) how resource loss can be balanced through resource gain (Hobfoll, 1989), (2) how resources work collectively to attain goals under resource caravan (Hobfoll, 2011) and

how negative factors can also prove to be beneficial as resources in a context (Hobfoll et al., 2018). This is why COR theory is used in this thesis to understand the influence of both positive and negative (POW) factors as resources towards CB.

2.3 Summary

This chapter explored and reviewed the research conducted on CB to date. The first section covered CB, its potential predictors, and how it is looked at in the research along with some key future direction that helped design Paper 1 (Chapter 4) and the associated framework. Section two of this chapter detailed the COR theory, its definition, principles, corollaries, and how it has been looked at combined with crossover effect (Westman, 2001). Based on the recent developments on COR (Hobfoll et al., 2018), this section outlined the importance and potential of COR and discussed areas that are explored empirically in Papers 2-6 (Chapters 5-9). This section also discussed some of the critiques associated with the COR theory and justified the use of COR theory for this thesis. Some other related theories that are included in thesis paper and some that are alternative to COR theory are also briefly discussed.

CHAPTER THREE: METHODOLOGY

This chapter overviews the methodologies used in Papers 1-6 (Chapters 4-9), briefly discussing the analysis description and samples. In addition, the overall limitations and potential issues associated with these methodologies (which vary across the papers) is outlined. In-depth detail on each paper methodology is covered in each of the Papers 1-6 (Chapters 4-9). This thesis uses a quantitative approach based on the research strategy around positivism which is characterised by “a conventional model of scientific progress as a cumulative discovery of objective truth” and the belief that “knowledge grows linearly as new data are added to the existing stock of research findings” (Astley 1985, p. 497).

3.1 Rationale for Thesis Design

This is a thesis by manuscripts, with one non-empirical (conceptual) and five empirical papers briefly detailed below. The following points justify the overall research design:

1. The overall focus of this thesis is to examine the influence of POW factors on CB. Thus, the wide range of constructs necessitates a number of empirical studies to enable adequate testing using diverse methodologies, including predictors from each of the POW factors.
2. Building on the research directions identified in Paper 1 (Chapter 4), the empirical papers (Papers 2-6, Chapters 5-9) are designed to focus on a number of POW constructs at a time and test the influence of predictors on CB empirically. In order to do so, multiple methodologies (e.g., cross-sectional, time-lagged and multi-level) are used, and across the empirical studies, both positive and negative factors are tested. I draw specific attention to Paper 4 (Chapter 7), which uses two distinct samples. One of these samples looks at the influence of predictors on CB, whereas the other sample looks at the influence of the same predictors on innovation behaviours (IB). IB is similar to CB as both outcomes share common predictors

and are often used interchangeably in literature (Khessina et al., 2018). The reason to use IB as an outcome is to cross-validate the influence of predictors (POW) on related but distinct dependent variables that are theoretically similar in nature. Similarly, team creativity is also looked at in Paper 6 (Chapter 9), to capture the influence of POW on team level factors and creative outcomes through multi-level analysis.

3. Given the wide array of factors (POW) identified in Paper 1 (Chapter 4), I believe that this design does not suit a single empirical study. This is especially true with a focus on the relationships between positive and negative POW factors towards CB. Given the interest of the literature around the potential for stress to be beneficial towards CB, I decided to conduct two studies to focus purely on the relationship between negative factors such as job stress and anxiety towards CB, as well as exploring the relationships between these negative factors and dependent variables in the presence of positive factors. This is theoretically encouraged under COR theory around the resource caravan pathways.
4. Finally, to extend the understanding of selected POW factors, I also thought it essential to focus on research gaps that advance the tests of sophisticated statistical analyses in empirical studies. Consequently, this thesis has a strong focus on tests of mediation, moderation, and moderated mediation (Hayes, 2018) to enable the examination of boundary conditions. Hayes (2018) defines moderated mediation as “an analytical strategy focused on quantifying the boundary conditions of mechanisms and testing hypotheses about the contingent nature of processes, meaning whether “mediation is moderated”” (p. 2). Boundary conditions provide potential insights into when and why a concept does and does not apply (Bacharach, 1989). For example, the influence of psychological resource on CB

(through work resources) differ by stress (high, low) levels, is explored using two samples in Paper 4 (Chapter 7).

3.2 Methodology Brief for Papers

The following table maps out the methodology in each manuscript. The characteristics of samples, along with in-depth details on methodologies and analysis, are provided in the respective Papers (2-6) methodology section (Chapters 5-9). Moreover, Appendix 4 mentions where each of the empirical papers has been presented at conferences, where helpful reviews were received to develop and improve these papers.

Table 3.1

Methodology details for Manuscripts

Papers	Type	Predictors	Outcomes	Analysis/Description	Sample	Focus
1	Conceptual	POW	C&I	Mapping review (of review)	15 reviews	Years 2014-2019
2	Empirical	PSS (O), OBSE (P), MFW (W); Controls: Hours Worked, Job Repetition, Sector, Tenure.	CB	CFA in SEM. Moderated mediation	Sample 1 n= 505	Cross-sectional
3	Empirical	PSC (P), OBSE (P), Cfi (O); Controls: Age, Hours Worked, Tenure, Gender.	CB	CFA in SEM. Moderated mediation	Sample 2 n=269	Cross-sectional
4	Empirical	PsyCap (P), Job Stress (W), Job Satisfaction; Controls: Hours Worked, Private Sector, Country.	CB, IB	CFA in SEM. Moderated mediation	Sample 2,3 n=269, n=475	Both Cross-sectional
5	Empirical	WFC/FWC (W), PsyCap (P), Job Anxiety (W); Controls: Hours Worked, Age.	CB	CFA in SEM. Moderation	Sample 4 n= 219	Repeat-measure design [2 waves]
6	Empirical	PP (P), Team Trust, Team Cohesion; Controls: Age, Tenure, Gender.	Team Creativity	CFA in SEM. Mediation Moderation cross-over [individual to team]	Sample 5 n= 121 employees in 40 Teams	Time-lagged

Note: P=Psychological, O=Organisational, W=Work, C&I=Creativity & Innovation; CB=Creativity Behaviours, IB=Innovation Behaviours, PSS=Perceived Supervisor Support, OBSE=Organisation-Based-Self-Esteem, PsyCap=Psychological Capital, PP=Proactive Personality, PSC=Psychological Safety Climate, Cfi=Climate for Innovation, WFC/FWC=Work-Family/Family-Work Conflict, MFW=Meaningful Work; SEM= Structural Equation Modelling, CFA= Confirmatory Factor Analysis.

3.3 Constructs and Measures

Papers 1-6 (Chapters 4-9) collectively cover the following set of POW predictors described in the table below. Appendix 1 defines and details source research from where these constructs' measures are originally from and sometimes adapted from. Appendix 3 includes empirical surveys used to collect data for Papers 2-6 (Chapters 5-9). All surveys were administered in English as it is the common mean of reporting in the business in all countries included in samples. All measures used for this thesis are previously validated by researchers and were found reliable across all my studies (i.e., in Papers 2-6). The details on the reliability of each measure are provided in the methodology section of each respective manuscript.

Table 3.2

<i>POW factors and Outcomes</i>			
<u>Psychological</u>	<u>Organisational</u>	<u>Work</u>	<u>Outcomes</u>
OBSE [2,3]; Psychological Capital [4,5]; Psych Safety Climate [3]; Proactive Personality [6]	PSS [2]; Climate Innovation [3] Team-Trust [6] Team-Cohesion [6]	Job Stress [4]; Anxiety [5]; WFC/FWC [5]; MFW [2]; Job Satisfaction [4]	Creativity Behaviours [2,3,4,5]; Innovation Behaviours [4]; Team-Creativity [6]
<i>Note: [] indicates the paper number the specific construct was used in</i>			

3.4 Self-Reported Measures

The measures for CB (Papers 2-3, and 5, Chapters 5-6, and 8), IB (Paper 4, Chapter 7) and team-level creativity (Paper 6, Chapter 9) are all self-reported. Typically, self-reported measures are considered less accurate and less desirable compared to supervisor-level reported outcomes (Podsakoff, MacKenzie, Lee, and Podsakoff, 2003). However, in this thesis, all empirical studies used self-reported dependent variables to measure at the individual- and team-level based on arguments by Janssen (2000, 2001). Janssen argued that using self-reported data for outcomes related to creativity and innovation can

be beneficial and desirable for three reasons. First, an individual's own cognitive representations and reports regarding his/her creativity and innovation related capacities and outcomes will be more informative compared to that reported by his/her supervisors. As individuals are more aware of their own abilities, intentional, contextual and historical information that enables them to create and innovate based on their background and work experiences (cf. Jones et al., 1971), self-reported data will be more accurate for CB as an outcome.

Second, the assessment of CB and IB, much like other performance outcomes and subjective performance appraisals, is highly prone to *idiosyncratic interpretations* (Janssen, 2001; Organ & Konovsky, 1989). That means for different supervisors, the rating of the individual(s) creativity performance will be different and vary according to their own experiences and interpretations of the situations and employees. As such, it is argued that regarding creativity, it might be more accurate when measured as self-reported CB (Janssen, 2001, 2000). Finally, supervisors rating individual creative and innovative outcomes may miss genuine employee innovative activities that actually add value into the creative outcomes and instead, supervisors may rate their subordinates CB by focusing on behaviours that capture activities that might have been done by employees intending to impress the supervisor (Organ & Konovsky, 1989) and not in particular towards the creative outcome.

More recently and aligned with this latter argument, Spector (2019) suggested that peers who report behaviours may only be able to observe behaviours in public/work settings and may not be able to spend a great deal of time with the person of interest to properly justify their level of behavioural outcomes. Consequently, while the data is self-reported, this is quite the norm in the literature. In addition, while some data is cross-sectional (Papers 2-4, Chapters 5-7), I did seek to improve the potential cross-sectional

weakness of the data and included time-lagged data and repeat-measure data (two waves) (Papers 5-6, Chapters 7-8) as per suggestions from Podsakoff et al. (2003).

3.5 Samples

The samples for manuscripts have predominantly been collected using panel data from Qualtrics. This allowed me to get larger sample sizes and solid representation of New Zealand employees, along with participants from USA, Dubai and Pakistan. In addition, a broader range of responses across industries and professions also provides additional confidence in findings and generalizability. Qualtrics also allowed anonymity of the respondents, ensuring confidentiality which is important for ethical considerations. Confirmation of Ethics Approval for the studies in this thesis is provided in Appendix 3 along with detailed Survey and Participant Information Sheet. This thesis tested a total of 5 samples through Papers 2-6 (Chapters 5-9), as detailed in Table 3.1 above. Overall samples included participants from different countries, diverse industries and sectors. One sample in Paper 4 (Chapter 7) was made up of an international cohort, including participants from Dubai (UAE), New Zealand, and Pakistan.

The reason to use diverse samples was due to the availability of data during the short timeline for data collection throughout the duration of the degree. International cohort data was collected due to the availability of contacts who helped snowball the surveys in their local markets/ contacts. It is established that C&I are important in every field. Thus, the diverse industries and sectors included in the samples and findings from the analysis provide greater generalizability.

3.6 Limitations

3.6.1 Panel Data Issues

Yang, Zhao, and Dhar (2010) highlighted the potential issues of underreporting with panel data, such as used in this thesis. Respondents tend to underreport their true

behavioural incidence due to the data recording mechanism being complex, tedious, and effortful. However, the use of large samples and a broad range of respondents across many sectors, industries and professions, does provide confidence in the respondents. Furthermore, manuscripts (5 and 6) used time-lagged and repeat-measure samples that are useful in mitigating the effect of potential panel data issues (Yang et al., 2010). Importantly, panel studies are growing in popularity and publications (e.g., Haar, Schmitz, Di Fabio, & Daellenbach, 2019; Ng, Yam, & Aguinis, 2019). Finally, greater confidence in panel data has been shown by a recent meta-analysis by Walter, Seibert, Goering, and O'Boyle (2019), where they found panel data and conventionally sourced data to be comparable and not significantly different.

3.6.2 Common Method Variance

Spector (2006) states “It is quite widely believed that relationships between variables measured with the same method will be inflated due to the action of common method variance (CMV)” (p. 221). Consequently, a limitation of some of the papers in this thesis is that due to the cross-sectional data, there is a potential for CMV. These issues are important because Papers 2-4 (Chapters 5-7) of this thesis utilizes cross-sectional datasets, although Papers 5-6 (Chapters 8-9) use alternative strategies to minimise CMV as suggested by (Podsakoff, et al., 2003). The cross-sectional studies were used to provide quick opportunities to start analysis and writing papers, although I was aware of potential criticisms to the cross-section methodological approach. Remedies that were used to avoid the issue related to CMV included:

1. Evans (1985) conducted Monte Carlo simulations and found that in the presence of significant moderating effects, CMV issues were less likely. Given these all Papers 2-6 (Chapters 5-9) include moderating effects, and the majority find significant moderating effects, this suggests the likelihood of CMV is low.

2. Using higher-level statistical analysis (specifically CFA and SEM) to reduce the potential of CMV (Haar, Russo, Sune, & Ollier-Malaterre, 2014). In this approach, conducting alternative CFAs means that comparative measures could identify when CMV is evident. Thus, strong data analysis of constructs with CFA can provide additional confidence that constructs are distinct from others, which might not occur if CMV is present.
3. There are tests to check for CMV, although I acknowledge these are post-hoc tests. For example, in Paper 3 (Chapter 6), I followed the recommendations of Podsakoff et al. (2003) and undertook the Lindell and Whitney's (2001) procedure. This procedure involves conducting a partial correlation while controlling for constructs unrelated to the relationship studied. In such tests, if the strength of correlations remains unchanged, then there is an indication of no CMV (e.g., Haar & Spell, 2009). Again, these types of tests provide evidence that CMV is not critical.
4. Finally, control variables have also been included in each of the empirical Papers 2-6 (Chapters 5-9), which also provided confidence in the relationship between POW as predictors, and CB and IB as outcome variables to rule out an alternative explanation (Spector, 2019).

In summary, I recognize the potential limitations of CMV, and while my earlier papers were limited by cross-sectional data (typically due to financial constraints), as I progressed through my PhD and had more times to design empirical studies using Podsakoff et al. (2003) and their remedies for CMV I then started to collect data sets using (a) multiple cross-sectional data sets (b) time-lagged, and (c) team datasets. These were then used to test relationships with CB to strengthen the empirical results and confidence in the results and my thesis overall.

3.7 Summary and Outline

This chapter outlined the methodology for the thesis and briefly explained the methodology for Papers 1-6 included in this thesis (Chapters 4-9). This chapter also looked at the samples used in these papers along with limitations in the data set, data analysis, and how these limitations are countered using different methodological techniques. The next six Chapters (4-9) each present an individual paper that investigates the importance of exploring and empirically testing CB using different predictors from within three categories: POW, through diverse methodologies.

CHAPTER FOUR: PAPER 1

Creativity and Innovation Predictors: Themes from the Past, Direction for the Future

Preface

In order to understand the literature on Creativity and Innovation (C&I) and understand future research avenues that can help advance C&I literature, a mapping review was conducted. In doing so, this mapping review laid down the base for the rest of the empirical studies (Papers 2-6, Chapters 5-9), which forms the main focus of this thesis. The aim of this mapping review is to review published reviews (between 2014-2019) that cover the ever-growing literature on C&I, identify positive and negative predictors, categorise them into three main themes: Psychological, Organisational and Work factors (POW), and propose an integrative framework for empirically testing POW using diverse methodologies. Papers 2-6 (Chapters 5-9) are based on this framework. Though broad in nature, this framework allows us to understand that C&I is important for all levels of analysis within an organisation and importantly offers Conservation of Resources (COR) Theory (Hobfoll and colleagues) as a potentially unifying theory.

The draft of this paper was written before the empirical studies began, but the most recent version of that chapter was completed after the empirical studies (Papers 2-6, Chapters 5-9). I have included this paper in the thesis as Paper 1, as it captures the literature and future research outlets for CB, but the final rationale and focus of this paper was developed much later after data collection had been completed.

This paper is under review at *Organizational Psychology Review*. This chapter is the submitted version in APA style.

Abstract

Creativity and innovation (C&I) are interchangeably used terms to describe key organisational processes for competitive advantage. Thus, it is essential to explore the predictors to understand how C&I are advanced at the individual-, team- and organisational-level. This mapping review based on 15 review articles from 2014-2019 categorises C&I predictors throughout the research to establish themes. These themes are Psychological, Organisational and Work (POW) that collectively represent a set of predictors. This review recommends researchers to examine POW factors towards C&I specifically in combination and offers an overarching theoretical lens. Ultimately, an integrative framework is proposed, and this encourages researchers to explore new avenues and advance the literature on C&I using diverse methodologies.

Keywords: creativity; innovation; psychological; organisational; work; review.

4.1 Introduction

Creativity and innovation (C&I) are a key source of competitive advantage (Acar, Taraki, & Knippenberg, 2019). C&I are “complex, multilevel, and emergent phenomena that pan out over time” (Anderson, Potocnik, & Zhou, 2014, p .1298) around which the trend within research has changed over the past few decades. Diverse predictors of C&I have been introduced with varying foci on different levels of analysis: individual, teams, organisational and then at the multi-level of analysis (e.g., Anderson et al., 2014; Van Knippenberg, 2017). However, the literature is criticised for seldom using theories (e.g., Hon & Lui, 2016). Ultimately, a considerable body of research has offered a diverse set of predictors that influence C&I.

The aim of the present mapping review is to capture the vast body of research through published reviews on C&I (2014-2019) and extend the literature by making two key contributions. First, predictors of C&I are revisited and categorised into three broad research themes: Psychological, Organisational and Work (POW). These themes enable researchers to more specifically capture the intent of the literature to determine ways in which C&I can be enhanced. Second, within these themes, the influence of positive and the much less utilised negative predictors of C&I are refocused, and the importance of examining these diverse predictors in combination (including at the multi-level) are clarified.

The present review is organized to look at three main areas. First, the definition for C&I is revisited and a broader definition is provided including a specific focus on C&I behaviours. Second, predictors of C&I are summarized in themes extracted from reviews selected through a research design, detailed in the next section. Key future directions from these reviews are also discussed. Third, due to the fragmented theoretical approaches under which C&I predictors are explored, an established and overarching theory is suggested that will allow researchers to capture the complexity of examining combined

factors influence on C&I. Afterwards, the trends identified through this mapping review leads to an integrative framework and an agenda to advance research, encouraging future empirical testing.

4.1.1 The Present Review: Research Design

Aim: Previous reviews have identified predictors of C&I which span from personality and motivation factors to leadership and organisational culture. For instance, reviews have focused on the body of literature on C&I around organisational culture (McClean, 2005), organisational components like resources, leadership and technology (Smith, Busi, Ball, & Van der Meer, 2008) and psychological perspectives (Klijn & Tomic, 2010). This mapping review focuses on C&I and their behaviours and aims to provide insight extracted from previous reviews around different predictors at different levels (individual, team, and organisational).

We focused on reviews during a specific timeline (2014-2019) following the Anderson et al.'s (2014) review because (a) Anderson et al. (2014) focused on multiple levels of analysis and posed 60 specific research questions under 11 themes. The present review focuses on what has been highlighted since then, as most of the reviews acknowledge and built on the understanding of Anderson et al. (2014). (b) Anderson et al. (2014) provided an understanding of different themes that helped develop the present mapping review. With this approach described as a systematic map to “categorise existing literature from which to commission further reviews and/or primary research by identifying gaps in research literature” (Grant & Booth, 2009, p. 94). Specifically, the present mapping review identifies POW theme factors and future directions of selected review. This mapping review further extends these future directions by proposing an integrative framework that highlights the importance to explore POW influence on C&I through a theoretical lens.

How: An electronic database search was conducted using Scopus, Business Source Complete and ProQuest to collect reviews. Keywords based search was applied to titles and abstracts as well as for predictors (e.g., psychological, personality, traits, culture, climate, support, etc.) and outcomes (e.g., creativity, innovation), but the main search relied on research methodology (e.g., review, literature review, systematic review, meta-review). Thirty initially identified reviews through this search were then screened using the following criteria: (a) C&I are treated as outcomes, (b) predictors of one and/or multi-level of analysis are included (i.e., individual, team/group and organisation). Fifteen included reviews are detailed in Table 4.1. Following sections cover C&I definition derived from these reviews, POW theme factors and future research agenda that will help understand why it is important to continue research in this area.

Table 4.1: Predictors, Themes and Future Research Agenda

Themes	Reviews	Predictors
<u>Psychological</u>	Anderson et al. (2014), Zhou and Hoever (2014), Forgeard and Kaufman (2016), Thurlings et al. (2015), Hon and Lui (2016), Standing et al. (2016), Hero et al. (2017), Said-Metwaly et al. (2017), Van Knippenberg (2017), Thayer et al. (2018), Hughes et al. (2018), Lukas and Stephen (2017)	Individual characteristics: personality and traits; Competence and orientations; Psychological states, self-concepts and thinking styles; Knowledge abilities and skills; Demographics Negative Individual characteristics e.g., memory impairment, fear of failure
<u>Organisational</u>	Anderson et al. (2014), Zhou and Hoever (2014), Forgeard and Kaufman (2016), Thurlings et al. (2015), Hon and Lui (2016), Standing et al. (2016), Said-Metwaly et al. (2017), Van Knippenberg (2017), Thayer et al. (2018), Tian et al. (2018), Hughes et al. (2018), Lukas and Stephen (2017), Shao et al. (2019)	Leadership and supervision; Contextual factors- Organisational and team: supportive climate, settings and social/ relational factors; Culture and external factors Negative leadership styles, contextual constraints, restricting policies, financial constraints and external competition
<u>Work</u>	Anderson et al. (2014), Zhou and Hoever (2014), Thurlings et al. (2015), Hon and Lui (2016), Standing et al. (2016), Forgeard and Kaufman (2016), Acar et al. (2019)	Job characteristics and work elements Positive, negative and both: e.g., complexity, control, autonomy, routinization, rewards, stress, workload, uncertainties
Future Research Agenda		
Combined Factors	Look at the influence of (a) positive POW factors, (b) negative POW factors, and then both in combined: positive-positive, positive-negative, negative-negative.	
Negative Factors	Explore negative factors, widely considered detrimental but nonetheless significant part of the work, influence on C&I in different settings and in combination with positive factors.	
Research Approaches	Look at direct and combined influence of POW factors through (a) mediating and moderating mechanisms, (b) diverse datasets and methodologies, (c) through the lens of COR theory in (d) multi-cultural settings	
Note: all references identified in the reference section with an asterisk. Detailed working Table S1 for reviews is provided in Appendix 2		

4.2 Definitions: Creativity and Innovation and their Behaviours

Creativity refers to the generation of novel and useful ideas, and innovation is defined as both the creation and the implementation of ideas (Shalley & Zhou, 2008; West & Farr, 1990). Both C&I are largely defined based on different models and frameworks throughout the literature (Amabile & Pratt, 2016; Shalley & Zhou, 2008) and there is lack of general agreement between researchers regarding where C&I separate. Anderson et al. (2014) defined C&I combined as “process, outcomes and products of attempts to develop and introduce new and improved ways of doing things” that “can occur at the level of the individual, work team, organisation, or at more than one of these levels combined” and prove beneficial at one or more of these levels (p. 1298). Addressing the issue of the distinction between C&I, Anderson et al. (2014) noted that where creativity represents the generation of ideas, innovation is the idea implementation stage of the same process. Throughout the literature, even though C&I are considered as two distinct stages, they are often treated as interchangeable (Khessina, Goncalo, & Krause, 2018). Similarly, across the reviews noted in Table 4.1, these terms are often used interchangeably, not only in definition but also in the selection of studies included in these reviews focusing on individual- and team-level C&I. For instance, Said-Metwaly, Van den Noortgate and Kyndt (2017) substituted innovation for creativity and Standing et al. (2016) substituted creativity for innovation.

This distinction holds when the literature is examined regarding the behaviours that occur for both C&I. As individuals are the very source of C&I (Li, Li, Guo, Li, & Harris, 2018), it is essential to understand how individual C&I behaviours are influenced. Creativity behaviours are defined as the production of novel and useful ideas (Shimazu, Schaufeli, Kamiyama, & Kawakami, 2015), whereas innovation behaviours are attached to the stages of development, adoption and implementation of new ideas and work methods that “enables an organisation to succeed in a dynamic business environment”

(Yuan & Woodman, 2010; p. 323). Despite distinct definitions of C&I behaviours, a recent review (Thurlings, Evers, & Vermeulen, 2015) collectively referred to these behaviours as innovation behaviours because they share similar predictors. The present review also uses C&I and C&I behaviours interchangeably and defines C&I and their work behaviours as follows. *C&I are separate stages of a continuous process, where creativity and associated behaviours are attached to the stage for the production of novel ideas and, innovation and associated behaviours are related to the stage of idea implementation. C&I and their behaviours can occur at the individual-, team- and organisational-level and can be beneficial for one or more of these levels and promote positive outcomes for organisations.*

4.3 Key Themes in Literature

C&I predictors that have been identified through this review are categorised as POW factors. Given the lack of attention, and recent calls for more inclusion in C&I studies (Acar et al., 2019), we include both positive and negative factors within the POW themes. The reason here is to discuss how much of negative factors have been covered in research alongside widely discussed positive factors that may help shape future research agenda for C&I. These themes, detailed below, have been identified throughout reviews across different disciplines and journals (e.g., psychology, creativity and education, Forgeard & Kaufman, 2016), and industries (e.g., hospitality, Hon & Lui, 2016).

4.3.1 Theme 1. Psychological

Under this theme, we overview the influence of individual factors, including personalities, traits, characteristics, psychological states, knowledge and abilities on C&I.

4.3.1.1 Personality, Traits and Attitudes.

Positive effects of personality such as creative personality traits as well as specific dimensions such as proactive personality on the individual- and team-levels C&I

(Anderson et al., 2014; van Knippenberg, 2017; Zhou & Hoever, 2014) have been noted. Anderson and colleagues' (2014) review on C&I collectively focused on personality and traits factors including studies that focused on big-five personality traits in relation to creativity (e.g., Raja & Johns, 2010). Under big-five personality traits, Thurlings et al. (2015) defined personality as one's own orientation towards work and noted curiosity and openness to be highly influential in promoting C&I behaviours. The influence of traits such as optimism and hope in relation to individual and team creativity is also noted (Zhou & Hoever, 2014). Psychological states such as effects and emotions have also shown to have positive, negative, and in some cases, mixed effects towards C&I (O'Shea, Buckley, & Halbesleben, 2017). For instance, Anderson et al. (2014) noted that emotional ambivalence facilitated C&I (i.e., simultaneous experience of positive and negative moods, Fong, 2006) and the need to differentiate activating versus deactivating mood states (e.g., Baas, De Dreu, & Nijstad, 2008) might be a key to moods enhancing C&I. Other characteristics important to C&I include self-concepts and identities (Anderson et al., 2014), such as concepts of creative self-efficacy (e.g., Tierney & Farmer, 2002), creative role identity (e.g., Farmer, Tierney, & Kung-McIntyre, 2003), and creative personal identity (e.g., Jaussi, Randel, & Dionne, 2007).

The diverse set of attitudes such as challenging attitude and positive beliefs (Thurlings et al., 2015) as well as personal creativity, innovativeness and championing behaviours (Lukes & Stephan, 2017) play an important role in the promotion of C&I behaviours. Attitudes such as satisfaction (e.g., Anderson et al., 2014) and motivation (Hon & Lui, 2016), as well as behaviours, such as engagement (Hero, Lindfors, & Taatila, 2017) organisational citizenship behaviours and occupational commitment (Standing et al., 2016), have all been identified as influential to C&I.

Throughout the selected reviews, we have noted that some areas around specific personality traits and dimensions have not received much attention. For instance, factors

such as psychological empowerment and safety (e.g., Hughes, Lee, Tian, Newman, & Legood, 2018), self-esteem (e.g., Hero et al., 2017; Said-Metwaly et al., 2017), and psychological contract breach (e.g., Anderson et al., 2014) all relate to C&I but have little empirical evidence. Similarly, psychological capital that has shown to promote creative outcomes (e.g., Abbas & Raja, 2015) remains underexplored in the complex and multi-level analysis. An empirical exploration of these psychological factors will help determine their role in enhancing C&I as well as how individual psychological factors collaborate with organisational factors since psychological contract breach, empowerment and safety are related to organisational practices.

Other less explored areas are individual characteristics related to work and social relationships, including behavioural flexibility (Hero et al., 2017) along with attraction to complexity, intuition, emotional variability, perseverance, social poise, tolerance to ambiguity, and high energy (Said-Metwaly et al., 2017), as well as individual differences from teammates in thinking and feeling (Zhou & Hoever, 2014), that have been noted influential to C&I. Individual persistence as a positive stimulus as well as humour and adult playfulness at work (Thurlings et al., 2015) are some of the rarely explored individual characteristics towards C&I. These are some of the promising areas of research as they have the potential to be explored through multi-level analysis. A further empirical exploration of these factors may prove beneficial in creating new avenues of research concerning the role of psychological factors influence on C&I on multi-level analysis and in combination with other factors.

4.3.1.2 Competence and Orientations.

Anderson et al. (2014) noted that individuals might also have, in addition to specific personality traits, different competence and goals orientations that can influence C&I and behaviours. Hero et al. (2017) found support for the role of achievement orientation, which refers to employee's orientations, including learning, mastery and

performance orientations (Anderson et al., 2014; Thurlings et al., 2015). Some individual thinking styles, such as creative thinking, can promote C&I (Hero et al., 2017), but other thinking styles may have different influences at various stages of the C&I process. For instance, intuitive thinking style promoted idea suggestion but not systematic thinking style, whereas both thinking styles were negatively related to the idea implementation stage (e.g., Clegg, Unsworth, Epitropaki, & Parker, 2002). Similarly, individual need for cognition can either stifle C&I through attention-to-detail cognitive styles or enhance C&I through creative and conformist cognitive style (e.g., Miron-Spektor, Erez, & Naveh, 2011).

Individual self-management and leadership capacities (Standing et al., 2016), as well as an understanding of technological tools and facilities (Thurlings et al., 2015), are noted to advance the C&I process. Thurlings et al. (2015) identified an overarching theme of specific competence such as aspects of self-actualization, which triggers work process that encourage the development of new things (e.g., Messman & Mulder, 2011) and ultimately promotes C&I. Finally, Thurlings et al. (2015) also identified rarely explored area of individual's competence in recognizing and seizing opportunities noting that such competence is a boost to confidence in risk-taking (e.g., Borasi & Finnigan, 2010) that along with attraction to complexity is noted to advance C&I (Said-Metwaly et al., 2017). Further exploration of these scarcely tested individual factors that have potential to enhance C&I will allow to understand how individual differences in competence and orientations lead to individual-level C&I, and what role do these differences play in the team context.

4.3.1.3 Knowledge, Abilities and Skills.

Knowledge is considered a key component of C&I (Amabile, 1996), though specific knowledge aspects are rarely tested empirically in workplace studies (Anderson et al., 2014) with Howell and Boies (2004) being an exception. They found strategic and

relational knowledge positively relate to the idea implementation stage of innovation. Thayer, Petruzzelli and McClurg (2018) noted the importance of knowledge, skills, abilities and other attributes (KSAOs) collectively that improve individual C&I as well as how individual KSAOs help operate in teams through social skills components. For instance, communication and cognition (through shared mental models) within teams play a crucial role in sharing and transferring KSAOs as well as ideas to collective C&I benefit (Thayer et al., 2018).

General and emotional intelligence have also been noted to enhance C&I (Forgeard & Kaufman, 2016). The review by Hero et al. (2017) noted creative thinking skills (e.g., ability to generate new ideas and solution) and cognitive skills (e.g., analytical thinking), as well as social skills (e.g., collaborative, networking and communication skills), were found to enhance C&I. Technical skills such as project management (e.g., process, management), content knowledge and making skills (e.g., content knowledge, technical) are similarly beneficial (Hero et al., 2017). Empirically testing the role of KSAOs individually and collectively alongside psychological factors, and in combination with other factors, specifically negative factors will help assess how KSAOs of individual help overcome negative factors and what KSAOs are most beneficial in the team context.

4.3.1.4 Demographics.

Key demographical characteristics (e.g., experience and income, Thurlings et al., 2015) have shown mixed findings towards C&I. Thayer et al. (2018) noted the importance of diversity towards C&I, specifically within the team context. Furthermore, van Knippenberg (2017) noted that job-related diversity (i.e., diversity in functional background, job knowledge-related attributes and educational background) has positive effects, whereas the influence of demographic diversity (i.e., age, gender, ethnicity, tenure) on C&I is inconclusive. However, evidence around diversity influence on the individual- (van Knippenberg, 2017) and team-levels (Thayer et al., 2018; van

Knippenberg, 2017) is limited. Empirical testing of diversity, specifically in a team context, and how diversity interacts with psychological and organisational factors, may help navigate team processes and team-level C&I.

4.3.1.5 Summary.

Overall, the reviews have covered the influence of a plethora of psychological and individual factors towards C&I and align with a recent meta-analysis, such as big-five and creativity (Zare & Flinchbaugh, 2019). From within this psychological theme, some factors have been encouraged to look at in relation to C&I. For instance, Hero et al. (2017) stressed focusing on individual competencies, Said-Metwaly et al. (2017) on individual creative profiles across different contexts, domain and age stages, and Thayer et al. (2018) on individual traits in addition to team characteristics. Importantly, an area highlighted is that while a few studies have explored negative individual characteristics (e.g., brain injuries, memory impairment, neurological issues, Forgeard & Kaufman, 2016) in relation to C&I, there is clearly a need for further examination around negative factors. These reviews, however, do not stress on theorising the influence of psychological factors on C&I. Also, there is lack of evidence and understanding on how psychological factors may influence C&I collectively with organisational and work factors, what is the role of organisational and work factors in promoting and demoting psychological factors and in turn C&I. We suggest that responding to these questions through empirical testing may not only help navigate the role of psychological factors on individual-level but also if it crosses-over to the team- and organisational-levels through multi-level analysis.

4.3.2 Theme 2. Organisational

Organisational factors have been extensively studied as key predictors of C&I and include aspects such as leadership, feedback, support at the individual-level (Lukes & Stephan, 2017; Hughes et al., 2018) and team-level (Thayer et al., 2018). This theme overviews these organisational factors, as discussed in selected reviews.

4.3.2.1 Leadership and Supervision.

Leadership and supervision are extensively considered as essential influences on C&I. Usually, reviews highlight the positive aspects of leadership and supervision towards C&I along with influence, feedback and evaluation processes (e.g., Standing et al., 2016). Forgeard and Kaufman's (2016) review included diverse studies from four disciplines considering the positive influence of leadership styles in addition to other organisational factors on C&I. Examples of positive leadership styles include transformational leadership (Majumdar & Ray, 2011) and inclusive leadership (Carmeli, Reiter-Palmon, & Ziv, 2010). Positive leadership was identified as a key factor towards the individual- and group-level C&I in both the management and hospitality literature (Hon & Lui, 2016). Some reviews have also noted specific leadership styles such as benevolent (Zhou & Hoever, 2014) and creative leadership (Thayer et al., 2018) that were positively related to team and follower C&I. This pattern of positive leadership effects has also been noted through recent meta-analytical findings on specific leadership styles such as transformational leadership (Koh, Lee, & Joshi, 2019) and leader-member exchange towards C&I (Carnevale, Huang, Crede, Harms, & Uhl-Bien, 2017).

However, not all leadership styles are positively related to C&I. For instance, Hughes et al. (2018) noted that there is a negative association between aversive leadership and C&I, with stronger effects than that from positive leadership (e.g., Naseer, Raja, Syed, Donia, & Darr, 2016; Wang, Chiang, Tsai, Lin, & Cheng, 2013). Moreover, Pieterse, Van Knippenberg, Schippers and Stam (2010) found transactional leadership had a significant negative association with C&I when examined alongside transformational leadership, highlighting the need to further explore specific leadership styles and C&I as noted by Anderson et al. (2014) and Hughes et al. (2018).

Finally, Anderson et al. (2014) noted the influence of positive and negative supervision, including supervisory benevolence (Wang & Cheng, 2010) and abusive

supervision (Liu, Liao, & Loi, 2012). Specific leadership styles have also been noted as potential moderators. For instance, transformational leadership moderating the relationship between employee's team identification and creativity (Hirst, Van Dick, & Van Knippenberg, 2009). Though both positive and negative aspects of leadership/supervision have been explored influencing C&I either directly or indirectly, these studies are limited and far from conclusive.

4.3.2.2 Contextual: Climate, Settings and Social.

Organisational climate and workplace settings including teams, environment, support, availability of resources and management practices, that are important to be considered since individuals interaction with their environment can help determine how these factors play a role in the promotion or inhibition of C&I (Said-Metwaly et al., 2017). Specifically, a supportive climate for innovation has been linked to C&I (Hughes et al., 2018). Within the organisational environment, effective communication at the individual-, leader-, manager- and team-level is important towards C&I (Standing et al., 2016). Beyond communication, factors of social networking (e.g., Anderson et al., 2014), and work relationships (e.g., Hon & Lui, 2016) have also been identified beneficial for both individuals and teams C&I.

Van Knippenberg's (2017) review focusing on team-level C&I highlights how individual characteristics (e.g., diversity and different sets of experiences and skills along with knowledge) can integrate into team climate and benefit team-level C&I. Hence, it is important to understand that contextual factors (e.g., support for innovation, creativity, trust within teams and effectiveness of communication, e.g., Standing et al., 2016) can interact with team compositions (including individual teammates characteristics) in contributing to C&I. Team contextual factors, such as team functional composition along with team process and context, have also been found to moderate the influence of

individual creativity on team innovation (e.g., Somech & Drach-Zahavy, 2013). This provides a strong multi-level link whereby individual C&I might build team-level C&I.

4.3.2.3 Culture and External Forces.

Culture can have a crucial influence on how C&I are created, promoted and considered in an organisational environment (Said-Metwaly et al., 2017). Tian, Deng, Zhang and Salmador (2018) discussed the influence and dimensions of culture in significant detail. Amongst dimensions linked to C&I are innovation-oriented culture (e.g., Brettel & Cleven, 2011) and learning culture (e.g., Škerlavaj, Song, & Lee, 2010), which operate through members shared responsibility, knowledge transfer and its facilitation (Tian et al., 2018). Other cultures include clan culture, a friendly place of work, and developmental culture, which promotes risk-taking, that are identified to positively associate C&I. On the contrary, hierarchal culture, which asserts internal control, is noted to limit C&I (Tian et al., 2018). Rational/market culture that focuses on the role of external forces has been noted to have a mixed influence on C&I within the organisation (Tian et al., 2018). Though these specific organisational cultures have not been extensively explored (Tian et al., 2018), the review by Shao, Zhang, Zhou, Gu, and Yuan (2019) identified that individuals from different cultures have distinct implicit and/or explicit conceptions of creativity, highlighting the importance to look at cultural differences as well. For instance, cultural dimensions (e.g., Individualism/Collectivism, Masculinity/Femininity) have the potential to influence C&I within organisations (Tian et al., 2018). Standing et al. (2016) also highlighted some external factors, including financial constraints, inflexible laws and policies (review by Hadfield, 2008). Thus, culture and external factors at the country-level might be valuable to explore. Importantly, these factors have scarce empirical evidence; hence, their role beyond conceptually drawn effects require specific empirical testing.

4.3.2.4 Summary.

Organisational factors have been extensively looked at and found in most cases positively influencing C&I. Some factors (e.g., leadership, climate and culture) have not been extensively explored specifically in combination with factors from psychological and work themes. Importantly, there is potential to look at these positive and negative factors in combination (especially leadership/supervision, such as abusive supervision) but also through mediating and moderating mechanisms. Though some reviews (e.g., Anderson et al., 2014) noted the role of organisational factors as mediating/moderating factors, Hughes et al.'s (2018) review highlighted comprehensive moderating and mediating mechanisms from organisational factors towards C&I.

4.3.3 Theme 3. Work

Under this theme, positive and negative factors associated with work and job characteristics are reviewed. Work factors, accounting for the tasks which are embedded within an individual's work have a substantial influence on their C&I and behaviours (Anderson et al., 2014).

4.3.3.1 Job Characteristics.

Two specific work factors noted in C&I reviews (Anderson et al., 2014; Standing et al., 2016) are (1) job complexity operationalized as five core job characteristics of skill variety, task significance, task identity, autonomy, and feedback (e.g., Shalley, Gilson, & Blum, 2009), and (2) job routinization referred to as repeated execution of behaviours (e.g., Ohly, Sonnentag, & Pluntke, 2006). Hon and Lui's (2016) review on management and hospitality research also noted the similar influence of these work factors towards C&I. Autonomy, referred to as freedom to take the initiative, as one of the characteristics of the job, has been noted positively related to C&I (Standing et al., 2016). Zhou and Hoever's (2014) review on actor-context factors also noted that individuals with multiple

goals and difficult tasks tend to exhibit high C&I when they have the discretion to switch between tasks (e.g., Madjar & Shalley, 2008).

Anderson et al. (2014) argued rewards that are suggested to have both facilitating and hindering effect on C&I (e.g., Zhou & Shalley, 2003) such that rewards can encourage creativity when they have informational value (Eisenberger & Armeli, 1997). Alternatively, rewards become a means to an end, when a reward is expected in return of a task and have negative effects on C&I (Amabile, Hennessey, & Grossman, 1986). Beyond these direct effects, rewards are also looked at in combination with other factors, with Baer, Oldham, and Cummings (2003) finding rewards positively influenced creativity when job complexity was low. Moreover, Hon and Lui's (2016) review proposed that rewards as potential moderators play a crucial role in outcome interdependence, shifting the focus from individual to collective performance. Hence, this shows that previous job characteristics research had highlighted the complex nature of relationships towards C&I, and therefore more complex and multi-level analyses are needed.

4.3.3.2 Constraints.

Anderson et al. (2014) under the theme 'dark side', identified potential predictors that are essentially negative work factors and influenced C&I both in positive and negative ways (e.g., Binnewies & Wörnlein, 2011; Bledow, Rosing, & Frese, 2013). For example, the negative relationship between strain and creativity (e.g., Van Dyne, Jehn, & Cummings, 2002). Other reviews have noted, time pressure and a lack of job control (Zhou & Hoever, 2014), as well as lack of autonomy and workload (Standing et al., 2016) as being detrimental to C&I. Lack of autonomy, task conflict and depression are also noted by Forgeard and Kaufman (2016) as negatively influencing C&I.

Overall, reviews (Zhou & Hoever, 2014; Thurlings et al., 2015) have focused on a handful of negative work factors at a time (e.g., control and pressures) and highlight the complex nature of these factors, and hence, the potential to explore them further. For example, Acar et al.'s (2019) review of C&I noted negative work factors (constraints) in three categories: (1) input, referred to as unavailability of resources (e.g., time, resources), (2) process, as restrictions on application stage (e.g., lack of autonomy) and (3) output, as to how the outcome of the process is assessed (e.g., product design, quality). These all had various links to C&I. That review noted conflicting findings and provided an integrative framework to test these constraints in combination with supportive elements from the organisation. However, these reviews have stressed the need to explore negative factors that promote/demote C&I and, in turn, help decipher what other fruitful outcomes C&I can lead to. A meta-analytical study on stressors and creativity (Byron, Khazanchi, & Nazarian, 2010) also supported the inconclusive relationship between stressors and C&I indicating the possibility for further exploration. Hence, further empirical evidence around negative and positive factors – examined in combination – towards C&I may prove beneficial in widening our understanding.

4.3.3.3 Summary.

Throughout the reviews, the functional and dysfunctional aspect of work predictors of C&I have been identified along with the lack of systematic understanding of negative work factors throughout the C&I process (Acar et al., 2019). While the majority of studies focused on positive work factors and some on negative work factors and C&I relationship, negative work factors have not been brought to the forefront of the literature. We highlight here that the key to testing these negative factors full potential is through combining these negative factors with other positive work factors, as well as with positive and negative factors from the psychological and organisational themes discussed above.

4.4 Theoretical Approaches

Inspired by Anderson et al. (2014), we acknowledge that few theories that have been used in literature to explore C&I. We then focus on how an overarching theory can help advance C&I future research. The first theory we discuss is the *Componential Theory of Organisational Creativity and Innovation*, a widely used theory to develop and understand C&I, defined as “a comprehensive model of the social and psychological components necessary for an individual to produce creative work” (Amabile, 2013, p. 1). This theory suggests that creativity is achieved when individuals with high creative skills, motivation and expertise work in a highly supportive environment. One example is Hirst, Van Knippenberg and Zhou (2009), who used this theory towards team learning and individual creativity as outcomes. The *Theory of Individual Creative Action* suggests that individual creativity is the outcome of joint influence of individual skills, motivation and sensemaking processes as individuals either have the option to be creative or remain monotonous (Ford, 1996). Recently, Unsworth and Clegg (2010) in their attempt to determine what engages individuals into creative actions supported the theory, suggesting that cultural support, motivation, resources and autonomy play a key role in engagement in creative action. A critique of this theory is that it describes a process of effect rather than understanding how these factors lead to C&I.

Theories have also focused on multi-level creativity. One such theory is the *Ambidexterity Theory*, which suggests that individuals, teams and organisations need to repeatedly shift between complementary and even conflicting emotions, cognitions and activities while innovating (Bledow, Frese, Anderson, Erez, & Farr, 2009). Rosing, Frese and Bausch (2011) support this theory through ambidextrous leadership. Focused more on teams, the *Theory of Team Climate for Innovation* suggests four team processes: (1) vision, (2) participative safety, (3) support for innovation, and (4) task orientation, are used to promote team innovation (West, 1990). This theory is widely applied in team

innovation and supported by meta-analytical studies (Hülshager, Anderson, & Salgado, 2009).

Under the *Interactionist Theory of Organisational Creativity*, individual differences in creativity are influenced by diverse organisational context that could inhibit or facilitate creative accomplishments (Woodman, Sawyer, & Griffin, 1993). This interaction theory is used by Mahmood, Uddin, and Fan (2019) towards creative process engagement (a C&I outcome). Focusing on the negative factors, *The Strategic Contingency Power Theory of Creativity* suggests that individual- and group-level uncertainties are a critical link between how creativity is conceptualized at the individual- and group-level, and if individual/groups cope well with uncertainties, they then accrue power in an organisation (Hickson, Hinings, Lee, Schneck, & Pennings, 1971). Recently, Hon and Lui's (2016) review on C&I covered the aspects of power theory suggesting that proposing novel ideas can help deal with internal uncertainties and in turn be more creative.

Though these theories have developed an understanding on C&I and how different personal and contextual factors interact with each other to promote or demote creative outcomes, the combined effect of these factors has not been *theoretically* explained or connected. Furthermore, these theories do not primarily provide understanding on how predictors influence C&I or clarify the process of effect. For example, predictors travel from one level to another (e.g., individuals to their teams) and what factors play a role in this transmission and whether these predictors interact with each other towards C&I and behaviours. Though C&I are explored at different levels, the emphasis is typically at the same level, such as individual- (e.g., the model of individual creative actions) or team-level (e.g., the input-process-output model). As suggested by Anderson et al. (2014), future research needs to adopt an integrative framework in understanding C&I including

more bold multi-level designs. Focusing on this approach, the present review suggests that a more comprehensive theoretical lens is needed.

We suggest the *Conservation of Resource Theory* (COR), to look at POW factors in combination towards C&I and behaviours through multi-level research designs. The COR is a motivational theory suggesting that individuals' behaviours are based on the evolutionary need to acquire, conserve, retain and protect resources (Hobfoll, 1989; Hobfoll, Halbesleben, Neveu, & Westman, 2018). Hobfoll's (2011) definition of resources clarifies that resources can be anything that can help the individual in the process of goal attainment. A recent critical review of COR (Halbesleben, Neveu, Paustian-Underdahl, & Westman, 2014) also agrees on the treatment of resources based on how effective they are, irrespective of their nature being negative or positive, in helping achieve individual goals. This allows individuals to navigate how positive and negative factors/predictors play the role of resources to promote C&I. Recently, COR theory has been used to look at negative effects combined with mindfulness towards innovation behaviours (Montani, Dagenais-Desmarais, Giorgi, & Grégoire, 2018). Resource caravan effect has also been considered in testing the relationship of psychological safety climate combined with organisational-based self-esteem (OBSE) as mediator towards creativity behaviours (Ghafoor & Haar, 2020).

Importantly, the COR theory includes the *resource caravan* approach, which suggests that resources perform well in supportive ecological environments and ultimately lead to outcomes (Hobfoll, 2011). This approach, therefore, can help understand the combined effect of predictors (resources) identified here, namely, the influence of various psychological, organisational and work factors on C&I and related behaviours. Moreover, keeping in mind the need to address the multi-level and cross-level analysis, this review suggests the crossover effects (Westman, 2001) are theoretically integrated and expected. The *crossover effects* folded into COR theory,

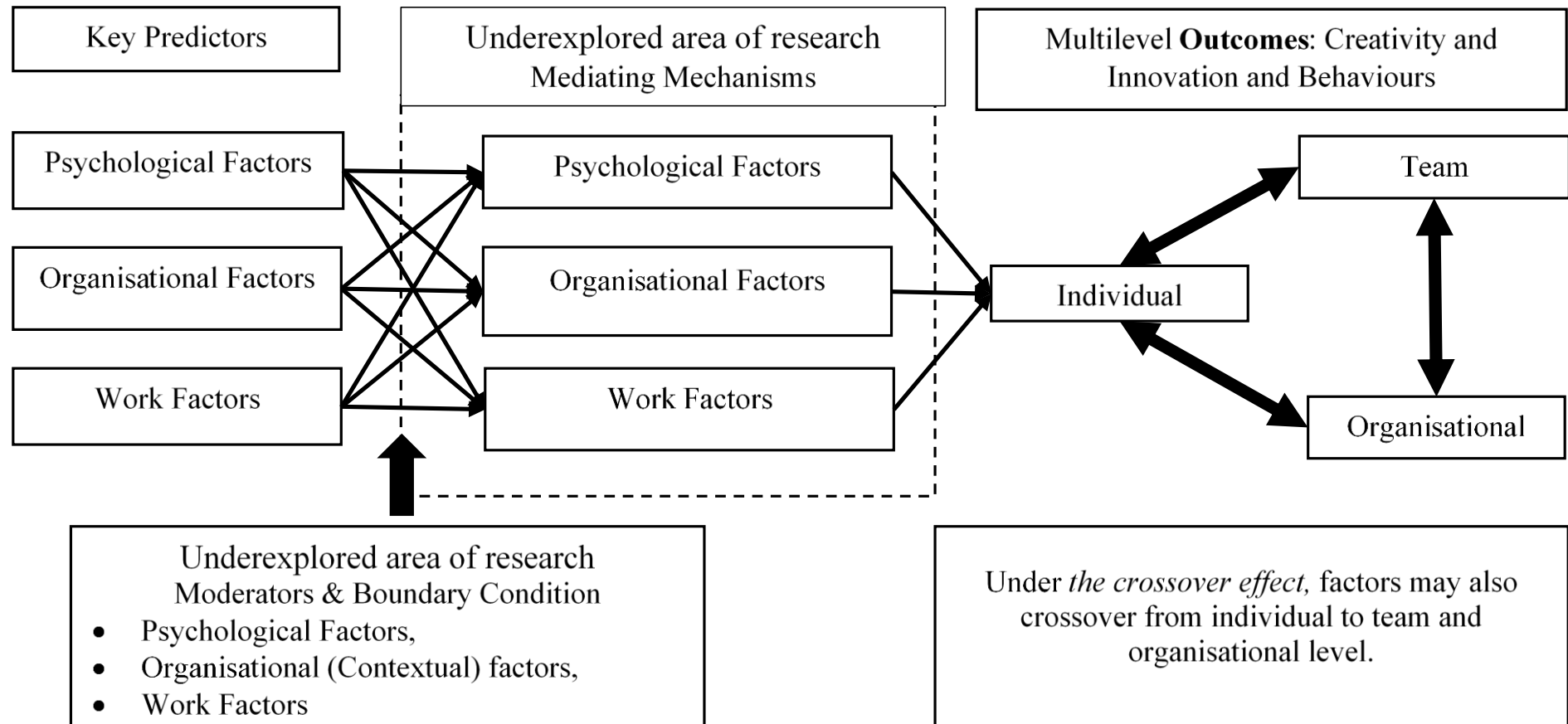
suggest that the spill-over of positive and negative factors (resources) between individuals on the same level can also spill-over to different levels of analysis (e.g., teams) and ultimately influence outcomes (Hobfoll et al., 2018). This makes COR theory a potentially unifying theoretical lens for examining POW combined influence on C&I on multi-levels of analysis. Importantly, the COR theory is able to address some of the limitations from the reviews around testing multiple resources, including positive and negative factors across a broad range of themes (here POW), as well as accounting for multi-level transmission and crossover effects. We suggest that the COR theory would make a useful framework to conduct empirical studies of our identified POW factors.

4.5 Discussion and Future Research Agenda

In the present mapping review, we sought out to arrange and categorise key predictors of C&I into three key themes: POW. This mapping review leads to two realizations. First, even though the factors categorised here as POW have been explored through the lens of various different theories, there is lack of theoretical base regarding how collective resources can play a vital role in advancing C&I and behaviours. Second, as creativity feeds into innovation, we first need to understand creativity and creativity behaviours, specifically at the individual-level, to understand how individual-level factors feed into the team- and eventually organisational-level C&I. Moreover, we are left wondering how both positive and negative factors interact to influence C&I and behaviours at multiple levels.

Through our mapping of 15 existing reviews, we recommend future directions through the lens of COR to extend understanding of these two realizations. Specifically, through the integrative research framework (Figure 4.1) that highlights three key avenues for future research (also indicated in Table 4.1) namely, investigating the combined but complex influence of multiple predictors on C&I, examining negative factors within this combination and utilising research approaches that can capture this complexity.

Figure 4.1. Integrative Framework for Future Research



4.5.1 Combined Factors

Most of the POW predictors of C&I are looked at in isolation (e.g., Leung & Lin, 2018). Throughout the reviews (2014-2019), looking at factors in combination is encouraged as a potential future research direction, and this is especially true using COR theory. Zhou and Hoever (2014) suggested looking at psychological factors combined with contextual factors in diverse work settings, whereas van Knippenberg (2017) suggested looking at psychological factors influence within teams to better understand how individual psychological factors integrated into teams (e.g., van Knippenberg, 2017) and advance C&I. Similarly, as suggested by Standing et al. (2016), the right fit between personality and organisational culture can be the next step in exploring the role of factors within the organisational theme and how they can be combined effectively to gain maximum benefits. We agree with these future directions and acknowledge a few recent attempts in empirically testing the combined influence of factors. For instance, Azim, Fan, Uddin, Jilani, and Begum (2019) and Mahmood et al. (2019), focusing on leadership and employee engagement combined influence.

We further recommend that exploring the combined influence of not only psychological and organisational but also work factors through the lens of COR, resource caravan effect (Hobfoll, 2011) will be beneficial in understanding the roles of diverse predictors as resources. Aligned with resource caravan passageways, exploring the combined effects will also help understand how these factors differ in influence contingent on different contextual settings in which individuals act and interact (Hobfoll et al., 2018). Moreover, with our integrative framework, we extend these future directions by recommending to study the combined effect of POW factors across multi-levels, which we argue can be achieved using COR theory and its resource caravan approach and the now-associated crossover effects (Hobfoll et al., 2018).

4.5.2 Negative Factors

Considering the combined influence of POW on C&I and behaviours, the potential of negative factors from within each theme have not extensively focused on, and thus remains underexplored. Zhou and Hoever (2014) suggested considering the positive and negative aspects of organisational factors towards C&I. Hon and Lui (2016) suggested that negative factors at the individual-level (e.g. job stress and workload), and group-level uncertainties (e.g. lack of cohesion and conflict), may play a role, albeit negative, in influencing individual- and group-level creativity when supportive contextual elements are incorporated. Hence, there is an opportunity to address the underexplored potential of negative factors within POW in relation to C&I.

Moreover, mixed findings attached to the stress and creativity relationship, have highlighted difficulty around theoretical development attached to this relationship (e.g., Nguyen, Takahashi, & Nham, 2018). Using the resource caravan effect, we recommend studying negative factors (e.g., work factors: stress, time-pressure) within POW combined with positive factors (e.g., leadership and climate, Hon & Lui, 2016) and vice versa to gain the right combination of POW to ultimately enhance C&I. As resources can be anything irrespective of their nature under COR (Hobfoll et al., 2018), we also recommend exploring how or whether negative factors may prove beneficial in understanding how resources can be negative in nature yet still help in the attainment of goals and C&I.

4.5.3 Research Approaches

Along with testing the combined influence of both positive and negative factors on multi-level analysis, we recommend using diverse methodologies that can help understand the role of POW in enhancing C&I and behaviours. Inspired by Hughes et al. (2018) comprehensive mediating and moderating mechanisms for both positive and negative leadership, similar approaches could be applied and expanded to include the POW factors

identified here and perhaps using some as potential mediators and moderators in future models. Acar et al. (2019) also provided a comprehensive framework to test negative factors influence through mediating, moderating and boundary conditions. Based on these directions, we suggest that under COR caravan effects, testing mediating influences of negative factors in the presence of high positive factors (e.g., psychological and organisational) and vice versa can be useful to explore.

Moreover, we recommend using moderating effects and boundary conditions that can further help understand how resources in combination work effectively in the presence of boundaries. For instance, in a recent moderated-mediation study using COR, the indirect effect of psychological safety climate on creativity behaviours through OBSE as mediator was found to increase as the climate for innovation got stronger (Ghafoor & Haar, 2020). Similarly, testing boundary conditions with combinations of POW factors, including negative factors towards C&I and behaviours is encouraged. Under COR, exploring boundary conditions with negative factors will provide more insight into the role of negative factors in enhancing C&I, in the presence of other (potentially positive) resources. Moreover, as C&I are a source of success for the organisation, we recommend testing the mediation and boundary condition testing on multi-level analysis.

An important research approach might be exploring such interactions across more than a single level of analysis. Indeed, this approach is theoretically encouraged by COR theory, specifically resource caravan and crossover effects (Hobfoll et al., 2018). In addition to Zhou and Hoever (2014) suggestions to look at the interaction between individual and team context factors towards C&I, our proposed integrative framework highlights the possibility to explore this influence using multi-level analysis under COR theory. For instance, research might consider the crossover effects of individual-level factors (e.g., proactive personality) to team-level factors (e.g., team-cohesion) and then ultimately team-level C&I. The key here is to dissect which combination of resources

lead to higher C&I and behaviours, especially when diverse research methods are used, for instance, time-lagged datasets with multi-level analysis. This will allow how to navigate the over-time combined influence of POW and their crossover to the team- and organisational-level C&I. We encourage researchers to test our integrative framework through the lens of COR theory to develop and test models, specifically using multiple factors, both positive and negative, from each of POW themes.

4.5.4 Limitations

One limitation of the present mapping review is the limited timeframe from which reviews were selected (2014-2019). However, the rationale was to give attention to the latest research trends and insights to build on Anderson et al. (2014). We also acknowledge that there are more factors other than those discussed under POW themes that may have an influence on C&I and behaviours. This review may also be limited in not drawing from any particular discipline or field (e.g., hospitality, Hon & Lui, 2016) although we see the generic approach as having stronger generalisability. Moreover, our integrative framework doesn't incorporate specific POW factors to be tested, allowing parts of this framework to be incorporated in future study designs. While this broad nature may lack some context specific challenges, we believe the integrative framework has the potential to be applied broadly and would welcome testing in different disciplines.

4.5.5 Conclusion

Without a doubt, the range and variety of research advances in C&I are extensive and well established. Contributors to C&I emerge from multiple levels including individual, teams and wider organisational contexts. Our objective in undertaking this mapping review was to categorise the identified predictors of C&I into themes and further extend selected reviews (2014-2019) future research direction by offering three key recommendations, that ultimately shape an integrative framework. Having identified theoretical approaches as a key weakness in the literature, we subsequently proposed

COR as a theoretical approach to test factors in combination and across multi-levels. We recommend future researchers to empirically test the proposed integrative framework through diverse methodologies that will help understand the complex phenomenon of positive and negative factors combined influence extending theoretical and practical understanding.

4.6 References

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CHAPTER FIVE: PAPER 2

Organisational-Based Self Esteem, Meaningful Work, and Creativity Behaviours: A Moderated-Mediation Model with Supervisor Support

Preface

Following the proposed framework from Paper 1 (Chapter 4), this paper empirically tests the combined effect of a selection of POW factors under the COR resource caravan effect. The aim here is to determine the effects of positive factors: organisation-based self-esteem (psychological factor), perceived supervisor support (organisational factor) and meaningful work (work factor), towards CB, including mediation (meaningful work) and thus the effects on each other in a capacity that influences CB overall, and how these factors may interact (perceived supervisor support) with each other. This paper opted for mediation, moderation, and moderated mediation to examine potential boundary conditions and thus a complex relationship between factors whereby indirect effects (through mediation) are conditional on another factor (the moderator). This paper provides support for the resource caravan effect of POW factors towards CB. Other than COR, secondary theories such as Behavioural Plasticity Theory and Organisational Support Theory are also included in the literature section of the paper to better establish the relationship between these diverse factors from different themes (POW) with CB.

This paper is accepted:

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This thesis follows APA style, and that is why this chapter is formatted in APA style.

Abstract

Creativity behaviours can be fundamental to on-going organisational success, but less is known around effects from the combination of factors. We test organisational-based self-esteem (OBSE) on creativity behaviours and meaningful work as a mediator and perceived supervisor support as a moderator. Under the Conservation of Resource Theory, we expect the combined influence of all these factors will promote creativity behaviours, whereas, under behavioural plasticity theory, we expect the external factor (perceived supervisor support) to be especially advantageous only to employees with low OBSE only. We then test a moderated mediation model to determine a potential boundary condition using a sample of 505 New Zealand employees. We find that OBSE influences creativity behaviours and meaningful work, and that meaningful work is also related to creativity behaviours and fully mediates the influence of OBSE. Further, perceived supervisor support interacts significantly with OBSE towards meaningful work and creativity behaviours, indicating greater outcomes when support and OBSE are high. We also find a significant moderated mediated effect, highlighting the boundary condition whereby the indirect effect of OBSE on creativity behaviours (through meaningful work) increases as support strengthens. Our findings challenge OBSE related theories around the influence of external factor (perceived supervisor support) on OBSE, and we discuss our findings in light of these effects.

Keywords: *creativity behaviour, organisational-based self-esteem, perceived supervisor support, meaningful work, moderated mediation.*

5.1 Introduction

Workforce changes, including global competition and job restructuring, have highlighted the challenge for businesses and the importance of maximising employee creativity (Shalley, Gilson, & Blum, 2009). Due to the changing nature of the business, organisations need creativity to maintain a competitive edge (Ekrot, Rank, & Gemünden, 2016), whether to succeed (Yuan & Woodman, 2010) or survive (Amabile, Conti, Coon, Lazenby, & Herron, 1996). Creativity at work is the development of novel ideas, process, and services (Amabile, 1988), and innovation is the implementation of ideas and process that can be materialised into organisational success (Shalley, Zhou, & Oldham, 2004). Current research has highlighted numerous factors (e.g., Amabile et al., 1996; Shalley et al., 2004; Ghafoor & Haar, 2020) although evidence from New Zealand is scant. Further, the exploration of boundary conditions, whereby factors might attenuate existing relationships (Wayne, Lemmon, Hoobler, Cheung, & Wilson, 2017), is extremely limited.

The present study seeks to provide insights into employee creativity behaviours in the New Zealand context, and uses organisational-based self-esteem (OBSE) as our key focal construct because we understand stronger self-esteem at work is positively linked to work outcomes (Bowling, Eschleman, Wang, Kirkendall, & Alarcon, 2010). We make several theoretical contributions by testing a number of related and interwoven theoretical approaches to understanding employee behaviours, to better comprehend the way personal and work factors can influence creativity behaviours. We also test the interaction between factors to gain a deeper understanding of the process and shed theoretical insights. Finally, by exploring moderated mediation, we provide more understanding of these factors in *combination*, to unveil boundary conditions whereby we can better understand creativity behaviours.

5.2 Theoretical Perspectives

5.2.1 *Conservation of Resource Theory*

Positive organisational attitudes and behaviours can elicit creativity. For instance, individual creativity is influenced by both internal motivation and external support provided by the organisation, teams and peers (Staw, 1995). Recently, research evidence from Chang and Teng (2017) shows that both intrinsic and extrinsic motivators promote individuals to be more creative. Following the work of Hackman and Oldham (1980), suggesting that creativity and innovation are derived by integrating individual traits and work design components, recently research has explored how such components play a role in the development of creative ideas and outcomes. For instance, Anderson, Potočnik and Zhou (2014) highlighted the individual, team and organisational level factors, including values, thinking, self-concepts and leadership as key determinants of creativity. Hence, it is important to consider the influence of these factors which aligns with *Conservation of Resource Theory*, suggesting that individuals gain, retain and conserve their resources to manage stress and demands from the environment, where resources can be anything that adds value to the individual's achievement of goals (Hobfoll, Halbesleben, Neveu, & Westman 2018) or to be creative.

We explore OBSE, as our key resource (a psychological factor) under the conservation of resource theory towards creativity behaviours. Moreover, beyond studying perceived supervisor support as a potential moderator, the influence of OBSE in the presence of an external factor like perceived supervisor support has been identified (Pierce & Gardner, 2004) as triggering special effects, potentially different from the conservation of resource theory. Hence, we rely on *Behavioural Plasticity Theory* as a theory to determine the effect of perceived supervisor support on the relationship between OBSE towards creativity behaviours, and how plasticity towards creativity behaviours translates in the presence of perceived supervisor support. Pierce and Gardner (2004)

suggested that work environment conditions (here, perceived supervisor support) might interact with OBSE due to Behavioural Plasticity Theory, which refers to the extent to which an employee is influenced by external factors (Brockner, 1988). Under this theory, employees are expected to react to external cues differently (Pierce & Gardner, 2004), with low OBSE employees reacting stronger to external factors (e.g., perceived supervisor support) than high OBSE workers. This is because low OBSE workers are behaviourally reactive (plastic), due to being more compliant from external cues (Brockner, 1988), with Pierce and Gardner (2004) stating low OBSE employees “seek out and respond to events in their environment” (p. 595).

Additionally, as creativity is influenced by these factors in combination, the *resource caravan effect* under conservation of resource theory comes in effect, suggesting that resources flourish and grow in supportive ecological environment where they prevail in groups and, hence, provide individuals with more resources to achieve their goals (Hobfoll, 2011; Hobfoll et al., 2018). Beyond this theory, we also utilise *Organisational Support Theory*, which Eisenberger, Huntington, Hutchison, and Sowa (1986) define as employees developing global beliefs regarding the extent to which an organisation or supervisor values their contributions, and they respond accordingly. Hence, perceived supervisor support acts as a support factor under organisational support theory, and this acts as a resource gain under the conservation of resource theory. Specifically, the gain paradox where resource gain becomes important in the face of high demands (Hobfoll et al., 2018). We suggest that employees who receive more support from their supervisors feel greater felt obligation and, thus, reciprocate with stronger creativity behaviours (Haar & Spell, 2004).

5.2.2 Creativity Behaviours and OBSE

Many determinants of creativity behaviours have been explored, with Anderson et al. (2014), highlighting multiple individual-level factors, including traits, thinking styles,

identity, knowledge, abilities, and psychological states. Hackman and Oldham (1980) suggested that creativity can be achieved by mixing the traits of the employee with work design components of the organisation. Traits can include individual personality types (Madjar, Oldham, & Pratt, 2002), knowledge and abilities (Amabile et al., 1996) and motivation (Grant & Berry, 2011). However, the links between self-esteem at work and creativity behaviours are under-explored, despite links between creativity and traits, such as self-esteem (Anderson et al., 2014), and we suggest OBSE deserves greater exploration.

OBSE is defined as “the degree to which organisational members believe that they can satisfy their needs by participating in roles within the context of an organisation” (Pierce, Gardner, Cummings, & Dunham, 1989, p. 625). OBSE is considered the measure of personal assessment and development, meaning how people assess their own abilities and approve or disapprove their own position with their work (Pierce et al., 1989). Haar and Brougham (2016), stating that “research has concluded that OBSE shapes employee attitudes, motivations, and behaviours” (p. 722) and high OBSE, suggests that the employees are valued by the organisation and, thus, become motivated to work harder and more effectively (Pierce et al., 1989).

OBSE is linked with organisational outcomes and employee behaviours (Pierce & Gardner, 2004), including positively linked to job performance and organisation citizenship behaviours (OCBs) (Gardner & Pierce, 1998; Pierce, Gardner, Dunham, & Cummings, 1993; Van Dyne & Pierce, 2004), which are referred to as unrewarded discretionary behaviours that help organisations function properly (Organ, 1988). Overall, there is strong meta-analytic support for OBSE, with Bowling et al. (2010) finding that OBSE yielded stronger relationships with organisational and work outcomes than general self-esteem. Despite this strong performance link, there is a lack of exploration towards creativity behaviours, which we develop next.

Employees with high OBSE have a positive attitude towards their goals and consider themselves an important resource for the organisation, improving their sense of citizenship (Rank, Nelson, Allen, & Xu, 2009). Gardner, Huang, Niu, Pierce and Lee (2015) found a positive link between OBSE and performance, and Haar and Brougham (2016) found positive links between OBSE and OCBs. Combined, these highlighted the links between OBSE and positive work behaviours. Such linkages are expected because high OBSE should lead to greater enthusiasm towards idea generation and creativity related training (Kock, Heising, & Gemünden, 2015), and the generation of creative solutions (Vermunt, van Knippenberg, van Knippenberg, & Blaauw, 2001). This is because higher OBSE employees “reciprocate by making positive, proactive contributions to the organization” (Van Dyne & Pierce, 2004, p. 446). This aligns with *Self-Consistency Theory* (Korman, 1971), where high OBSE employees eagerly “maintain cognitive consistency with their high self-evaluations” (Ferris, Lian, Brown, Pang, & Keeping, 2010, p. 562). Furthermore, aligned with the conservation of resource theory, high OBSE should act as additional individual resources which can promote creativity behaviours and, in combination with perceived supervisor support under the resource caravan effect (Hobfoll, 2011), provide opportunities to gain supplementary resources leading to creative outcomes.

Ultimately, employees with high OBSE are expected to be cognitively creative and develop creative ideas and solutions in order to achieve their targets. This is because, in high OBSE employees, it creates internal motivation and pressure on employee creativity behaviours and means higher self-expectation towards creativity behaviours and performance. Ekrot et al. (2016) explained that employees are encouraged to “behave in concordance with their high self-expectations by producing innovative ideas that are worth being communicated to peers and superiors” (p. 4). High OBSE employees target their goals seriously as they have higher self-identity leading to the urge to have better

results or success (Rank et al., 2009). Combined, we expect high OBSE to positively influence creativity behaviours. Chen and Aryee (2007) noted that creativity behaviours have not been previously examined with OBSE, hypothesising that high OBSE employees “will engage in behavior, possess attitudes, and choose roles that reinforce their positive self-cognition” (p. 228). They found strong support for OBSE positively influencing innovation behaviour, which has subsequently been replicated (Lee & Hyun, 2016), although not in New Zealand. Overall, we expect employees with high OBSE to respond to the trust and esteem placed in them by their organisation by engaging in greater creativity behaviours. We posit the following:

Hypothesis 1. OBSE is positively related to creativity behaviours.

5.2.3 Meaningful Work

Our second factor is meaningful work, defined by Fairlie (2011) as “job and other workplace characteristics that facilitate the attainment or maintenance of one or more dimensions of meaning” (p. 510). Wrzesniewski and Dutton (2001) suggested that employees create meaningful work through job behaviours that improve feelings of purpose and meaning. Hence, being creative and finding meaningful work appear entwined. Meaningful work also aligns with OBSE, with Spreitzer (1995) noting that “meaning is the value of a work goal or purpose, judged in relation to an individual’s own ideals or standards. Meaning involves a fit between the requirements of a work role and beliefs, values, and behaviors” (p. 1443). Meaningful work allows employees to develop a strong sense of dignity, autonomy, and sense of freedom to achieve targets (Yeoman, 2014). In terms of its antecedents, meaningful work is influenced by the goals, perception, and purpose (Fairlie, 2011), as well as fairness, leadership, and worthy work (Lips-Wiersma, Haar, & Wright, 2020). Hence, OBSE is expected to influence meaningful work, although the links towards greater creativity behaviours remain under-explored.

Meaningful work has been positively related to important work outcomes, including satisfaction (Spreitzer, 1995), and motivation and engagement (Lips-Wiersma & Wright, 2012). Overall, there is empirical evidence linking meaningful work to positive work attitudes and behaviours. We expect meaningful work will lead to higher creativity behaviours as employees working on tasks with more meaning are likely to be more motivated and inspired to be more creative. Further, given the motivational alignment between meaningful work and creativity behaviours and the links between OBSE as an individual motivator, we argue that meaningful work will mediate the influence of OBSE on creativity behaviours. We posit the following:

Hypothesis 2. OBSE is positively related to meaningful work.

Hypothesis 3. Meaningful work is positively related to creativity behaviours.

Hypothesis 4. Meaningful work will mediate the influence of OBSE on creativity behaviours.

5.2.4 Perceived Supervisor Support

Organisational support theory focusses either at the organisational or supervisor level, with Rhoades and Eisenberger (2002) noting that with perceived supervisor support, employees “develop general views concerning the degree to which supervisors’ value their contributions” (p. 700). Overall, these support perceptions have meta-analytic support that greater support perceptions lead to stronger attitudes and behaviours (Rhoades & Eisenberger, 2002). We specifically explore perceived supervisor support as a moderator because Zhou and Shalley (2011) highlighted the need to examine interaction effects within creativity behaviours.

We suggest employees may collaborate and develop ideas by sharing and collecting information from others, and specifically their supervisor. Environmental factors can impact and promote individuals to find better solutions (Ekrot et al., 2016) and perceived supervisor support also captures supervisor feedback, with Shanock and

Eisenberger (2006) highlighting that supervisors can provide individualised treatments to subordinates, especially “informal feedback concerning job performance” (p. 689). Haar (2006) noted that employees with higher support perceptions engage in more positive behaviours due to reciprocity (via felt obligations) under organisational support theory. Thus, a supervisor who is especially supportive and helpful is likely to receive greater creativity behaviours from employees due to triggering felt obligations under support theory, and this aligns with empirical support towards performance (e.g., Shanock & Eisenberger, 2006; DeConinck & Johnson, 2009).

Under the conservation of resource theory, we expect the combined effect of perceived supervisor support, OBSE and meaningful work to be fruitful towards creativity behaviours under the resource caravan effect (Hobfoll, 2011). However, under behavioural plasticity theory, we expect a supportive supervisor to inspire greater creativity behaviours when subordinates have *low* OBSE, because such individuals are more reactive to the attention and feedback of the supervisor. Pierce et al (1989) stated that “experiences within an organization will shape OBSE which will also affect organization related behaviors and attitudes” (p. 626), highlighting the importance of including perceived supervisor support in combination with OBSE. Thus, OBSE concentrates on a person’s own interest and beliefs in the context of the organisational role assigned to them. High OBSE employees are more confident in their ability and, thus, are less likely to react to organisational cues. Interactions have been found with OBSE on work and organisational factors, including performance (Hui & Lee, 2000; Pierce et al., 1993), with findings generally showing major change (specifically performance improvements) for low OBSE workers, with little change for high OBSE workers. Consequently, we expect perceived supervisor support to interact with OBSE, enhancing the positive influence more strongly for low OBSE employees only, resulting in higher meaningful work and higher creativity behaviours. We, therefore, posit:

Hypothesis 5. Perceived supervisor support will interact with OBSE towards (a) meaningful work and (b) creativity behaviours, such that high perceived supervisor support will have enhanced outcomes but only for low OBSE employees.

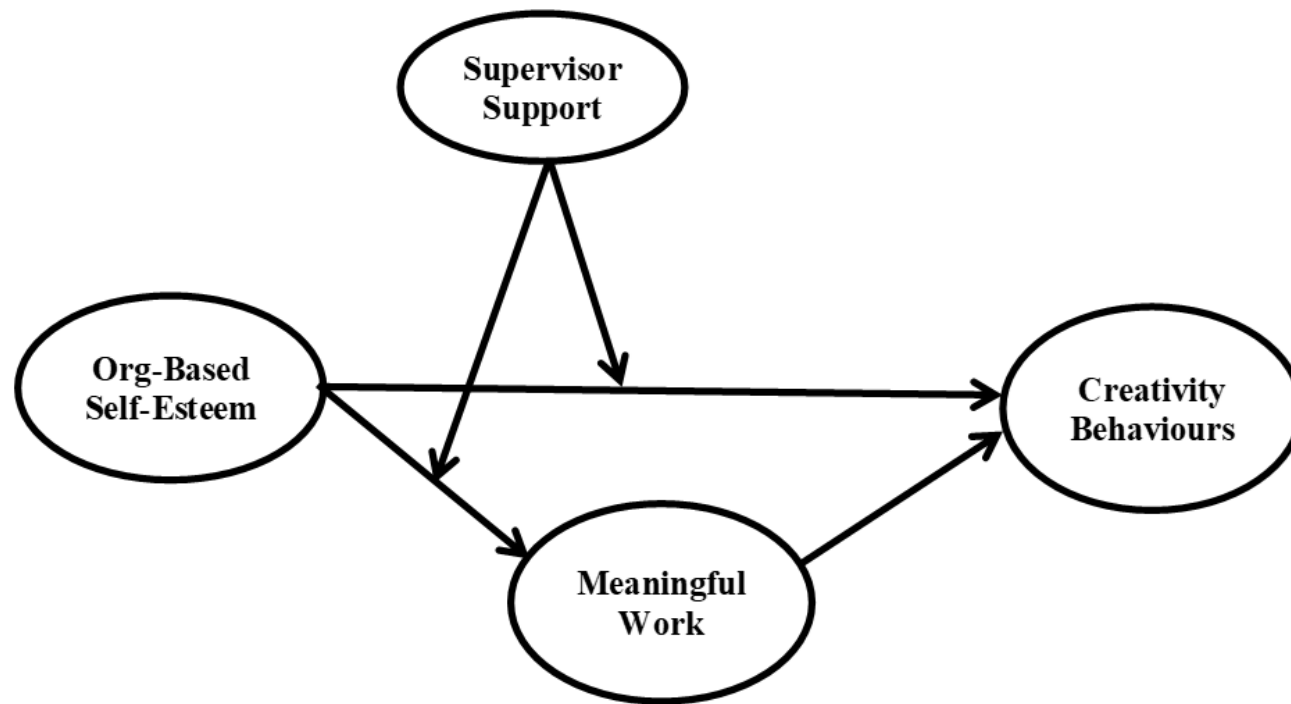
5.2.5 Perceived supervisor support as a Boundary Condition

Finally, we examine perceived supervisor support as a boundary condition whereby it might attenuate relationships. Thus, we explore perceived supervisor support as moderating the indirect effect of OBSE on creativity behaviours through meaningful work, thus testing a moderated mediation effect, which Hayes (2018) defines as “an analytical strategy focused on quantifying the boundary conditions of mechanisms and testing hypotheses about the contingent nature of processes, meaning whether “mediation is moderated” (p. 5). Specifically, the moderated mediation approach can analytically “address whether an indirect effect (mediation) is dependent on another variable (moderation)” (Hayes, 2018, p. 5). Hence, the indirect effect of OBSE on creativity behaviours through meaningful work is expected to differ at various levels of perceived supervisor support. Aligned with behavioural plasticity theory, we expect the indirect effect of OBSE to be most beneficial at low levels of perceived supervisor support, with the indirect effect weakening as perceived supervisor support increases. Thus, we expect perceived supervisor support to act as a boundary condition. This leads to our final hypothesis:

Hypothesis 6: The indirect relationship between OBSE and creativity behaviours via meaningful work is moderated by perceived supervisor support, such that the indirect relationship becomes stronger as perceived supervisor support becomes weaker (moderated mediation).

Our study model is shown in Figure 5.1

Figure 5.1: *Hypothesised Study Model*



5.3 Methods

5.3.1 *Participants and Sample*

A total of 505 participants were recruited in 2017 via a Qualtrics survey panel of New Zealand employees. Respondents had to be working at least 20 hours a week and be aged 18 years and over, in order to ensure enough work experience. Participants are anonymous and confidential, and the system ensures there are no multiple respondents and removes respondents who answer too quick/slow. This methodology has yielded positive samples (e.g., Haar et al., 2018) with data being comparable to other non-panel samples (Ng, Yam, & Aguinis, 2019). A recent meta-analysis by Walter, Seibert, Goering, and O'Boyle (2019) found no significant differences between data sourced conventionally and data from panels like Qualtrics.

Respondents were evenly split by gender (52 per cent women), with an average age of 39.7 years (SD=13.8), and the majority being married (67 per cent). Average tenure was 7.8 years and work hours 39.1 per week. Education was well spread: 23 per cent high school, 30 per cent technical qualification, 33 per cent university degree, and 14 per cent postgraduate qualification in education. By sector, the majority were from the private sector (73 per cent), followed by the public sector (21 per cent) and not-for-profit sector (six per cent). Statistics New Zealand (2015) reports, from the 2013 Census, that 79 per cent of the New Zealand population has higher education (greater than high school), which does equate well with our data (77 per cent). However, aligned with other New Zealand studies (e.g., Haar & Brougham, 2016), our sample does have higher university-qualified respondents. Statistics New Zealand (2017) report 51.2 per cent women in the workforce compared to men, and this also equates well with our sample (52 per cent).

5.3.2 *Measures*

Creativity behaviours were measured with the three-items by Shimazu, Schaufeli, Kamiyama, and Kawakami (2015), coded 1=not at all characteristic of me, 5=very

characteristic of me. A sample item is “I am a good source of creative work ideas” ($\alpha = .86$).

Perceived supervisor support was measured using three items from Eisenberger, Stinglhamber, Vandenberghe, Sucharski, and Rhoades (2002), coded 1=strongly disagree, 5=strongly agree. A sample item is “my supervisor is willing to extend themselves in order to help me perform my job to the best of my ability” ($\alpha = .88$).

OBSE was measured using items by Pierce et al. (1989), coded 1=strongly disagree, 5=strongly agree, using the 5-item short measure (Scott, Shaw, & Duffy, 2008). A sample item is “I am trusted around here” ($\alpha = .92$).

Meaningful work was measured using the three-item construct by Spreitzer (1995), coded 1=strongly disagree, 5= strongly agree. A sample item is “The work I do on this job is meaningful to me” ($\alpha = .95$).

We control for a range of factors likely to influence creativity beyond our main factors that are likely to be a necessary work condition, including Hours Worked (total/week) as Amabile, Hadley, and Kramer (2002) note that hours worked can be related to creativity and Job Repetition, from Brougham and Haar (2017), coded 1=strongly disagree, 5=strongly agree, sample item is “My work is highly repetitive”. We argue that high repetition jobs will be negatively related to creativity behaviours. Finally, we controlled for Private Sector (1=private sector, 0=non-private sector), due to underperformance in the sector (Robertson & Seneviratne, 1995) and Tenure (years), due to meta-analysis around its links to positive innovation behaviours (Ng & Feldman, 2013).

5.3.3 Measurement Models

We conducted a CFA in AMOS version 25, following Williams, Vandenberg, and Edwards (2009) goodness-of-fit indices and thresholds: (1) the comparative fit index (CFI $\geq .95$), (2) the root-mean-square error of approximation (RMSEA $\leq .08$), and (3) the

standardised root mean residual ($\text{SRMR} \leq .10$). The hypothesised measurement model and two alternative models are shown in Table 5.1.

Overall, the hypothesised measurement model was the best fit for the data, with alternative measurement constructs resulting in poorer fit (Hair, Black, Babin, & Anderson, 2010).

Table 5.1***Results of Confirmatory Factor Analysis***

Model	Model Fit Indices					Model Differences			
	χ^2	Df	CFI	RMSEA	SRMR	$\Delta\chi^2$	Δdf	p	Details
Model 1	175.2	71	.98	.05	.03				
Model 2	1645.9	74	.71	.21	.13	1470.7	3	.001	Model 1 to 2
Model 3	822.1	74	.86	.14	.11	646.9	3	.001	Model 1 to 3

Model 1= Hypothesized 4-factor model: perceived supervisor support, OBSE, meaningful work and creativity behaviours.

Model 2= Alternative 3-factor model: perceived supervisor support, OBSE and meaningful work combined, and creativity behaviours.

Model 3= Alternative 3-factor model: perceived supervisor support, OBSE, and meaningful work and creativity behaviours combined.

5.3.4 Analysis

Hypotheses 1-5 were tested using SEM in IBM AMOS version 25. We tested moderation and, following potential issues of multicollinearity in SEM (Haar, Russo, Sune, & Ollier-Malaterre, 2014), we entered the single-item interaction term (already calculated) into our model to provide the interaction calculation (as per Wayne et al., 2017). We conducted the moderated mediation analysis (Hypothesis 6) in PROCESS 3.4 (in IBM SPSS version 25) per Hayes (2018), at the 95 per cent confidence interval and bootstrapping at 5,000, providing an Index of Moderated Mediation (a statistical test of moderated mediation effects). PROCESS is a macron that runs in IBM SPSS and is specifically designed to run complex statistical analyses, including moderation, mediation, and moderated mediation. Calculation of skewness and kurtosis statistics indicated that all our study variables were normally distributed within acceptable limits (Hair et al., 2010).

5.4 Results

Descriptive statistics for the study variables are shown in Table 5.2.

Table 5.2 shows that creativity behaviour is significantly correlated with perceived supervisor support ($r = .15, p < .01$), OBSE ($r = .17, p < .01$), meaningful work ($r = .29, p < .01$), as well as the control variables tenure ($r = .12, p < .05$), hours worked ($r = .12, p < .01$) and job repetition ($r = -.09, p < .05$). Perceived supervisor support is significantly correlated with OBSE ($r = .66, p < .01$) and meaningful work ($r = .31, p < .01$), while OBSE and meaningful work correlate with each other significantly ($r = .37, p < .01$). Finally, tenure correlates significantly with meaningful work ($r = .15, p < .01$).

Table 5.2***Correlations and Descriptive Statistics of Study Variables***

Variables	M	SD	1	2	3	4	5	6	7
1. Tenure	9.0	9.2	--						
2. Hours Worked	38.9	10.0	.07	--					
3. Job Repetition	2.81	1.2	-.23**	-.10*	--				
4. perceived supervisor support	3.5	.89	-.08	-.13**	-.09*	--			
5. OBSE	3.9	.75	-.00	-.07	-.10*	.66**	--		
6. Meaningful Work	3.7	.95	.15**	.03	-.26**	.31**	.37**	--	
7. Creativity Behaviours	3.8	.65	.12**	.12**	-.09*	.15**	.17**	.29**	--

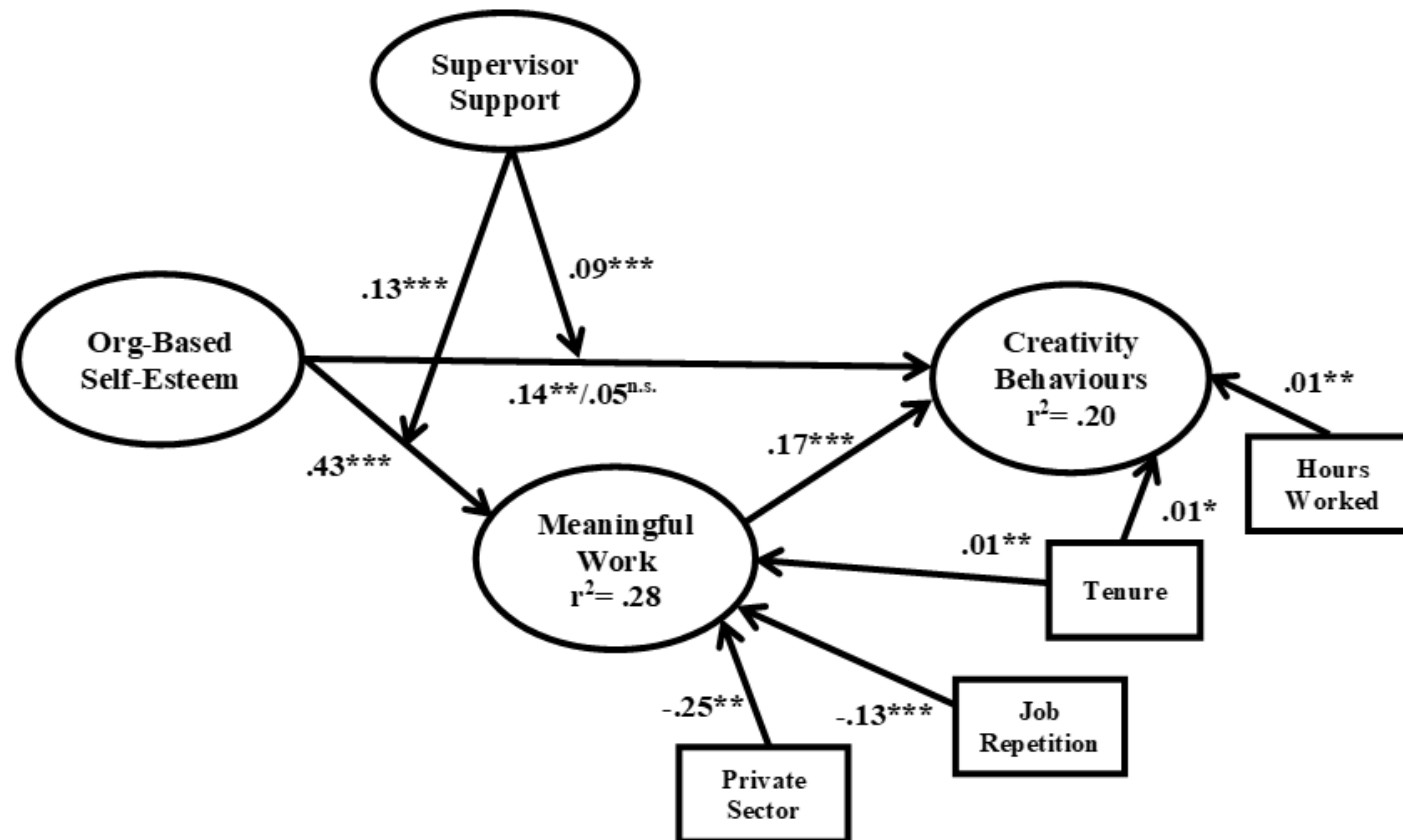
N=505. *p<.05, **p<.01

5.4.1 Structural Models

We tested three models: (1) a direct effects model (OBSE to all outcomes), (2) a full mediation model: OBSE → meaningful work → creativity behaviours and (3) a partial mediation model, where OBSE predicts meaningful work and creativity behaviours and meaningful work predicts creativity behaviours. Overall, the partial mediation (model 3) is superior to the other models (both $p < .001$). We then added the interaction term into the partial mediation model, and that structural model was robust and met minimum goodness-of-fit indexes noted above (Williams et al., 2009): $\chi^2(df) = 262.3 (141)$, CFI=.98, RMSEA=.04, and SRMR=.03.

The path analysis results (unstandardised regression coefficients) are presented in Figure 5.2. Figure 5.2 shows the results of model 2 (partial mediation) as this is the best fit to the data. Figure 5.2 also shows that OBSE is significantly related to creativity behaviours and meaningful work; and when meaningful work predicts creativity behaviours in model 3, it is significant, and fully mediates the influence of OBSE towards creativity behaviours. Overall, these findings provide support for all Hypotheses one to four, including mediating effects of meaningful work. The interaction effects were both supported, with significant interactions between perceived supervisor support and OBSE towards meaningful work and creativity behaviours. Overall, the models account for modest amounts of variance towards creativity behaviours (20 per cent) and meaningful work (28 per cent). The overall variance accounted towards creativity behaviours aligns well with the works of Zacher and Wilden (2014) for innovation behaviours (13 per cent), and Furnham, Batey, Anand and Manfield (2008) for self-rated creativity (17 per cent). We graph the interactions to illustrate the two-way interactions (Figures 5.3 and 5.4).

Figure 5.2: Study Model with Effects



Key: * $p < .05$, ** $p < .01$, *** $p < .001$, n.s.=non-significant.

Figure 5.3. *Interaction of OBSE x Perceived supervisor support (PSS) with Meaningful work as the Dependent Variable.*

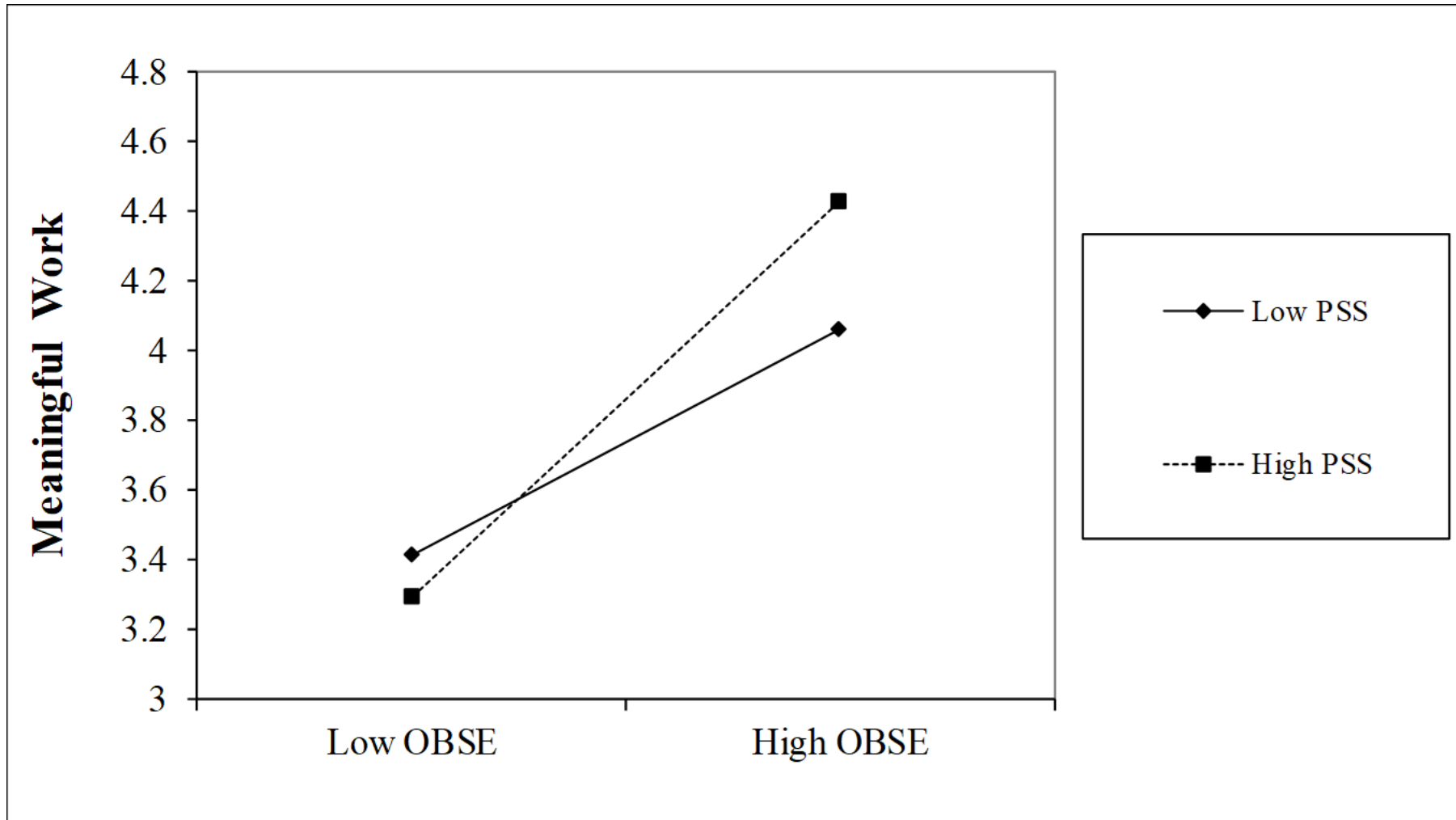
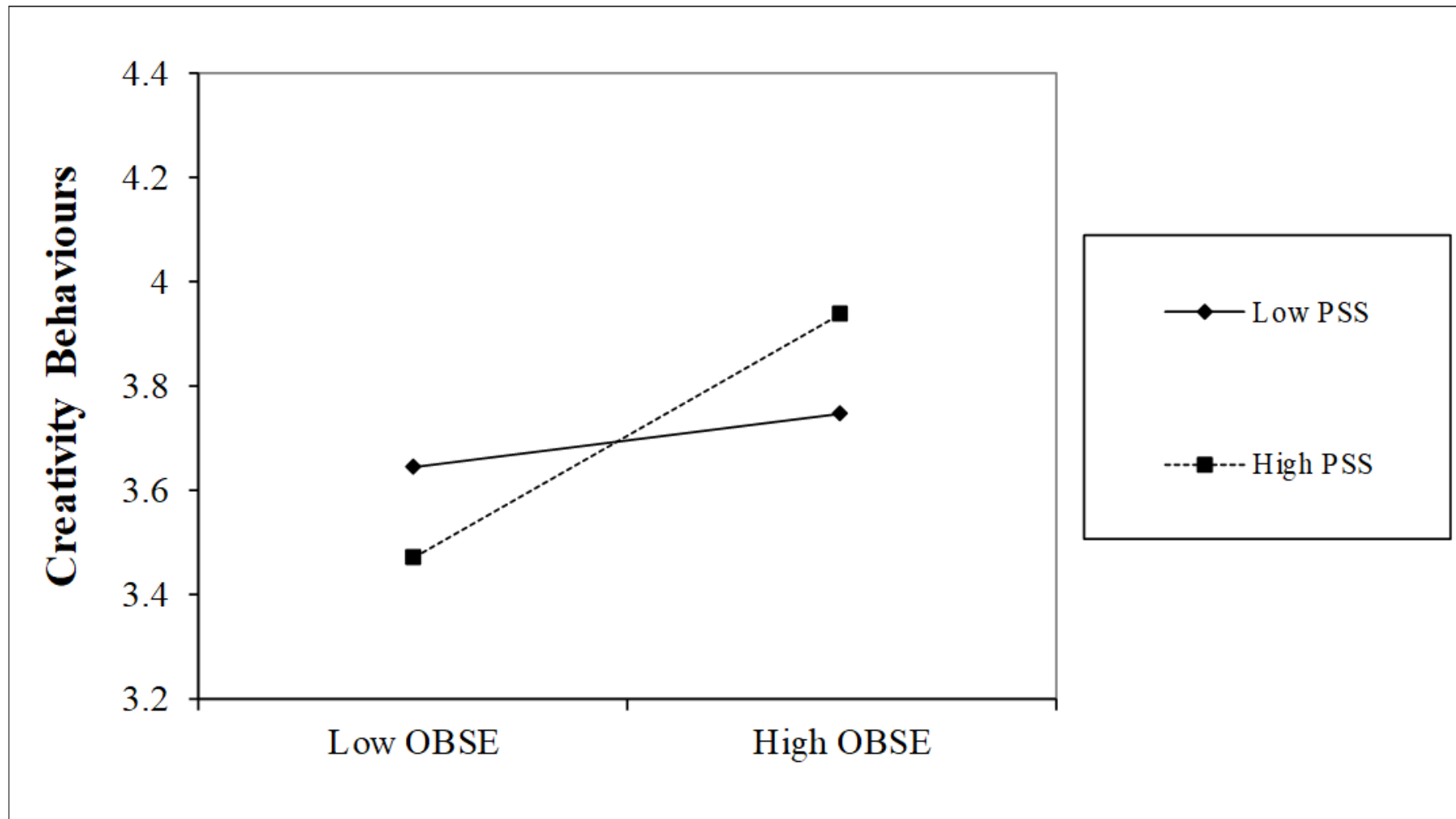


Figure 5.4. *Interaction of OBSE x Perceived supervisor support (PSS) with Creativity Behaviours as the Dependent Variable.*

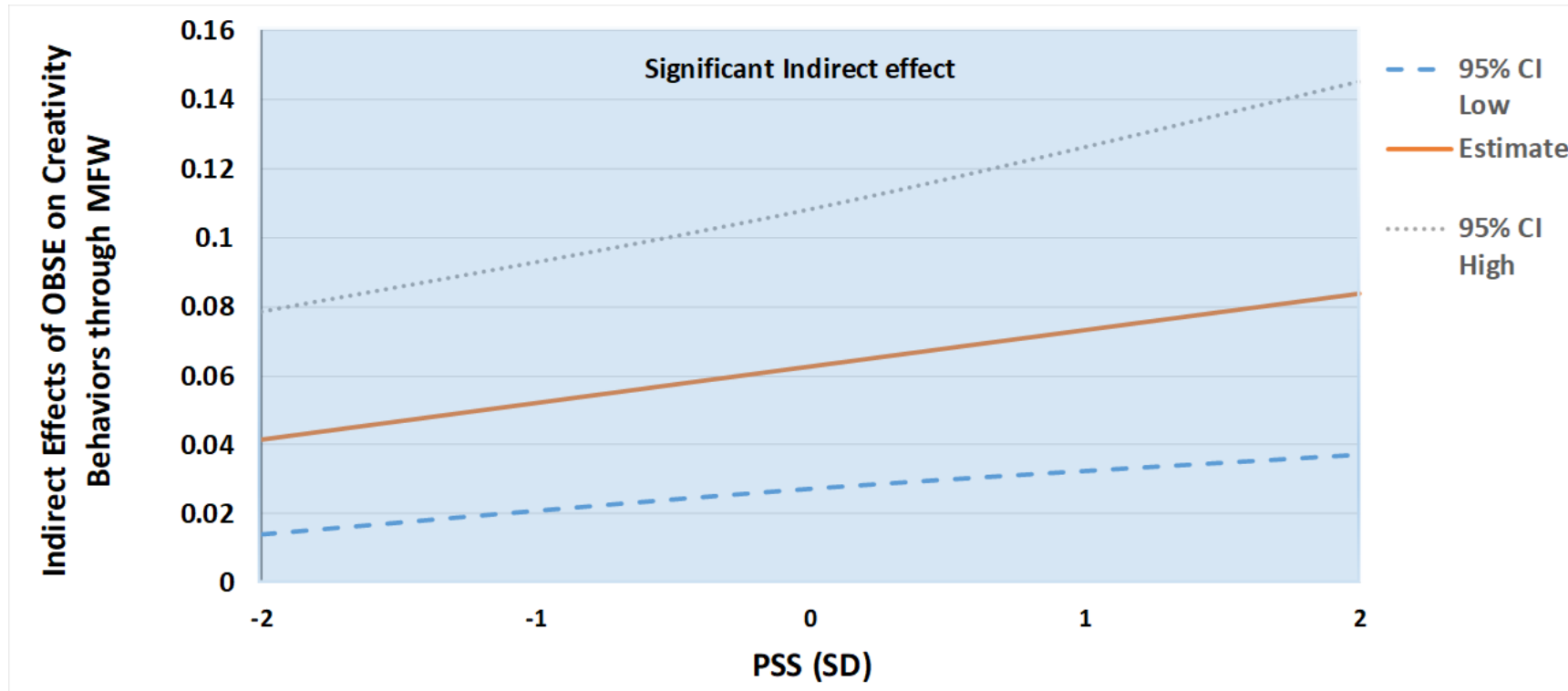


The interactions towards meaningful work (Figure 5.3) and creativity behaviours (Figure 5.4) show similar effects: at low levels of OBSE, those with high perceived supervisor support report higher outcomes (meaningful work and creativity behaviours), albeit at a small level of difference. However, the enhancement benefits of perceived supervisor support are shown at high levels of OBSE, where the highest levels of meaningful work and creativity behaviours are reported. However, these effects are counter to the anticipated behavioural plasticity theory effects, instead showing a more traditional intensification (beneficial) effect. Hence, we find no support for Hypothesis 5.

The results of the index of moderated mediation were found to be significant (Index= .02 (.01), $p = .021$ [LL= .01, UL= .05]). According to Hayes (2018), this is interpreted as the indirect effect of OBSE on creativity behaviours (through meaningful work) differs between respondents' perceived supervisor support. We present the graphed interactions to illustrate these effects in Figure 5.5.

We follow Wayne et al. (2017) to probe the conditional indirect effect by examining the magnitude and significance of the indirect effect of OBSE on creativity behaviours through meaningful work at various levels of perceived supervisor support. Figure 5.4 shows the significant indirect effect of OBSE → meaningful work → creativity behaviours, conditional on the effects of perceived supervisor support (at -2SD, mean, and +2SD). We find, for employees reporting low levels of perceived supervisor support, the effect of OBSE on creativity behaviours, vis-à-vis meaningful work, was significant, positive and small (estimate = .037, $p = .007$; LLCI = .01; ULCI = .08). At the average levels of perceived supervisor support, the effects was significant, positive and stronger (estimate = .057, $p = .002$; LLCI = .02; ULCI = .10), and stronger still at high levels (+2SD) of perceived supervisor support (estimate = .077, $p = .001$; LLCI = .03; ULCI = .14).

Figure 5.5. *Indirect Effects of OBSE on Creativity Behaviours Through Meaningful work (MFW) conditional on Perceived supervisor support (PSS).*



This shows that low levels of perceived supervisor support are associated with a weaker positive indirect effect from OBSE to creativity behaviours through meaningful work compared to those with higher levels of perceived supervisor support. While the indirect effect is significant across the full 95 per cent confidence intervals, it shows that the benefits of perceived supervisor support are stronger and enhanced when perceived supervisor support is higher, which is counter to our argument and does not support Hypothesis 6.

5.5 Discussion

The present study focussed on the resource caravan effect under conservation of resources theory to determine the combined influence of multiple factors to provide a comprehensive approach to understanding employee creativity behaviours. Research to date tends to focus on individual factors – such as personality – but fails to encompass additional factors. We found that OBSE plays an important role in shaping creativity behaviours and, thus, replicated a small number of studies (Chen & Aryee, 2007; Lee & Hyun, 2016) with a New Zealand sample. However, we extended the existing literature by finding that OBSE leads to meaningful work, which, in turn, influences creativity behaviours, and fully mediates the influence of OBSE. These OBSE effects reinforce the findings in the OBSE literature around performance in general (Haar & Brougham, 2016; Gardner et al., 2015), but specifically towards creativity behaviours, and we extended understanding by showing that meaningful work is the key. While researchers have shown that meaningful work is important towards many important employee outcomes (Spreitzer, 1995; Lips-Wiersma & Wright, 2012), our finding towards creativity behaviours also extends this literature.

In addition, the present study explored perceived supervisor support as a moderator of OBSE to better understand the interaction of supervisor support on relationships. This approach was well supported, with perceived supervisor support being

found to play an important role, leading to greater meaningful work and creativity behaviours when OBSE is high. This highlights the importance of perceived supervisor support where employees develop perceptions of how their supervisors' value their contributions (Rhoades & Eisenberger, 2002), and employees reciprocate with greater attitudes and behaviours. These effects replicate the importance of perceived supervisor support on performance (Eisenberger et al., 2002), including moderating effects (Kim, Lee, Park, & Yun, 2015). These significant moderating effects also reinforce Anderson and colleagues' (2014) calls for testing multiple factors; and our findings reinforce the additional benefits that supervisor support might play (Kim et al., 2015). Importantly, these findings highlight the benefits of exploring moderators with OBSE, and here, we find that this leads to greater meaningful work and creativity behaviours.

Despite the positive effects found, our moderating effects do challenge the notion of behavioural plasticity theory (Brockner, 1988), where typical interaction effects of organisational factors with OBSE are expected to be influential on employees with low (but not high) OBSE (Pierce & Gardner, 2004). One explanation for this unexpected effect might be due to using perceived supervisor support as a moderator. It might be that support perceptions under organisational support theory elicits stronger and more affirmative reactions from employees, rather the typical effects under behaviour plasticity theory. Chen and Aryee (2007) suggest that, due to the potential risk-taking with creativity behaviours, there may be a need for greater organisational sponsorship, and that employees with high OBSE "will be more willing to take risks and thereby will engage more in innovative behavior" (p. 229). This might explain why perceived supervisor support positively influences high OBSE, leading to greater creativity behaviours. This explanation might also hold towards the similar positive effect on meaningful work and signifies the importance of the resource caravan effect (Hobfoll, 2011). These effects

warrant further exploration of perceived supervisor support interacting with OBSE, and we encourage researchers to give this more attention.

Finally, our moderated mediation effect indicated that the greatest effect of OBSE are at high levels of perceived supervisor support, although there was still a positive effect at low perceived supervisor support, albeit with a weaker beneficial effect. We find that perceived supervisor support appears to be a key boundary condition for explaining the relationships between OBSE, meaningful work, and creativity behaviours. This boundary condition effect further highlights how powerful the effects of perceived supervisor support are on these relationships and reiterates the value of including perceived supervisor support as a moderator when testing such relationships. The finding suggests that, in combination with high OBSE, greater support perceptions might highlight an intensification effect whereby organisational support theory exerts a greater influence on outcomes than behaviour plasticity theory. It might be that, in some circumstances, the expected effects under behaviour plasticity theory might be challenged and this study provides the first evidence. Further testing of these effects is encouraged.

5.5.1 Implications

The implications for organisations involve highlighting the importance that supervisor support plays in shaping important job attitudes and behaviours, especially for workers with high self-esteem from their work. Hence, providing training for supervisors to make them more focussed and attentive to their workers – and provide constructive feedback – is likely to help trigger idea generation which become pillars of creativity and innovation, and ultimately, organisational performance. Meta-analysis on OBSE literature (Bowling et al., 2010) highlighted the importance of job complexity, autonomy, and leadership, as well as other factors of support and pay. Thus, HR departments need to understand that a broad number of factors can positively shape OBSE and creativity behaviours, and,

therefore, hiring job candidates with high OBSE may not be sufficient – additional workplace factors supporting employees and their creativity is needed.

For researchers, our findings around moderating effects of perceived supervisor support challenge behavioural plasticity theory (Brockner, 1988), where it was expected that employees with low OBSE would react more purposefully to external cues (perceived supervisor support), but this was not supported. Given our findings are counter to the expected effects, we urge researchers to examine support perceptions – both supervisor and at the organisational level (Rhoades & Eisenberger, 2002) – to determine whether these counter effects hold with other forms of support. If so, this might suggest that organisational support theory could triumph the expected effects of behavioural plasticity theory, or at least highlight that different factors might trigger different effects. Importantly, our findings do challenge typical interaction effects found in the OBSE literature (e.g., Pierce et al., 1993) and might highlight the importance of reciprocity, whereby high OBSE employees react more positively to a supportive supervisor. We encourage further replication of these effects and perhaps extensions into support at the organisational-level, to capture global perception of support.

Future research might explore other factors, such as leadership (e.g., ethical leadership) to determine whether its influence on OBSE follows the expected effects under behavioural plasticity and conservation of resource theories. Thus, it might be that it is the immediate supportive nature of leaders – and not some other distinct form of leadership behaviour (e.g., ethical, transformational) – that triggers intensification effects for high OBSE employees. Furthermore, greater exploration of moderated mediation effects is encouraged to provide insights around boundary conditions.

5.5.2 Limitations

Limitations of the present study include cross-sectional data although the use of higher-level statistical analysis (CFA and SEM) minimises the potential of common method

variance (CMV) (Haar et al., 2014). In addition, towards CMV, Evans (1985) asserts that moderation effects are less likely to be found if CMV is an issue, which also alludes to CMV not being an issue. Finally, we acknowledge that the data was gathered via a panel, and while such approaches appear to produce findings that aligns similarly with data from conventional methods (e.g., Ng et al., 2019), some critics (e.g., Yang, Zhao, & Dhar, 2010) have highlighted potential issues with panel data. In response to these issues, we followed the recommendations of Podsakoff, MacKenzie, Lee, and Podsakoff (2003), and undertook the Lindell and Whitney (2001) procedure. This involved conducting a partial correlation while controlling for a construct unrelated to the relationships studied (career planning, 3-items by Gould, 1979, sample item “My career objectives are not clear”, $\alpha = .76$). This analysis showed no change on the strength of correlations, indicating CMV is not likely to be evident (as per Haar & Spell, 2009). Finally, our large sample and broad range of New Zealand respondents across industries and professions does provide confidence in the findings.

5.5.3 Conclusion

The present study contributes to the understanding of how OBSE interacts with perceived supervisor support, and how these factors influence creativity behaviours through meaningful work as a mediator. Given the links between employee creativity and organisational success, we suggest these findings highlight some ways that organisations can encourage greater employee creativity behaviours. Our study also improves understanding of the process of creativity behaviours through finding mediating effects (meaningful work) and moderating effects from perceived supervisor support. The moderated mediation effects further highlighted the value of perceived supervisor support as a boundary condition and highlights the potential complex interplay between factors to achieve superior creativity. Finally, our findings challenge an established theory around the role of external factors on OBSE, which encourages further testing of

interaction effects. Overall, the present study offers insights into how we might understand the process towards realising greater creativity behaviours in organisations by considering a combination of factors.

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CHAPTER SIX: PAPER 3

A Climate and Personality Approach towards Creativity Behaviours: A Moderated Mediation Study

Preface

Through the reviews where C&I are used interchangeably (as covered in Paper 1), there is also ambiguity around predictors that may fall within the category of psychological or organisational factors or both. Such a factor is psychological safety climate, that according to this thesis is posed as a *psychological factor* due to individual perception towards their workspace (climate) being safe. This paper looks at the influence of psychological safety climate towards CB, via organisation-based self-esteem (mediation) in the presence of support element from the organisation. This support element is the climate for innovation (organisational factor) to influence (moderate) the relationship between the psychological safety climate and CB. To test factors under the COR resource caravan effect, moderated mediation effect is tested. The paper finds support for climate for innovation as a boundary condition and provides understanding on the COR resource caravan effect pathways suggesting that resources (psychological factors) nurture and strive in ecological conditions (climate for innovation).

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This chapter is formatted in APA style.

Abstract

Organisations are interested in how to get the best performance out of their workforce, and this study focuses on creativity behaviours. The present study focuses on psychological safety climate, which relates to shared beliefs amongst co-workers regarding the safety for risk-taking in their work teams. We combine this with another organisational factor and a psychological factor towards testing a robust model of employee creativity behaviours. These factors include organisational-based self-esteem (OBSE) as a mediator and climate for innovation as a moderator, and we then examine these in combination (moderated mediation). Using a sample of 269 diverse employees, we find psychological safety climate is positively related to creativity behaviours and OBSE, and OBSE influences creativity behaviours and fully mediates the effect of psychological safety climate. We also find a significant interaction effect, showing that the highest creativity behaviour is registered when there is high psychological safety climate and high climate for innovation. We also find a significant moderated mediation effect whereby the indirect effect of psychological safety climate on creativity behaviours (through OBSE) increases when climate for innovation gets stronger. We discuss the implications for managing people and teams.

Keywords: *Creativity behaviours, psychological safety climate, organisational-based self-esteem, climate for innovation, moderated mediation.*

6.1 Introduction

With increased global market competitiveness and rapid technological changes (Brougham & Haar, 2018), the life-cycle for products and business have significantly shortened, consequently making creativity and innovation essential to modern business survival and success (Golden & Shriner, 2017; Kark, Van Dijk & Vashdi, 2018). Since both managers and employees play a crucial role in sustaining and advancing creative and innovative organisations (Gumusluoglu, Karakitapoğlu-Aygün, & Scandura, 2017; Uhl-Bien & Arena, 2018), it is vital to understand how creativity-related behaviours can be promoted. Since creativity is the development of novel ideas and solution that challenge status quo (Amabile, 1988), leading organisations towards success (Shalley, Zhou, & Oldham, 2004), it is often associated with being a positive outcome. However, Edmondson (2003) argues that sharing risky ideas can come at a cost to individuals such as relatedness losses (e.g., humiliation, loss of support) because novel ideas can pose a challenge to the established ways of doing things at work (Detert & Burris, 2007; Newman, Donohue, & Eva, 2017). Consequently, employees might refrain from sharing new ideas or promoting a process that shapes creative solutions (Detert & Burris, 2007).

Recently, organisational factors such as supportive supervision have been empirically explored towards innovation (Fan, Mahmood, & Uddin, 2019), as have leadership and support for innovation towards the creative engagement process (Mahmood, Uddin, & Fan, 2019). Overall, research on other organisational factors (e.g., climate) that can contribute towards CB are scant, specifically focusing on employee feelings of safety. We explore psychological safety climate (PSC) that has both attributes of organisational factors around support and individual feeling of safety, with Edmondson (1999) defining PSC as “a shared belief held by members of a team that the team is safe for interpersonal risk taking” (p. 350). Hence, PSC relates to a safe work environment where employees are encouraged to share ideas, provide feedback, take risks and

collaborate with others, as a means to reduce individual threats (Edmondson, 1999). PSC allows employees to reduce errors and develop favourable behaviours that ultimately improve the value of the organisation (Leroy et al., 2012).

PSC has been explored towards behavioural outcomes including team-level innovation and is considered a potential work resource that stimulates employee's creativity and helps them grow (Newman et al., 2017). However, there is a lack of empirical exploration at the individual-level towards creativity behaviours (CB). Further, there is a need to include the exploration of additional factors that can enhance creativity, as suggested by Anderson, Potočnik, and Zhou (2014) to understand creativity at different levels and to better understand the combined influence of these factors on creativity (e.g., Amabile, Conti, Coon, Lazenby, & Herron, 1996; Shalley et al., 2004). We do this through exploring organisational-based self-esteem (OBSE) as a mediator, and expect safety climate to build self-esteem, which ultimately influences CB. This approach aligns with Forgeard and Kaufman's (2016) review of creativity and innovation, where they argued there is further need to investigate what factors can promote and understand the nature of these outcomes.

This study aims to address these research gaps and focuses on the research direction provided by a systematic review of the field (Newman et al., 2017), which highlighted the need to explore the influence of PSC towards work outcomes through theoretical understanding that advances empirical research. Our paper makes a number of contributions. First, we utilise the Conservation of Resource (CoR) theory (Hobfoll, 2011) to understand the influence PSC has on CB in combination with organisational and individual resources. Under CoR theory, this study combines the future direction of aforementioned reviews around creativity with the suggestions of Hon and Lui's (2016) review on creativity stressing to focus on organisational factors that promote CB alongside individual factors that aligns our research with the resource caravan

passageway effect (Hobfoll, 2011; Hobfoll, Halbesleben, Neveu & Westman, 2018). Recent research affirms this, with a recent research study finding creative self-efficacy mediated the relationship between leadership and creative outcome (Azim, Fan, Uddin Jilani & Begum, 2019). Second, we advance understandings through empirically testing the mediating effects of, and introducing a new individual factor, specifically OBSE combined with PSC towards CB. Third, following recent studies around the moderating effects of support for innovation on leadership towards creative outcomes (Mahmood et al., 2019), we subsequently test the moderating effect of climate for innovation (CfI) on the effects of PSC on CB. Finally, we contribute to the field by highlighting a boundary condition by empirically testing moderated mediation effects towards CB, which aligns our research with resource caravan passageway effect (Hobfoll et al., 2018).

Combining individual and organisational-level variables, this study aims to assess the applicability of combined resources to enhance understanding of CB. Findings of this study will help leaders and managers understand the importance of these factors in contributing towards CB from a holistic perspective (Amabile & Pratt, 2016). Finally, due to the limited research conducted on employee creativity and innovation in developing and emerging economies where the scores on innovation, entrepreneurship and competitiveness indices are low (Mahmood et al., 2019), this study aims to add empirical evidence by including a sub-set from developing country such as Pakistan in the diverse sample cohort.

6.2 Literature Review

6.2.1 Conservation of Resource Theory (CoR)

CoR focuses on the resource-demand patterns and dictates the importance of retention, conservation, and nurturing of resources that allows individuals to deal with high demands from the work environment (Hobfoll et al., 2018). Within CoR theory, the

application of resource caravan suggests that resources exist in ecological conditions that either foster or nurture these resources or limit them (Hobfoll et al., 2018). CoR highlights the importance of resources working in groups where the possibility of nurturing and gaining resources is higher (Hobfoll, 2011), creating an upward spiral effect (Hobfoll et al., 2018) leading to favourable outcomes. Hence, an employee who has greater co-worker support towards sharing ideas (high PSC) is likely to enjoy greater resources and thus be better equipped psychologically to deal with workplace challenges and retain resources while being especially creative at work. The concept of a resource caravan (Hobfoll et al., 2018) highlights the importance of examining resources in combination that can influence outcomes and we use CoR and the resource caravan approach as our foundational theory towards understanding employee creativity. Using the resource caravan aspect of CoR, we examined the influence of PSC in combination with psychological (OBSE) and organisational (CfI) factors towards CB. According to Hobfoll et al. (2018), in examining resources in combination, a more complete and accurate approach to understanding employees and their outcomes can be achieved.

6.2.2 Creativity

Creativity is supported by behaviours and attitudes (Amabile, 1988; Anderson et al., 2014) leading to individual-level outcomes such as productivity and high performance (e.g., Shalley et al., 2004) and organisational-level outcomes such as success and performance (e.g., Tierney & Farmer, 2002), including creative performance (Wang, Huangh, & Zheng, 2015). CB is derived from supportive behaviours, hard work, motivation, and the ability of individuals to take initiative (Staw, 1995). As individual creativity leads to both individual and organisational-level outcomes, it is also developed by individual factors like values, thinking styles, traits, and psychological states (Anderson et al., 2014), role identities (Jaussi, Randel, & Dionne, 2007), and organisational factors such as support, encouragement, and climate (e.g., Tsai, Horng,

Liu, & Hu, 2015). This study contributes to the CB literature by examining how organisational factors like PSC influence creativity through CoR theory. Importantly, we test the resource caravan effect empirically to understand how collective resources deliver more positive outcomes like CB (Hobfoll, 2011; Hobfoll et al., 2018). Thus, beyond PSC we examine other psychological and organisational factors identified in the literature (Anderson et al., 2014) to test the resource caravan approach empirically.

6.2.3 Psychological Safety Climate (PSC)

The term psychological safety was first coined by Schein and Bennis (1965), focusing on organisational change and regarding employee feelings around their confidence and abilities concerning self-image, choices, career, and status without the fear of negative outcomes. Thus, PSC focuses an employee feeling safer and confident towards their self-image when they are supported and encouraged by the organisational climate, leadership, and supporting network (e.g., healthy interpersonal relationships) at work (Kahn, 1990; Haar, Schmitz, Di Fabio, & Daellenbach, 2019). PSC is enhanced when employees experience greater organisational support (May, Gilson, & Harter, 2004), as well as from leader in the form of inclusiveness, openness (Detert & Burris, 2007), trustworthiness (Madjar & Ortiz-Walters, 2009), or behavioural integrity (Palanski & Vogelgesang, 2011). These effects similarly hold at the team-level (Li & Tan, 2012; Hirak, Peng, Carmeli, & Schaubroeck, 2012; Leroy et al., 2012). Ultimately, individual- and team-level PSC leads to favourable outcomes including voice behaviours and knowledge sharing (e.g., Tucker, Chmiel, Turner, Hershcovis, & Stride, 2008; Siemsen, Roth, Balasubramanian, & Anand, 2009).

Initially, the consequences of PSC focused on learning and performance outcomes, and an extensive review of PSC by Newman et al. (2017) reported that PSC influences a number of individual-, team-, and organisational-based outcomes making PSC an important element to the organisational success and individual progress. Towards

creativity, PSC is linked to manufacturing process innovation performance (Lee, Swink, & Pandejpong, 2011) and team creativity performance (Kessel, Kratzer, & Schultz, 2012) as well as individual creativity (Carmeli, Reiter-Palmon & Ziv, 2010). Hence, PSC can act as a support system enhancing attitudes leading to better performance and CB which aligns with CoR resource caravan passageways, where PSC is a supportive work setting that enhances and promotes personal resources leading to favourable outcomes (Hobfoll et al., 2018). Thus, we expect employees working in a climate of greater support around interpersonal risk taking will have additional resources which they can spend on achieving greater CB. This builds off the literature finding PSC linking with positive outcomes (Newman et al., 2017), and builds specifically towards CB. We posit the following.

Hypothesis 1: PSC will positively influence CB.

6.2.4 Organisation-Based Self-Esteem (OBSE)

Pierce, Gardner, Cummings, and Dunham (1989) defined OBSE as the “self-perceived value that individuals have of themselves as organization members acting within an organizational context – the degree to which organizational members believe that they can satisfy their needs by participating in roles within the context of an organization” (p. 625). OBSE is influenced by the external environmental cues, such as from experiences with peers, leaders, as well as information shared (Korman, 1971). OBSE is developed through experiences and situations at the workplace, self-evaluations, relationship with work, comfortability with roles and alignment with the organisation (Pierce and Gardner, 2004). OBSE is considered a positive construct since it is the determining factor of favourable outcomes (Pierce and Gardner, 2004).

Individuals with high OBSE tend to engage in positive behaviours as they recognise the contribution of the organisation in their work and tend to “reciprocate by making positive, proactive contributions to the organization” (Van Dyne & Pierce, 2004,

p. 446). Aligned with *Self-Consistency Theory* (Korman, 1971), individuals with high OBSE are motivated “to maintain cognitive consistency with their high self-evaluations” (Ferris, Lian, Brown, Pang, & Keeping, 2010, p. 562). Hence, employees with high OBSE are expected to have higher cognitive creativity to develop novel solutions and ideas to perform better. Thus, high OBSE translates into higher self-expectations for employees that also promotes creative performance, as Ekrot, Rank, and Gemünden (2016) suggested that employees are invigorated to “behave in concordance with their high self-expectations by producing innovative ideas that are worth being communicated to peers and superiors” (p. 4). Ultimately, under self-consistency theory, high self-esteem employees are better performers because it is expected of them.

Outcomes associated with OBSE include job performance and OCBs (Gardner & Pierce, 1998; Pierce & Gardner, 2004; Van Dyne & Pierce, 2004). Haar and Brougham (2016) summed up the literature stating that “research has concluded that OBSE shapes employee attitudes, motivations, and behaviors” (p. 722) and ultimately this fits well with our focus on PSC and CB. There is strong meta-analytic support for OBSE (Bowling, Eschleman, Wang, Kirkendall, & Alarcon, 2010), linking favourably with organisational and work outcomes. Considering the specific link between OBSE and creativity, individuals tend to set their targets carefully and realistically when they have higher OBSE to succeed as they have higher self-identity (Rank, Nelson, Allen, & Xu, 2009).

The determinants of creative performance are both individual-based including creative personal identity (Jaussi et al., 2007), creative self-efficacy (Tierney & Farmer, 2002) and organisational-based such as strong implementation, and instrumentality as well as networking abilities (Baer, 2012). Hence, these factors are likely to promote CB amongst individual with high OBSE. Chen and Aryee (2007) found that OBSE is strongly and positively related to innovation behaviours, based on Korman (1971) suggesting that individuals with high OBSE “will engage in behaviors, possess attitudes, and choose roles

that reinforce their positive self-cognition” (p. 228). Replicating this relationship, Lee and Hyun (2016) found a strong relationship between OBSE and innovation, and it has been noted that innovative behaviours are under examined in the OBSE literature (Chen & Aryee, 2007). Under CoR theory, we expect employees with high OBSE to have greater energy resources (and stronger drive) to engage in higher CB.

Hypothesis 2: OBSE will positively influence CB.

We also explore OBSE as a potential mediator of the effects of PSC on CB. Pan, Qin, and Gao (2014) found that OBSE partially mediated the relationship between organisational psychological ownership and positive organisational behaviours. Similarly, Arshadi and Hayavi (2013) found OBSE mediated the influence of perceived organisational support on job performance and Ferris, Brown and Heller (2009) found that OBSE fully mediated the relationship between organisational support and organisational deviance. Given that PSC has been found to positively link with individual dispositional factors like self-efficacy, esteem and confidence (Gully, Incalcaterra, Joshi, & Beaubien, 2002; Hetzner, Heid, & Gruber, 2015) and there is meta-analysis for organisational factors shaping OBSE (Bowling et al., 2010), we suggest that PSC will be positively related to OBSE, and OBSE will mediate the direct effect of PSC given our earlier arguments around OBSE influencing CB. Under the CoR theory approach, we suggest PSC provides resources that ultimately build the work-related self-esteem of employees, and it is this improved resource (higher OBSE) that ultimately enhances CB. Thus, we posit the following.

Hypothesis 3: PSC will positively influence OBSE.

Hypothesis 4: OBSE will mediate the influence of PSC on CB.

6.2.5 Climate for Innovation (CfI)

Finally, we examine another organisational factor as a moderator because this aligns with our resource caravan approach. Scott and Bruce (1994) argue that a CfI is an important factor to consider because employees respond to their environments and “climate represents signals individuals receive concerning organizational expectations for behaviour” (p. 582). Thus, a CfI “is characterized by rewards performance and by organizational willingness to experiment with innovative ideas” (Scott & Bruce, 1994, p. 583). Hence, an organisation rated high on CfI by an employee might be characterised as being flexible and continually adapting, as well as encouraging creativity and expectations that similar problems can be solved with new solutions. From a CoR perspective, such a climate will provide employees with greater resources through general support and better leadership, and also minimise resource loss through trying and potentially failing at solutions to problems.

Based on the CoR approach (Hobfoll et al., 2018), ecological conditions where resource prevail or fail, organisational climate and support plays a significant role in the resource caravan passageways effect. Such support at the leadership and organisational level can enhance employees ability to find effective solutions to problems, improve processes, and collaborate on issues (Ekrot et al., 2016). Scott and Bruce (1994) examined based on Siegel and Kaemmerer (1978), which represents an employee’s perception of support regarding innovation in the organisation. Based on the conceptualisation of climate as a determinant of individual behaviours (e.g., Scott & Bruce, 1994), along with research evidence on individuals to function creatively in presence of supportive factors such as leadership, empowerment, and autonomy (e.g., Carmeli, Gelbard, & Reiter-Palmon, 2013; Martins & Martins, 2002), we assume that CfI will influence CB because it represents a source of resources that should facilitate creativity. We posit the following direct effect.

Hypotheses 5: CFI will positively influence CB.

6.2.6 Moderating Effects of CFI

In addition to the direct effects of CFI on CB, we also posit that CFI will act as a moderator of PSC towards OBSE and CB and this provides a robust selection of resources to capture our resource caravan approach. Indeed, Newman et al. (2017) noted there is growing attention to moderating effects on PSC. Newman et al. (2017) argued that innovation processes (here CFI) might interact with PSC to generate superior outcomes, and we test this towards both OBSE and CB. In their analysis, Sanner and Bunderson (2013) found that the influence of PSC on performance was “stronger in task environments where there were higher creativity requirements” (Newman et al., 2017, p. 527). Hence, we use CFI as a moderator and suggest that the additional focus on innovation will leverage the positive effects of PSC on CB and lead to higher outcomes, including CB. Under the CoR caravan approach, testing a moderating effect also aligns well and highlights the interplay between resources and the way they can build and highlight potential gain spirals, through additional resources being captured.

Finally, the review by Newman et al. (2017) also noted the examination of boundary conditions. Within the context of PSC, we suggest CFI will moderate and intensify the resource accumulation and potential gain spiral under CoR theory, and thus lead to greater CB but specifically in the context of OBSE. This allows us to test CFI as a boundary condition, whereby the effectiveness of PSC on CB (via OBSE) can be tested as potentially fluctuating amongst respondents with differing CFI in their workplaces. This approach is called moderated mediation and Hayes (2018) defines it as “an analytical strategy focused on quantifying the boundary conditions of mechanisms and testing hypotheses about the contingent nature of processes...whether an indirect effect (mediation) is dependent on another variable (moderation)” (p. 5). We expect respondents reporting greater innovation support from their workplaces to intensify the effectiveness

of PSC on CB because the additional resources from CFI will bolster the resources from PSC and lead to superior CB under the resource caravan approach. Specifically, employees will be more creative when they have greater resources to draw upon because their organisation not only has greater co-worker support for idea generation but also a climate of being more supportive around innovations (Scott & Bruce, 1994). Hence, we posit the following two-way and moderated mediated hypotheses.

Hypothesis 6: CFI will moderate the influence of PSC on (a) OBSE and (b) CB.

Hypothesis 7: The indirect relationship between PSC and CB (via OBSE) will be moderated by CFI, such that the indirect effect of PSC becomes stronger as CFI gets stronger (moderated mediation).

6.3 Methods

6.3.1 Survey design

Data were collected via a multi-item survey instrument and given respondents were in countries where English was used as the medium of business, we did not have to translate the survey. We pilot tested the questionnaire to ensure the items were refined through comments offered.

6.3.2 Participants and Sample

Data were collected through a social network across three countries and in total, 269 responses were collected from 500 invitations with response rate of 53.2% comprising of United Arab Emirates (n=71), New Zealand (NZ) (n=37) and Pakistan (n=161). We included three countries to provide a useful spread of respondents, and by including Pakistan, we are able to sample a rarer group of employees in the CB literature. Overall, respondents had an average age of 36.3 years (SD=9.3), were evenly split by gender (51% female), worked 41.1 hours/week (SD=10.2) and had job tenure of 7.0 years (SD=5.8). Education was dominated by university qualifications 29.7% university degree and 65.1%

postgraduate qualification. The remainder had a technical qualification (4.1%) or high school qualification only (1.1%). By sector, the majority were from the private sector (76.2%), followed by the public sector (23.0%) and not-for-profit sector (0.7%). Overall, there was a wide spread of respondents by firm size: 18.6% were under 50 employees, 11.5% were 50-100 employees, 19.3% were 101-250 employees, 19.0% were 251-500 employees and 16% were in 501-1000 employees. Finally, respondents working in large-sized (1000+ employees) were 15.6%. In summary, the sample is of highly educated mostly private sector employees across three countries.

6.3.3 Measures

CB were measured with the three-items by Shimazu, Schaufeli, Kamiyama, and Kawakami (2015), based on George and Zhou (2002), coded 1=not at all characteristic of me, 5=very characteristic of me. A sample item is “I often have new and innovative ideas at work” ($\alpha = .88$).

PSC was measured with three-items by Edmondson (1999), coded 1=strongly disagree, 5=strongly agree. A sample item (reverse coded) is “If you make a mistake on this team, it is often held against you” ($\alpha = .84$).

OBSE was measured using items by Pierce et al. (1989), coded 1=strongly disagree, 5=strongly agree, using the 5-item short measure (Scott, Shaw, & Duffy, 2008). A sample item is “I am trusted around here” ($\alpha = .92$).

CfI was measured using five items by Scott and Bruce (1994), coded 1=strongly disagree, 5=strongly agree. A sample item is “Around here, people are allowed to try to solve the same problems in different ways” ($\alpha = .81$).

Controls. We controlled for respondent Age (in years) because Binnewies, Ohly and Niessen (2008) found younger employees were more creative, although only in context with other factors. We also controlled for Hours Worked (per week), Job Tenure (years) and Gender (1=female, 0=male). These other demographic variables have been found to

relate to creativity and innovation outcomes (e.g., Mahmood et al., 2019; Azim et al., 2019).

6.3.4 Response Bias

Similar to Mahmood et al. (2019), our study sought to limit common method variance (CMV) issues. First, following recommendations from Podsakoff, MacKenzie, Lee, and Podsakoff (2003), we clarified to respondents that all responses were confidential, and no personal details were captured, ensuring anonymity. Next, we followed Pavlou, Liang, and Xue (2007) to check the correlations matrix to ensure there was no high correlations ($r > .90$). In the present study, the highest value was $r = .56$, indicating there is no CMV in the study. Finally, we followed Podsakoff et al.'s (2003) recommendation and conducted a Harman's one-factor test. This resulted in four factors, all with eigenvalues greater than one, with the first factor accounting for 35.6% of the variance. Similar to Mahmood et al. (2019), this indicates that CMV is less likely an issue because a dominant factor (50% or higher) was not found.

6.3.5 Measurement Models

We confirmed the study constructs via Confirmatory Factor Analysis in structural equation modeling (SEM) using AMOS v. 25. We assess model fit using the following criteria (Hu & Bentler, 1998; Williams, Vandenberg, & Edwards, 2009): (1) the comparative fit index ($CFI \geq .90$), (2) the root-mean-square error of approximation ($RMSEA \leq .08$), and (3) the standardized root mean residual ($SRMR \leq .10$). Table 6.1 shows this analysis, and we confirmed the unique aspects of the constructs by testing alternative models with our analysis which confirmed the hypothesized model as best fit (see Hair, Black, Babin, & Anderson, 2010). We conducted a metric invariance test (as per Haar, Russo, Sune, & Ollier-Malaterre, 2014), and this showed the respondents from the three countries responded similarly. Additional analysis showed no significant difference in PSC by country-level.

Table 6.1***Results of Confirmatory Factor Analysis***

Model	Model Fit Indices					Model Differences			
	χ^2	df	CFI	RMSEA	SRMR	$\Delta\chi^2$	Δdf	p	Details
Model 1	247.9	98	.93	.08	.05				
Model 2	543.1	101	.78	.13	.09	295.2	3	.001	Model 1 to 2
Model 3	587.4	101	.76	.13	.09	339.5	3	.001	Model 1 to 3

Notes: Model 1= Hypothesized 4-factor model: Creativity Behaviours, OBSE, Psychological Safety Climate, and Climate for Innovation.

Model 2= Alternative 3-factor model: Creativity Behaviours, OBSE, Psychological Safety Climate and Climate for Innovation combined.

Model 3= Alternative 3-factor model: Creativity Behaviours and OBSE combined, Psychological Safety Climate, and Climate for Innovation.

Table 6.2***Descriptive Statistics and Correlations***

Variables	M	SD	1	2	3	4	5	6	7
1. Age	36.3	9.3	--						
2. Job Tenure	7.0	5.8	.68**	--					
3. Hours Worked	41.1	10.2	.24**	.06	--				
4. Psychological Safety Climate	3.5	1.0	.12	-.05	.48**	--			
5. OBSE	4.3	.53	.20**	-.04	.44**	.41**	--		
6. Climate for Innovation	4.1	.61	.23**	.14*	.22**	.32**	.56**	--	
7. Creativity Behaviours	4.3	.77	.18**	.09	.42**	.21**	.41**	.32**	--

N=269, *p<.05, **p<.01

6.3.6 Analysis

Hypotheses were tested in SPSS (version 25) using the PROCESS 3.1 program (Hayes, 2018) to test for mediation, two-way moderation and moderated mediation, using model 15.

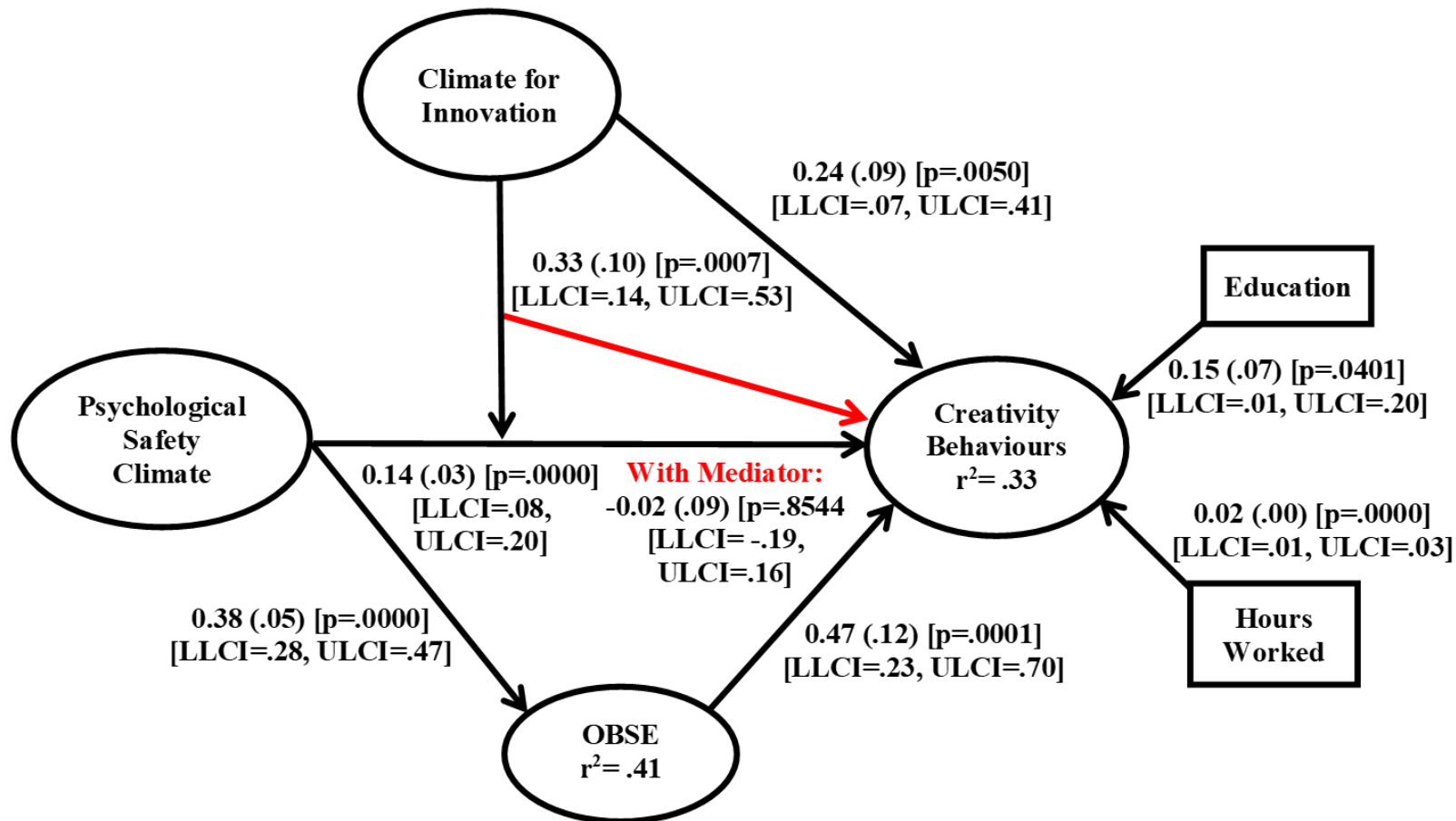
6.4 Results

Descriptive statistics for all the study variables are shown in Table 2.

From Table 2 it can be seen that PSC is significantly correlated with OBSE ($r=.41$, $p<.01$), CFI ($r=.32$, $p<.01$) and CB ($r=.21$, $p<.01$). OBSE is significantly correlated with CFI ($r=.56$, $p<.01$) and CB ($r=.41$, $p<.01$), while CFI is significantly correlated with CB ($r=.32$, $p<.01$). Overall, the validity and reliability of the study variables are robust ($\alpha > .80$), they all correlate significantly ($p<.01$) and in the expected directions, while the correlation values are not exceptionally high (Pavlou et al., 2007). In combination, this provides strong confidence in results from the forthcoming analyses.

Results of the direct, mediation, moderation and moderated-moderated regression analysis towards CB is presented in Figure 6.1.

Figure 6.1. *Results Model*



The results show that PSC is significantly related to OBSE ($\beta = .38$ (.05), $p = .0000$ [LL = .28, UL = .47]) and CB ($\beta = .14$ (.03), $p = .0000$ [LL = .08, UL = .20]), and OBSE is significantly related to CB ($\beta = .47$ (.12), $p = .0001$ [LL = .23, UL = .70]). These findings support Hypotheses 1-3. When OBSE is included in the model it fully mediates the effect of PSC on CB: ($\beta = -.02$ (.09), $p = .8544$ [LL = -.19, UL = .16]), supporting Hypothesis 4. Hypothesis 5 was supported as it suggested CFI would be directly related to CB ($\beta = .24$ (.09), $p = .0050$ [LL = .07, UL = .41]). Finally, PSC interacted significantly with CFI towards CB ($\beta = .33$ (.10), $p = .0007$ [LL = .14, UL = .53]) and the index of moderated mediation was found to be significant as the index did not cross zero: Index = .06 [LL = .00, UL = .23]). These findings support Hypotheses 6 and 7. We present the graphed interactions to illustrate effects in Figures 6.2 and 6.3.

Figure 6.2 shows that at low levels of PSC the influence on CB is not significantly different for respondents across the levels of CFI. However, there are significant differences amongst respondents at high levels of PSC. Here, we find respondents with high levels of CFI report a significant increase in CB while those respondents with low CFI report a significant decrease in CB, highlighting the benefit of CFI in combination with PSC, supporting our Hypothesis.

Figure 6.2. *Interaction of Psychological Safety Climate and Climate for Innovation with Creativity Behaviours as the Dependent Variable.*

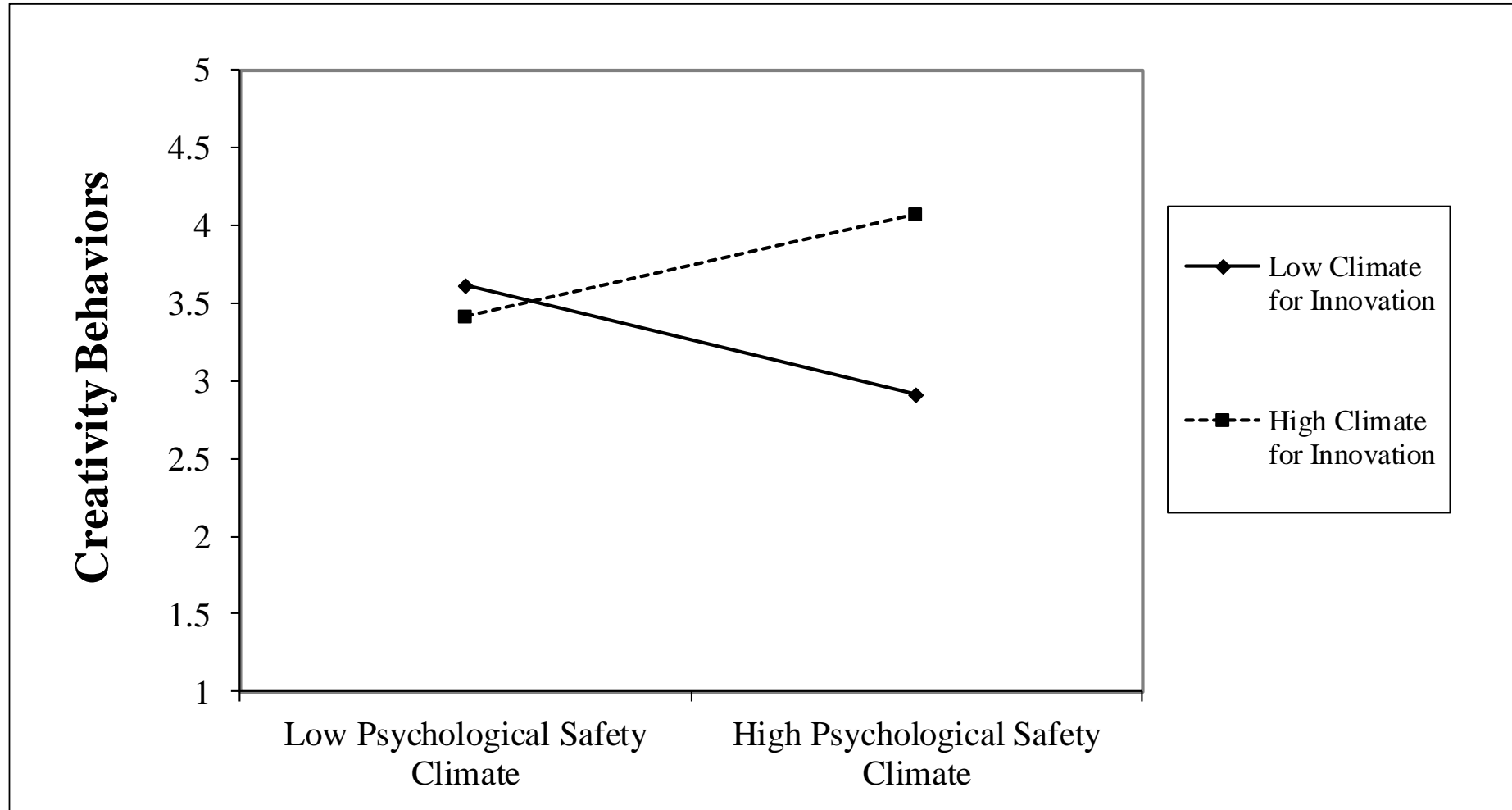
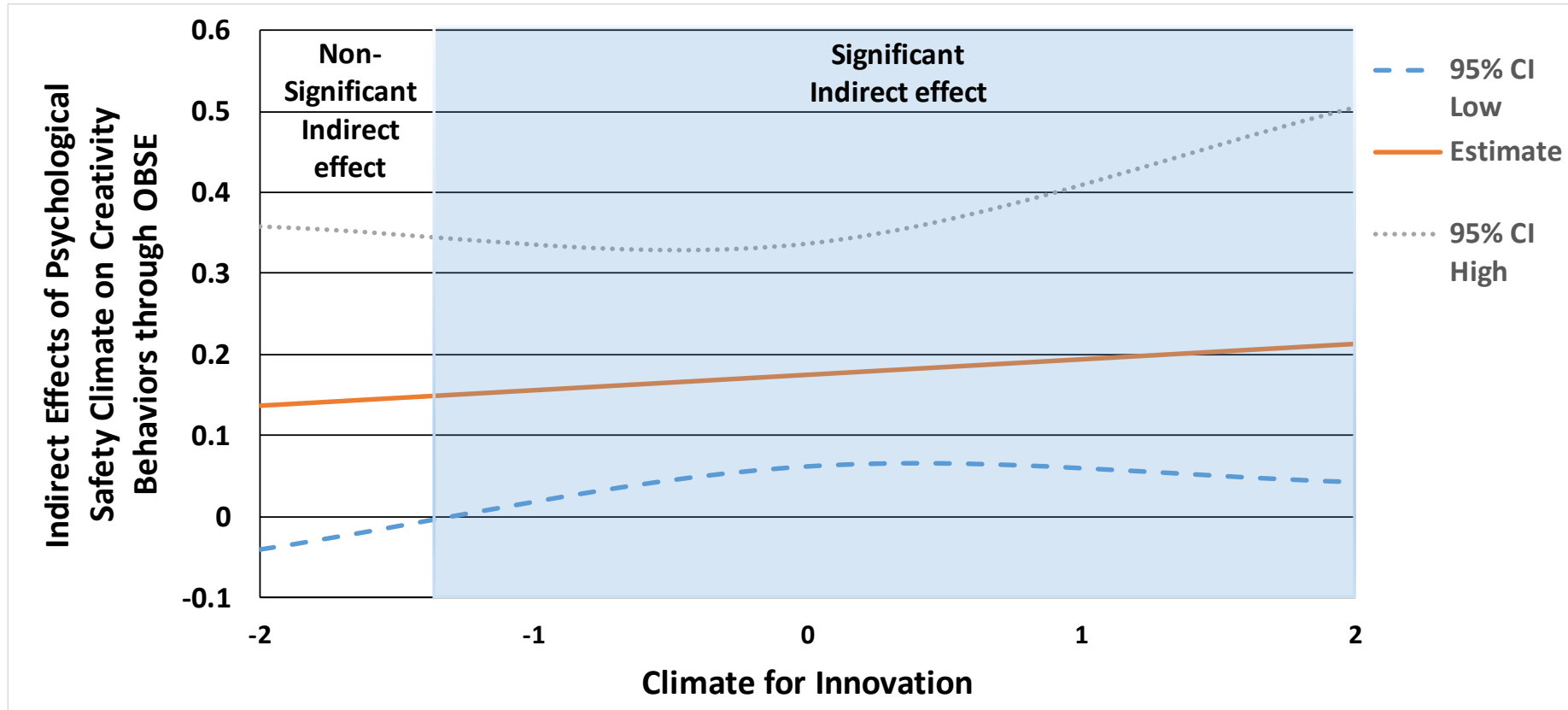


Figure 6.3. *Indirect Effects of Psychological Safety Climate on Creativity Behaviours Through OBSE Conditional on Climate for Innovation.*



Regarding the moderated moderated mediation effect in Figure 6.3, the approach of Wayne, Lemmon, Hoobler, Cheung, and Wilson (2017) is followed where we probe the conditional indirect effect. The Figure shows the significant indirect effect conditional of CFI (at -2SD, mean, and +2SD). The analysis shows the indirect effect of PSC on CB vis-à-vis OBSE differed considerably across the levels of CFI. At -2SD the effects are small and non-significant (.14, $p > .05$ [LL=-.01, UL=.28]); at the mean score the effects are modest but significant (.18 (.07), $p = .0072$ [LL=.06, UL=.33]) and at +2SD the effects are larger and significant (.21 (.09), $p = .0098$ [LL=.08, UL=.43]). This provides support for CFI acting as a boundary condition, with the highest levels of indirect effects of PSC on CB through OBSE occurring when innovation support is the highest. Indeed, the strength of the PSC beta weight clearly grows as CFI increases, and thus our moderated mediation effect is supported.

6.5 Discussion

Though research on innovation and creativity is extensive, there are not many studies that focus on the contextual factors leading to CBs. As the need of effective creative solutions is continual (Ekrot et al., 2016), the fear of professional alienation, damage to self-image, and negative perception towards taking-risk due to fear, may prevent employees from engaging in creative processes (Edmondson & Lei, 2014). It appears that such perceptions and low self-esteem emanate from lack of support at work (Azim et al., 2019). This study aimed to extend the literature by focusing on multiple factors including safety climates (PSC), self-esteem (OBSE) and then both in combination with an organisational factor of climate around innovation (CFI). In addition, our study contributes to the literature by including employees from both the United Arab Emirates and Pakistan, which are heavily underrepresented in the literature. We found no difference in employee scoring of constructs (including New Zealand employees) and the analyses showed no significant effect on relationships when country was controlled for.

Towards creative outcomes, we understand the influence of a number of factors, and indeed, testing mediation models is quite common. Towards creative process engagement, Azim et al. (2019) found the effects of leadership were partially mediated by creative self-efficacy, and similar partial mediation effects have been found by Mahmood et al. (2019) with intrinsic motivation mediating leadership on creative process engagement. These findings highlight the importance of empirically testing the influence of individual-level factors towards creative outcomes. Focused on individual-level factor, our findings advance the literature around CB and PSC and confirmed the full mediating effects of OBSE on these relationships. These findings also align with similar mediating effects from OBSE on the direct effects of organisational support on positive outcomes (Arshadi & Hayavi, 2013; Ferris et al., 2009).

Our findings also provide insight into the role of PSC in combination with psychological factors (OBSE) and another organisational factor (CfI) toward CB and provide empirical evidence supporting the CoR theory around the resource caravan effect (Hobfoll, 2011). This approach suggested that resources can prevail when they are collectively acting towards a goal, and our findings also contribute to the understanding of the passageway effect for resource caravan. This aspect states that the climate and culture of the organisation — where resources prevail and sustain — can support in not only creating an upward spiral effect for resources but also in achieving positive long-term outcomes (Hobfoll et al., 2018). Findings in the current study verified this using CfI specifically because of the innovation focus, which aligned well with our interest in CB. Overall, our findings show that high levels of CfI improves the influence of PSC on CB in the presence of OBSE. Furthermore, these findings comply with the Mahmood et al.'s (2019) results on moderating effect of support for innovation on the effect of transformational leadership on creative process engagement and empirically extend the understanding on PSC as suggested by Newman et al. (2017). By combining these factors

and examining them in a mediation model with the addition of CFI as a moderator, we empirically tested the CoR resource caravan passageways (Hobfoll et al., 2018) and how the resource contributions collectively enhance CB.

Theoretically, these findings not only support the CoR resource caravan passageways effects but also highlight the importance of support systems within the organisation, working with the psychological factors of individuals, because individuals are the source of creative outcomes. Importantly, employees can react more proactively to environmental cues when considered with their self-esteem (Brockner, 1988), although theoretically, that would have suggested CFI would be especially beneficial for low, not high OBSE. We argued that under the CoR theory, the benefits of a supportive organisational climate would be cumulative and leverage the resources of OBSE, and this was supported. Moreover, Hobfoll et al. (2018) clarified what constitutes as resources and argued that it depends on the ecological context. Hence, this study focuses on psychological safety and support for innovation as resources that become *salient and positive* in gaining further resources due to which individuals are better able to respond to external cues, maintain their self-esteem, and strive to create novel ideas. This provides useful insights in the PSC and OBSE literatures, especially the latter around the positive benefits that organisational climate can play on high OBSE employees, which differs somewhat from the prevailing wisdom (Brockner, 1988).

6.5.1 Implications

Support from organisation plays an important role in the promotion of novel outcomes at individual level which are vital to organisational success. The design and promotion of organisational climate supportive of innovation through structural advancements and approaches can allow managers to maintain a constant support system as a resource, and this appears to be especially beneficial. Helping employees deal with external cues and demands and indeed flourishing and promoting psychological elements such as self-

esteem (OBSE) are ways that an organisation can help employees achieve desirable outcomes. Thus, organisations might concentrate on the development of supportive work systems and environments where employees feel safe and share ideas, promote voice behaviours, and collaborate effectively. At a practical level, organisations can achieve creative outcomes by promoting a support system that contributes into the psychological well-being of individuals and also make them feel safer at their workplace and focus their efforts on organisational goals. At the individual level, organisations can design a safe climate for innovation that can work as a promoting (salient but positive) factor and also by encouraging individuals to share and communicate their ideas with co-workers, without fear of backlash and personal cost, by fostering strong positive psychological elements in individuals and help them flourish as sources of creative outcomes. This might be achieved through specific workshop training for teams around PSC and the valuable potential it can have when team members are able to share ideas without fear of ridicule.

6.5.2 Limitations

While we had a relatively robust sample size ($n=269$), this data was cross-sectional. However, Haar et al. (2014) argue conducting higher-level statistical analysis, specifically CFA in AMOS and alternative modelling of constructs minimise the potential of common method variance (CMV). Further, Evans (1985) identified that CMV issues are very unlikely when significant moderation effects are found, and here we found both significant 2-way moderation and moderated mediation, which suggests that CMV is unlikely in our sample. In addition, the PROCESS macron (used to test moderated mediation) has been tested and ranked equivalent to SEM (Hayes, Montoya, & Rockwood, 2017). When combined with confidence intervals and bootstrapping effects, we argue the findings provide suitable confidence in the results. Of course, future studies might seek to use time-lagged data, such as spacing CB a month later, or having data

provided by another source, such as supervisor or co-workers. Ultimately, we had a useful sample from diverse countries, industries and professions, which provides confidence in the findings.

6.5.3 Conclusion

The present study contributes to the understanding of resources working in combination towards creative outcomes and the role of innovation support in promoting an organisational factor (PSC) and individual psychological factor (OBSE) towards encouraging greater CB. The moderated mediation effects highlight that higher CFI enhances the effect of PSC on CB through OBSE, which provides useful insights to the understanding boundary conditions under which organisational support systems around innovation can influence co-worker relationships (PSC) and creativity. Finally, our study extends the understanding of how combinations of resources influence CB using a focus on the resource caravan passageway effects. The study offers insight into how resources work effectively in caravans and the role of passageways to promote these resources and work effectively — and collectively — to achieve greater creativity. Our findings encourage studies to examine multiple resources to more adequately, and accurately, capture the resource sources that exist within organisations.

6.6 References

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CHAPTER SEVEN: PAPER 4

Does Job Stress Enhance Employee Creativity? Exploring the Role of Psychological Capital

Preface

Based on suggestions from Paper 1 around examining not only positive but also negative factors, I was encouraged to look at combined negative and positive factors and their role in influencing CB, under resource caravan effect. In particular, I was especially interested in the role that stress might play on creativity, due to the mapping review identifying stress as potentially beneficial towards creativity. In this paper I found the effects of negative factor: stress to be detrimental when tested directly towards CB, but I also tested the relationship by introducing a psychological factor (psychological capital) as a resource under COR theory. Using two diverse samples this paper tested for the role of psychological capital (positive psychological states) and how this resource can improve the influence of job stress towards CB, and potentially making stress a positive predictor of creativity. Similar patterns were found in both samples suggesting that though the direct influence of job stress is detrimental to CB, the combined influence with psychological capital towards CB is beneficial, although best when job stress is still low. This paper provides support for the resource caravan effect, specifically when in combination, where some resource can be negative in nature but still prove beneficial towards a goal (in this case CB).

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This paper is under second-round review at *Personnel Review*. This chapter is the revise and resubmit version formatted in APA style but *Personnel Review* format for abstract is retained.

Abstract

Purpose: Applying the conservation of resource theory, this paper investigates the potentially positive influence of job stress on creativity through the resource caravan approach. The influence of job stress directly and as a moderator of psychological capital (PsyCap) is explored. Finally, the influence of stress on creativity is investigated as a boundary condition that impacts on the PsyCap-creativity relationship via job satisfaction.

Methodology: Relationships were tested on two samples: (1) an international employee cohort (n=269) and (2) a New Zealand employee sample (n=475) and find similar effects in both studies.

Findings: PsyCap was found to influence job satisfaction and creativity, with job satisfaction partially mediating this direct effect. Job stress has a positive moderation effect with PsyCap towards creativity, supporting COR theory, which suggests that high PsyCap individuals would have the psychological resources to leverage stress beneficially, making their behaviours more creative. Significant moderated mediation effects indicate complex indirect effects with PsyCap on creativity (via job satisfaction) increasing as job stress gets higher.

Implications: This study calls for researchers' attention towards potentially positive influences of stress when considered in combination with high psychological resources. Practical implications focus manager's and leader's attention towards the enhancement of employees' psychological resources for its stress and creativity related benefits.

Originality: The findings provide new theoretical support for understanding how stress can positively influence creativity. The use of two samples improves confidence in these findings.

Keywords: *creativity, psychological capital, job stress, job satisfaction, moderated mediation.*

7.1 Introduction

Global competition and fast-paced innovation (Pan, Sun, & Lam, 2017) have created a strong drive for research on the importance of creativity, which Amabile (1988) argued can not only be a source of competitive advantage but alternatively the source of organisational survival. Over decades of research, numerous predictors of creativity have been identified, spanning from psychological to organisational elements (Anderson, Potočnik, & Zhou, 2014; Standing et al., 2016). However, the role of negative factors, especially stress towards creativity, remains poorly understood. In their review, Hon and Lui (2016) suggested stress deserved more attention as one of the key factors of creativity because, despite the detrimental nature of stress, it is part of the creative process. A meta-analysis by Byron, Khazanchi, and Nazarian (2010) also found stressors' detrimental influence on creativity, but Staw (1995) suggests that both positive and negative elements can lead to creative performance. For example, negative moods may push individuals to be more creative when they are provided with a sense of recognition (George & Zhou, 2002). The present study responds to calls for greater exploration of the influence of stress on creativity (George & Zhou, 2002; Staw, 1995), especially given job stress is adversely related to organisational performance (Zhong et al., 2009).

Using the Conservation of Resources (COR) theory (Hobfoll, 2001) to ground our studies, this study explores job stress in the context of employee's psychological capital (PsyCap), which is a positive developmental psychological state (Luthans, Youssef, & Avolio, 2007a), and suggest that employees with greater psychological resources might be better able to manage and ultimately leverage job stress to enhance creativity. Thus, typically a resource-draining event (job stress) may enhance creativity performance because employees have additional psychological resources (high PsyCap) to draw on. Future research themes by reviews (Anderson et al., 2014; Hon & Lui, 2016) also highlight the lack of "comprehensive understanding and cross-disciplinary integration"

of stress and its potential towards promoting/demoting creativity (Acar, Tarakci, & van Knippenberg 2019, p. 98). Aligned with these future directions, this study aims to investigate the Hobfoll, Halbesleben, Neveu, and Westman (2018) argument under COR theory that resource can be negative in nature but still prove to be beneficial in gaining desired outcomes.

Overall, several contributions are made. First, job stress is tested in combination with PsyCap to determine both direct and interaction effects of these factors on creativity. Second, by including job satisfaction as a mediator, greater understanding of the creativity process is provided, and by testing a moderated mediation model, superior insights through understanding potential boundary conditions are gained. Finally, our hypotheses on two distinct samples with similar effects provide strong confidence in our findings. Overall, the paper contributes to understanding the processes and boundary conditions associated with job stress on creativity.

7.2 Theoretical Lens: Conservation of Resources (COR)

The COR theory is an integrated model of stress (Hobfoll, 1989) which examines resources and the way people maintain, gain, or lose these resources (Hobfoll, 1989). Hobfoll et al. (2018) define resources as anything that can help individuals attain their goals. Thus, as resources are “objects, personal characteristics, conditions, or energies that are valued in their own right, or that are valued because they act as conduits to the achievement or protection of valued resources” (Hobfoll, 2001, p. 339), can help attain more resources and also deal with resource loss. Hobfoll (2001) identified many resources including factors associated with the present study such as optimism and hope which aligns with PsyCap, and time, control and help which might align with stress (when these resources are lacking). Moreover, the influence of resources is dependent on the ecological context in which they operate; thus, resources can be negative in nature but still prove beneficial (Hobfoll et al., 2018).

7.2.1 Creativity

Anderson et al. (2014) noted that, as part of the same process, creativity represents the generation of ideas, whereas innovation is the implementation of these ideas. Throughout the literature creativity and innovation are considered as separate stages of the same process but often treated interchangeably (Khessina, Goncalo, & Krause, 2018). Creativity and innovation behaviours thus include the stages of development, adoption and implementation of new ideas (Yuan & Woodman, 2010). Creativity is also considered as an enhancement process for the organisation and individuals aimed at certain goals (Barrère, 2013), with creativity behaviours being the pathways to job performance, and organisational success (Tongchaiprasit & Ariyabuddhiphongs, 2016). Creativity performance is linked with organisational behaviours (Staw, 1995), with several individual-level antecedents, including values, traits, and psychological states (Anderson et al., 2014). For example, Bandura (1986) found confidence and self-efficacy positively related to creativity behaviours. In the next section, we extend this to provide a stronger psychological focus towards understanding creativity.

7.2.2 Psychological Capital (PsyCap)

Research debates about the significance of psychological states in the development of creativity (Hon, 2011) is sparse. The concept of PsyCap has a strong theoretical background (Luthans et al., 2007a) and potential to play an important role in the development of creative outcomes (Luthans & Youssef, 2004) as a “measurable second-order core construct that accounts for more variance in employee performance and satisfaction than the four positive constructs that make it up” (Luthans & Avolio, 2009, p. 300). As a second-order construct with four dimensions: Hope, Efficacy, Resilience and Optimism, PsyCap has meta-analytic support (Avey, Reichard, Luthans, & Mhatre, 2011) linking PsyCap to a number of positive outcomes including job performance. The theory building for four dimensions with the common conceptual characteristic of

“positive appraisal of circumstances and probability for success based on motivated effort and perseverance” is further detailed elsewhere (e.g., Luthans, Avolio, Avey, & Norman, 2007b, p. 550). For the purpose of this study, a brief summary is provided.

Hope is defined by Snyder, Irving, and Anderson (1991) as “a positive motivational *state* based on an interactively (a) derived sense of successfulness (b) agency (goal-directed energy) and (c) pathways (planning to meet goals)” (p. 287). *Efficacy* is defined as an “individual’s conviction about his or her abilities to mobilize the motivation, cognitive resources, and courses of action needed to successfully execute a specific task within a given context” (Stajkovic & Luthans, 1998, p. 66) and is developed at the workplace through succeeding in work tasks, modelling successful behaviours, and when others (e.g., peers and managers) express their confidence in the employee’s abilities.

Resilience is the “positive psychological capacity to rebound, to ‘bounce back’ from adversity, uncertainty, conflict, failure, or even positive change, progress and increased responsibility” (Luthans, 2002, p. 702) and *optimism* refers to employees expecting good things to happen to them (Snyder & Lopez, 2009) and importantly, when they consider negative events as temporary and likely to get better.

Research has shown that individual dimensions of PsyCap are related to performance (Peterson & Luthans, 2003) and more specifically, to job performance, whether self-reported or organisationally generated (Youssef & Luthans, 2007). Furthermore, PsyCap has meta-analytic support (Avey et al., 2011) for being positively related to organisational citizenship behaviours at $r = .45$, and job performance at $r = .26$. Individual components of PsyCap have been found to link specifically to creativity (e.g., Yu, Li, Tsai, & Wang, 2019), as well as noted to support positive behaviours influencing creative work solutions (Hirst, Van Knippenberg, & Zhou, 2009). Although PsyCap influence on innovative behaviours (Abbas & Raja, 2015) and creativity (Cai, Lysova,

Bossink, Khapova, & Wang, 2019) is noted, evidence on PsyCap influence towards creativity in the presence of other positive and negative factors are lacking. Under COR theory, it is expected that employees with greater psychological resources (i.e., total PsyCap) will possess higher appraisal of circumstances and thus be able to focus and produce greater creativity. The following is posited.

Hypothesis 1: PsyCap will be positively related to creativity.

7.2.3 Job Stress

Newman and Beehr (1979) defined job stress as “a situation wherein job-related factors interact with the worker to change his or her psychological and/or physiological condition such that the person is forced to deviate from normal functioning” (p. 1). Stress refers to the process when external work demands exceed an individual’s resources (Mullen, Morris, & Lord, 2017) and trigger a sense of imbalance that leads to adverse effects on behaviours, attitudes, emotions and physical health (LePine, Zhang, Crawford, & Rich, 2016). Within the job stress literature, the evidence of such detrimental effects is clear, with Kivimäki et al. (2006) finding “an average 50% excess risk for CHD [coronary heart disease] among employees with work stress” (p. 431). Though job stress influence is largely found to be detrimental, Baas, De Dreu, and Nijstad’s (2008) review on mood and creativity suggest that stress-performance linkage can be better understood with the level of activation, that is a moderate-level of activation, due to stress, may engage the individual with innovative processes compared to extremely low and high activation. Indeed, some researchers suggest that under certain conditions, stress may positively influence creativity (e.g., Montani, Dagenais-Desmarais, Giorgi, & Grégoire, 2018). In their meta-analysis of stress and creativity, Byron et al. (2010) indicated the effects could be positive, negative, and curvilinear, concluding “the results suggest that stressors’ effect on creativity is more complex than previously assumed and points to the need for understanding boundary conditions that shed light on inconsistent findings” (p. 201).

Under COR theory, stress typically refers to a loss of resources; however, others have argued stress can have positive links with individual growth, mental strength, toughness, sense of skill mastery, ability to prioritize tasks and awareness of self and tasks (Park & Helgeson, 2006). Crum, Salovey and Achor (2013) found that individuals with a mindset of stress-is-enhancing reduced the negative impacts on their health and performance. Overall, this highlights the *potential* for stress to influence creativity, but the relationship is likely to be complex. The COR theory suggests that employees experiencing resource loss (i.e., high stress) will invest their remaining resources in *creative* solutions to gain new resources or minimize existing losses. This involves the third principle of COR: “when resource loss circumstances are high, resource gains become more important” (Hobfoll et al., 2018, p.106) concerning the “readiness for action or energy expenditure” (Russell, 2003, p. 156). This is called the high-activated negative-affect state and includes stress but entails increased motivation, attention and responsiveness (Frijda, 1986). In contrast, low-activated negative-affects like unhappiness leads to inactivity and passiveness (De Dreu, Baas, & Nijstad, 2008).

Recently, Hobfoll et al. (2018) extended the COR theory around the conceptualization of resources, suggesting that resources are better understood by considering the context. In this case, job stress might be understood as a potentially enhancing element in the context of work, encouraging individuals to gain more resources (COR Theory Principle 3: gain paradox) and tap into their available resources to build further resources on (Principle 2: resource investment). Moreover, the COR Principle 4 which lacks empirical understanding (Hobfoll et al., 2018), suggests that under stressful conditions individuals may go into a defensive stage where they conserve their available resources, regroup by gaining more resources and work towards sustaining their resources but also deal with the stressful condition. Consequently, employees with high stress might bring greater motivation and focus, resulting in more creativity as they enter a defensive

state to manage stress (Principle 4: desperation, Hobfoll et al., 2018). Under COR theory, low job stress reflects a calm and (somewhat) stale state of mind, with such serenity failing to mentally stimulate the need for idea creation. Alternatively, with moderate-to-high stress, the employees' mind is under constant psychological pressure which might trigger greater creativity through heightened stimulation. Hence, job stress is tested as having a direct and positive influence on creativity. The following is posited.

Hypothesis 2: Job stress will be positively related to creativity.

Beyond the direct effects of job stress and aligning with Hobfoll et al. (2018) directions to integrate with other theories to understand the impact of resources at the micro-level, Broaden-and-Build Theory (Fredrickson, Mancuso, Branigan, & Tugade, 2000) is used as an additional theoretical mechanism to understand how job stress might interact with PsyCap to lead to greater creativity. The theory suggests that individuals with positive psychological states (e.g., high PsyCap) can recover from negative events (e.g., high job stress) leading an employee to the neutral level of activation that enables the individual to be able to pursue more behavioural options. Under high PsyCap, job stress can *potentially* be turned into an opportunity to perform better. Crum et al. (2013) explained stress as an enhancing mindset causes similar physiological effects with arousal and more energy to deal with stressors. Thus, for an individual with high PsyCap, job stress might be the trigger for greater creativity, as the stimulus of job stress reacts with the higher personal psychological resources (e.g., high hope, optimism, efficacy and resilience) and this enables such employees to be more creative. This approach also aligns with Hobfoll et al. (2018) notion of examining factors in combination under COR theory (resource caravans), where resources can be both positive and negative in nature and hence we argue job stress (though negative in nature) may prove positive in the context of high PsyCap when considered in combination. The following is posited.

Hypothesis 3: Job Stress will interact with PsyCap leading to greater creativity.

7.2.4 Job Satisfaction

Finally, job satisfaction is included as a potential mediator in this study. Job satisfaction aligns organisational and employee expectations and promotes efforts towards common goals (Amundsen & Martinsen, 2015). As creativity is an important element in the organisation (Tang & Chang, 2010), and employee job satisfaction is highly desirable due to the meta-analytic evidence supporting job performance (Judge, Thoresen, Bono, & Patton, 2001), and thus including job satisfaction as a mediator between PsyCap and creativity has a strong theoretical backing. Tang and Chang (2010) found job satisfaction and supervisor-rated creativity were positively related. Moreover, though the influence of job satisfaction is noted on employee creativity is positive (Spanjol, Tam, & Tam, 2015), its mediation on the relationship between climate for innovation and creativity exerts a negative effect (Wang & Ma, 2013). The PsyCap meta-analysis found positive links to job satisfaction (Avey et al., 2011), although studies testing job satisfaction as a mediator of PsyCap to creativity have not yet been conducted. Under COR theory, it is expected that employees with higher psychological resources (high PsyCap) will be more satisfied in their job and to perform more creatively. However, the process of effect is more likely to be that PsyCap builds job satisfaction, and this, in turn, becomes the key influence on creativity. Hence, we test job satisfaction as a mediator of PsyCap on creativity and posit the following.

Hypothesis 4: Job satisfaction will be positively related to creativity.

Hypothesis 5: Job satisfaction will mediate the influence of PsyCap on creativity.

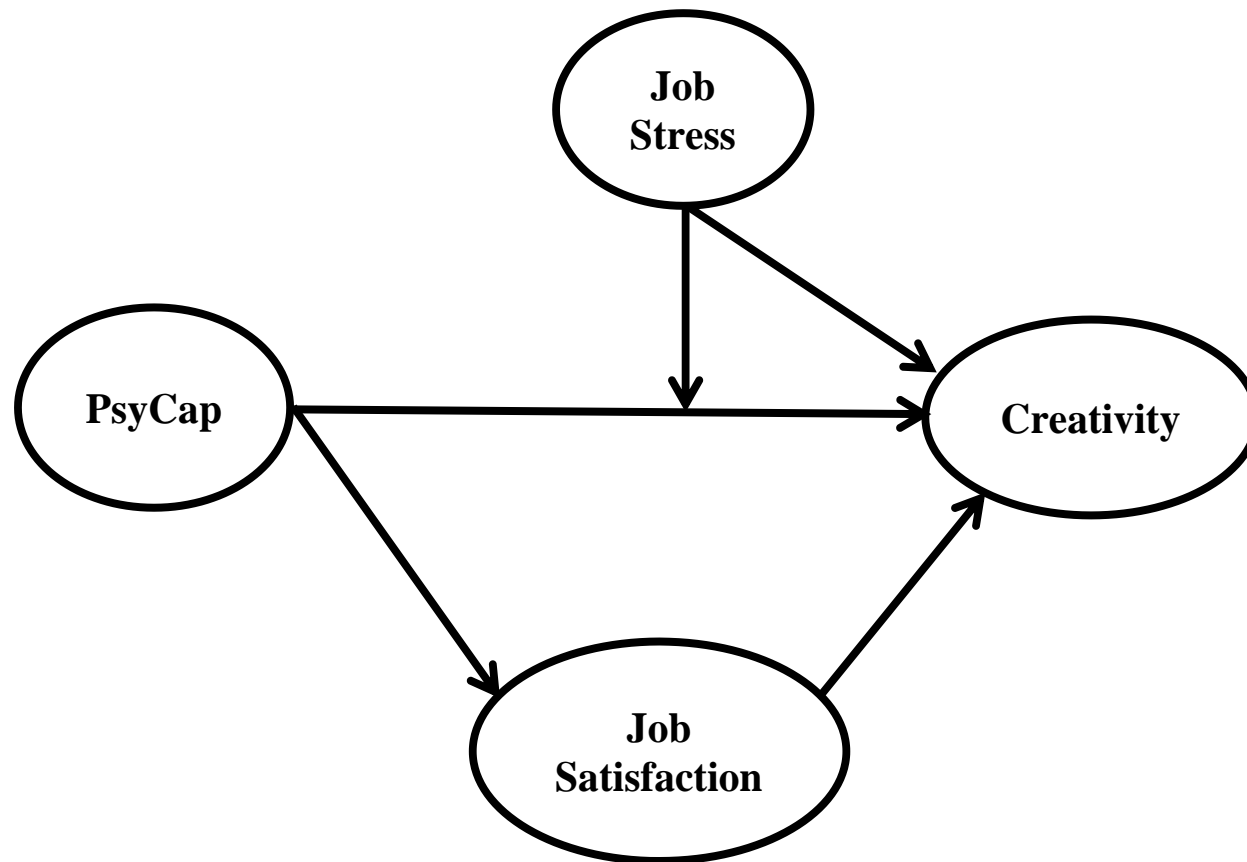
Finally, given the present model whereby PsyCap influence creativity via job satisfaction, and job stress directly influences creativity, and in combination with PsyCap, a moderated mediation model is also explored. Here, returning to calls from the meta-analysis of stress and creativity, Byron et al. (2010) argued the need for exploring

boundary conditions of the stress and creativity relationship. We suggest that the influence of stress on creativity might also be understood as a boundary condition that impacts on the PsyCap-job satisfaction-creativity relationships. Under COR theory, it is expected that the indirect influence of PsyCap on creativity (via job satisfaction) will strengthen as job stress gets higher. In effect, the influence of PsyCap reacts to the presence of greater mental stimulation (high job stress), leading to enhanced creativity. According to Hayes (2018), a test of moderated mediation is “an analytical strategy focused on quantifying the boundary conditions of mechanisms and testing hypotheses about the contingent nature of processes, meaning whether “mediation is moderated”” (p. 2). The following is posited.

Hypothesis 6: The indirect relationship between PsyCap and creativity via job satisfaction will be moderated by job stress, such that the indirect relationship is stronger as job stress increases (moderated mediation).

Our study model is shown in Figure 7.1.

Figure 7.1. Study Model



7.3 Methods

7.3.1 Participants and Sample

Nuzzo (2014) argued studies need greater replication of empirical studies and statistical tests to provide greater confidence in their findings, and two samples were used. Sample 1 data were collected through a social network of university alumni across three countries and from 500 invitations a total of 269 responses were received (53.2% response rate) from Dubai (UAE) (n=71), New Zealand (NZ) (n=37) and Pakistan (n=161). Surveys for all three countries were administered in English as it is the common language used in businesses in these countries. ANOVA confirm no significant differences across PsyCap and job stress, although modest statistical differences with NZ lower in job satisfaction and creativity. Overall, respondents had an average age of 36.3 years (SD=9.3), were evenly split by gender (51% female), worked 41.1 hours/week (SD=10.2) and had job tenure of 7.0 years (SD=5.8). Education was dominated by postgraduate qualification (65.1%) and by sector, the majority were from the private sector (76.2%), followed by the public sector (23.0%) and not-for-profit sector (0.7%).

Sample 2 had 475 NZ employees recruited via a Qualtrics survey panel. Respondents had to be working at least 20 hours a week and be aged 18 years and over. Respondents are voluntary, and their system ensures quality responses, and such an approach to data collection has yielded positive samples (e.g. Haar et al., 2018). Overall, respondents had an average age of 38.2 years (SD=13.6 years), slightly more females (58.3%), worked 39.0 hours per week (SD=10.0) and had job tenure of 7.8 years (SD=7.3). Education was dominated by university degree (34%) and postgraduate qualification (18%) and by sector, the majority were from the private sector (67%), followed by the public sector (26%) and not-for-profit sector (7%).

7.3.2 Measures

Creativity was measured in sample 1 using the 9-item scale by Janssen (2000), coded 1=never, 5=almost always. The construct focuses on idea generation, promotion and realization, and items follow the stem “How often do you perform the following work behaviours in the workplace...?”. A sample item is “Mobilizing support for innovative idea” ($\alpha = .91$). Sample 2 used the 3-item scale by Shimazu, Schaufeli, Kamiyama, and Kawakami (2015), coded 1=not at all characteristic of me, 5=very characteristic of me, and a sample item is “I am a good source of creative work ideas”. The measure had excellent reliability ($\alpha = .89$). A different construct was used in sample 2 to reduce respondent burden (3-items instead of 9-items) plus it provides alternative creativity construct to test.

PsyCap was measured with the 12-item PsyCap Questionnaire (PCQ-12) by Luthans et al. (2007), coded 1=strongly disagree, 6= strongly agree. The PCQ-12 consists of four subscales: (1) Hope, (2) Efficacy, (3) Resilience, and (4) Optimism, and this version of the construct is well validated in NZ (e.g., Roche, Haar, & Luthans, 2014). Sample items include: “I can think of many ways to reach my current work goals” (Hope), “I feel confident presenting information to a group of colleagues” (Efficacy), “I can get through difficult times at work because I've experienced difficulty before” (Resilience), and “I’m optimistic about what will happen to me in the future as it pertains to work” (Optimism). Following Roche et al. (2014), the dimensions were combined for a single PsyCap construct ($\alpha = .91$ sample 1, and .90 sample 2).

Job Stress is measured by a single item using the visual scale (1-10) by Stanton, Balzer, Smith, Parra, and Ironson (2001), where 1=no stress, 10=extreme stress.

Job Satisfaction was measured using three items scale by Judge, Bono, Erez, and Locke’s (2005), coded 1=strongly disagree, 5=strongly agree. The construct is well validated in

NZ and internationally (e.g., Haar, Russo, Sune, & Ollier-Malaterre, 2014) and a sample item includes “I feel fairly satisfied with my present job” ($\alpha = .84$ sample 1, and .87 sample 2).

Control variables: Both samples controlled for Private Sector (1=private sector, 0=other sectors) because this sector may have a stronger creativity focus, as this is where the predominance of creativity and innovation research resides (Windrum & Koch, 2008); and Hours Worked (hours per week), as Amabile, Hadley, and Kramer (2002) note that long work hours might be associated with creativity. Due to potential differences in sample 1 across country samples, we created two dummy variables on the largest groups: Pakistan (1=Pakistan, and 0=NZ and Dubai [UAE]) and New Zealand (1=NZ, 0= Dubai [UAE] and Pakistan).

7.3.3 Measurement Models

Methods experts (Williams, Vandenberg, & Edwards, 2009) suggest that in SEM studies, three goodness-of-fit indexes (and their thresholds) should be utilized: (1) the comparative fit index ($CFI \geq .95$), (2) the root-mean-square error of approximation ($RMSEA \leq .08$), and (3) the standardized root mean residual ($SRMR \leq .10$). The nature of the study constructs was confirmed across both samples using confirmatory factor analysis (CFA) in SEM with AMOS 25. The hypothesized measurement model and alternative models are shown in Table 7.1.

Table 7.1.***Results of Confirmatory Factor Analysis***

Model	Model Fit Indices					Model Differences			
	χ^2	df	CFI	RMSEA	SRMR	$\Delta\chi^2$	Δdf	p	Details
Sample 1:									
CFA Model 1	429.0	240	.95	.05	.04				
CFA Model 2	478.4	260	.94	.06	.05	49.4	20	.001	Model 1 to 2
CFA Model 3	503.4	254	.93	.06	.05	74.4	14	.001	Model 1 to 3
CFA Model 4	468.6	247	.93	.06	.05	39.6	7	.001	Model 1 to 4
Sample 2:									
CFA Model 5	389.7	132	.96	.06	.04				
CFA Model 6	529.6	146	.93	.07	.06	139.9	14	.001	Model 5 to 6
CFA Model 7	412.4	137	.94	.06	.05	22.7	5	.001	Model 5 to 7

Sample 1:

Model 1= Hypothesized 9-factor model: Hope, Efficacy, Resilience and Optimism (PsyCap), job stress, job satisfaction, and creativity (3 idea dimensions: generation, promotion and realization).

Model 2= Alternative 6-factor model: Model 1 with combined construct: (Hope + Efficacy + Resilience + Optimism as Higher-Order PsyCap).

Model 3= Alternative 7-factor model: Model 1 with combined construct: (generation + promotion + realization as Higher-Order creativity).

Model 4= Alternative 8-factor model: Model 1 with combined construct: job satisfaction + job stress.

Sample 2:

Model 5= Hypothesized 7-factor model: Hope, Efficacy, Resilience and Optimism (PsyCap), job stress, job satisfaction, and creativity.

Model 6= Alternative 6-factor model: Model 1 with combined construct: (Hope + Efficacy + Resilience + Optimism as Higher-Order PsyCap).

Model 7= Alternative 6-factor model: Model 1 with combined construct: job satisfaction + stress.

Overall, the hypothesized measurement model fit the data best for both samples, with all alternative measurement models resulting in poorer fit (all $p < .001$, Hair, Black, Babin, & Anderson, 2010).

7.3.4 Analysis

Relationships were tested using PROCESS 3.1 (in SPSS v. 25). We use PROCESS model 8 because while we hypothesize for one moderation effect only (Hypothesis 3), the test of moderated mediation (Hypothesis 6) includes an additional interaction (PsyCap x job stress towards job satisfaction), even though we do not hypothesize that relationship. PsyCap was entered as the independent variable, job satisfaction as the mediator variable and creativity as the dependent variable. Job stress was the moderator variable, and control variables were included. The products were mean-centred. We confirmed the existence of mediation effects (including moderated mediation) by using bootstrapping (5000 times) and report the confidence intervals: Lower Limits (LL) and Upper Limits (UL). Examination of the skewness and kurtosis statistics indicated that each of these was within acceptable limits (Hair et al., 2010).

7.4 Results

Descriptive statistics for both samples are shown in Table 7.2. Table 7.2 shows that creativity is significantly correlated with hours worked in sample 1 ($r = .39, p < .01$) and sample 2 ($r = .18, p < .01$), PsyCap in sample 1 ($r = .47, p < .01$) and sample 2 ($r = .49, p < .01$), job satisfaction in sample 1 ($r = .58, p < .01$) and sample 2 ($r = .35, p < .01$), and job stress positively in sample 1 ($r = .38, p < .01$) but negatively in sample 2 ($r = -.13, p < .01$).

The results of the mediation effect and direct effect for moderation are presented in Figure 7.2.

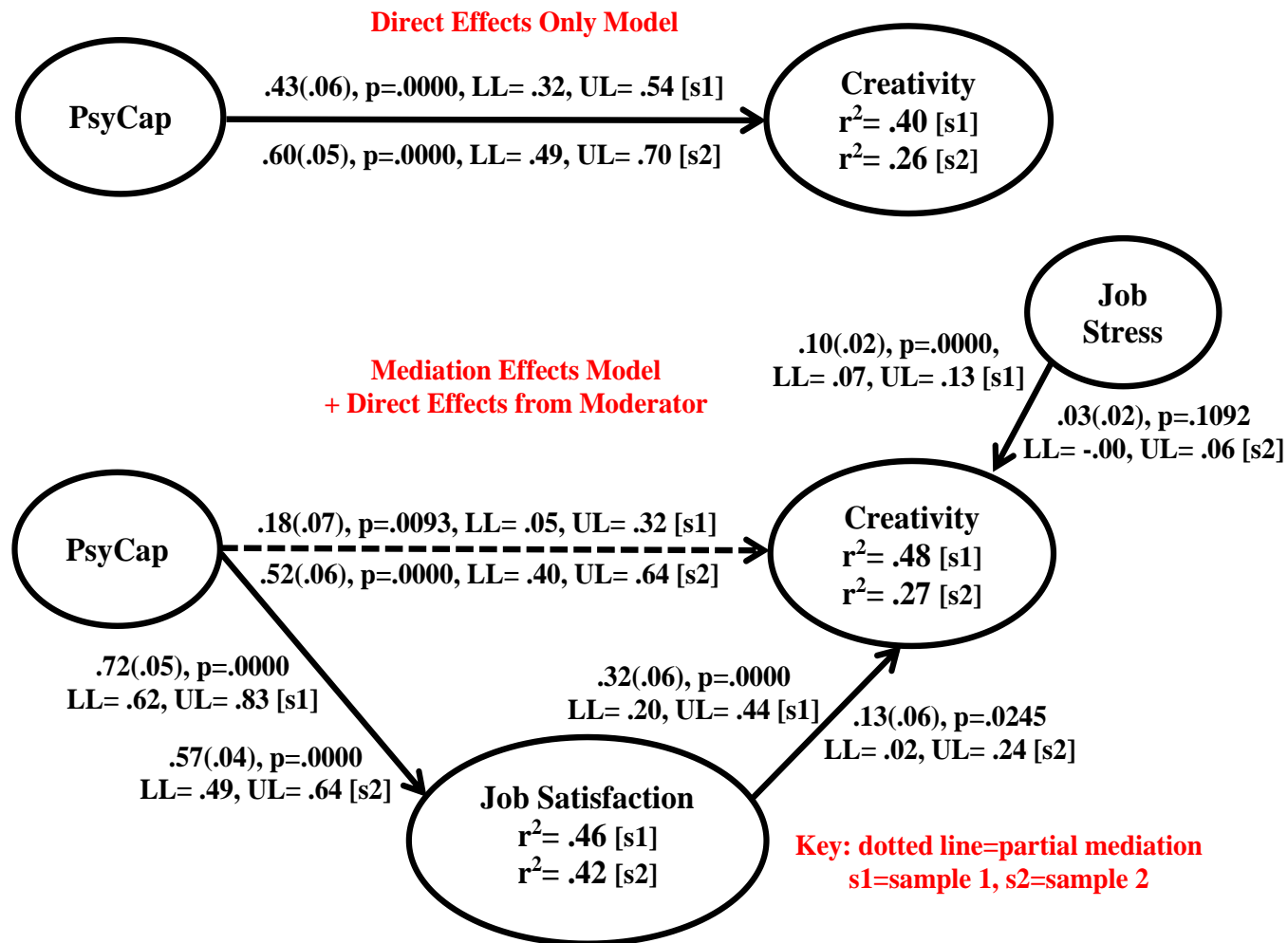
Table 7.2.***Correlations and Descriptive Statistics of Study 1 and 2 Variables***

Variables	Sample 1		Sample 2		1	2	3	4	5
	M	SD	M	SD					
1. Hours Worked	41.1	10.2	39.0	10.0	--	.10*	.10*	-.02	.18**
2. PsyCap	5.0	.58	4.5	.76	.33**	--	-.38**	.61**	.49**
3. Job Stress	6.69	2.0	4.4	2.4	.50**	.19**	--	-.39**	-.13**
4. Job Satisfaction	4.2	.67	3.7	.92	.25**	.66**	.15*	--	.35**
5. Creativity	4.1	.65	3.4	.97	.39**	.47**	.38**	.58**	--

Sample 1 (N=269) is below the diagonal line and Sample 2 (N=475) is above.

*p<.05, **p<.01

Figure 7.2. Results Model



The top part of Figure 7.2 shows that PsyCap is significantly related to creativity in sample 1 ($\beta = .43(.06)$, $p = .0000$ [LL = .32, UL = .55]) and sample 2 ($\beta = .60(.05)$, $p = .0000$ [LL = .49, UL = .70]), supporting Hypothesis 1. Moving to the bottom Figure provides the findings of the other direct and mediation Hypotheses. Hypothesis 2 suggested that job stress would be positively related to creativity, and this was supported in sample 1 ($\beta = .10(.02)$, $p = .0000$ [LL = .07, UL = .13]) but not sample 2 ($\beta = .03(.02)$, $p = .1092$ [LL = -.00, UL = .06]), providing mixed support. Hypothesis 4 suggested job satisfaction would be positively related to creativity and this was supported in sample 1 ($\beta = .32(.06)$, $p = .0000$ [LL = .20, UL = .44]) and sample 2 ($\beta = .13(.06)$, $p = .0245$ [LL = .02, UL = .24]). Hypothesis 5 suggested job satisfaction would mediate the effect of PsyCap on creativity, and this requires PsyCap to be positively related to job satisfaction which it was in sample 1 ($\beta = .72(.05)$, $p = .0000$ [LL = .62, UL = .83]) and sample 2 ($\beta = .57(.04)$, $p = .0000$ [LL = .49, UL = .62]), and job satisfaction is included in the model it partially mediates the effect of PsyCap on creativity in sample 1: (β drop to = $.18(.07)$, $p = .0093$ [LL = .05, UL = .32]) and sample 2: (β drop to = $.52(.06)$, $p = .0000$ [LL = .40, UL = .64]). This supports Hypothesis 5.

Finally, Hypotheses 3 and 6 relate to job stress interacting with PsyCap towards creativity and as a moderator of mediation (Hypothesis 6). Hypothesis 3 was supported in sample 1 ($\beta = .04(.02)$, $p = .0421$ [LL = .00, UL = .08]) but not sample 2 ($\beta = -.02(.02)$, $p = .2222$ [LL = -.06, UL = .01]), providing mixed support. This significant interaction is shown in Figure 7.3.

Figure 7.3. *Interaction of PsyCap x Job Stress with Creativity as the Dependent Variable.*

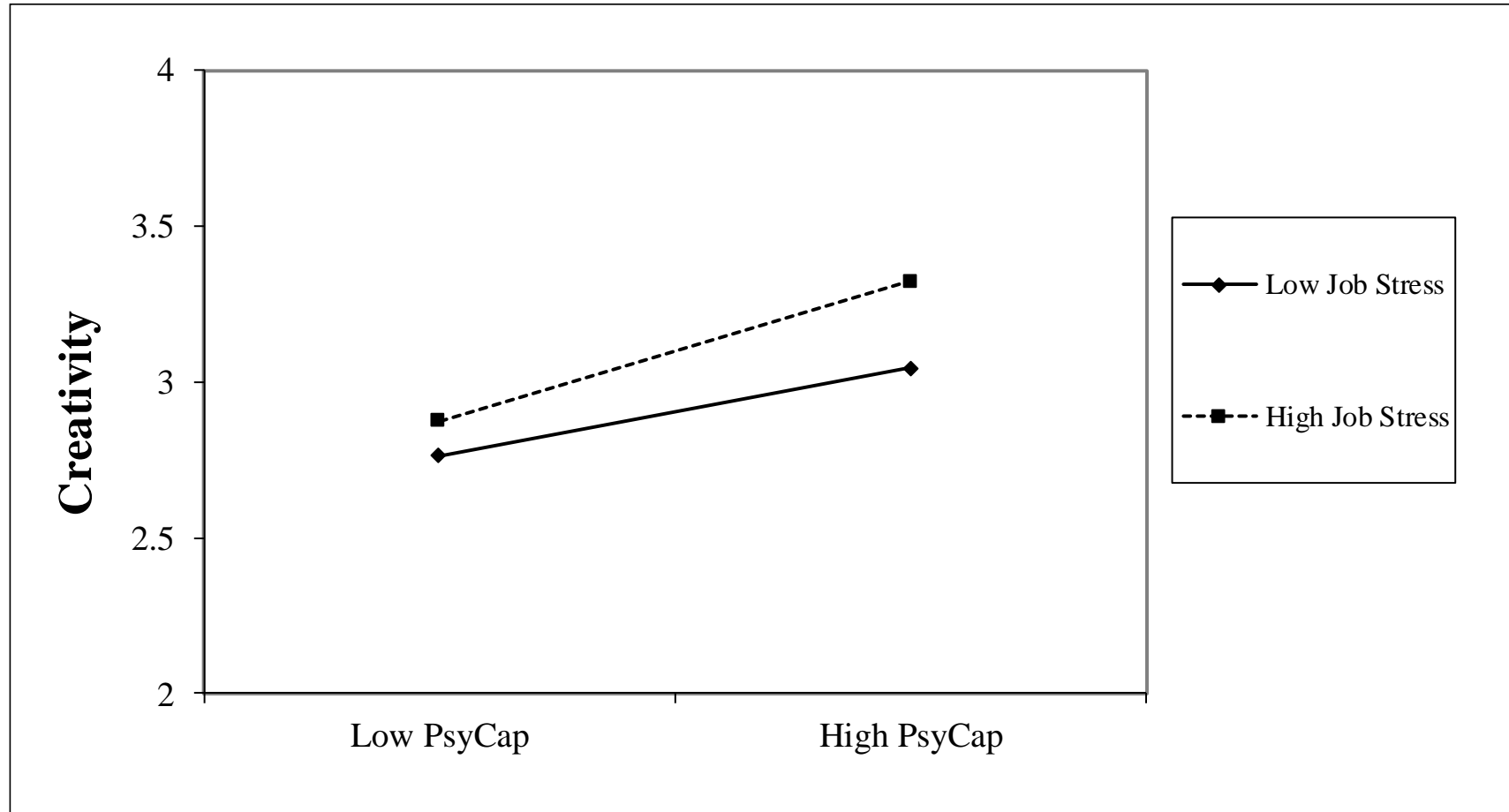


Figure 7.3 shows that at low levels of PsyCap, respondents report similar levels of creativity irrespective of high or low job stress. Amongst respondents with high PsyCap there are distinct improvements in creativity. While both groups report higher creativity, respondents with high job stress report significantly higher levels of creativity compared to the respondent groups with low job stress. This supports Hypothesis 3.

Finally, the results of the index of moderated mediation was found to be significant in sample 1 (Index= .02(.01), $p = .0420$ [LL= .00, UL= .04]) and sample 2 (Index= .01(.00), $p = .0478$ [LL= .00, UL= .01]). Hayes (2018) indicates the interpretation to mean the indirect effect of PsyCap on creativity (mediated through job satisfaction) differs between respondent job stress levels. We present the graphed moderated mediation to illustrate effects in Figures 7.4 and 7.5.

Figure 7.4. *Indirect Effects of PsyCap on Creativity Through Job Satisfaction Conditional on Job Stress (Sample 1).*

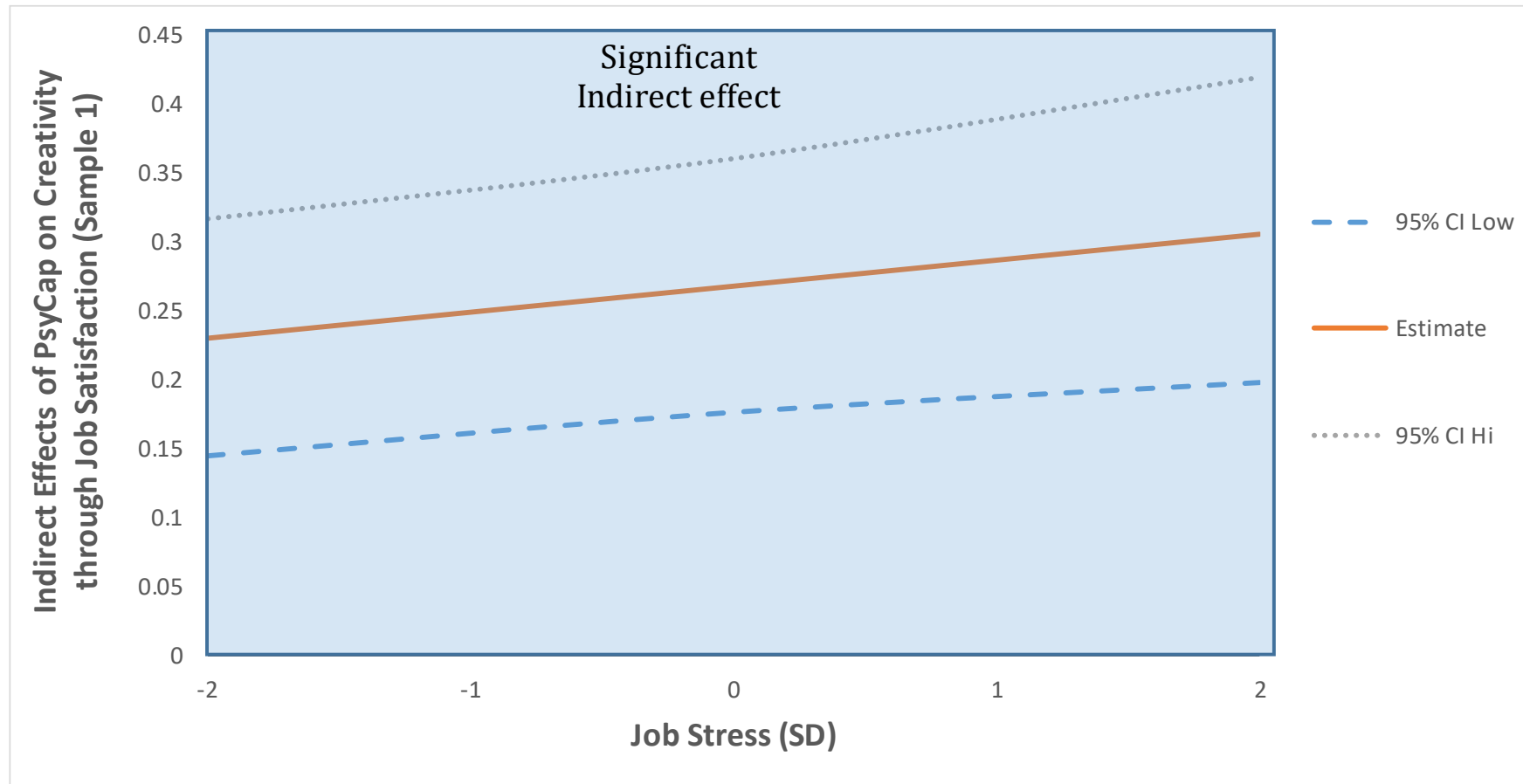
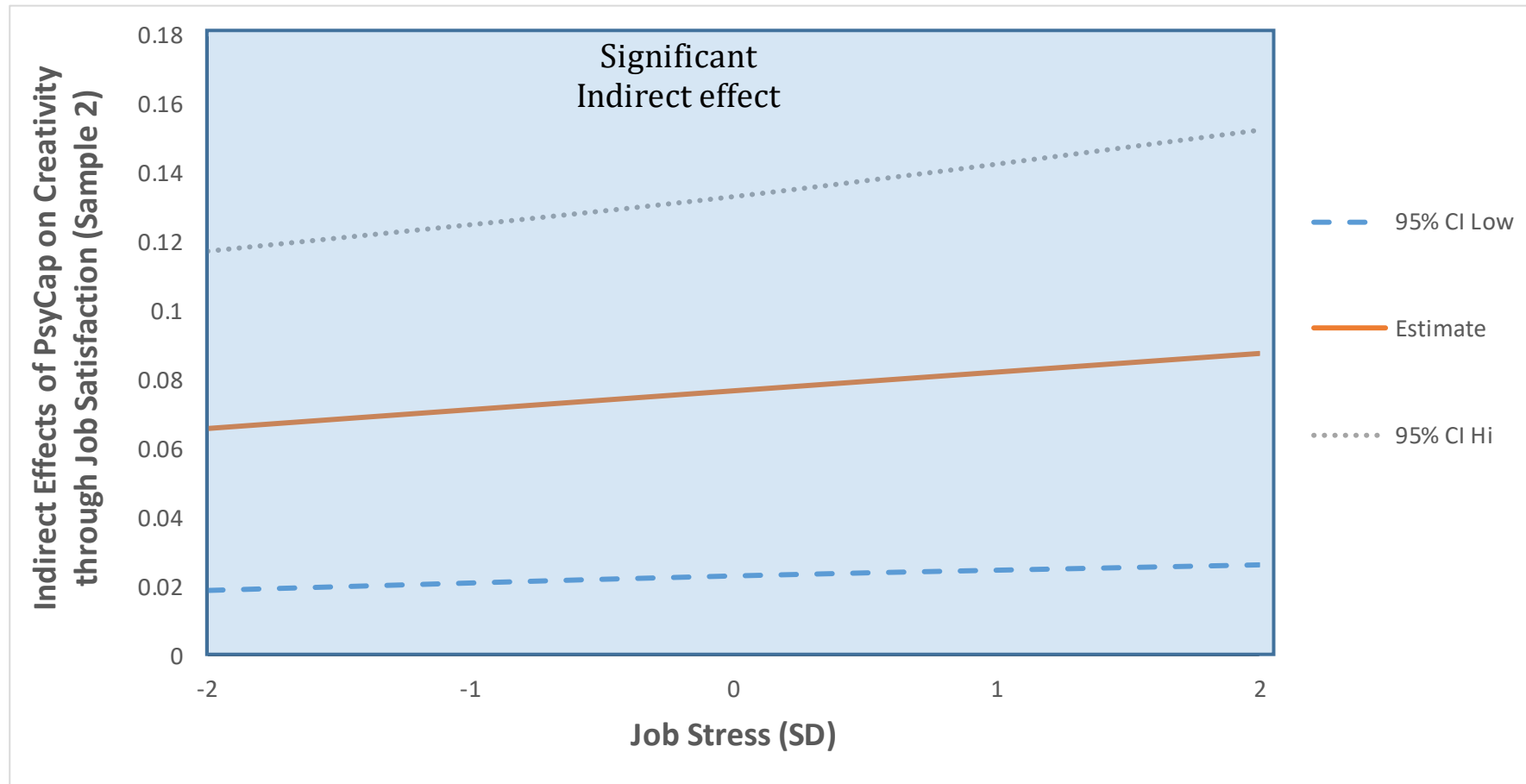


Figure 7.5. Indirect Effects of PsyCap on Creativity Through Job Satisfaction Conditional on Job Stress (Sample 2).



Regarding the moderated mediation effects, we follow Wayne, Lemmon, Hoobler, Cheung, and Wilson (2017) to probe the conditional indirect effect. Hence, we examine the magnitude and significance of the indirect effect of PsyCap on creativity through job satisfaction at low-mean-high levels of job stress (at -2SD, mean, and +2SD). We find that, for those respondents with low job stress, the effect of PsyCap on creativity vis-à-vis job satisfaction was significant, positive and the smallest effect in both sample 1 (estimate= .07, $p = .0157$; LLCI= .02, ULCI= .12) and sample 2 (estimate= .23, $p = .0000$; LLCI= .13, ULCI= .34). At mean level job stress, the effect of PsyCap on creativity vis-à-vis job satisfaction was significant, positive and a stronger effect in both sample 1 (estimate= .08, $p = .0121$; LLCI= .02, ULCI= .12) and sample 2 (estimate= .27, $p = .0000$; LLCI= .16, ULCI= .38). At high levels of job stress, the effect of PsyCap on creativity vis-à-vis job satisfaction was significant, positive and the strongest effect in both sample 1 (estimate= .09, $p = .0112$; LLCI= .03, ULCI= .15) and sample 2 (estimate= .31, $p = .0000$; LLCI= .18, ULCI= .45). This shows that employees with higher job stress are associated with a stronger positive indirect effect from PsyCap on creativity through job satisfaction. The moderated mediation effect showed the indirect effect of PsyCap increases as job stress gets stronger, supporting Hypothesis 6.

Overall, across the control variables, hours worked (total per week) were significantly related to creativity in sample 1 only ($\beta = .01(.00)$, $p = .0015$ [LL= .01, UL= .02]) and New Zealand Country in sample 2 ($\beta = -.30(.10)$, $p = .0027$ [LL= -.50, UL= -.15]). Finally, the models account for large amounts of variance towards job satisfaction in sample 1 (46%) and sample 2 (42%) and differing amounts of variance towards creativity, large amounts in sample 1 (48%) but more medium levels (27%) in sample 2.

7.5 Discussion

The present study sought to unlock the potential positive influence of job stress on creativity, which is widely considered negative. Though literature provides with significant negative influences of job stress leading to physical and psychological health problems (Kivimäki et al., 2006) and turnover intentions (Yousaf, Rasheed, Hameed, & Luqman, 2019), a meta-analysis (Byron et al., 2010) have suggested that stress influence on creativity is positive, negative and curvilinear. Moreover, researchers have suggested that under certain conditions, stress may positively influence creativity (e.g., Montani et al., 2018). In order to expand on these findings and assertions, following COR theory, the influence of job stress is investigated in addition to the influence of PsyCap because this represents potentially strong psychological resources that we hypothesized would produce more creativity when employees experience stress.

We used two distinct samples to bolster confidence in findings (Nuzzo, 2014) and found strong, consistent effects that provide additional confidence. Our findings show that PsyCap is significantly related to creativity in both samples, and our analyses also show that PsyCap is positively related to job satisfaction. While job satisfaction was also found to be positively related to creativity, it indicated only partial mediation effects of the influence of PsyCap on creativity. Hence, we understand the process of influence better, with psychological resources shaping job satisfaction and then both leading to greater creativity. However, it is when job stress is added to the model that we gained stronger insights.

Across two samples, we find employees job stress can be both directly beneficial (sample 1) and detrimental (sample 2) towards stimulating creativity. Interestingly, we find job stress interacts significantly with PsyCap (sample 1 only) with high job stress and high PsyCap leading to the highest creativity. Hence, our initial hypothesis has support, whereby we argued that employees with the highest psychological resources

could positively use high job stress. Aligned with COR theory Hobfoll et al., (2018), these findings indicate that job stress acts as a resource encouraging employees to tap into their psychological resources and lead to creative outcomes. Also aligned with resource caravan effect (Hobfoll, 2001) suggesting that resources work effectively in groups and should be considered as such, these findings reflect that PsyCap provides strong resources which enables the potential positive influence of job stress to be realized, whereby an individual with higher resources (PsyCap) is better able to manage stress to achieve performance. Interestingly, these findings are opposite to recently tested relationships between time-related work stress, and counterproductive behaviours were positively moderated by negative personality traits: machiavellianism, narcissism and psychopathy (De Clercq, Haq, & Azeem, 2019). Following COR theory, this study based its findings on resource loss principle, caused due to stress (resource depletion) but signified that employees felt less constrained to respond (through counterproductive behaviours) based on their personal characteristics to the extent that they experience resource gain (personal satisfaction). This shows that the role of stress is indeed complex, and perhaps its influence relies on psychological resources of individuals dealing with said stress as found in the present study.

Our paper also makes the important contribution around the role of job stress as a boundary condition, whereby the indirect effect of PsyCap on creativity through job satisfaction was found to differ across job stress levels. Aligned with our arguments, as job stress got stronger, the indirect effect of PsyCap also got stronger. While the two samples had quite different strengths in effect sizes, the relationships were identical: as job stress rise so too does the indirect effect of PsyCap. This aligns with the extension of COR debate around some resources being salient but also negative (Hobfoll et al., 2018) - in this case, job stress. Hence, job stress might not only directly interact with PsyCap to enhance creativity (which was supported in only one sample) but might be better

understood acting as a boundary condition. This might also account for the various differing effects found in the literature regarding stress on creativity (Byron et al., 2010). The findings show that while job stress can be beneficial to creativity, it is also important regarding the context of PsyCap. Individuals with low on PsyCap, lack the psychological reservoir of resources to best cope and leverage job stress to creativity gains. As such, our findings indicate that job stress can benefit creativity but best within the context of strong psychologically resourced employees.

Our findings also provide insights into Broaden-and-Build (Fredrickson et al., 2000) theory around the interaction between job stress and PsyCap. We argued that under this theory, employees with stronger positive psychological resources (high PsyCap) are better able to recover from negative psychological events (e.g., high job stress) and leverage such stress, at the neutral level, to activate greater creativity. These findings align with Crum et al. (2013), who suggested stress can act as an enhancing mindset, and we suggested that this might be actualized in the context of high levels of psychological resources. Hence, our findings provide important theoretical support for COR and Broaden-and-Build theories around the importance of individual context (PsyCap) when examining the potential for stress to shape creativity positively.

7.5.1 Implications

A significant source of workplace adversity is job stress that can spill over into dysfunctional work behaviours (De Clercq et al., 2019). However, organisations focusing on managing employee job stress might find it difficult to completely eliminate or minimize job stress, which has been a perennial workplace issue for decades. The literature shows mixed outcomes from job stress (Folkman, 2013), being dependant on how it is involved as a function (Fisher, Minbashian, Beckmann, & Wood, 2013), thus potentially acting as a resource in conjunction with PsyCap and thus leading to favourable outcomes (Hobfoll et al., 2018). That said, while we find job stress appears to function

positively in conjunction with high PsyCap towards creativity, it is fundamentally a detrimental influence on most outcomes, including personal health.

We would be remiss in advising organisations to build job stress to aid their employees' creativity because the potential creativity gains might come at the cost of personal health risks (Kivimäki et al., 2006) or other detrimental work outcomes (Podsakoff, LePine, & LePine, 2007). Alternatively, given meta-analysis support, PsyCap leads to several positive workplace and wellbeing outcomes (Avey et al., 2011). Organisations that focus on building positive psychological resources and PsyCap that does have support for being a developmental construct (Luthans, Avey, & Patera, 2008) may find benefits beyond performance to improved creativity and management of stress through a more productive approach. Conversely, negative psychological elements have shown to not only enhance the negative influence of stress but also lead to counterproductive behaviours (De Clercq et al., 2019) highlighting the importance of psychological resources. In lieu of this, managers and leaders should help employees gain, develop and retain high psychological resources (i.e., PsyCap) through training interventions (e.g., Luthans et al., 2008a) that are proven to be adept performers across a wide range of factors, and in addition, enable employees to cope better with stress and be able to leverage this stress to achieve creativity.

7.5.2 Limitation

Despite these positive findings, the present study uses cross-sectional data, though the potential issue to common method variance (CMV) is minimized using CFA in SEM (Haar et al., 2014). While certain correlations were high, CFA showed the hypothesized constructs were the best fit for the data, but we acknowledge strong relationships amongst PsyCap and job satisfaction, although not too dissimilar to the meta-analysis (Avey et al., 2011) where a corrected correlation of 0.54 was reported, and our scores are within the 95% confidence interval (UL=.73). Furthermore, we used two quite distinct samples and

found similar effects, encouraging the generalizability of the findings. As a final check, we used the procedure of Lindell and Whitney's (2001) as recommended by Podsakoff, MacKenzie, Lee, and Podsakoff (2003), and conducted a partial correlation controlling a construct unrelated to the relationship in both samples (work engagement construct absorption, 3-items by Schaufeli, Salanova, Gonzalez-Roma, and Bakker (2002), $\alpha = .86/.87$ samples 1/2). The analysis showed no changes in the relationship in either sample, which supports the likelihood of CMV as low (Podsakoff et al., 2003). In addition, we acknowledge that our job stress variable is a single-item, although this measure has been found to be similar to more complex stress constructs (Stanton et al., 2001), and has been used in employee research (Boxall, Hutchison, & Wassenaar, 2015). Researchers interested in reducing respondent burden find single-item constructs are very applicable (e.g., Beal, Trougakos, Weiss, & Dalal, 2013), and indeed, comparison studies of single-item versus multi-item scales have found little difference (Gardner, Cummings, Dunham, & Pierce, 1998). Finally, sample 1 had a high correlation between work hours and stress ($r = .50, p < .01$) and including or removing this control variable did not change effects, and we also acknowledge that a different creativity construct was used across both studies, although the effects remained the same and as hypothesized, suggesting there is no measurement difference. Overall, given our two broad samples, across professions, sectors and countries, we suggest our findings are generalizable, although we concede that other factors might be considered in future research.

7.5.3 Conclusion

The present study contributes to the literature of how job stress can positively influence creativity, and we find it is in the context of PsyCap that appears to be a vital foundational role. Our findings highlight the importance of investing in employee PsyCap, through training interventions or recruitment, and we make contributions to both COR, and Broaden-and-Build theories in understanding the typical resource depletion due to job

stress might generate more not less creativity when considered in combination with strong psychological resources. We encourage further replication and extension to understand these effects better.

7.6 References

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CHAPTER EIGHT: PAPER 5

Under What Conditions Can Stressors-Strains Positively Influence Creativity? A Repeat-Measure Study of Psychological Resources

Preface

Further expanding on findings of Paper 4, I was encouraged to explore what causes stress/strain, and how the influence of negative factors crossover within individuals (i.e., stressors cause strain). I looked at stressors (work-family conflict/family-work conflict), how they influence strain (job-anxiety) and ultimately influence CB. Using a two-time period study and repeat-measure design allowed me to explore a model mitigating the potential effects of Common Method Variance. Though change over time in stressors and strains did not show any significant direct effect towards CB (as hypothesized), the influence of job-anxiety in an interaction did show a positive pattern towards CB when high psychological resource (psychological capital) was present. This again strengthened the arguments of Paper 1 regarding negative factors having potential to be beneficial towards creativity when looked at in combination with other positive factors and aligns with findings of Paper 4 where negative factor (job stress) showed similar patterns using two diverse samples, highlighting the potential of psychological capital in changing the traditionally detrimental influence on CB. This paper also provides support to resource caravan effect, where resources can be negative in nature, but their influence on outcomes is dependent on the context in which they operate.

This paper was presented at the 8th Aotearoa New Zealand Organisational Psychology & Organisational Behaviour Conference (29th November 2019) at the Auckland University of Technology (AUT).

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Abstract

Creativity is a critical attribute that firms seek to develop and cultivate. However, understanding the role of stressors-strains on creativity behaviours (CB) has proven elusive, principally due to (1) limited focus on the stressors-strain relationship, and (2) limited focus on factors that may play a role in stressors-strain influence on creativity. Further, while evidence shows psychological factors influence CB, these are not typically explored in combination with stressors-strains. Using psychological capital (PsyCap), which refers to an individual's positive psychological state of development, we test whether PsyCap acts as a psychological reservoir to enable stressors-strains to enhance CB following Conservation of Resources theory. Using repeat-measure data from 219 United States of America employees, we test a model whereby PsyCap influences CB and interacts with stressors-strains, and ultimately, we find high CB when PsyCap is high including at all levels of job-anxiety including high levels. We discuss the implications regarding CB, especially including stressors-strains, and the importance of testing these effects with repeat-measure design.

Keywords: *creativity behaviours; psychological capital; job-anxiety; work-family conflict; moderation; repeat-measure design.*

8.1 Introduction

Creativity refers to the production and implementation of novel ideas and practices that enable better products, processes, and procedures to help organisations grow and survive (Tierney & Farmer, 2011). Pan, Sun and Lam (2017) suggest that creativity has gained importance due to greater competition and the need for firms to grow continually. Clearly, creativity is valued and important to organisations, and researchers over the years have highlighted a verity of diverse predictors of creativity. These include leadership, support, personalities, and skills (Anderson, Potočnik, & Zhou, 2014; Standing et al., 2016). Factors that are mostly positive in nature, but there are still aspects of creativity that remain underexplored and unknown (Anderson et al., 2014). These include stressors (i.e., conditions that cause strain) and resulting strain responses that are reported by employees to be a constant part of their work and affect their productivity negatively (Summers, Munyon, Brouer, Pahng, & Ferris, 2020).

A meta-analysis by Kivimäki et al. (2006) supports the overall detrimental nature of work stress. However, Byron, Khazanchi, and Nazarian (2010) meta-analysis on stressors and creativity suggested the relationship could be negative, positive, or curvilinear, and thus needs further exploration. Similarly, a recent review on workplace ‘uncertainties’ suggested that negative elements including workplace stressors, though detrimental in nature, are part of the creative process (Hon & Lui, 2016). Collectively, reviews exploring the predictors of creativity (e.g., Anderson et al., 2014; Hon & Lui, 2016) have highlighted the lack of “comprehensive understanding and cross-disciplinary integration” of negative elements towards creativity (Acar, Tarakci, & van Knippenberg 2019, p. 98). The present study responds to these reviews by investigating the influence of stressor-strain on creativity, specifically creativity behaviours (CB), through the lens of Conservation of Resource (COR) theory, which theoretically encourages examining resources in combination (Hobfoll, 2011).

We suggest a key resource to explore the potential positive influence of stressors-strains on CB is psychological capital (PsyCap), given Anderson et al. (2014) purported that psychological resources are crucial for creativity. We suggest PsyCap might be an important determinant to the success of CB because high PsyCap individuals have greater stability, high perceived self-worth, react well to adversity and have confidence in themselves (Luthans, Avolio, Avey, & Norman, 2007b), that should engender more novel ideas and practices at work. Importantly, in the context of combined influence under resource caravan, we believe that PsyCap can act as a psychological reservoir that potentially creates beneficial, as opposed to detrimental, effects from stressors-strains on CB. Overall, this study contributes to the understanding of COR theory resource caravan effect by investigating how stressor-strain interact with PsyCap towards creativity.

8.2 Theoretical Lens: Conservation of Resources (COR) Theory

The COR theory is an integrated model of stress which examines resources and the way people maintain, gain, or lose these resources (Hobfoll, 1989). Hobfoll (2001) defined resources as “objects, personal characteristics, conditions, or energies that are valued in their own right, or that are valued because they act as conduits to the achievement or protection of valued resources” (p. 339). Resources are important because they can help employees attain more resources, or, importantly, in the context of the present study, enable employees to better deal with resource loss. Hobfoll, Halbesleben, Neveu, and Westman (2018) define resources as anything that can help the individual attain their goals, and therefore stressors-strains, which might be fundamentally detrimental, can potentially act beneficially if it helps goal achievement (i.e., being more creative). COR theory offers the *resource caravan approach*, which suggests that “both the interrelationship between resources and how environments and contexts create fertile or infertile ground for creation, maintenance, and limitation of resources” (Hobfoll et al., 2018, p. 107). Thus, theoretically, there is a drive to understand resources not individually

but in relation to other factors. In the context of stressors-strain, the potential for these negative resources to act beneficially is theoretically possible when examined in combination with other resources that promote desired goals (Hobfoll, 2011; Hobfoll et al., 2018).

8.2.1 Creative Behaviours (CB)

CB are defined as the use of individual resources, to innovate, make decisions and take control of tasks that help improve organisational processes and produce favourable outcomes (Anderson et al., 2014). CB leads to the production of “novel, potentially useful ideas about organisational products, practices, services or procedures” (Shalley, Zhou, & Oldham, 2004, p. 933). Our focus on CB stems from recent research showing a strong relationship between stress and behavioural outcomes such as counterproductive behaviours (e.g., De Clercq, Haq, & Azeem, 2019), and thus we explore CB as our outcome. CB are influenced by several personal factors that may enhance or demote creative outcomes, including knowledge, abilities and skills (Amabile, 1996), and thinking styles (Groza, Locander, & Howlett, 2016).

In their review on positive and negative moods and creativity, Baas, De Dreu, and Nijstad (2008) suggest that stress and performance relationship can be better explored through levels of activation, where a moderate level of activation caused by stress leads individuals to engage in creative processes, but it's highly unlikely in the case of extremely high or low activation levels. Researchers suggest that under certain conditions, stress/strain may positively influence creativity (e.g., Binnewies & Wörnlein, 2011; Montani, Dagenais-Desmarais, Giorgi, & Grégoire, 2018), which aligns with Byron et al. (2010) investigation of stressors and creativity relationship and suggestion that “stressors’ effect on creativity is more complex than previously assumed” and thus requires further attention” (p. 201). We next discuss our key factors and develop hypotheses in the context of COR theory.

8.2.2 Stressors and Strain

Ganster and Rosen (2013) define work stressors as “events and work characteristics that affect individuals through a psychological stress process” (p. 1088). Griffin and Clarke (2011) note that employees’ responses to these pressures are called strains. Ganster and Rosen (2013) “define work stress as the process by which workplace psychological experiences and demands (stressors) produce both short-term (strains) and long-term changes in mental and physical health” (p. 1088). Importantly, there is a contentious debate that under some circumstances, stressors might play an important role in influencing CB. Though there is a plethora of potentially significant influence of stressors on outcomes, these are mostly negative leading to detrimental outcomes such as counterproductive behaviours, negative emotions and disengagement (e.g., Fida et al., 2015).

This study focuses on work-family conflict (WFC) and family-work conflict (FWC) because these stressors are theoretically based on both work and non-work focus (Greenhaus & Beutell, 1985). Haar, Roche, and ten Brummelhuis (2018) stated that WFC is “caused by a lack of resources (time, energy, etc.) when trying to juggle a number of roles”, with Haar (2013) suggesting FWC represents a discord and ‘misfit’ between family and work roles. The bi-dimensional nature of these stressors (Greenhaus & Beutell, 1985) reflects that WFC represents the intrusion of work into the home, and FWC the opposite. Overall, there is universal support that WFC/FWC is detrimental to work performance (Gilboa, Shirom, Fried, & Cooper, 2008), psychological health (Amstad, Meier, Fasel, Elfering, & Semmer, 2011), including anxiety (Cooper, Cooper, Dewe, & O'Driscoll, 2001).

Axtell et al. (2002) defined job-anxiety as “low pleasure and high mental arousal” (p. 222). As one of the dimensions of mental well-being (Melchior et al., 2007) job-anxiety is linked with a low drive to change the current workplace situation: “even when

they are unsatisfactory” (Warr, 1996, p. 197). Job-anxiety is influenced by danger or threat (Warr, 1990) and is associated with ailments, including poor memory and a lack of concentration that further fuels frustration (Baruch & Lambert, 2007). An individual’s anxiety reflects on behaviours which can lead to either or both physiological and psychological disturbance (Roche, Haar, & Luthans, 2014), with substantial (detrimental) job performance repercussions. Recently, the debilitating influence of job anxiety on job performance has been noted (McCarthy, Trougakos, & Cheng, 2016; Cheng & McCarthy, 2018) including job-anxiety positively influencing counterproductive behaviours (Chen, Li, Xia, & He, 2017). Under COR theory, due to anxiety when individual resources are “exhausted, they enter a defensive mode to preserve the self” (Hobfoll et al., 2018, p. 106) which explains reduced positive behaviours and increased negative behaviours.

Empirical evidence of stressors positively influencing creativity is mixed (Byron et al., 2010), with some evidence based on the challenge-hindrance stressors model, and relates to employees appraising their work as challenging rather than a hindrance (e.g., Sacramento, Fay, & West, 2013; Zhang, Bu, & Wee, 2016). This approach has its own limitations when stressors are appraised as something positive (Hobfoll et al., 2018). Ultimately, researchers have noted that the issues of stress on creativity cause difficulties in theory development around how best to enhance creativity in the presence of stressors (Nguyen, Takahashi, & Nham, 2018). We suggest in the context of resources, the COR theory may account for divergent findings on stress and creativity. We now bring our stressors-strain and CB into combination with our psychological resource.

8.2.3 Psychological Capital (PsyCap)

PsyCap is defined as the investment in individual resources for the future (Luthans, Avolio, Walumbwa, & Li, 2005). PsyCap has a strong theoretical background (Luthans, Norman, Avolio, & Avey, 2008; Luthans, Youssef, & Avolio, 2007a) suggesting that it is a “measurable second-order core construct that accounts for more variance in employee

performance and satisfaction than the four positive constructs that make it up” (Luthans & Avolio, 2009, p. 300). These constructs are hope, efficacy, resilience and optimism, which all have the conceptual characteristic of “positive appraisal of circumstances and probability for success based on motivated effort and perseverance” (further detailed elsewhere, Luthans et al., 2007b, p. 550). PsyCap has the potential to play an important role in the development of creative outcomes (Luthans & Youssef, 2004).

Within the context of COR theory, we use PsyCap as a psychological resource and specifically a ‘psychological reservoir’, which we define as an important pool of psychological resources (i.e., hope, confidence, resilience, optimism) from which employees can draw in times of challenge. Specifically, in the context of stressors-strain, we suggest the value of PsyCap stems from this reservoir that enables enhanced job performance (Avey, Reichard, Luthans, & Mhatre, 2011). The individual PsyCap dimensions relate to greater creativity (e.g., Luthans et al., 2008; Yu, Li, Tsai, & Wang, 2019), and influence positive behaviours leading to creative work solutions (Hirst, Van Knippenberg, & Zhou, 2009). Collectively, PsyCap leads to innovative behaviours (Abbas & Raja, 2015) and creativity (Cai, Lysova, Bossink, Khapova, & Wang, 2019). Fundamentally, under COR theory, high PsyCap should indicate employees with superior resources that they can dedicate to achieving superior creativity. We posit the following.

Hypothesis 1: PsyCap will be positively related to CB.

Aligning the COR theory, we expect the influence of PsyCap on stressors and strains will be negative, as high PsyCap individuals are better able to cope with workplace issues. This is because, under COR theory, high PsyCap means that an individual has a strong pool of psychological resources, which represents a stable internal state (Luthans

& Youssef-Morgan, 2017), and meta-analysis supports this (Avey et al., 2011). Hence, we expect PsyCap to be negatively related to stressors-strains, and we posit the following.

Hypothesis 2: PsyCap will be negatively related to (a) WFC, (b) FWC, and (c) job-anxiety.

We suggest that there are a number of theoretical arguments from COR theory that provide useful insights into understanding how stressors-strains will influence CB in the presence of PsyCap. Under COR Principle 2 (resource investment), Hobfoll et al. (2018) argue that individuals with greater resources (e.g., high PsyCap) are not only better able to gain more resources, but are also able to maintain existing resources in challenging times and not suffer a loss-spiral of resources. This is because individuals with high PsyCap have additional resources to invest in order to protect against resource loss and recover quickly from loss (e.g., stressors-strain). Further, Hobfoll et al. (2018) note that according to Principle 3 (gain paradox), resource gain becomes more important in the context of resource loss (e.g., stressors-strain) and this may lead an individual to go into a defensive state (Principle 4: desperation) to prevent their current resources from being lost, as well as gain resources to be able to offset stressful conditions without losing further resources.

In the present study, we suggest that PsyCap might be the reason for the current confusion over studies of stressors-strains on creativity (De Dreu, Baas, & Nijstad, 2008; Byron et al., 2010) and performance and strains (Cheng & McCarthy, 2018). We suggest that PsyCap under a COR perspective represents a strong pool of resources an individual can commit to their work and non-work roles (i.e., work and family), which has empirical support (Karatepe & Karadas, 2014). Thus, we suggest that as the threat to loss of resource occurs (high WFC, FWC, job-anxiety), employees will be able to invest their resources into creating more resources (through creative solutions) only if they have

sufficient resources (activated) as they “enter a defensive mode to preserve” their resources (Hobfoll et al., 2018, p. 106). Using our resource reservoir argument (around psychological resources), we argue that high PsyCap employees have more resources to manage these stressors-strains and ultimately ‘bend’ them to be beneficial towards creativity.

We understand stressors by their very nature are antecedents of strain (Ganster & Rosen, 2013) with meta-analytic support (Amstad et al., 2011), and expect WFC and FWC to be positively related to job-anxiety. Further, given reviews around stressors (Gilboa et al., 2008) and stress (Lerner & Henke, 2008) on job performance, we would expect these factors to correlate significantly but negatively with CB. However, it may be that stressors-strain influence CB beneficially in the context of PsyCap and thus invites testing a moderating effect. There are theoretical reasons to expect this. First, the COR theory suggests that under the resource caravan effect, resources work in combination (Hobfoll, 2011, 2018), and thus understanding the effect of stressors-strain on CB is best determined in the context of PsyCap, acting as moderators of PsyCap. Second, Hobfoll et al. (2018) argue that the influence of resources, irrespective of their nature, depends on the ecological condition, where these resources interact, nurture and grow.

This aligns with our moderating approach because we can test negative work factors (WFC, FWC, and job-anxiety) with respect to their effects on CB in the presence of PsyCap. In support of our approach, Abbas, Raja, Darr, and Bouckennooghe (2014) found that while perceived organisational politics was negatively related to job performance, it interacted significantly with PsyCap leading to higher and positive job performance for high PsyCap employees, with low PsyCap employees reporting a significant drop. We similarly expect PsyCap to lead to positive CB in the presence of stressors-strain but only for high PsyCap individuals. We posit the following.

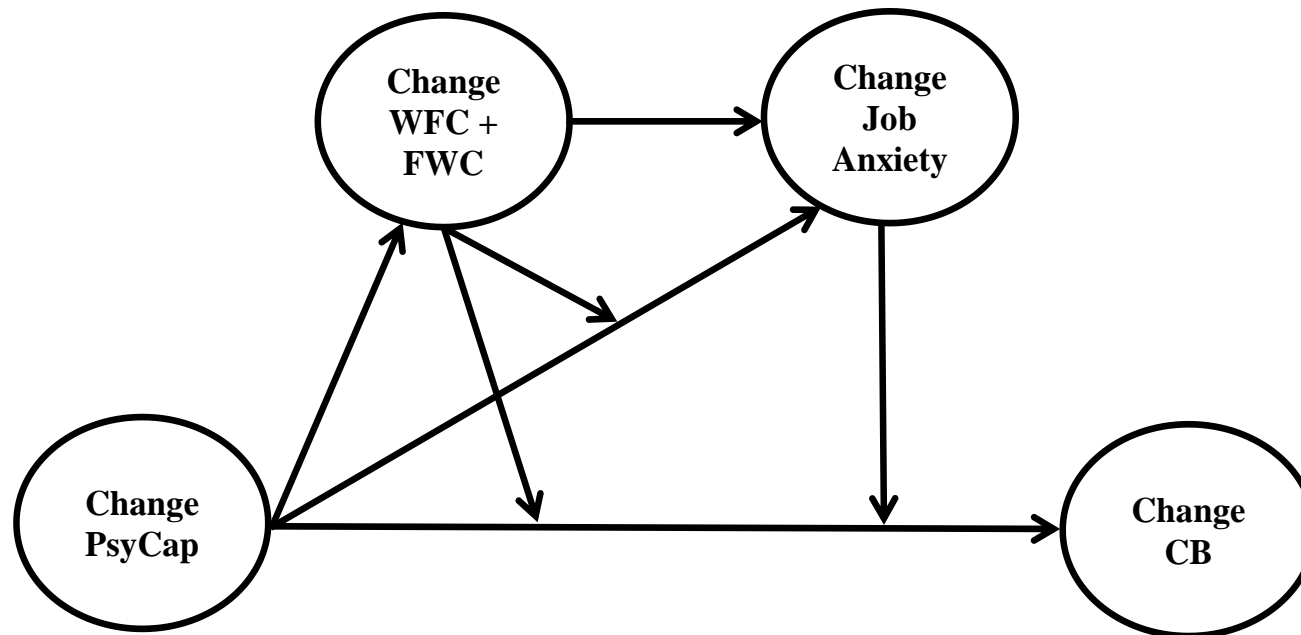
Hypothesis 3: (a) WFC and (b) FWC will be positively related to job-anxiety.

Hypothesis 4: (a) WFC, (b) FWC, and (c) job-anxiety will be negatively related to CB.

Hypothesis 5: PsyCap will interact with (a) WFC, (b) FWC, and (c) job-anxiety towards CB, with positive effects found amongst high PsyCap respondents.

Our study model is shown in Figure 8.1.

Figure 8.1. Study Models



8.3 Methods

8.3.1 Participants and sample

We used a repeat-measure design to test hypotheses as a response to calls for more enhanced methodological designs (Ployart & Vandenberg, 2010) and to align with studies of anxiety (Griffin et al., 2003). A total of 219 participants were recruited via a Qualtrics survey panel of US employees. Respondents requirements (for both time periods) included working a minimum 20 hours a week and being at least 18 years old. Responses were voluntary, any slow or fast responses were removed, and no multiple responses were collected. Respondents completed the same survey twice with a six-month gap between surveys. This panel approach has yielded useful employee samples (e.g., Nguyen, Haar, & Smollan, 2020). A meta-analysis (Walter, Seibert, Goering, & O'Boyle, 2019) found no significant differences between data sourced conventionally and panel data (like Qualtrics).

Overall, respondents had an average age of 39 years ($SD=11.8$), were female (71%), working 41.1 hours/week ($SD=8.3$). Education was well spread but dominated by university qualifications: 17% high school, 14% technical qualification, 44% university degree, and 25% postgraduate qualification in education. By sector, the majority were from the private sector (63%), followed by the public sector (27%) and the not-for-profit sector (10%). By firm size, the majority were either large-sized (1000+ employees) at 33% or small-sized with 50 employees or less at 25%.

8.3.2 Measures

Creativity Behaviours were measured with the three items by Shimazu, Schaufeli, Kamiyama, and Kawakami (2015) based on George and Zhou (2002). Items were coded 1=not at all characteristic of me, 5=very characteristic of me, and a sample item is "I

come up with new and practical ideas to improve work performance” (time 1 $\alpha = .92$, time 2 $\alpha = .94$).

PsyCap was measured with the 12-item PsyCap Questionnaire (PCQ-12) by Luthans et al. (2007a), coded 1=strongly disagree, 6= strongly agree. The PCQ-12 consists of four subscales: (1) Hope, (2) Efficacy, (3) Resilience, and (4) Optimism, and is well validated (e.g., see Luthans et al., 2007b; Avey et al., 2011; Roche et al., 2014). Sample items include: “Right now I see myself as being pretty successful at work” (Hope), “I feel confident in representing my work area in meetings with management” (Efficacy), “I usually take stressful things at work in stride” (Resilience), and “I always look on the bright side of things regarding my job” (Optimism). As per standard practice (e.g., Roche et al., 2014) we combine the items for a global PsyCap construct (time 1 $\alpha = .93$, time 2 $\alpha = .94$).

Work-family conflict was measured with the 6-item strain dimension by Carlson, Kacmar, and Williams (2000), coded 1=strongly disagree, 5=strongly agree. Work-family conflict (WFC), sample item “I am often so emotionally drained when I get home from work that it prevents me from contributing to my family” ($\alpha = .92$ time 1 and .91) and family-work conflict (FWC), sample item “Tension and anxiety from my family life often weakens my ability to do my job” ($\alpha = .89$ time 1, and .94 time 2).

Job-Anxiety was measured using 3-items by Axtell et al. (2002), coded 1=never, 5=all the time. Respondents were presented with three adjectives and asked to rate how often these apply to them at work. Sample items are “anxious” and “worried” for anxiety ($\alpha = .90$ for both time 1 and 2) and this has been well validated (e.g., Haar, 2013; Haar, Russo, Suñe & Ollier-Malaterre, 2014).

Controls. Williams, Vandenberg, and Edwards (2009) warn against including too many control variables in SEM analysis. We controlled for Hours Worked (total per week)

because as Amabile, Hadley, and Kramer (2002) note that working long hours can be associated with creativity. Furthermore, we controlled for respondent Age (in years) because Binnewies, Ohly and Niessen (2008) found younger employees were more creative, although only in context with other factors.

8.3.3 Residualized Measures

We created residualized measures to capture changes in PsyCap, WFC, FWC, anxiety, and CB. We followed Bergh and Fairbank's (2002) approach where the time 1 variable is regressed on time 2 variable: saving the standardized residual score for each item.

8.3.4 Measurement Models

To confirm the separate dimensions of the constructs, items were tested via Confirmatory Factor Analysis in structural equation modeling (SEM) using AMOS v. 25. We assess model fit using the following criteria (Bentler & Bonett, 1980; Williams et al., 2009): (1) the comparative fit index ($CFI \geq .90$), (2) the root-mean-square error of approximation ($RMSEA \leq .08$), and (3) the standardized root mean residual ($SRMR \leq .10$). We conducted a CFA on time 1 and time 2 data individually, and this met the minimum requirements (analysis not shown). We then conducted a CFA with the residual data (for each item), and the measurement model fitted the data well for a five-factor solution: $\chi^2(241)=379.7$ ($p=.000$), $CFI=.93$, $RMSEA=0.05$, and $SRMR=0.06$. This was confirmed by testing alternative models, and our analysis confirmed that the hypothesized model was the best fit (see Hair, Black, Babin, & Anderson, 2010). Table 8.1 shows the measurement analysis.

Table 8.1.***Results of Confirmatory Factor Analysis for Study Measures***

Model	χ^2	Model Fit Indices				Model Differences			
		Df	CFI	RMSEA	SRMR	$\Delta\chi^2$	Δdf	p	Details
1. Hypothesized 5 factor model: PsyCap, WFC, FWC, Job-Anxiety and Creativity Behaviours.	379.7	241	.93	.05	.06				
2. Alternative 4-factor model: PsyCap, WFC and FWC <u>combined</u> , Job-Anxiety and Creativity Behaviours.	587.5	245	.82	.08	.08	207.8	4	.001	Model 2 to 1
3. Alternative 4-factor model: PsyCap and WFC and Job-Anxiety <u>combined</u> , FWC, and Creativity Behaviours.	614.6	245	.81	.08	.09	234.9	4	.001	Model 3 to 1

Note: analysis used residual scores for each item.

8.3.5 Analysis

Hypotheses were tested using SEM in AMOS v. 25, controlling for age and hours worked. Due to potential issues of complex interaction models in SEM (Haar et al., 2014), we followed contemporary SEM moderation approaches (e.g., Wayne, Lemmon, Hoobler, Cheung, & Wilson, 2017) and included a single moderation construct with interactions already calculated (PsyCap x WFC, PsyCap x FWC, PsyCap x Job-Anxiety).

8.4 Results

Descriptive statistics and intercorrelations variables are shown in Table 8.2 (times 1 and 2) and Table 8.3 (residual effects).

PsyCap (time 1) was significantly related to all time 1 and 2 variables (all $p < .01$), and PsyCap (time 2) was significantly related to all time 2 variables (all $p < .01$). The stressors-strains variables were significantly correlated with each other (time 1 and 2, all $p < .01$). From the residual scores, change in PsyCap is significantly related to change in CB and stressors and strains (all $p < .01$).

Table 8.2.***Descriptive Statistics and Correlations***

Variables	M	SD	1	2	3	4	5	6	7	8	9	10	11	12
<i>Time 1</i>														
1. Age	39.0	11.8	--											
2. Hours Worked	41.1	8.3	-.13	--										
3. PsyCap	4.6	.89	.11	.05	--									
4. WFC	2.3	1.1	-.13	.06	-.21**	--								
5. FWC	1.8	.81	-.18**	-.12	-.22**	.42**	--							
6. Anxiety	1.9	.86	-.22**	.08	-.28**	.43**	.24**	--						
7. CB	3.4	1.1	.03	.13	.53**	-.05	-.10	-.09	--					
<i>Time 2</i>														
8. PsyCap	4.6	.93	.08	.11	.83**	-.22**	-.22**	-.27**	.63**	--				
9. WFC	2.3	1.1	-.06	.09	-.27**	.67**	.35**	.30**	-.19**	-.35**	--			
10. FWC	1.8	.88	-.16*	-.08	-.23**	.33**	.54**	.07	-.06	-.30**	.46**	--		
11. Anxiety	1.9	.89	-.24**	.01	-.35**	.44**	.26**	.70**	-.16**	-.39**	.43**	.23**	--	
12. CB	3.4	1.1	.02	.08	.55**	-.13	-.16*	-.10	.80**	.69**	-.21**	-.15*	-.20**	--

N=219, *p<.05, **p<.01. Note: CB= Creativity Behaviours, Anxiety=Job-Anxiety

Table 8.3. Correlations for Residualized Change Measures

Variables	1	2	3	4	5
1. PsyCap	--				
2. WFC	-.24**	--			
3. FWC	-.20**	.33**	--		
4. Job-Anxiety	-.19**	.23**	.22**	--	
5. CB	.22**	-.01	-.10	-.11	--

N=219, *p<.05, **p<.01. Note: Δ=change in. CB= Creativity Behaviours, Anxiety=Job-Anxiety

Results of the SEM model is presented in Table 8.4 (path analysis results) including direct effects and moderation effects. Overall, the model was a good fit to the data meeting minimum threshold requirements for model fit (Bentler & Bonett, 1980; Williams et al., 2009): $\chi^2(340)=521.7$ (p=.000), CFI=.91, RMSEA=0.05, and SRMR=0.06.

Table 8.4. Final Structural Path Results

Variables	Unstandardized path coefficient
<i>Direct Effects (PsyCap):</i>	
ΔPsyCap → ΔCB	.63***
ΔPsyCap → ΔWFC	-.62***
ΔPsyCap → ΔFWC	-.48***
ΔPsyCap → ΔAnxiety	-.46***
<i>Moderators (Stressors-Strain):</i>	
ΔWFC → ΔCB	.11
ΔFWC → ΔCB	-.04
ΔJob-Anxiety → ΔCB	-.05
<i>Interactions:</i>	
ΔPsyCap x ΔWFC → ΔCB	-.00
ΔPsyCap x ΔFWC → ΔCB	.03
ΔPsyCap x ΔAnxiety → ΔCB	-.10*
<i>r² Values:</i>	
ΔWFC	.14
ΔFWC	.10
ΔJob-Anxiety	.21
ΔCB	.22

8.4.1 Direct Effects

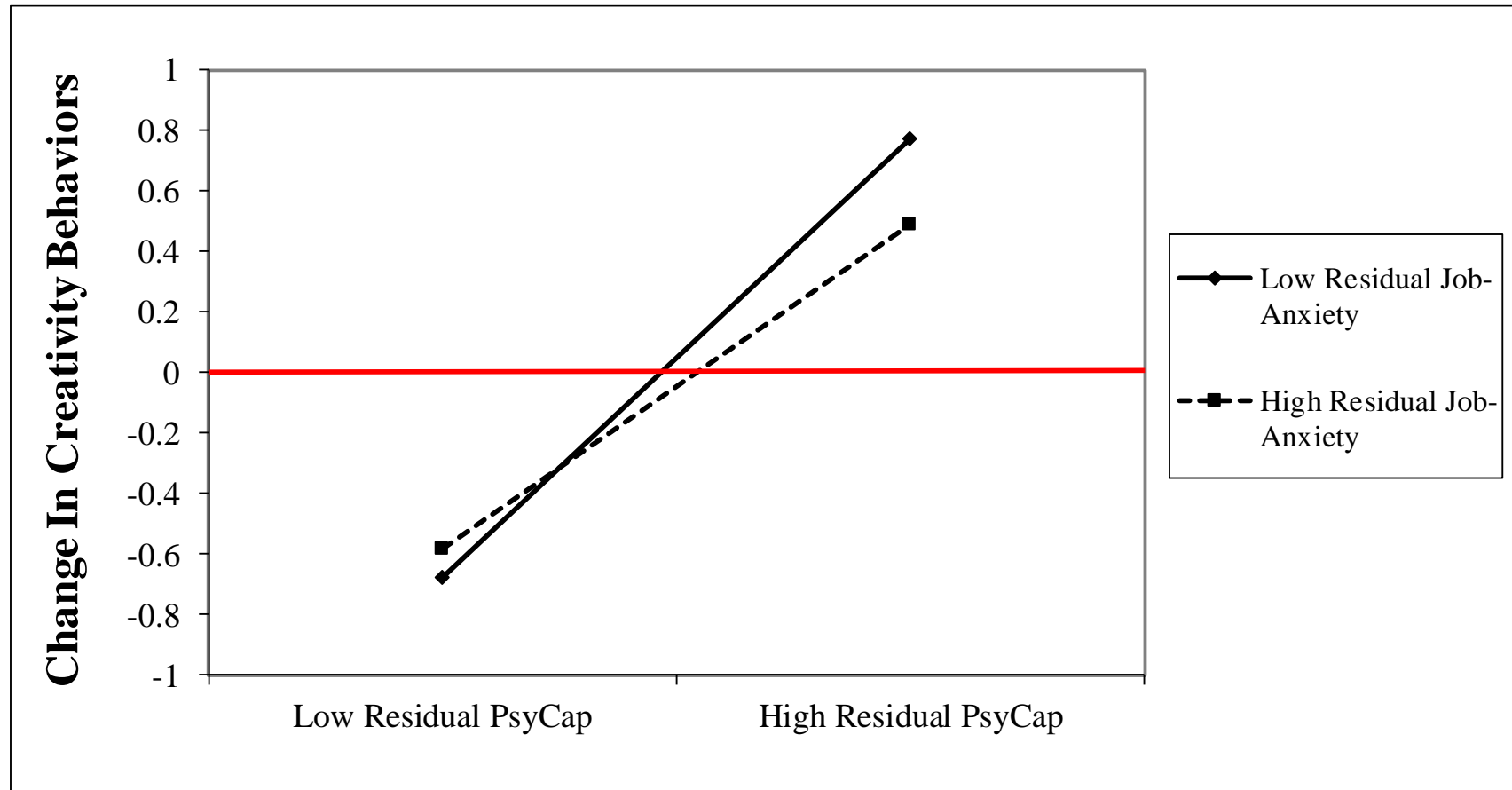
Table 8.4 shows that change-over-time PsyCap is positively related to change-over-time CB ($\beta=.63$, $p=.000$), and negatively related to change-over-time WFC ($\beta=-.62$, $p=.000$), FWC ($\beta=.48$, $p=.000$), and job-anxiety ($\beta=-.46$, $p=.000$). These findings support Hypotheses 1 and 2. Hypothesis 3 was supported as Table 8.3 (change-over-time correlations) showed WFC ($r=.23$, $p=.001$) and FWC ($r=.22$, $p=.001$) although in the structural models these effects were non-significant due to the dominant effect of change-over-time PsyCap on job-anxiety. Interestingly, there is no support for Hypotheses 4 with neither WFC, FWC, or job-anxiety change-over-time linking significantly with CB, although these all correlate significantly (and negatively) in the time 2 correlation data (Table 8.3).

8.4.2 Interaction Effects

Hypothesis 5 tested our resource reservoir approach, whereby we argued that stressors-strain might benefit CB in the presence of high PsyCap. Towards change-over-time CB, we found a significant interaction effect between change-over-time PsyCap and change-over-time job-anxiety ($\beta=-.10$, $p=.08$), but not WFC ($\beta=-.00$, $p=.981$) and FWC ($\beta=.03$, $p=.487$). These findings support Hypothesis 5c but not 5a and 5b.

Plots of the significant interaction effect is shown in Figures 8.2.

Figure 8.2. *Interaction of Residual PsyCap x Residual Job-Anxiety to Change in Creativity Behaviours*



Note: red line indicates zero-point i.e., above/below this line represents a positive/negative change in Creativity Behaviours.

Figure 8.2 shows the change-over-time towards CB with the red-line indicating the zero-line, where below indicates a negative change-over-time and above is positive. Overall, examining low change-over-time PsyCap shows these respondents are cemented in the negative change-over-time CB (i.e., the bottom-level), that is their CB went backwards over time. Comparing this to the high change-over-time PsyCap groups, show this group of respondents report significantly higher change-over-time CB and all are positive (i.e., above the red line). When we compare these specific respondent groups, despite both groups of change-over-time job-anxiety reporting enhanced CB, CB is superior for the low change-over-time job-anxiety group. Overall, these effects show support for the psychological reservoir approach (high PsyCap) that is the key, supporting Hypothesis 5c.

8.4.3 Model Strength

Overall, the models show that across a six-month period, there are small amounts of variance accounted for by our models: change-over-time WFC (14%), FWC (10%), job-anxiety (21%) and CB (22%). The models show the interactions add 2% towards change-over-time CB.

8.5 Discussion

The present study aimed to explore an important dilemma in the creativity literature: what influence does stress play? There is strong evidence that stressors-strains are broadly detrimental (Gilboa et al., 2008; Kivimäki et al., 2006; Fida et al., 2015; Haar et al., 2014), although some recent findings suggest stressors might enhance positive outcomes (e.g., Sacramento et al., 2013; Zhang et al., 2016), or have curvilinear effects (e.g., Byron et al., 2010). Some suggest stress may have a positive influence on creativity under certain conditions (e.g., Binnewies & Wörnlein, 2011; Montani et al., 2018). Ultimately, there is a strong unknown element towards CB that warrants further investigation (Byron et al., 2010). The present study suggested COR theory was pertinent towards examining the

potential for stressors-strain to influence CB positively. We argued that the potential positive influence of stressors-strain might occur in the presence of strong psychological resources, and we focused on PsyCap due to findings around it being a key psychological construct (Avey et al., 2011).

Methodologically, and aligned with prior research (Griffin et al., 2003), we used repeat-measure design to gain insights into these complex relationships (Byron et al., 2010). Our approach aligned with arguments that job-anxiety is likely to be problematic only if it is sustained over a long period of time (Griffin et al., 2003), and thus a long-time period (six months) was selected. Ultimately, the empirical evidence showed that change-over-time PsyCap was positively related to change-over-time CB, as well as negatively related to the stressors-strain. These findings broadly support the meta-analysis on PsyCap (Avey et al., 2011) and provide stronger evidence of PsyCap enhancing creativity over time. This also aligns with the enhancement of PsyCap, leading to effective work attitudes as predicted by COR theory (Newman, Nielsen, Smyth, Hirst, & Kennedy, 2018). These effects are important because many studies are cross-sectional and more complex methodological research has been called for, including stressors-strains (Griffin et al., 2003).

Importantly, there was little evidence that stressors-strain were directly related to CB using change-over-time data. While there is some evidence of direct effects in time 2 (correlation data Table 8.2), the change-over-time data suggests there is modest effects, and ultimately, in the context of a strong psychological reservoir (here high PsyCap), the influence was muted. Indeed, while stressors were significantly correlated with job-anxiety using change-over-time data (Table 8.3), these effects did not hold in the presence of PsyCap. This provides empirical support for the theoretical arguments of the resource caravan (Hobfoll et al., 2018) and arguments around exploring resources in combination. Further, the interaction findings offer little evidence that stressors play major role towards

CB and that even though job-anxiety was significant, its effect is secondary behind PsyCap. Indeed, supporting our resource reservoir argument, we find that irrespective of how high or low change-over-time job-anxiety is, employees with high PsyCap (change-over-time) reported the best CB over-time.

We suggest this is due to high PsyCap (change-over-time) employees having an abundance of psychological resources for which to manage workplace (WFC) and home-based (FWC) resource losses. Even in the context of high job-anxiety – which would ordinarily be viewed as a detrimental issue – there is evidence that individuals whose PsyCap positively changed over time were sufficiently resourced to easily manage these issues – at least towards their CB. Ultimately, our findings align with the principles of COR theory (Hobfoll et al., 2018) that individuals with higher psychological resources (high PsyCap) are better able to manage higher psychological stressors and strains to achieve greater creativity. This also aligns with Hobfoll et al.'s (2018) suggestion that resource can be negative in nature but still help gain goals when combined with other resources (resource caravan effect). High PsyCap gives individuals the ability to manage stressful workloads and still be creative, as they draw on their psychological reservoir to enable more positive actions despite adversity. These findings align with Zhang et al. (2016) who found positive effects on creativity in the presence of high perceived organisational support (an organisational resource), although that effect was similar to the present study with stronger effects when hindrance stressors were low not high.

We suggest our research design provides a more insightful analysis of the direct effects of stressors-strain on CB and we found its effects negligible in this sample. Although we didn't report the analysis, we also explored the possibility for curvilinear effects between stressors and CB (Byron et al., 2010) but those effects were not supported from our stressors and strain constructs towards CB. When PsyCap was included in our analyses, this was found to be a core resource for managing not only performance (CB)

but also the stressors-strains from work and non-work sources. With the inclusion of PsyCap, we provide strong evidence that it acts as a psychological reservoir, where individuals with high PsyCap are better able to be creative and manage the stressors and strains of work and home. Importantly, they are then better able to manage stressors and minimize their effects on job-anxiety, further supporting the meta-analytic evidence around PsyCap and wellbeing (Avey et al., 2011). This supports Hobfoll et al. (2018) around the benefits of strong resources – what we referred to as a psychological reservoir – and provides evidence that such a resource reservoir creates more opportunities for resource retention or gains.

8.5.1 Implications

In complex and challenging business environments, organisations seeking to manage employees' high stressors-strains while enabling them to be able to perform better might find investing in the development and nourishment of employee psychological resources beneficial. Importantly, PsyCap is a developmental construct (Luthans, Avey, & Patera, 2008) which means that training can build the various components (Hope, Efficacy, Resilience, and Optimism) to create a more robust worker and workforce. Stressors-strains issues are a perennial issue for organisations to manage, and thus organisational solutions (fewer work-demands) in concert with stronger employees (high PsyCap) may maximise benefits like greater CB and fewer stressor-strains issues.

Though we find evidence that job-anxiety might help CB (in high PsyCap individuals only), for obvious reasons, we do not recommend the promotion of job-anxiety in the workplace. There are serious deleterious outcomes from strains, including risks to physical health (Kivimäki et al., 2006). Further, the context really shows that over-time, high PsyCap individuals can be creative *irrespective* of the job-anxiety they suffer, although this is likely to be less. We encourage researchers to engage in further stressor-strain studies using better methodologies to test replication of our resource

reservoir effects from PsyCap. Our findings highlight that at least towards CB, including a psychological-level construct like PsyCap might provide an important influence from that of other constructs (e.g., only stressors-strains), such as when exploring job performance.

8.5.2 Limitation

Yang, Zhao and Dhar (2010) highlight potential issues with panel data such as that used in this study, although we suggest this is likely mitigated by using a repeat-measure design. Another concern is the use of self-reported measure for CB. However, we note that Janssen (2000, 2001) highlighted the importance of individual rating their creativity themselves, arguing that supervisors may miss the areas where individuals do excel in CB. Finally, we acknowledge that Ployart and Vandenberg (2010) suggested more than two-points of data, but this was beyond the scope of the data panel. Overall, we suggest that a broad sample of workers, the repeat-measure design, and SEM analysis (Haar et al., 2014), provides confidence in the robust findings and generalizability across different industries and sectors.

8.5.3 Conclusion

The present study contributes to COR theory by suggesting a resource reservoir approach via PsyCap, and we provided empirical evidence supporting our assertion that employees with stronger psychological resources can manage their work and non-work stressors-strains to achieve higher creativity. Overall, our moderation effects highlight that high PsyCap individuals have resources that enable them to outperform low PsyCap individuals and hence are capable of more resource gain, aligning with the of COR theory (Hobfoll, 2001). Our study provides new insights into understanding the role of stress on creativity, and we suggest exploring resource reservoirs may be an important approach.

8.6 References

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CHAPTER NINE: PAPER 6

Individual Proactive Personality on Team Factors towards Creativity

Preface

After looking at positive factors (Paper 2-3) and negative factors in combination with positive factors – including using stronger methodologies (Paper 4-5), I was encouraged to look at how resources crossover from individuals to teams and eventually effect team-level factors and CB, as suggested in the framework in Paper 1. This paper looks at proactive personality as a psychological resource in relation with team level factors (team trust and team cohesion). Again, I was able to enhance the methodology in this design and used a new two-time dataset and tested the influence using multi-level analysis. The findings of this paper align with suggestion from Paper 1, where proactive personality positively influences team- trust, team cohesion and team creativity overtime. Interaction of proactive personality with team-trust towards team-cohesion, and at team level mediation effect of team-cohesion in the relationship between team-trust and team-level CB are supported. These findings align well with resource caravan effect taking place at multi-levels and the suggestion of Westman (2001) and further elaboration by Hobfoll et al. (2018) on crossover of positive factors on multiple levels just like crossover of negative factors between dyads, partners and team members.

This paper was presented at the 7th Aotearoa New Zealand Organisational Psychology and Organisational Behaviour Conference (3rd December 2018) at The University of Auckland, Auckland.

This paper is currently under review at *Small Group Research*. This chapter is formatted in APA style.

Abstract

The present study examines team-level creativity, and we include team-level trust and cohesion within our model and examine these with residual (change-over-time) data across a two-month period. In addition, the role of individual-level proactive personality (time 1 only) is used as an antecedent to determine what influence individual personality has on team constructs (trust, cohesion and creativity) including direct and moderating effects. Using a sample of small-sized teams (121 employees in 40 teams), we find proactive personality is positively related to all residual team-level constructs and that residual team trust influences both residual team cohesion and team creativity. Further, residual team cohesion influences residual team creativity and partially mediate residual team trust. We also find a significant cross-level interaction effect, showing that high individual proactive personality interacts with high residual team trust to generate the strongest levels of residual team cohesion. We discuss the implications for organisations and teams.

Keywords: *Team creativity, proactive personality, team trust, team cohesion, change-over-time.*

9.1 Introduction

Many organisations seek improved and innovative solutions, with employee creativity viewed as the desired objective and potentially valuable asset (Amabile, 1998). Importantly, how this creative capital is pooled in the form of teams (Rodríguez-Sánchez, Devloo, Rico, Salanova, & Anseel, 2017) can be the dominant means of success (Barczak, Lassk, & Mulki, 2010). Some argue teams are an important workplace aspect to examine (Spell, Bezrukova, Haar, & Spell, 2011) because the capability of businesses to tap into the creative potential of teams is important towards success and advancement (Rego, Sousa, Cunha, Correia, & Saur-Amaral, 2007). According to Chen (2007), creative teams are referred to as a group of individuals who pool their talent, energy, and skills to create a collective capacity to innovate which is greater than individual contributions. Research shows that organisations consider employees as a key source of creative solutions for competitive positioning in the market (Cummings & Oldham, 1997) as well as the ability of individuals to work together (Kichuk & Wiesner, 1997) in teams.

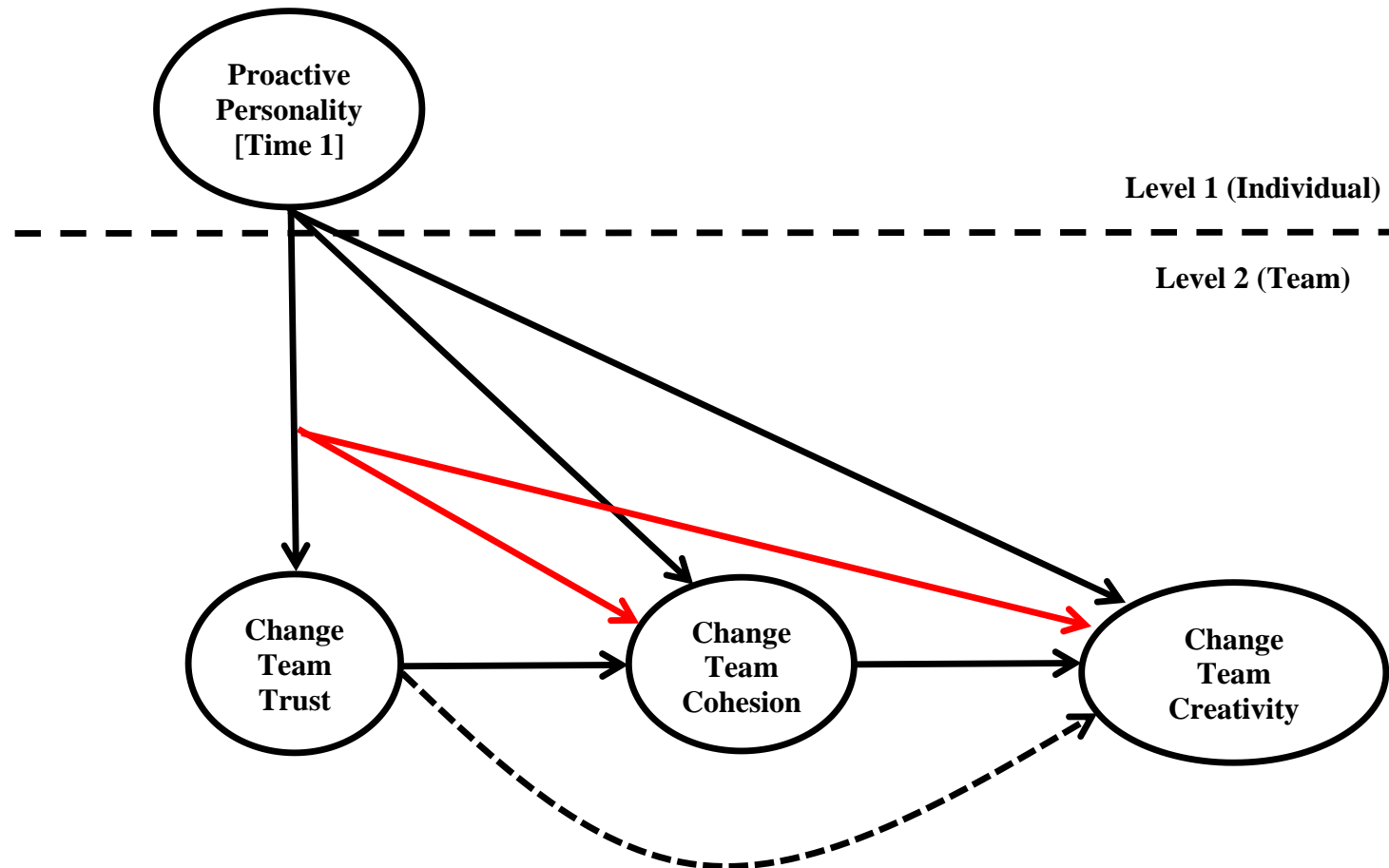
Prior research highlights that many factors, such as collaboration positively influence creativity and team performance (Hoegl & Gemuenden, 2001; DeCusatis, 2008). Collaboration between team members is essential to team success (Boies, Fiset, & Gill, 2015), and the present study examined team trust, which has been identified as the crucial element in the team operations to foster successful partnership among diverse individuals (Rigby, Gruver, & Allen, 2009). Researchers suggest that members who share trust are less vulnerable to environmental demands, creating discoveries rather than being defensive towards each other, thus facilitating the channels to team creativity (Gibb, 1978). Moreover, trust can create a cohesive unit working towards the same goals (Kasper-Fuehrer & Ashkanasy, 2001; Bijlsma & Koopman, 2003), and thus our model includes team cohesion. Though research has established the importance of team trust and cohesion on individual creativity (Dong, Bartol, Zhang, & Li, 2017; Zhu, Gardner, &

Chen, 2018), the influence of individual personality factors on team-level factors and creativity is underexplored.

We use the Conservation of Resource (COR) Theory because it asserts that individuals seek to conserve, preserve and maintain resources to deal with demands from the work environment (Hobfoll, Halbesleben, Neveu, & Westman, 2018). We suggest it is essential to understand how individuals might supply positive psychological resources – here through their proactive personality (PP) to their teams, to make teams more effective and ultimately build greater creativity. Hence, in this study, a multi-level approach is opted to explore the influence of individual-level psychological resources (PP) on team-level factors (trust and cohesion), and ultimately towards team creativity. Beyond these direct effects, we also test interaction effects.

Overall, this study makes three main contributions. First, following the research direction of Hobfoll et al. (2018) regarding the use of COR caravan (Hobfoll, 2011) and the crossover-model (Westman, Shadach, & Keinan, 2013), we determine whether individual-level resources can crossover to build more effective teams. Second, we test a process model whereby team trust influences team cohesion and ultimately team creativity while including the direct and interaction effects of PP. Third, we test these relationships using an enhanced methodology (time-lagged data to capture change-over-time) because this is a significant improvement over cross-sectional studies and responds to calls for synthesised time analysis in COR theory-based research (Hobfoll et al., 2018). Our study model is shown in Figure 9.1, and we next discuss the COR theory.

Figure 9.1. Study Model (Change over-time – 2 months)



Notes: red line = interaction; dotted line = mediated effect.

9.2 Literature Review

9.2.1 Conservation of Resource (COR) Theory

For over 30 years, COR has been the most widely cited theory in psychology/organisational behaviour studies, focusing on how individuals strive to retain, conserve and nurture resources that can allow them to deal with demands from the environment (Hobfoll et al., 2018). These psychological resources are extensive and include esteem and confidence, as well as time and co-worker support. While resources can also be lost, the present study focuses on the upward spiral effect- suggesting that resources beget resources (Hobfoll et al., 2018), whereby individuals gain resources, using their available resources, and are better able to deal with high demands and perform better (Hobfoll, 2002). Thus, working in a high trust team enhances functioning and cohesion, which provides additional resources towards superior performance. Hobfoll et al. (2018) further propose a resource caravan effect, which suggests that resources do not exist independently but in groups where the possibility of nurturing and retaining such resources is higher (Hobfoll, 2011). Thus, psychological resources under COR should not be considered in isolation as through learned adaptation individuals acquire higher resources by interacting with their culture, climate and groups (Hobfoll, 2011).

The resource caravan concept focuses on the interrelationship between resources (Hobfoll et al., 2018) and how such a relationship can be fruitful in creating desired outcomes. Hobfoll and colleagues also note that resource caravan passageways reflect that beyond the individual employee, “people’s resources exist in ecological conditions that either foster and nurture or limit and block resource creation and sustenance” (p. 107). This encourages the examination of a combination of resources in the team’s context. Indeed, Hobfoll et al. (2018) suggest that research needs to include these ecologies that nurture or limit resources, and the present study uses the crossover effect (Westman, 2001) folded into COR resource caravan suggesting that resource crossover

from the individual- to the team- and ultimately organisational-level and may work collectively towards the goal. Beyond crossover between individual and teams, we also include two team factors (trust and cohesion) to adequately capture the multiple resources potentially at play within COR theory to ultimately understand team creativity.

9.2.2 Team Factors

We explore three team-factors overall. Our dependent variable is team creativity, and we explore team trust and team cohesion as antecedent and mediator, respectively. Creative teams are favoured in the organisation as they are the source of novel and competitive ideas (Hirst, Van Knippenberg, & Zhou, 2009). Team creativity is defined as the process of development and integration of useful and novel ideas by a team, where team members collectively process information and efforts to work towards collective creative results (Dong et al., 2017). As members of a team are the primary source of development and enhancement of creative ideas, their individual factors are of great importance since “team creativity depends on the foundational individual capability to generate ideas” (Dong et al., 2017, p. 440). The overall climate of the organisation, freedom of ideas sharing and development, support from leadership, encouragement, and practices of empowerment all determine the occurrence and frequency of creativity outcomes (Amabile, 1998). This also reflects and aligns with resource caravan passageways (Hobfoll et al., 2018).

The predictors of team creativity explored in the research are diverse, including clarity of purpose, interpersonal communication, and supportive innovation leadership (Jaskyte, 2008). Aligning with COR, teams, in the presence of a supportive environment, strategically procure and orchestrate resources required to exploit unique opportunities (Chen, 2007). Such team abilities are promoted by factors from within the teams such as communication (Boies et al., 2015), collaboration and trust (Mach, Dolan, & Tzafrir, 2010), as well as moods and knowledge sharing (Tang & Naumann, 2016). This can also include external factors, including pressure and proactive leadership (Lam, Lee, Taylor,

& Zhao, 2018). We focus on team trust, which refers to the team's belief in how dependable and trustworthy members of the team are (Langfred, 2004; Campion, Medsker, & Higgs, 1993). Team trust has been noted to promote the collaborative, knowledge sharing activities that induce positive moods and improve the process of communication, ultimately leading to team effectiveness and performance (Breuer, Hüffmeier, & Hertel, 2016), that stands parallel to teams exerting more effort collectively towards creative solutions.

Our last team factor is team cohesiveness, which is defined by Carron and Brawley (2000) as reflecting a groups unity while working towards a general or specific goal and also the way the team satisfies the emotional needs of individual members (Carron & Brawley, 2000). Team cohesion is found to be positively related to desired team outcomes such as performance (Mathieu, Kukenberger, D'innocenzo, & Reilly, 2015). Focusing on the resource caravan passageways (Hobfoll, 2011), individual and organisational resource and support create ecological conditions for team members to pool in their collective resources to gain creative outcomes, where collective resources enable to gain further resources and operate effectively. We next explore an individual-level personality factor and then develop our hypotheses.

9.2.3 Proactive Personality (PP)

To understand the influence of an individual's resources on team-level factors and the role of these resources collectively towards creativity, we focus on the individual level psychological resources. PP is referred to as "taking initiative in improving current circumstances; it involves challenging the status quo rather than passively adapting present conditions" (Crant, 2000, p. 436). Tracing this definition back to the personal initiative concepts proposed by Frese, Kring, Soose, and Zempel (1996), it is concurrent to behaviours of *self-starting* which is doing something without an explicit role requirement, *persistence* which is constant change and overcoming barriers to achieve

goals and *proactivity* which is the ability to anticipate future need and problems and taking action or exploiting opportunities beforehand.

Individuals with high PP focus on future-oriented actions but do so in a self-initiated manner and are focused on altering or improving the status quo (Parker, Williams, & Turner, 2006). According to a meta-analysis conducted using 107 studies, PP is positively related to job performance, learning goal orientation, career self-efficacy, and the big five traits (Fuller & Marler, 2009). A different meta-analysis examining employee proactivity revealed similar effects, with PP being positively related to performance, satisfaction, affective commitment, and social networking (Thomas, Whitman, & Viswesvaran, 2010). However, few researchers have explored the relationship between the PP and creativity (Kim, Hon, & Lee, 2010), and while a positive relationship has been found (e.g., Seibert, Kraimer & Crant, 2001; Kim et al., 2010; Kong & Li, 2018), these are at the individual-level. Creativity is the outcome of the complex interaction between demands from the environment and how they are perceived and treated by individuals in turn with the use of their skills (George & Zhou, 2001) and prominently personality factors (Batey & Furnham, 2006). Thus, it is essential to explore how individual-level PP crosses over to team-level and influence team-level factors and outcomes.

Individuals with PP who are able to “scan for opportunities, show initiative, take action, and persevere until they reach closure by bringing about change” (Bateman & Crant, 1993, p. 105) can effectively enhance team outcomes. Further evidence on proactive people seeking out opportunities to change and engage (Caniëls, Semeijn, & Renders, 2018) and also proceeding with initiatives and preserving their actions until their desired or meaningful outcomes have been realised (Crant, 2000; Jafri, Dem, & Choden, 2016) may lead to favourable outcomes inducing creativity. Centralising this on Westman’s (2001) crossover model of inter-individual resources at work, where team-

members transmission of psychological states and experiences takes place, we suggest individuals with high levels of PP will create positive resource crossover effects (see Hobfoll et al., 2018). This will lead to individuals with high PP enhancing team members (personal resources) and eventually promoting creative outcomes at the team-level. Given the evidence that resources can crossover between individuals over time (Neff, Niessen, Sonnentag, & Unger, 2013; Neff, Sonnentag, Niessen, & Unger, 2015), we suggest that PP in time 1 will trigger the accumulation of resources (resource caravan) creating an upward spiral effect on time 2 in terms of team creativity and hence suggest that PP will crossover and influence team factors.

Given meta-analysis support between PP and performance, we expect PP to be positively related to team creativity, which is a distinct but related form of performance. Similar to the crossover effect of individual PP on team creativity, we expect the crossover effects of PP to be positive towards both team trust and team cohesion. Individuals who are more proactive and seek out opportunities are expected to positively shape their team's trust, and also the way the team is cohesive. The resource crossover effects (Hobfoll et al., 2018) means that team members with greater individual psychological resources (high PP) have the capacity to enhance their team and foster greater trust amongst team members, and providing stronger cohesion as team members recognise the interest towards achievement and opportunities that a high PP member brings to the team. We posit the following.

Hypothesis 1: Proactive personality is positively related to team creativity.

Hypothesis 2: Proactive personality is positively related to (a) team trust and (b) team cohesion.

The next section now brings back in the other team factors.

9.2.4 Team Trust and Team Cohesion

Trust is a psychological state in which one is expectant that others will not behave opportunistically and as expected (Jarvenpaa, Knoll, & Leidner, 1998). Rousseau, Sitkin, Burt, and Camerer (1998) suggest that trust comprises of intentions to accept vulnerability while expecting positive intentions or behaviours of others. Individuals develop trust based on the ‘available knowledge’ and ‘good reasons’ which serve as foundations for trust, leading to desired outcomes (McAllister, 1995). The individual decision to trust is two dimensional: (1) affect-based, which relates to how individuals place their confidence in team members based on caring and concern, and (b) cognitively, where people trust to rely on team members expertise and reliability (Jeffries & Reed, 2000; Johnson & Grayson, 2005; McAllister, 1995). In teams, trust enhances the ability of individuals to work together effectively, which translates into collaboration over ideas, cooperation, skills sharing and eventually creative and innovative team performances (Larson & LaFasto, 1989). Moreover, trust within a team is not only essential for desired outcomes but also to be able to develop sound interdependence which is an indispensable part of working in a team (Whitener, Brodt, Korsgaard, & Werner, 1998). A recent meta-analytical study using a sample size of 7,763 teams found a strong positive relationship between intrateam trust and performance (De Jong, Dirks, & Gillespie, 2016), and we expect team trust to enhance team creativity.

Breuer et al. (2016) meta-analysis using samples of 12,615 individuals in 1,850 teams also found similar patterns of team trust positively related to effectiveness. Importantly in the context of the present study, this meta-analysis also revealed the positive relationship between team trust and team cohesion. Broadly defined, cohesion is the collection of factors that keep team members attached to each other based on goals, purpose or general understanding (see Andrews, Kacmar, Blakely, & Bucklew, 2008), which is built through social and emotional interaction (Marks, Mathieu, & Zaccaro,

2001). Cohesion is considered a social system rather than an individual system, that encourages attachment (social and emotional bonds) within a team (Evans & Jarvis, 1980) and ultimately promote team performance (Hill, Offermann, & Thomas, 2019). Team cohesiveness relates to individuals performing actions (e.g., information sharing) that will aid in the process of helping the entire team (De Jong et al., 2016). Hence, similar to team trust, we expect team cohesion to be positively related to team creativity.

Finally, we also expect these team factors to be related. The development of an environment that facilitates trust and communication is essential for team success as well as risk-taking (Edmondson, 1999; Hill et al., 2019). Such trust and communication aids cohesiveness where members are vulnerable within their group, promoting participation and dependency, which reduces isolation and fosters collective creativity, innovation, and productivity (Fung, 2014). Hence, we expect team trust to be positively related to team cohesion, and while both team factors will influence team creativity, we suggest the meta-analytic links between team trust and cohesion (Breuer et al., 2016), means that cohesion should mediate the influence of team trust on team creativity. We posit the following.

Hypothesis 3: Team trust is positively related to (a) team cohesion and (b) team creativity,

Hypothesis 4: Team cohesion is positively related to (a) team creativity, and (b) will mediate the influence of team trust.

9.2.5 Moderating Effects

Finally, we examine individual-level PP as a moderator with team trust on the relationships to team cohesion and team creativity due to calls within PP meta-analysis (e.g., Thomas et al., 2010). Indeed, evidence of PP having significant interaction effects is mixed, with Allen, Weeks, and Moffitt (2005) finding no significant interactions, while Baba, Tourigny, Wang, and Liu (2009) found significant interaction effects from PP towards performance. We expect individual PP to enhance the positive effects of team trust on team creativity and cohesion, further enhancing the within team crossover effects

of trust resources from the team towards team cohesion and creativity. Fredrickson (2001) argues that positive emotions such as trust can broaden the individual sense of self to include others, enhancing one's identification with the team and creating a greater feeling of self-other overlap, and unity- cohesion (Waugh & Fredrickson, 2006). Thus, theoretically, there are links between a positive personality trait like PP shaping team-level trust and leading to greater cohesion. We also extend this potential towards team creativity and suggest that teams that have high trust will be able to achieve superior creativity if their individual members also have high PP. Theoretically, this aligns with the resource caravan approach of COR and the potential crossover effects from individuals enhancing their teams as well as team resources working in combination towards team creativity. We posit the following.

Hypothesis 5: Proactive personality will interact with team trust and moderate the effects on (a) team cohesion and (b) team creativity, such that superior team outcomes are achieved when the proactive personality is high, and team trust is high.

9.3 Methods

9.3.1 Participants and sample

We used a repeat-measure design to test hypotheses in response to enhanced methodological designs (Ployart & Vandenberg, 2010). Indeed, Podsakoff, MacKenzie, Lee, and Podsakoff (2003) suggest using repeat-measure data collection to strengthen relationships tested. A private sector, medium-sized organisation with approximately 200 employees, was surveyed focusing on professional workers (e.g., office workers, lawyers, accountants and HR professionals), although no management personnel were included. We asked for teams to complete surveys with only one team member missing as our minimum threshold. In the initial wave, 141 employees responded, and after the second survey was conducted (two months later), a total of 121 employees who also completed survey 1 (working in 40 teams) were captured. Overall, respondents had an average age

of 39 years ($SD=11.8$), were female (71%), working 41.1 hours/week ($SD=8.3$). Education was well spread but dominated by university qualifications: 17% high school, 14% technical qualification, 44% university degree, and 25% postgraduate qualification in education.

9.3.2 Measures

Proactive Personality was measured using 10-item construct by Seibert, Crant, and Kraimer (1999), coded 1=strongly disagree, 5=strongly agree, sample item “I excel at identifying opportunities” ($\alpha = .88$ [time1 only]).

All team-level constructs had items that were targeted at the team-level. However, we still confirmed this approach by calculating the inter-rater agreement between team member [rwg(j)], with LeBreton and Senter (2008) suggesting a value of .71-.90 represents a strong agreement between raters and thus supports aggregating at the team-level.

Team Trust, was measured using three items by Campion et al. (1993), coded 1=strongly disagree, 6= strongly agree, sample item “Members in my team trust each other” ($\alpha = .86$ [time1] and $.87$ [time2]). The rwg(j) was .86.

Team Cohesion, was measured using three items by Seashore (1954), coded 1=strongly disagree, 6= strongly agree, sample item “In my team, team members have known that they can depend on each other” ($\alpha = .90$ [time1] and $.91$ [time2]). The rwg(j) was .84.

Team Creativity Behaviours were measured with the three items by Shimazu, Schaufeli, Kamiyama, and Kawakami (2015), which is based on a longer construct by George and Zhou (2002). We modified the items to focus at the team-level. Items were coded 1=not at all characteristic of my team, 5=very characteristic of my team, and a sample item is “My team often have new and innovative ideas at work” (time 1 $\alpha = .94$, time 2 $\alpha = .95$). The rwg(j) was .78.

Controls. We controlled for respondent Age (in years) because Binnewies, Ohly, and Niessen (2008) found younger employees were more creative, although only in context with other factors. We also controlled for Job Tenure (years) and Gender (1=female, 0=male).

9.3.3 Change Over Time Data

We created residualized measures to capture changes in team trust, team cohesion and team creativity over-time. We followed Bergh and Fairbank's (2002) approach where the time 1 variable is regressed on time 2 variable; saving the standardised residual score for each item. We use PP from time 1 only.

9.3.4 Measurement Models

To confirm the separate dimensions of the constructs, items were tested via Confirmatory Factor Analysis in structural equation modeling (SEM) using AMOS v. 25. We assess model fit using the following criteria (Williams, Vandenberg, & Edwards, 2009): (1) the comparative fit index ($CFI \geq .90$), (2) the root-mean-square error of approximation ($RMSEA \leq .08$), and (3) the standardised root mean residual ($SRMR \leq .10$). We conducted a CFA on time 1 and time 2 data individually, and this met the minimum requirements. We then conducted a CFA with the residual data (for each item) including the items for PP (time 1 only) and the measurement model fitted the data well for all models. Table 9.1 shows this analysis, and we confirmed the unique aspects of the constructs by testing alternative models. Our analysis confirmed the hypothesised model as the best fit (see Hair, Black, Babin, & Anderson, 2010).

9.3.5 Analysis

Because we sought to examine the effects of individual-level and team-level effects, hypotheses were tested in MLwiN to enable multi-level analysis. This led to a two-level model with the individuals ($n=121$) nested in level 1 and teams ($n=40$) at level 2. We

followed common practice in multilevel models (e.g., Haar, Roche, & ten Brummelhuis, 2018) and centred the control variables to the grand mean. We confirmed mediated relationships in multilevel models following the Monte Carlo Method by Bauer, Preacher, and Gil (2006). To determine the proportion of variance attributed to the two levels of analysis, we calculated the intra-class correlation for team outcomes and showed that the amount of variance attributed to the team-level (level 2), differences was 26% for team trust, 35% for team cohesion, and 28% for team creativity. Thus, significant amounts of variance were left to be explained, justifying our multilevel approach.

9.4 Results

Descriptive statistics and intercorrelations variables are shown in Table 9.2 (time 1 and 2 variables) and Table 9.3 (residual effects).

Table 9.1
Results of Confirmatory Factor Analysis

Model	Model Fit Indices					Model Differences			
	χ^2	df	CFI	RMSEA	SRMR	$\Delta\chi^2$	Δdf	p	Details
Time 1 Constructs									
Model 1	212.5	146	.953	.061	.065				
Model 2	235.4	149	.939	.069	.065	22.9	3	.001	Model 1 to 2
Model 3	379.5	149	.836	.113	.091	167.0	3	.001	Model 1 to 3
Model 4	396.8	149	.824	.117	.097	184.3	3	.001	Model 1 to 4
Time 2 Constructs									
Model 5	30.8	24	.993	.048	.033				
Model 6	50.3	26	.975	.088	.035	19.5	2	.001	Model 1 to 2
Model 7	195.8	26	.827	.232	.132	165.0	2	.001	Model 1 to 3
Model 8	218.6	26	.804	.247	.125	187.8	2	.001	Model 1 to 3
Change over Time Constructs									
Model 9	192.1	146	.963	.051	.054				
Model 10	251.2	149	.918	.075	.060	59.1	3	.001	Model 1 to 2
Model 11	303.1	149	.876	.092	.075	111.0	3	.001	Model 1 to 3
Model 12	336.1	149	.850	.102	.082	144.0	3	.001	Model 1 to 4

Model 1= Hypothesised 4-factor model (time 1): proactive personality, team cohesion, team trust, and team creativity.

Model 2= Alternative 3-factor model (time 1): proactive personality, team cohesion and team trust combined, and team creativity.

Model 3= Alternative 3-factor model (time 1): proactive personality, team cohesion, team trust and team creativity combined.

Model 4= Alternative 3-factor model (time 1): proactive personality, team cohesion and team creativity combined, and team trust.

Model 5= Hypothesised 3-factor model (time 2): team cohesion, team trust and team creativity.

Model 6= Alternative 2-factor model (time 2): team cohesion and team trust combined, and team creativity.

Model 7= Alternative 2-factor model (time 2): team cohesion, team trust and team creativity combined.

Model 8= Alternative 2-factor model (time 2): team cohesion and team creativity combined, and team trust.

Model 9= Hypothesised 4-factor model: proactive personality (time 1 only), and all change across times 1 and 2: team cohesion, team trust, and team creativity.

Model 10= Alternative 3-factor model: proactive personality (time 1 only), and all change across times 1 and 2: team cohesion and team trust combined, and team creativity.

Model 11= Alternative 3-factor model: proactive personality (time 1 only), and all change across times 1 and 2: team cohesion, team trust and team creativity combined.

Model 12= Alternative 3-factor model: proactive personality (time 1 only), and all change across times 1 and 2: team cohesion and team creativity combined, and team trust.

Table 9.2
Descriptive Statistics and Correlations

Variables	M	SD	1	2	3	4	5	6
<i>Time 1 Individual:</i>								
1. Age	41.8	12.8	--					
2. Job Tenure	3.06	1.8	.47**	--				
3. Proactive Personality	3.77	.53	-.27**	-.23*	--			
<i>Team-Level (Time 1):</i>								
1. Team Trust	4.79	.94	--					
2. Team Cohesion	4.84	.93	.49**	--				
3. Team Creativity	4.39	1.0	.33*	.51**	--			
<i>Team-Level (Time 2):</i>								
4. Team Trust	5.09	.79	-.90**	-.21	-.22	--		
5. Team Cohesion	5.14	.81	-.37*	-.75**	-.31**	.27†	--	
6. Team Creativity	4.77	.94	-.12	-.24	-.63**	.17	.48**	--

N=40 teams (N=121 employees), †p< .1, *p<.05, **p<.0

Table 9.3. Correlations for Residualized Change Measures

Variables	1	2	3
<i>Team-Level:</i>			
1. Team Trust	--		
2. Team Cohesion	.74**	--	
3. Team Creativity	.63**	.71**	--

N=40 teams (N=121 employees), *p<.05, **p<.01

Team constructs (time 1) are significantly correlated with each other (all p< .05), although less so in time 2. From the residual scores, team constructs across time are also significantly correlated with each other (all p< .01).

Results of the multi-level analysis is presented in Tables 9.4-9.6.

Table 9.4
Multilevel Results of Change in Team Trust

	Δ Team Trust					
	Null Model		Control Model		Direct Effects Model	
	β	SE	β	SE	β	SE
Intercept	0.320‡	.09	0.292*	.14	0.385‡	.12
Age			-.06	.06	-.08*	.04
Gender			.05	.18	.12	.14
Job Tenure			.00	.05	.03	.04
PP(I)					.67‡	.13
Variance level 2(T)	.22*	.13	.21*	.12	.03*	.02
	(26%)					
Variance level 1 (I)	.64‡	.17	.65‡	.16	.78‡	.11
	(74%)					
-2 Log Likelihood	318.0		316.4		301.2	

Note. *p < .05, **p < .01, ‡p < .001. N=40 teams and 121 employees. SE = standard estimate.

(T)=Teams, (I)=Individuals. PP= Proactive Personality. Δ = Change in.

Table 9.5
Multilevel Results of Change in Team Cohesion

	Δ Team Cohesion									
	Null Model		Control Model		Direct Effects Model		Mediation Effects Model		Moderation Effects Model	
	B	SE	β	SE	β	SE	β	SE	B	SE
Intercept	0.328‡	.08	0.339**	.13	0.316**	.12	.356‡	.11	.346‡	.10
Age			-.09	.06	-.08	.05	-.02	.05	-.04	.05
Gender			.01	.17	.03	.15	-.05	.14	-.03	.13
Job Tenure			-.04	.05	.00	.05	-.03	.04	-.03	.04
PP(I)					.56‡	.15	.33**	.14	.25*	.14
ΔTeam Trust(T)							.67‡	.10	.66‡	.10
PP(I) x ΔTeam Trust(T)									.15**	.06
Variance level 2(T)	.27*	.15	.23*	.13	.11*	.06	.19*	.11	.16*	.09
	(35%)									
Variance level 1 (I)	.50**	.18	.51‡	.16	.58‡	.11	.31**	.12	.31**	.11
	(65%)									
-2 Log Likelihood	306.6		301.4		288.8		251.8		244.7	

Note. *p < .05, **p < .01, ‡p < .001. N=40 teams and 121 employees. SE = standard estimate.
(T)=Teams, (I)=Individuals. PP= Proactive Personality. Δ = Change in.

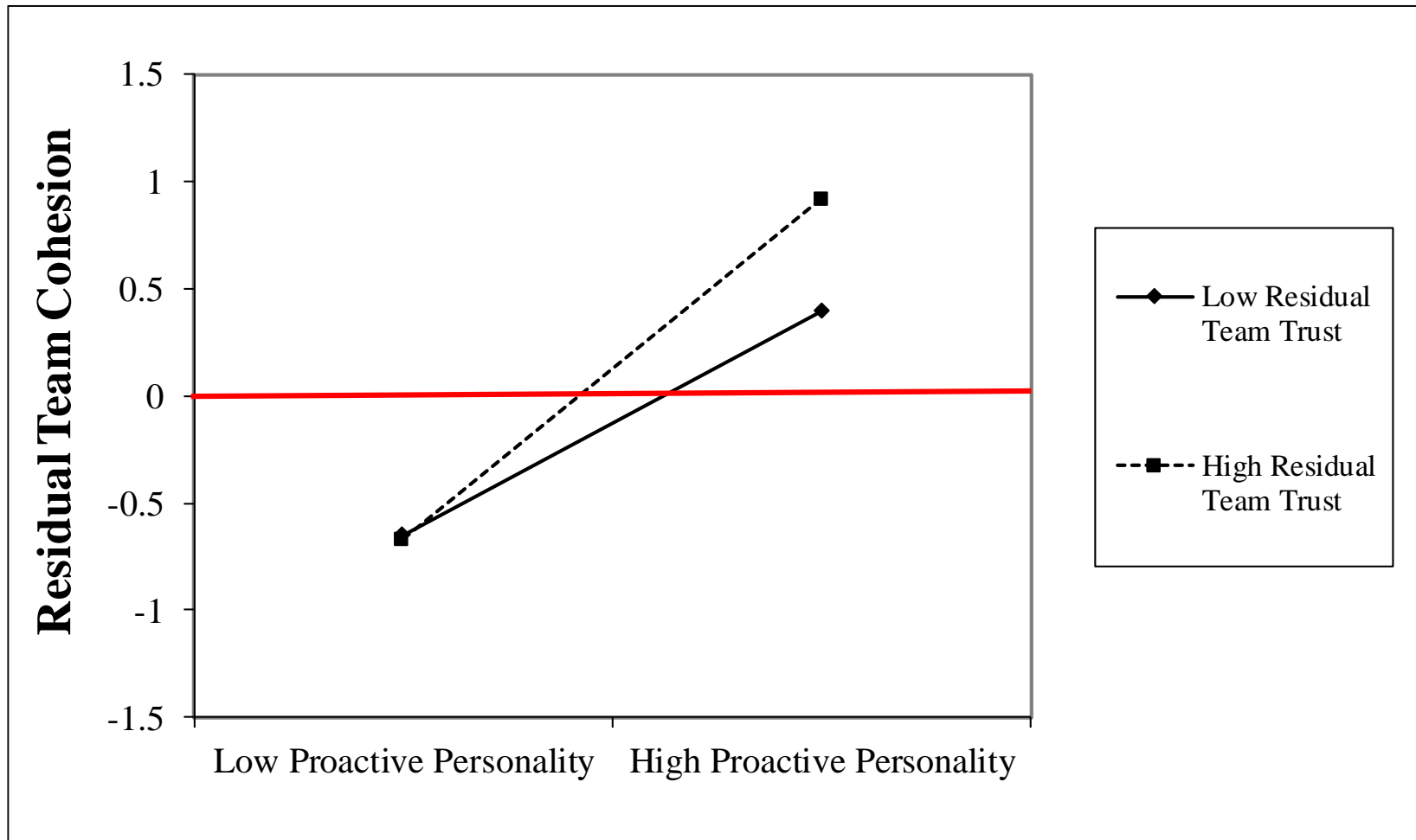
Table 9.6
Multilevel Results of Mediation and Moderated Effects on Team Creativity

	Δ Team Creativity									
	Null Model		Control Model		Direct Effects Model		Mediation Effects Model		Moderation Effects Model	
	β	SE	β	SE	β	SE	β	SE	β	SE
Intercept	0.393‡	.09	0.232*	.14	0.402‡	.12	.302‡	.12	.346‡	.10
Age			-.08	.07	-.04	.04	.02	.05	.02	.05
Gender			.23	.19	-.01	.15	.16	.16	.18	.16
Job Tenure			.01	.05	.02	.04	.03	.05	.03	.05
PP(I)					.68‡	.16	.57‡	.16	.56‡	.16
Δ Team Trust(T)							.43‡	.18	.43**	.18
Δ Team Cohesion(T)							.34**	.19	.33*	.19
PP(I) x Δ Team Trust(T)									.05	.97
Variance level 1(I)	.23*	.13	.27*	.15	.04*	.02	.21*	.12	.24*	.13
	(28%)									
Variance level 2(T)	.59‡	.17	.54‡	.18	.77‡	.11	.42**	.15	.39**	.15
	(72%)									
-2 Log Likelihood	310.6		309.2		298.5		275.5		275.1	

Note. *p < .05, **p < .01, ‡p < .001. N=40 teams and 121 employees. SE = standard estimate.
(T)=Teams, (I)=Individuals. PP= Proactive Personality. Δ = Change in

Tables 9.4-9.6 show PP is positively related to residual team trust ($\beta = .67, p < .001$), residual team cohesion ($\beta = .56, p < .001$), and residual team creativity ($\beta = .68, p < .001$), supporting Hypotheses 1, 2a and 2b. Furthermore, residual team trust is also significantly related to and residual team creativity ($\beta = .67, p < .001$) and reduces the effect of PP on residual team cohesion down to $\beta = .33$ ($p < .01$). These findings support Hypothesis 3a and 3b. Furthermore, residual team trust ($\beta = .43, p < .001$) and residual team cohesion ($\beta = .34, p < .01$) are both significantly related to residual team creativity, with residual team cohesion dropping the strength of residual team trust suggesting partial mediation effects. We confirmed mediation through the Monte Carlo Method, which showed that the distribution interval of the indirect effect (team trust) through the mediator (team cohesion) was above zero at a 95% confidence interval ($p < .05$). These effects support Hypothesis 4a and 4b. Interestingly, the effectiveness of PP on residual team creativity drops only modestly (to $\beta = .57, p < .001$), highlighting its strength in the model. Finally, there is support for PP interacting with residual team trust towards residual team cohesion ($\beta = .15, p < .01$) although not residual team creativity, supporting Hypothesis 5a but not 5b. We graph the significant interaction to examine these effects, and the plot is presented in Figure 9.2.

Figure 9.2. *Interaction of Residual Team Trust on Proactive Personality with Residual Team Cohesion as the Dependent Variable*



Because the analysis is residual-based (change-over-time) data, our figure provides a red line showing zero. Values below this mark indicate that changes in team cohesion have been negative across the two-month period, while values above this mark show positive changes. Figure 9.2 shows that there is no difference in levels of residual team cohesion at low levels of PP and either low or high levels of residual team trust. Both groups reside firmly in the negative change-over-time territory. When we compare these to respondents with high levels of individual PP, we find both groups reported significantly high levels of residual team cohesion, with this group all crossing the red-line (Figure 9.2) which represents the change score into positive territory. Furthermore, as expected, the group reporting the highest levels of residual team cohesion are those with high residual team trust, supporting the hypothesised effect.

9.5 Discussion

Team-level research often focuses on performance, effectiveness and success (Handke, Klonek, Parker, & Kauffeld, 2019), and this includes creativity (Schilpzand, Herold, & Shalley, 2011). A meta-analysis of team-level antecedents of creativity and innovation in the workplace (Hülshager, Anderson, & Salgado, 2009) highlighted over 30 years' worth of compositional, structural and supportive elements that play a role in the promotion of innovative and creative team-level outcomes. Various factors have been explored in research suggesting the promotion of positive behaviours within teams lead to positive, creative and innovative outcomes such as open-mindedness (Mitchell, Parker, & Giles, 2012), commitment (Bouwman, Runhaar, Wesselink, & Mulder, 2019), knowledge communication and sharing (Jin & Sun, 2010). However, despite support for elements associated with creativity outcomes, limited research explores the role of psychological elements within individuals on team-level outcomes (e.g., individual autonomy, Jönsson & Jeppesen, 2013). Consequently, the present study explored and tested both individual-level (PP) and team-level (trust, cohesion) factors on team-level creativity, and we

extended the literature's typical cross-sectional data approach and used a repeat-measure design (Podsakoff et al., 2003) to enhance the methodological testing of relationships.

We used COR theory which includes the crossover effects model (Hobfoll et al., 2018), which in combination proposes the process of resources crossover, whereby a set of resources from the individual could enhance team resources (trust and cohesion) and ultimately creativity. This approach is called the resource caravan, and thus we make an important empirical contribution by improving the understanding of how resources from the individual can shape teams and ultimately enhance positive workplace outcomes (Hobfoll et al., 2018). Using these now related theoretical approaches means we were able to test the psychological resource crossover between individual-level (PP) and team-level factors (trust and cohesion). In addition, testing the crossover effect between levels (PP and team trust) further enhances the contributions of our study.

The findings show that PP is positively related to all residual team-level factors, including creativity, whereas residual team trust influences both residual team cohesion and creativity. While we find residual team cohesion partially mediates the relationship between residual team trust and residual team creativity, we find further evidence of only partial mediating effects on the individual-level construct. Thus, while PP shapes team trust, cohesion and creativity, it continues to have a significant and moderate strength effect on team creativity over time, even after considering the effects of team trust and cohesion. This multi-level crossover of resources aligns with Westman et al. (2013) debate on positive resource crossover, and thus strengthens our understanding that individual resources can have a positive crossover effect, indicating that teams have higher trust, better cohesion and are more creative when they include individuals with superior PP.

Finally, our significant interaction effect further supports COR and the crossover and resource caravan approaches (Hobfoll et al., 2018), showing that the transfer and promotion of resources through positive emotions across the workplace (social entities) is enhanced when individuals have stronger PP. Combined with high team trust, we find evidence of a resource gain spiral effect, whereby the focus on both individual-to-team crossover of resources and promotion of resource caravan at team members is especially advantageous for team cohesion (across-time), highlighting how individuals with high PP appear to facilitate and accelerate the process of resource promotion through positive emotions and encourage teams to retain higher resources to develop the upward spiral effect. Hence, the COR and crossover effect in combination can be the key to promote positive work behaviours and creative outcomes leading to the success of the overall organisation.

9.5.1 Implications

The present study highlights how organisations must understand that recruiting and selecting superior individuals (here with high PP) can help create more creative teams, both through their own skills but also through enhancing their teams to be more trusting and cohesive. Further, providing activities that promote and encourage proactivity is likely to be widely beneficial for organisations and the managers that lead them. By focusing on the promotion of psychological resources such as PP, organisations can not only enable individuals to effectively pursue and achieve their personal goals but also be able to support teams they are part of. Hence, by promoting proactivity-related behaviours and personality along with positive emotions within teams (trust), organisations can enable their teams to achieve superior cohesion and creativity. Developing organisational interventions to increase resource exchange from individual to team and eventually, the overall organisation may also be the key to improving the resource gain effect collectively to the betterment of the entire workplace.

Implications for research include exploring the resource caravan effect more fully, including more contextual factors. Perceived organisational support has strong meta-analytic support towards employee performance (Kurtessis et al., 2017) and would be a useful avenue to include. Again, testing effects across individual- and team-level does provide a more nuanced test and potentially gives greater insights, so such relationships are encouraged. In another example, using COR theory, Ghafoor and Haar (2020) used climate for innovation as a contextual factor towards creativity and found support, although this was at the individual-level. Hence, researchers could extend the present model and explore additional individual factors such as psychological capital or additional factors aligned with COR theory such as organisational contextual factors. Finally, including psychological resource, which is negative in nature, might also provide a more balanced understanding, such as workload or work ambiguity. We would expect factors such as these to drain resources and thus have negative consequences on team creativity, although understanding how deals manage such pressures would be interesting.

9.5.2 Limitations

Our use of high-level CFA analysis provides greater confidence in our constructs (Haar, Russo, Suñe, & Ollier-Malaterre, 2014) and importantly the use of a repeat-measure design makes issues such as common method variance much more unlikely (Podsakoff et al., 2003). While our study has a large number of particularly small-sized teams, this is a typical dynamic of the New Zealand work context (Spell et al., 2011). Finally, we acknowledge that in their review of analysis options, Bergh and Fairbank (2002) indicate that the residual approach is only one of a handful of other options, although the residual approach is well used including in creativity studies (e.g., Bledow, Rosing, & Frese, 2013). Hence, the residual approach is just one way that changes over time can be assessed. Finally, we acknowledge that other individual-level constructs could have been

used, although our findings around PP reinforce its importance in the team context of creativity.

9.5.3 Conclusion

The present study contributes to the understanding of COR theory, including the crossover model by empirically testing the resource crossover from individual to team-level factors, ultimately promoting team creativity. Hence, the present study provides empirical support of new theoretical directions by Hobfoll et al. (2018) as well as contributing to understanding the importance of an individual-level resource on team factors. Clearly, PP is a power source of resources and provides much needed clarity to the creativity literature, and we encourage researchers to consider PP in conjunction with team factors such as trust and cohesion when examining team creativity. Finally, our use of a repeat-measure design further enhances these findings and provides stronger confidence in the results and helps strengthen the understanding of COR theory within teams.

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CHAPTER TEN: DISCUSSION, CONTRIBUTIONS, CONCLUSION

Chapter Overview

The following chapter concludes the thesis by discussing overall contributions, implications, limitations, and then highlighting areas for future research. To avoid repetition, this chapter covers all areas in broad terms as specific findings, discussion and limitations are all covered in more depth through Papers 1-6 (Chapters 4-9).

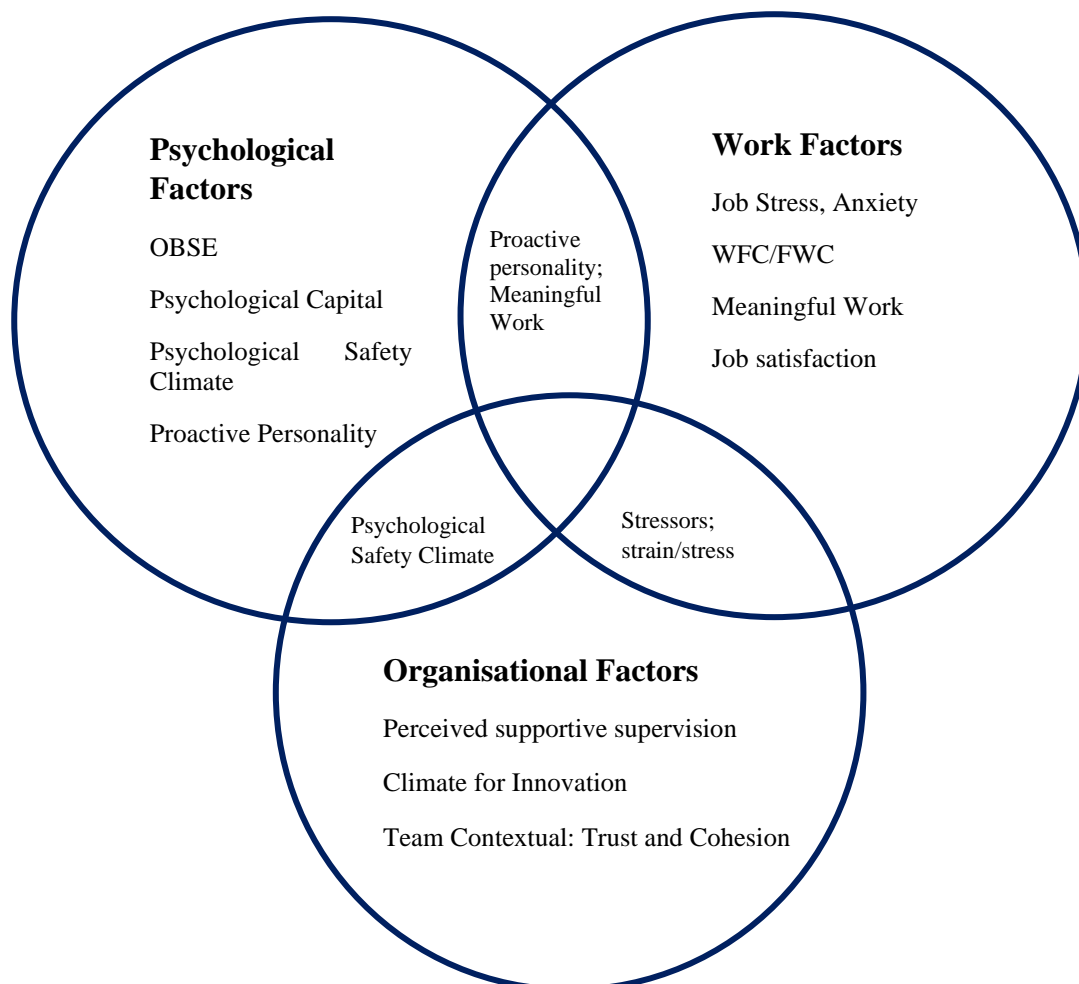
10.1 Summary of Thesis

This thesis aimed to identify predictors (POW) of CB through a mapping review and explore the influence of POW factors on CB using diverse quantitative methodologies, primarily through the lens of COR theory. Research background and research question are covered in Chapter 1, leading up to Chapter 2 where definition, key predictors of CB and theoretical approaches are discussed. Chapter 3 outlines methodologies used throughout Papers 1-6 (Chapters 4-9). The importance of extensive C&I research literature was explored and discussed based on the mapping reviews (from 2014 to 2019), leading to categorise predictors of C&I into three themes (POW), is covered in Paper 1 (Chapter 4).

These themes, along with the importance to look at CB, has been highlighted in Paper 1 as well, advancing the literature around C&I by proposing a research framework to be empirically tested. Following this framework, CB was examined using five empirical studies, looking at diverse combinations of POW factors focusing on positive factors (Papers 2, 3 and 6) as well as negative factors combined with positive factors (Papers 4 and 5). Furthermore, diverse methodologies and datasets were used including (a) single-sourced data, (b) time-separated data [independent and dependent variables separated by time], (c) repeat-measure data, and (d) multi-level data analysis allowing the testing of cross-level influence of POW on CB (Paper 6). Factors depicted in Figure 10.1

were identified, explored and empirically tested towards CB on individual- and team-levels.

Figure 10.1. Overlapped POW Factors



This thesis recognises that theoretically, some of the factors overlap across two different themes. For example, psychological safety climate (Paper 3) is both a psychological factor and organisational factor. Psychological safety climate has the attributes of both organisational-factors around how supportive is an organisation but targets the individual psychological-factors of feeling safe at work (Ghafoor & Haar, 2020). This thesis acknowledges that such factors are not mutually exclusive and overlap across different themes identified in Paper 1: POW. The aim of this categorisation is clarity and to see how different factors can have a collective influence on CB and empirically test these relationships using different models. In addition, the POW factors

are identified as resources under COR, making a useful complement with the theoretical framework to understand the influence of POW towards CB.

Even though there is criticism around how resources under COR are defined and identified (e.g., Thompson & Cooper, 2001), this thesis relied on the original definition of resources which suggests that any factors that can help the individual in the process of attainment of goals are considered resources (Hobfoll, 1989). Further elaboration and expansion (Hobfoll et al., 2018) and the critical review of the COR theory and definition of resources, also agree with this original definition (Halbesleben et al., 2014). Hobfoll et al. (2018) suggest that resources can be both positive and negative as COR theory had to be viewed in context, whereby negative factors might ultimately lead to positive outcomes and hence become resources. This was supported around stress and anxiety, leading to CB when combined with psychological capital in Papers 4 and 5 (Chapters 7 and 8).

Furthermore, Hobfoll et al. (2018) also suggested the use of COR theory in combination with other theories that can help explore and test resources or groups of resources in a given context (covered in Chapter 2 in detail). For instance, Behavioural Plasticity Theory is discussed to explain organisation-based self-esteem and understanding from Organisational Support Theory is borrowed to explain how supportive elements such as supportive supervision works as a resource in enhancing both organisation-based self-esteem and CB (detailed in Paper 2). The crossover effect by Westman (2001), which is now folded in COR theory (Hobfoll et al., 2018) was also used. This thesis explored how the crossover of resources influences CB as the ultimate outcome. In Paper 5, this crossover of individual's stressors-strain (work factors) was tested as the "level of spillover for the same individual" (Westman, 2001, p. 745) and proved to be detrimental to CB as an outcome. In addition, with crossover across multi-levels suggesting that much like negative spillover that causes adverse outcomes, positive

spillover from individuals, such as positive experiences, can impact teams, departments and organisations positively ultimately enhancing positive outcomes (Westman, 2001). In Paper 6, I examined how psychological resources from the individual (proactive personality) shaped team resources (i.e., team-trust and team-cohesion) and ultimately team CB through the crossover of resources under COR theory (Hobfoll et al., 2018; Westman, 2001). Paper 6 used a repeat measure design, and thus all effects discussed onwards are change-over-time.

10.2 Findings and Discussion

This thesis aimed to answer the following research questions.

- 1. Do psychological, organisational and work (POW) factors influence employee CB?*
- 2. How do they operate in combination?*
- 3. Are there mediating and/or moderating effects at play?*
- 4. Do some POW factors play the role of boundary condition/s in explaining relationships towards CB?*
- 5. Do effects differ by methodology such as at the team level of analysis or change-over-time level of analysis?*

Following the framework proposed in Paper 1 (Chapter 4), the influence of factors was empirically tested through different combinations towards CB as the outcome. Overall, the influences of a variety of POW factors towards CB provided strong understanding. I briefly summarise the findings and discuss through the lens of COR theory.

- a) The collective influence of POW on employee's CB.

Under the COR resource caravan effect, the influence of combined positive factors towards CB is focused in this thesis. Overall findings suggest that diverse combinations of POW factors positively influenced CB at individual- and team-level. Under resource

caravan passageway effect, the findings of this thesis suggest that POW factors do not only lead to CB but also promote each other. Through mediation and moderation effects, POW influences on each other and towards CB is explored. Findings suggest that organisation-based self-esteem (psychological factor) positively influences meaningful work (work factor) and CB, and meaningful work mediates the relationship between organisation-based self-esteem and CB.

Similarly, psychological safety climate (psychological factor) significantly related to organisation-based self-esteem and CB and organisation-based self-esteem to CB, suggesting full mediation effect. Interactions effects showed that perceived supervisor support (organisational factors) interacts significantly with organisation-based self-esteem towards both meaningful work and CB being higher when perceived supervisor support and organisation-based self-esteem are high. Similarly, CB is also highest when both psychological safety climate and climate for innovation are high.

To further investigate the overlapped nature of the factors this thesis looked at the combined, but complex influences through boundary condition where the effect of organisation-based self-esteem through meaningful work on CB increases as perceived supervisor support strengthens. Similarly, the indirect effect of psychological safety climate (a psychological factor) on CB through organisation-based self-esteem increases as the climate for innovation (an organisational factor) improves. This aligns well with COR resource caravan passageway suggesting that resources work together and prevail in an ecological environment which plays a major role in these resources failure or nurturance and is often not focused by researchers (Hobfoll et al., 2018).

However, these findings challenge the Behavioural Plasticity Theory around the influence of external factors (perceived supervisor support) on organisation-based self-esteem which in this case suggested that employees with high organisation-based self-

esteem reacted more to high perceived supervisor support. Another complementary theory attached to COR in this thesis is Organisational Support Theory, that was reinforced for perceived supervisor support as employees, under felt obligation, reciprocate with higher CB.

Considering the ecological conditions and how they can help enhance resources to promote CB, this thesis also looked at the influence of factors at team-level. Findings suggest that individual-level psychological resources (proactive personality) significantly and positively affect resources at team-level (trust and cohesion) that are important team-contextual elements to promote creative outcomes. The cross-level interaction shows that individuals with high proactive personality interact with high team-trust, ultimately leading to high team-cohesion. Again, linking back to the resources working in combination at the individual-level, the same effects can thus be made for the team-level. These findings suggest that team-level trust and cohesion work in combination as resources (under resource caravan effect), and team-cohesion partially mediates the influence of team-trust on team-creativity. Thus, under COR, this means that the resource caravan effect is also applicable and notable at the team-level of analysis.

b) Negative factors influence on CB.

Negative factors are broadly categorised in the literature under different terms such as the ‘dark-side’ (Anderson et al., 2014), and uncertainties (Acar et al., 2019), and have been covered in previous research that shows they typically influence CB negatively. Throughout the literature, the influence of stress and anxiety have been discussed to be detrimental leading to negative physiological and psychological consequences (e.g., Van Dyne, Jehn, & Cummings, 2002; Ng, Feldman & Lam, 2010). By definition, under COR theory, anything that can help an individual attain their goal is a resource (Hobfoll, 1998), including both positive and negative factors dependent on the context (Hobfoll et al.,

2018). This thesis aimed to explore the traditionally established detrimental effects of stressors and strain (e.g., job stress [Paper 4] and work-family conflict and job-anxiety [Paper 5]) on individual CB through the lens of COR.

Findings suggest that stress and job-anxiety, even though detrimental in nature, can have potentially positive influences on CB when explored through the resource caravan lens. This thesis found that the influence of stress changes in the presence of psychological capital, suggesting that with high psychological capital, the influence of stress on CB becomes positive. Furthermore, these effects are found similar across two distinct samples suggesting confidence in these testing. Similarly, in a third sample, through the interaction effect (with psychological capital) it was found that change in CB is higher when there is low residual job anxiety only for those with high residual psychological capital. Hence, individuals with high psychological resources reservoir have the ability to manage the negative influence of stress and job-anxiety at work but also be creative. These findings also align with the arguments of Hobfoll et al. (2018), suggesting that resources can be negative in nature but play a role in helping attain goals.

An explanation of these findings is that resources do not work individually but rather in groups, as suggested by Hobfoll (2002, 2011). Hence, the influence of positive and negative factors should not be studied in isolation. This aligns well with resource caravan effect (Hobfoll, 2011). Another explanation can be that negative work factors: stress and job-anxiety can become beneficial and hence trigger resource gains (rather than losses) when they are combined with higher psychological resources like psychological capital, which can act as a reservoir of resources for the employee to tap into. These findings not only help look at stress, and stressors-strains beyond their established negative influence but also help understand that as factors or resources work in groups, which is seldom the case.

c) Methodological contributions.

Fundamentally findings from this thesis tell us that it's not just the direct effects of POW factors on CB that are important but also mediating relationships that facilitate CB at the individual- and team level. Mediation effects were largely tested throughout this thesis based on the recommendation of reviews (e.g., Hughes, Lee, Tian, Newman, & Legood, 2018; Thurlings et al., 2015; Van Knippenberg, 2017) and this included psychological factors (i.e., organisation-based self-esteem) mediating the effects between psychological safety climate and perceived supervisor support towards CB. Work factor (job satisfaction) mediated the relationship between psychological capital and CB across two samples (Paper 4). Further, testing mediation on team-level showed that team cohesion mediated the relationship between team trust and team-level CB. This reinforces the resource caravan effect suggesting that the influence of one factor towards CB is strengthened or weakened by another factor. Furthermore, according to Corollary 1 of COR, having resource makes individuals more capable of gaining more resources (Hobfoll et al., 2018). Thus, resources working in combination also benefit in constantly gaining higher resources and achieving creative outcomes.

Furthermore, this thesis also tested for moderation, moderated-mediation and cross-over effects. Interaction effects were tested and suggested that high psychological safety climate interacts with climate for innovation towards high CB only when the climate for innovation is also high. Similarly, in a cross-over study where individual-level high proactive personality leads to the high team-cohesion but only when there is high team-trust. These two interactions show that the combined influence of factors from POW under resource caravan is effective and beneficial for CB on both individual and team-level.

With the aim to test the influence of combined POW factors, this thesis also included tests of boundary conditions, which seeks to determine if the mediation effect is dependent on another variables (moderator) and quantify the boundary condition (Hayes, 2018). Overall, in this thesis, multiple studies tested for moderated mediation (boundary condition), which although used in exploring factors in existing relationships (Wayne, Lemmon, Hoobler, Cheung, & Wilson, 2017), is still extremely limited. Importantly, a number of significant moderated mediation effects were found in three papers (and four samples). For instance, the indirect influence of psychological safety climate on CB through organisational-based self-esteem was found to be conditional on the strength of climate for innovation.

The findings suggest that, as directed by COR, the effects of resources appear to be best determined in combination, because resources work in groups and facilitate each other towards shaping CB. Boundary conditions show that the influence of positive factors is enhanced through combined effects of resources but also the influence of negative factors (i.e., stress) can become positive and beneficial towards CB. This also aligns well with the future directions on testing stressors and creativity relationship using boundary condition due to the inconsistent findings through meta-analysis (e.g., Byron et al., 2010). Overall, the thesis approach of testing for boundary conditions provided strong and insightful findings, which provide good support for the COR resource caravan approach.

10.3 Contributions

Through one mapping review (Paper 1), followed by five empirical papers (2-6), collectively, this thesis made a number of contributions.

The first contribution of this thesis is to empirically test the proposed framework from Paper 1 using diverse samples and methodologies. This allowed not only to test

diverse predictors of CB but also determine the level of generalizability of resource caravan and cross-over effects under COR. A total of five diverse sample datasets are used to explore the influence of positive and negative factors towards promotion or demotion of CB. These five datasets including both cross-sectional and repeat-measure designs though predominantly on New Zealand (Paper 2, n=505), there was also data from international cohorts: Dubai (UAE), New Zealand, and Pakistan (Paper 6, n=269) and USA (Paper 4, n=219) as well as data on teams in New Zealand (Paper 5, n=121 employees in 40 teams) and a dual sample study (Paper 3, n=475 from New Zealand and n=269 from international cohort).

The second contribution is empirically testing POW factors in diverse combinations. Including Anderson et al. (2014), this thesis focused on recent C&I reviews (2014-2019) suggesting the lack of empirical testing of the combined influence of factors. Aligned with the argument of Hobfoll (2011) regarding resources working effectively in combination towards desired outcomes, this thesis contributed to the literature by testing diverse POW predictors towards CB using COR, resource caravan effect as well as crossover effect using different samples. As suggested by Hobfoll et al. (2018), this thesis also contributed to the field by including other theories allowing an understanding of how resources worked and utilised the crossover effect theory by Westman (2001) folded into COR (Hobfoll et al., 2018) to test the crossover of resources from individuals to team-level factors (Paper 6), ultimately influencing CB using a multi-level approach.

The third contribution is understanding and empirically testing the role of negative factors in influencing CB. Aligned with the definition of resources by Hobfoll (2011) and recent critical review of this definition (Halbesleben et al., 2014), suggesting that resources can be any factors, irrespective of positive or negative in nature, that can help achieve goals. Furthermore, based on the mixed findings through meta-analysis (e.g., Byron et al., 2010) and suggestion of reviews (e.g., Acar et al., 2019) to look at the

potential positive or negative effects of negative factors and stressors, this thesis considered negative factors integrated into the combined influence of POW towards CB. The findings suggest that these negative factors do have the potential to enhance CB, especially over time when tested in combination with positive psychological resources (Papers 4 and 5). This also aligns with Hobfoll et al. (2018) arguments that (i) resource can be negative in nature but still help gain goals and (ii) when faced with negative factors, individuals become more encouraged to gain resources to subside the influence of negative factors and achieve their outcomes.

10.4 Implications

10.4.1 Theoretical Implications

This thesis contributes to the literature on C&I in several ways. It strengthens the ever-growing research around predictors of C&I, specifically CB, on multiple levels of analysis and how predictors in combination, both influence CB (direct and indirect through mediators) and interact with each other towards CB. Theoretically, this thesis extends understanding and applicability of COR theory resource caravan effect (Hobfoll et al., 2018) through testing diverse predictors of CB in combination rather than in isolation which has been extensively looked at in the research to date. Based on the COR resource caravan effect, the relationship between POW factors and CB are empirically tested using diverse datasets, including both positive and negative POW factors.

By including negative factors, this thesis has empirically tested the understanding that some resources, which are negative and typically detrimental factors that drain resources (Hobfoll et al., 2018), might have the potential to enhance CB when combined with positive factors. The findings of this thesis align with the definition of resources, suggesting that anything can be a resource as it supports, specifically in this thesis, in the attainment of creative outcomes. Moreover, the overlooked potential of a negative factor

in proving to be beneficial, as long as combined with high positive resources, is also empirically tested and supported. This further encourages the examination of negative factors in relation to positive factors towards CB beyond the nature of negative factors alone.

Another theoretical extension through this thesis is the understanding of resources on multi-level analysis, and how they crossover (Westman, 2001) from an individual and across to team members and ultimately shape team creativity. The findings of paper 6 from this thesis suggests that individual resources, specifically individual psychological resources, are essential for team-level resources to prevail and contribute to team-level creativity. Thus, highlighting the importance to explore individual psychological resources role in team- and organisational-level outcomes. Going forward with the crossover of resources, further examination of team-level resources crossing over to organisational-level and contributing to overall organisational success can further extend understanding of the crossover of resources.

10.4.2. Practical Implications

This thesis poses implications for organisations, managers and leaders, highlighting the importance of individuals with high psychological factors (i.e., organisation-based self-esteem, psychological capital, proactive personality). Such psychological resources can be enhanced through supportive organisational factors (e.g., supervisor support), which can also support in improving work factors (e.g., meaningful work), eventually leading to desired creative outcomes. Importantly, the thesis findings indicate that all POW factors work together within an organisation and appear to work best in combination with support from each other.

Supervisors, managers, leaders, and those directly in command of subordinates are the most proximal contextual factors to individual employees. Hence such

organisational factors have a significant influence on how individuals produce positive outputs, and how they behave creatively. Providing managers, leaders and supervisors with sufficient training to be more supportive (Gonzalez-Morales, Kernan, Becker, & Eisenberger, 2018), and more attentive to their employees (Drucker, 2002) through constructive feedback, recognition and safety will likely help employees (De Jong, & Den Hartog, 2007) find their work more meaningful and trigger the initial stage of C&I process through enhanced CB. Moreover, culture and climate within the organisation were also found to be of significant value. The organisational climate that promotes creative and innovative practices will allow individuals to feel safer in sharing their ideas to peers, leaders and teams (Ekvall, 1996; Shanker, Bhanugopan, Van der Heijden, & Farrell, 2017) which aligns with psychological safety climate, that this thesis found to have a significant positive influence of CB. By promoting the innovative climate within a work setting, organisational leaders can enable collaborative processes of idea-sharing. Thus, in addition to effective feedback, recognition and safety, organisations can also promote the overall climate of innovation and promote idea sharing within the organisation.

Organisations can benefit from individuals with high psychological resources to create a better fit between employees and the competitive demands of the work environment and also be more creative. Organisations may promote and develop psychological resources of individuals within the organisation through training interventions (e.g., Luthans, Avey, & Patera, 2008) to boost their creativity. Psychological factors such as organisation-based self-esteem and psychological capital can be enhanced and indeed, were found to be especially beneficial in the presence of stressful events and conditions.

To effectively utilise individual psychological resources application towards desired creative outcomes, organisations and leaders need to focus on measures to reduce stress and anxiety at work, for example through better policies and HR practices (Jensen,

Patel, & Messersmith, 2013). However, in the fast-paced business world, it is impossible to take the stress out of the business equation. One way to achieve better management of stress is through constantly providing employees with opportunities to gain additional resources, whether increased psychological resources through effective training targeted at individual-level, or through more supportive leadership and climates, that employees can draw resources from and enhance their personal resources. It is also important for managers to understand what causes stressors and how do these stressors feed into strains that have proven to be negatively related to desired outcomes. The key here is to again try to reduce factors that induce stressors-strain but also improve the individual psychological resources to enable individual to deal with higher work demands and also be creative at the same time.

Moreover, when employees have high psychological resources (e.g., psychological capital dimensions of hope, self-efficacy, resilience and optimism), they will be more perceptive towards organisational resources and support (e.g., Rego, Sousa, Marques, & e Cunha, 2012), making better use of such resources and applying psychological and organisational resources collectively towards their goals. Though promotion of psychological capital will benefit in dealing with stress and strain, findings of this thesis indicate its positive association directly in improving creativity at individual levels that should be considered even for workplaces where employees have low to no stress.

Another psychological resource that can be promoted is proactive personality due to its positive influences (e.g., Prieto & Phipps, 2011), directly towards CB and it's potential to crossover to team-level factors and creative outcomes. Keeping this in mind, managers leading teams and groups should focus on the development of positive aspects of individuals personalities (psychological resources), along with their individual skills sets, as individuals are the source of success for teams and by pooling in their diverse

skills and psychological resources, they can effectively collaborate, work cohesively in competitive environments. Also, managers must understand that though positive factors such as supportive climate and supervision positively, and negative factors such as stress negatively influences CB, these effects take place collectively and what can be the best way to reduce the negative influences and promote the positive influences of these factors towards CB. Hence, it is essential for managers to understand that resources work in groups and collectively affect the outcomes. Moreover, how resources are gained and lost and how can an organisation enable individuals to gain higher resources to effectively deal with high demands and stress should also be considered as part of the HR policies and development plans.

10.5 Limitations and Future Directions

This thesis has three key limitations attached to the methodologies. First, some samples are cross-sectional, and this was used to initially examine the POW factors towards CB. This was subsequently improved through team-level and repeat-measure designs in an attempt to improve potential issues regarding Common Method Variance. Based on Spector (2019), the cross-sectional design is efficient in case (1) of scarce research resources, (2) to make sense by exploring new areas of inquiry and (3) to address the established relationships between purported environmental, perceptual, and outcomes variables. Hence, the cross-sectional design is effective in providing a snapshot of the extent to which POW (as X) and CB/IB (as Y) variables of interests are related without adding the complexities of temporal flow that may distort these relationships (Spector, 2019). I believe, aligned with the initial argument, the first set of empirical papers of this thesis (Papers 2 and 3) provide a basic exploration of POW factors and their influence on CB. Hence, this justifies the use of the cross-sectional design. That said, papers 5 and 6 did use improved methodologies (Podsakoff et al., 2003) including time-lagged and

repeat measure designs, and similar effects (including direct and indirect effects) were found.

Second, the survey design that was used in all studies had respondents self-report on the dependent variables (typically CB). Following the argument of Janssen (2000), she suggested that supervisors may miss key area in which individual excel in creative outcomes and highlighting that it is important that an individual rate their CB, and thus I used self-reported dependent variable data. Aligned with Janssen, Spector (2019) also suggests that using alternative sources of data to assess the construct is not always clear and may not be that accurate, further suggesting that in some cases involving behavioural outcomes (e.g., Dalal, 2005; Spector, Bauer & Fox, 2010) and job characteristics (Glick, Jenkins & Gupta, 1986; Spector, Fox & Van Katwyk, 1999) show better discriminant validity in the case of self-reported data. However, because the data was collected at two times periods for some studies, separating predictors and outcomes and using the repeat-measure approach, the issue around CMV was somewhat mitigated. Aligned with Spector (2019) who suggested, under temporal precedence, that data can be collected at different times for variables of interest, and this was done in Papers 5 and 6. This way of data collection on separate events is considered an improvement over typical cross-sectional design. Moreover, by using CFA in SEM, the effects of CMV were also minimised (Haar et al., 2014; Kenny, 2008).

Finally, another potential limitation was that most of the data was gathered via a panel, and while using this approach produces findings that align similarly with data from conventional methods (e.g., Ng et al., 2019), there are issues attached to panel data highlighted by some critics (e.g., Yang et al., 2010). Thus, I acknowledge that some critics have issues with such data, although I also note this approach to data collection is becoming more widely accepted. Given the potential issue for CMV, I did follow recommendations by Podsakoff et al. (2003) and typically undertook post hoc analyses

to test for CMV. This often included conducting the Lindell and Whitney's (2001) procedure. Following this procedure, a partial correlation is conducted while controlling for an unrelated construct to relationship studied. If no change on the strength of the correlations is found, then this indicates that CMV was not likely to be evident (as per Haar & Spell, 2009). Indeed, this was found in all such analyses.

Future studies testing new predictors of CB based on COR, should look to use, where possible, more complex study designs, including longitudinal analyses to avoid CMV issues. Collecting data on three time periods (Ployart & Vandenberg, 2010) will also help assess how mediation and moderation works and how CB can promote/demote over time. Though experts suggest collecting more than two-points of data (Ployart & Vandenberg, 2010), this was outside of the ability of this thesis due to the limited resources and time. Moreover, in terms of CMV, future studies should also collect data on variables from co-workers, supervisors or managers. For example, collecting team cohesion data from other co-workers, while self-reported CB and supervisor CB data would improve study designs, Janssen's (2000) arguments notwithstanding.

Future studies should also test the proposed framework from Paper 1 using diverse samples that can help determine how certain contextual factors like culture, climate and leadership styles promote and demote CB due to the environment of workplaces influenced by social and cultural factors (Hobfoll et al., 2018). Through this approach, future studies might be able to decipher how social factors influence organisational and team factors and eventually, individual factors and C&I outcomes. In terms of multi-level studies, future studies might focus on how predictors of team factors and creativity can cross-over from the team to the individual level and vice-versa. This approach might help determine not only how to strengthen team creativity through the various POW predictors but also how individual resources, specifically psychological and work resources and

creative outcomes can be influenced through team level positive (e.g., team support) and negative (e.g., conflicts) factors.

10.6. Conclusion

Inspired by the research on creativity and innovation, suggesting to explore the predictors of creative outcomes further, this thesis identified positive and negative predictors of CB through a mapping review and categorised these into three themes: psychological, organisational and work (POW) factors. This mapping review, aligned with future directions around using diverse methodologies and theoretical lens, also proposed an integrative framework. Using this framework as a base, the influence of POW factors on CB is investigated through a total of five empirical studies. The thesis makes theoretical contributions by testing the COR theory, and especially the resource caravan effect, as well as testing the crossover effect folded into COR. Through empirical studies, the combined influence of POW factors on CB is well supported on the individual- and team-level analyses. The crossover of resources is also shown to benefit CB when resources spillover from individual to team-level resources and ultimately influence team-level creativity.

This thesis also made some methodological contributions using five diverse samples and research approaches such as repeat-measure and multi-level analysis to avoid CMV. Specifically, testing mediation and moderation effects it showed that POW factors as resources work in combination, nurture and promote each other towards CB as the ultimate outcome. This provides support for the resource caravan effect under COR (Hobfoll, 2011). Importantly, a number of studies tested moderated mediation and found that the indirect effect influence of POW resources is dependent (and inter-dependent) on other resources, hence supporting the boundary condition of resources. This shows that the indirect effects of resources operate within complex relationships within employee (and teams) POW factors, providing new insights and understandings. Methodologically,

a number of diverse and distinct samples have been used in this thesis, providing confidence in findings and improving generalizability.

This thesis provides implications for researchers to focus attention on POW factors towards CB in combination. Overall, the thesis findings show that the combined influence of POW factors is likely complex, and future research should focus on both positive and negative factors as both are part of the typical work environment. Moreover, looking at the combined influence of POW factors across multiple levels may be vital to understanding how POW factors at the individual-level crossover and influence team-level factors and eventually organisational-level creative outcomes.

For managers, this thesis also provides implications around providing, building and helping the retention of POW resources for individuals and teams in order to enhance creative outcomes and ultimately improve organisational performance. Negative factors such as stress and job-anxiety were found to play interesting roles in some studies here – indeed, being beneficial in some cases – but great care should be seen in not promoting such factors at the workplace. Instead, managers should seek to manage and enhance individual resources that can prove beneficial in managing stress and anxiety, balancing their negative influence on creativity and also enhancing creativity.

CHAPTER ELEVEN: REFERENCES AND APPENDICES

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Appendix 1: Key Construct Definitions and measures items with source

Table

Construct definitions, sample items and source for measures

Creativity Behaviour	<p><u>Creativity behaviours (CB)</u> is defined as the use of individual resources influenced by external factors to innovate, make decisions and take control of tasks that help improve the processes and produce favorable outcomes (Anderson, Potočnik, & Zhou, 2014). Sample item: “I come up with new and practical ideas to improve work performance”.</p> <p>3-items from: Shimazu, A., Schaufeli, W. B., Kamiyama, K., & Kawakami, N. (2015). Workaholism vs. work engagement: the two different predictors of future well-being and performance. <i>International Journal of Behavioral Medicine</i>, 22(1), 18-23.</p>
Innovation Behaviour	<p><u>Innovation behaviour (IB)</u> focuses on idea generation, promotion and realization (Janssen, 2000). Sample item: “Mobilizing support for innovative idea”</p> <p>9-items from: Janssen, O. (2000). Job demands, perceptions of effort-reward fairness and innovative work behaviour. <i>Journal of Occupational and Organizational Psychology</i>, 73(3), 287-302.</p>
Team Creativity Behaviour	<p><u>Team creativity</u> is defined as the process of development and integration of useful and novel ideas by a team, where team members collectively process information and efforts to work towards collective creative results (Dong et al., 2017). For team creativity behaviours, the measure for creativity behaviour was modified to focus at the team-level. Items were coded 1=not at all characteristic of my team, 5=very characteristic of my team, and a sample item is “My team often have new and innovative ideas at work”</p> <p>3-items from: Shimazu, A., Schaufeli, W. B., Kamiyama, K., & Kawakami, N. (2015). Workaholism vs. work engagement: the two different predictors of future well-being and performance. <i>International Journal of Behavioral Medicine</i>, 22(1), 18-23.</p>
Psychological Factors	<p><u>Organisation-based Self-Esteem (OBSE)</u> is defined as “the degree to which organizational members believe that they can satisfy their needs by participating in roles within the context of an organization” (Pierce, Gardner, Cummings & Dunham, 1989, p. 625). Sample Item: “I can make a difference around here”</p> <p>10-items from:</p>

Pierce, J. L., Gardner, D. G., Cummings, L. L., & Dunham, R. B. (1989). Organization-based self-esteem: Construct definition, measurement, and validation. *Academy of Management Journal*, 32(3), 622-648.

Psychological capital (PsyCap) is defined as an investment into personal well-being through four states: Hope, Confidence, Resilience and Optimism that aid individual in achievement of goals (Luthans & Jensen, 2002). Sample item: "I always look on the bright side of things regarding my job"

12-items adapted from: Parker, 1998; Snyder et al., 1996; Wagnild & Young, 1993; Scheier & Carver, 1985. Efficacy: Items 1-3; Hope: Items 4-7; Resilience: 8-10; Optimism: 11-12
Source : Luthans ,F., Youssef , C.M.,& Avolio , B.J.(2007). Psychological capital. New York : Oxford University Press and Luthans, F., Avolio, B., Avey, J. B. & Norman, S. M. (2007). Psychological capital: Measurement and relationship with performance and job satisfaction. *Personnel Psychology*, 60, 541-572.

Psychological Safety Climate (PSC) is defined as "the extent to which individuals feel secure and confident in their ability to manage change" (Newman et al., 2017, p. 3). Sample item: "If you make a mistake on this team, it is often held against you" (reverse coded)

3-items from:

Edmondson, A. (1999). Psychological safety and learning behavior in work Teams. *Administrative Science Quarterly*, 44(2), 350-383.

Proactive Personality (PP) is referred to as "taking initiative in improving current circumstances; it involves challenging the status quo rather than passively adapting present conditions" (Crant, 2000, p. 436). Sample item: "I am always looking for better ways to do things"

10-items from:

Seibert, S. E., Crant, J. M., & Kraimer, M. L. (1999). Proactive personality and career success. *Journal of Applied Psychology*, 84, 416–427.

**Organisational
Factors**

Work-Family Conflict (WFC) is defined as a "form of role conflict in which the pressures from work and family domains are mutually incompatible in some respect" (Greenhaus & Beutell, 1985, p. 76). Sample item: "I am often so emotionally drained when I get home from work that it prevents me from contributing to my family"

6-items strain dimension from:

Carlson, D. S., Kacmar, K. M. & Williams, L. J. (2000). Construction and initial validation of a multidimensional measure of work–family conflict. *Journal of Vocational Behavior*, 56(2), 249–276.

Perceived supportive supervision (PSS) refers to an employee’s general view concerning the degree to which supervisors’ value their contribution and well-being (Eisenberger et al., 2002). Sample Item: “The supervisor is willing to extend support in order to help me perform my job to the best of my ability”

3-items from:

Eisenberger, R., Stinglhamber, F., Vandenberghe, C., Sucharski, I.L., Rhoades, L. (2002). Perceived Supervisor Support: Contributions to Perceived Organizational Support and Employee Retention. *Journal of Applied Psychology*, 87, 565–573.

Climate for Innovation (CfI) “is characterized by rewards performance and by organizational willingness to experiment with innovative ideas” (Scott & Bruce, 1994, p. 583). Sample item: “Around here, people are allowed to try to solve the same problems in different ways”

5-items from:

Scott, S. G., & Bruce, R. A. (1994). Determinants of innovative behavior: A path model of individual innovation in the workplace. *Academy of Management Journal*, 37(3), 580-607.

Team Cohesion

Cohesion is considered a social system rather than an individual system that promotes team performance behaviours and eventually team performance outcomes (Hill, Offermann & Thomas, 2019). Sample item: “In my team, team members have known that they can depend on each other”

3-items from:

Seashore, S. A. (1954). *Group Cohesiveness in The Industrial Work Group*. Ann Arbor, MI: Institute for Social Research.

Team Trust

Trust is a psychological state in which one is expectant that others will not behave opportunistically and as expected (Jarvenpaa, Knoll & Leidner, 1998). Sample item: “Members in my team trust each other”

3-items from:

Campion, M. A., Medsker, G., & Higgs, C. (1993). Relations between work group characteristics and effectiveness: Implications for designing effective work groups. *Personnel Psychology*, 46, 823–850.

Work Factors

Job stress (JS) is the imbalance between individual state and the environmental effects where, excessive demands are made from the environment to which an individual is not able to react fully (Lazarus & Folkman, 1984). Sample Item: “How would you rate your stress from 1 (lowest) to 10 (highest)?”

Single-item from:

Stanton, J. M., Balzer, W. K., Smith, P. C., Parra, L. F. & Ironson, G. (2001). A general measure of work stress: The stress in general scale. *Educational and Psychological Measurement*, 61(5), 866–88.

Job Anxiety is linked with a low drive to change the current workplace situation – “even when they are unsatisfactory” (Warr, 1996, p. 197). Sample items: “anxious” and “worried”.

3-items from:

Axtell, C., Wall, T., Stride, C., Pepper, K., Clegg, C., Gardner, P., et al. (2002). Familiarity breeds content: The impact of exposure to change on employee openness and well-being. *Journal of Occupational and Organizational Psychology*, 75, 217–231.

Meaningful work (MFW) is defined as “job and other workplace characteristics that facilitate the attainment or maintenance of one or more dimensions of meaning” (Fairlie, 2011, p. 510). Maynard, Gilson, and Mathieu (2012) define MFW as “the fit between one’s work goals and beliefs or values; in other words, it is an individual’s extent of caring about a task” (p. 1235). Sample item: “My job activities are personally meaningful to me”

3-items from:

Spreitzer, G. M. (1995). Psychological empowerment in the workplace: Dimensions, measurement, and validation. *Academy of Management Journal*, 38(5), 1442-1465.

Appendix 2: Supplementary Table for Paper 1

Table S1

Mapping Review of 15 Reviews Dated (2014-2019)

Authors	Design / methodology	No. of studies/ timeframe	Themes	Predictors	Outcomes/ Levels	Contribution	Future Directions
Anderson et al. (2014)	State-of-the-Science Review	Approx. 283/ 2002-2013	Ind/ Psy	Traits, value, goals, orientation, thinking styles, self-concepts, identities, knowledge and abilities, psychological states, motivation	Individual, team, organisational, and multilevel C&I.	Proposed a new integrative definition; discussed theories of C&I; Applied a comprehensive multiple level-of-analysis framework of predictors of C&I; Offered 60 specific questions under 11 major theme for future research	To focus on: -combined influence of predictors of C&I -cross-level, multi-level, meta-analyses methodological studies
			Neg	Stress and lack of trust.			
			Work/ Task	Goal, job complexity and requirements.			

			Social/ Org	Leadership, supervision, influence, feedback, evaluation, and justice, social networks			
Zhou & Hoever (2014)	Systematic review	Not classified empirical studies/ Since 2000	Ind/Psy	Proactive personality; creative self- efficacy; positive affect; optimism and hope; Intrinsic motivation; individual differentiation from teammates in terms of thinking and feeling.	Individual and team creativity	Reviewed Actor- context factors that (a) are both positive towards creativity, (b) negative actor factors and positive contextual factors, (c) positive actor factors and unsupportive contextual factors and (d) detrimental actors' states or traits and unsupportive contextual factors Suggests that empirically, even factors that seem relatively proximal to	To focus on: -Both actor and contextual factors are positive and negative and a diverse combination of these can play a role in promoting and demoting creativity. -Context factors: culture in which creativity takes place needs more attention, furthermore, this interaction of culture with actors' characteristics and difference between perceived and actual

			Teams/ Groups	Composition, member behaviors, collective affective states, task experiences individually or jointly affect group creativity		creativity do not always exert consistent main effects. What they concluded: extent to which organisations, leaders, and Extra-organisational actors support, expect, or reward creativity on actors' psychological states and, in turn, their creativity.	context will help understand creativity better. -Multi-cultural settings, leading to effective collaboration and creativity - Key actor and contextual factors not documented in literature. -How to overcome negative actor and contextual factors. - Relationship between creativity and its antecedents across different levels of analysis. Conduct empirical research predicting the types of interplay proposed in this review. Explicate hidden actor and contextual factors for future reviews and meta- analysis
			Work/ Task	Job control and routinization; discretion to switch between the tasks			
			Neg	time pressure and chronic job control			
			Org	Benevolent leadership; Unit/ team support for autonomy			

Forgeard and Kaufman (2016)	Qualitative analysis	200 studies/ 2009 –2012 Empirical = 200 50 articles in 4 disciplines (psychology journals, creativity journals, business or industrial/or ganisational psychology journals, and education journals)	Ind/ Psy	Cognitive, Intelligence, creative thinking emotional intelligence, general knowledge, Personality: narcissist, anger, psychological symptoms, general intellectual functions, collaboration, communication, interpersonal skills, memory impairment, brain injuries	Imagination, creativity, and innovation (ICI)	Importance of studying ICI using 50 studies each from 4 disciplines (psychology journals, creativity journals, business or industrial/organisational psychology journals, and education journals) Studied predictors of ICI Highlighted the lack of importance of ICI as an outcome and predictor of outcomes	To focus on the importance of ICI as an outcome and as predictors for desired outcomes on multiple levels
			Social/ Org	Social network, leadership styles, perceived support			

			Neg/ task	Task conflict, Depression, lack of autonomy			
Thurlings et al. (2015)	Systematic review	36 articles and one dissertation focused on Teachers/ published before April 1, 2013 and peer- reviewed	Ind/ Psy	Personality, trait, and competence; Demographic factors: experience, income	Innovative behaviour (IB)	Defined innovation behaviours for educational setup. Demographic factors: experience, income, Proposed a framework or future research and testing: Individual factors, environmental factors and demographic factors of individual influence IB.	Focus on -Application of theory when testing environmental and personal characteristics. -Mediating and indirect effects within environmental and personal characteristics towards IB. -Longitudinal and advanced quantitative research. -Effect of IB in turn on organisation and their employees. -Actors that have both a supporting and hindering influence on IB and under what conditions they are supportive or hindering
			Neg	Job control, time pressure			
			Org/Cont ext/ Social/ external	Actors and/or relations with other people such as colleagues and manager, facilities and resources, culture, task factors, physical characteristics of the organisation,			

				training, environment, technology, constraints, culture; external: policies rules, regulations			
Hon and Lui (2016)	Dual review: Management and Hospitality	Non- inclusive/ not classified	Ind/ Psy	Personal characteristics (such as personalities and cognitive styles), and motivation	Employee C&I in organisation	Provided a comprehensive review on research on C&I both in the fields of general management and hospitality. Disclosed two important missing pieces in C&I research: multi-level influences and outcomes of creativity. Proposed a theoretical model around service industry to integrate individual- and	Focus on -Uncertainties affecting individual and group creativity -Supportive elements like leadership and climate influence on negative affects towards creativity. - Multilevel influences of creativity by empirically exploring cross-level influence of group-level
			Work/ Task	Job complexity			

			Org/ Social	relationships at work and leadership		group-level uncertainty determinants of creativity and explore multilevel approach to creativity. -Highlighted the lack of research advancement in C&I research in hospitality compared to management research, particularly on the multilevel nature and outcomes of creativity.	intervention on individual creativity. -Effects of psychological factors in combination with uncertainties towards creativity. – Diverse research methodologies in multilevel analysis including longitudinal, in-depth interviews, experimental design research can help assess these directions better.
Standing et al. (2016)	–Review	92 studies/ 2002 - 2012	Ind/ Psy	Personality, fear of failure, social networking preferences; confidence; self-perception; degree of organisational citizenship and occupational commitment; motivation; flexibility, ambitiousness;	Individual innovation	Discussed definitions of innovation/ constructs of innovation Found that not just individual characteristics but workplace characteristics and organisational factors plays a significant role in influencing the degree to which individuals commit to and embrace innovation, generate ideas and their ability to implement innovative processes.	Focus on – Defining the construct of innovation more carefully. - influence of leadership styles on innovation. - Which organisational factors and individual factors influence individual innovation at different stages of innovation: idea generation, innovation implementation.

				knowledge, skills, abilities and 'other' attributes of creative potential; self-leadership skills; empowering leadership and humour within the work environment		A common theme identified from this review is that both organisational and individual employees' characteristics are important to achieve high levels of individual innovation. Organisations work in a bigger environment (markets) where they face competition, policy regulations and costs that all effect individual innovation. For instance, some firms have heightened incentives to innovate in order to increase regulation and raise competitors' costs; the incentive mitigating the welfare loss arising from no regulatory commitment	-Individual effort and output in innovation influence certain outcomes at different levels of analyses – individual, team, or organisation. -How adverse outcomes of innovation influence the effects of organisational factors and individual characteristics in producing more individual innovation. -How personality and organisational culture (mis)fit influence the extent of individual innovation and how it can be minimized.
			Work/ Task/ Context/ Neg	Job characteristics such as autonomy, complexity, workload, fear of failure			
			Org/ teams/ groups	Organisational climate: value of creativity, levels of trust, effectiveness of communication;			

				goal setting, evaluation, feedback processes, the degree of teamwork, leadership and supervision processes; individual creativity in teams, team functional composition, team process and context (as moderators)			
			Org/Wor k/ Task/ Ind	Job design, adequacy of support for change, assigned workload and individual characteristics; leadership.			

			Social/ External	<p>Top-down standardisation of products; homogeneity of generated ideas; restrictions of scale and scope economies; restrictions on methods of financing legal innovations; financial constraints, inflexible laws governing advances all adversely affect innovation; economy's regulatory and legal environments impact on individual entrepreneurial activity, such</p>			
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				as business start-up.			
			KS/ Learning / Tech	Organisational learning; learning routines to innovation intersections between individuals, teams and organisations (innovation aggregation); knowledge sharing enabled by trust, senior management support and self-efficacy.			
Hero et al. (2017)	Systematic-Review	28 empirical studies/ 2006-2015	Ind/ Psy	Flexibility, achievement orientation, motivation, engagement, self-esteem, self-management,	Individual innovation competence	Explored the factors involved in individual innovation competence to design and assess pedagogical processes focused on authentic open-ended tasks being transformed into novel ideas	Focus on -Competencies factors identified in the review throughout different phases of innovation process and specifically in educational context.

				future orientation, creative thinking skills, social skills, project management skills, content knowledge and making skills		and in turn into usable products and services. Highlighted the importance of personal characteristics for collaborative pedagogical innovation process; provided a coherent understanding of individual innovation competence.	-Different methodologies to assess competence development, at individual and group levels.
Said-Metwaly et al. (2017)	Systematic-Review	152 studies/ up to 2016	Ind/ Psy	Attraction to complexity, high energy, behavioural flexibility, intuition, emotional variability, self-esteem, risk taking, perseverance, independence, introversion, social poise, tolerance to ambiguity, intrinsic motivation	Creativity	Highlighted lack of consensus on the definitions throughout literature, its link with different aspects: cognitive processes, personal characteristics and past experiences; how innovation and creativity along with other similar terms is used interchangeably. Provided understanding and a comprehensive review on different approaches to measure creativity	Focus on -The variability of an individual's creativity profile across different contexts, domains and age stages as all these aspects play a crucial role in promotion and demotion of creativity process. - Development and use of different methodologies to investigate and understand the variability of creativity in different context considering the influence of different factors from personality, environment and work leading to

			Org/ Social	Environment, culture, support, resources, management practice			dynamic conception of predictors of creativity. -Development of the measurement of creativity.
Van Knippenberg (2017)	State-of-the- Science Review	Empirical (Not Classified)	Ind/ Psy	Broader Knowledge integration through diversity; diversity in openness to experience (a personality trait); diverse knowledge, expertise, and perspectives.	Team Innovation and team creativity	Identifies two main perspectives in team innovation Research: the knowledge integration perspective and the team climate perspective. Within team integration debates on how diversity is the key to team innovation beyond the factors on job related diversity, its relation with climate, functional background diversity and how these diversity factors in relation with organisational factors like climate, leadership led to innovation with mediating effect of shared mental models, and moderating role of open-mindedness etc.	Focus on - Integrative contingency model of the factors providing teams with diverse informational resources. -Factors influencing the extent to which teams integrate these resources in a process of information exchange and integration. -Construct consolidation for moderators and mediators at both knowledge integration and team climate perspectives. -Theory of interactive influence of climate elements. -Integrating team members creativity composition and
			Team/ Groups	Functional background diversity and member creativity predicting team creativity; team			

				proactivity; team cohesion and goal interdependenc e; Empowering leadership, self-directed teams, team climate for innovation, connective thinking style, leader– member communicatio n, trust, team creative efficacy and risk-taking norms		Such team diversity creates possibilities for team information integration: knowledge sharing etc. that eventually helps achieve team innovation.	how it can work in the integrative perspectives. -Identifying and testing cross-cultural similarities and differences using the integrative model.
Thayer et al. (2018)	Literature review	Not Classified	Ind/ Psy	Knowledge, skills, and abilities, cognition.	Team Innovation Process	Essentially define innovation process for teams, critically consider factors that compose the innovation teams including individual and context	To focus on -Not only individual traits but also team's characteristics for better innovation processes as outcomes.

			Team/ Groups	Team diversity, communicatio n and knowledge integration, conflict		factors. Suggested that innovation teams are more successful in dealing with challenges and demands when teams, leaders and organisations they belong to are equipped, ambidextrous and supportive of creative outcomes.	-How supportive elements like leadership, climate and organisational support can be beneficial to extract more positive innovative outcomes from teams. -Promoting collaborative problem solving by facilitating the aspects of conflicts that can promote the innovation process. Hence, mitigating negative factors effects through design and support systems as these factors are important for shaping team innovation.
			Org/ Context	Creative leadership; context including climate and culture.			

Tian et al. (2018)	Systematic Review	61 identified primary studies including organisational culture and national culture/ January 1980- January 2017	Org/ Context	Innovation- Oriented Culture, Learning Culture, Adhocracy/ Developmental Culture, Hierarchical Culture, Clan Culture, Market/Rational Culture.	Innovation	<p>Focused on both organisational and national culture affecting innovation. Highlighted that previous empirical studies are relatively absolutized and have limited point of view on positive and negative impacts of culture on innovation.</p> <p>-Learning oriented culture and direct impact of culture are explored in relationships like leadership and innovation.</p> <p>-Organisational culture: appropriate learning and knowledge transfer climates, emphasizing future orientation, risk taking, openness and organisational learning, team trust, emotional intelligence positively influences innovation, but strict hierarchy demotes idea generation.</p> <p>National culture: availability of resources, how</p>	<p>Focus on -Organisational culture/ climate and national culture towards innovation through longitudinal research.</p> <p>-The role of culture in combination with other support elements though has been explored in recent studies should be further analysed.</p> <p>-Development of a new cultural dimension measurement.</p> <p>-Exploring the impact of interrelationship between organisational and national culture towards innovation outcomes.</p> <p>-Use of different methodologies should be opted including meta-analysis to have better understanding on statistical integration of the research on innovation</p> <p>-On the prevailing individualistic cultures, the spirits of teamwork are</p>
			Social/ External	Power distance, Individualism/ Collectivism, Masculinity/ Femininity, Confucian Dynamism, Uncertainty Avoidance, Indulgence			

						individuals can work individually and be more innovative.	negatively affected and should be addressed.
Hughes et al. (2018)	Critical review	195 empirical studies	Org/ Context	Multiple positive and negative leadership styles, supervisor support, support for innovation	Employee, team, and organisational C&I	Provided improved definition of creativity and innovation. Highlighted the importance of explored individual and team level motivational factor, social-relational factors with leadership towards C&I	Focus on - How C&I should be measured using facets such as assessing C&I using the process of idea promotion or through the aspect of product performance etc. -Different study designs including experimental

			Ind/ Psy	Individual and team level motivational factors such as self-esteem and psychological empowerment through a critical review, cognitive factors like psychological safety, identification factors like creative identities			<p>designs, longitudinal designs, time-lagged and/ or multi-study approach.</p> <p>-Leader traits/ characteristics/ styles towards C&I beyond individual level and into team and organisational level analysis.</p> <p>-Incorporating the role of other factors (reviewed under motivational, cognitive, social-relational and identification) in the relationship between leadership towards C&I through empirically testing the role of different mediators and moderators.</p>
Lukas & Stephen (2017)	Review	19 studies reviewed, two pilot, a validation study in the Czech Republic and a fourth cross-cultural validation	Ind/ Psy	Personal creativity and innovativeness , championing behaviours, work-related innovation behaviours (multidimensional and	Employee innovation	Reviewed existing scales on innovation behaviour and validated innovation behaviour inventory as well as innovation support inventory. Identified six key facets that lead to IB: idea generation, idea search, communication, innovation champion starts implementation activities,	<p>Focus on</p> <p>-Different methodologies when testing the relationship of support system from the organisation (including managers/ leaders, organisation and culture) such as longitudinal research design.</p>

		study: Switzerland , Germany, Italy and the Czech Republic (N=2812 employees and 450 entrepreneu rs)	Org/ Context	unidimensional) Organisational climate, managerial, organisational and cultural support		involves other people, in the implementation stage is to overcome obstacles. Found that layers of context that are more proximal to the individual will greatly influence individual innovation compared to national culture. Contextual and individual factors are important in addition to how needed resources are made available to employees and how employees perceive the support provided to them.	-Use of measures that are validated and fit the context as well as supervisor reported measures for innovation behaviours. -Testing these relationships through a broad variety of occupations and culture using innovation behaviour inventory as well as innovation support inventory
Shao et al. (2019)	Mini review	Empirical studies, Not Classified	Org/ Context/ External	Culture	Creativity	Review across different disciplines. Suggested that individuals from different culture have distinct conception of creativity, individual from different cultures (individualist, collectivist) show differences in creative processes and creativity may be measured using different measures based on	Focus on -Carefully examining the influence of cultures towards creativity. -Assessing empirically how culture including but not limited to languages, environment and multicultural experiences towards conceptualization, processes and assessment of creativity.

						differences between cultures.	
Acar et al. (2019)	Cross-Disciplinary Integrative Review	145 empirical studies	Work/ Task/ Neg	(a) input constraints: resources, time, materials etc, (b) process constraints: autonomy, formalization etc, (c) output constraints: standards, product design, quality and requirements	Multilevel C&I outcomes	Acknowledges the research on constraints in relation to creativity and innovation which has yielded conflicting findings (positive, negative, mixed). Offered an integrative framework with three types of constraints (a) input constraints, (b) process constraints, (c) output constraints and mediating mechanism including motivational, cognitive and social routes to improve the multilevel outcomes of creativity. For instance, for motivational route how perception of the constraint is viewed, either as challenged or as control attempt; for cognition route, how experiences, expertise and absorption capacities play a role in addition to supportive climate and mechanism and for social route how need of	Focus on -Testing potential moderators under each set mediating routes. -Multiple constraints in combination to advance the constraints theory of C&I. -Empirically testing how different constraints (input, process, output) effect different suggested routes (motivational, cognitive, social) -Elements of (a) enforcement to encourage or discourage certain behaviours through incentives, (b) malleability, to explore how flexible the constraints are and how they influence motivation, and (c) timing, by introducing and removing constraints in the studies to see how these three elements moderate the curvilinear link between

						interaction with distant parties may be beneficial for generating ideas.	constraints and creativity and innovation.
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Notes:

Keys: Ind=Individual; Psy=Psychological; Neg=Negative; Org=Organisational

Appendix 3: Ethics Approval, Participant Sheets, Survey

Ethical Approval Letters and Participant Information Sheets

1) AUTEC Ethics Approved (16/423 International work-life balance project)



AUTEC Secretariat

Auckland University of Technology
D-88, WU406 Level 4 WU Building City Campus
T: +64 9 921 9999 ext. 8316
E: ethics@aut.ac.nz
www.aut.ac.nz/researchethics

3 February 2017

Jarrold Haar
Faculty of Business Economics and Law

Dear Jarrold

Re Ethics Application: **16/423 International work-life balance project**

Thank you for providing evidence as requested, which satisfies the points raised by the Auckland University of Technology Ethics Committee (AUTEC).

Your ethics application has been approved for three years until 3 February 2020.

As part of the ethics approval process, you are required to submit the following to AUTEC:

- A brief annual progress report using form EA2, which is available online through <http://www.aut.ac.nz/researchethics>. When necessary this form may also be used to request an extension of the approval at least one month prior to its expiry on 3 February 2020;
- A brief report on the status of the project using form EA3, which is available online through <http://www.aut.ac.nz/researchethics>. This report is to be submitted either when the approval expires on 3 February 2020 or on completion of the project.

It is a condition of approval that AUTEC is notified of any adverse events or if the research does not commence. AUTEC approval needs to be sought for any alteration to the research, including any alteration of or addition to any documents that are provided to participants. You are responsible for ensuring that research undertaken under this approval occurs within the parameters outlined in the approved application.

AUTEC grants ethical approval only. If you require management approval from an institution or organisation for your research, then you will need to obtain this. If your research is undertaken within a jurisdiction outside New Zealand, you will need to make the arrangements necessary to meet the legal and ethical requirements that apply there.

To enable us to provide you with efficient service, please use the application number and study title in all correspondence with us. If you have any enquiries about this application, or anything else, please do contact us at ethics@aut.ac.nz.

All the very best with your research,



Kate O'Connor
Executive Secretary
Auckland University of Technology Ethics Committee

2) Participant information sheet (16/423 International work-life balance project)

12 January 2018

page 1 of 2

Participant Information Sheet



Date Information Sheet Produced:

12nd March 2017

Project Title

International Work-Life Balance Project

An Invitation

My name is Professor Jarrod Haar and I am interested in finding out about work and non-work factors and their influence on work-life balance. The project is surveying employees in the United States, New Zealand and Australia. The project is particularly interested in finding out about the experiences of people in organizations and the role that organizations and supervisors play in making work-life balance achievable. The project also examines aspects of you as a person as well as your perception of those around you and your experience of work and non-work. Participation in this study is voluntary.

What is the purpose of this research?

This research will contribute to understanding ways that people achieve work-life balance including organizational and supervisor factors, and the work, family and work-life balance experiences of employees. Findings from the research may also be used in conference presentations and may be published in one or more journal articles. A research student may also use some of the data for their thesis research. As we are not collecting individual identifying data (no names) no one will be able to identify you.

How was I identified and why am I being invited to participate in this research?

To be included in this research you need to be working at least 20 hours a week and be over the age of 18.

What will happen in this research?

The questionnaire will take around 15-20 minutes to complete. While the survey does not allow you to proceed if you miss a question on a particular page, you are free to discontinue the survey at any time.

What are the discomforts and risks?

This process should not pose any discomfort or risk to you. I am NOT collecting your personal name or workplace so you will never be personally identified – so you will be totally anonymous - and your anonymity will not be compromised. Overall, your responses will be added to a number of other employees across the countries and be analysed at the aggregate level only.

How will these discomforts and risks be alleviated?

The data will not be shown to anyone outside of the research team and any records will be stored in a locked file at AUT University. Again, responses are anonymous and respondents cannot be identified in any way.

What are the benefits?

This research will contribute to understanding of the ways that employees achieve work-life balance – the barriers and the benefits. It will also evaluate the role of organizational and supervisor actions.

This version was last edited on 15 September 2015

How will my privacy be protected?

As stated above, responses are anonymous and all information pertaining to you will be kept confidential and data will be stored in a locked file at AUT. No one other than the researchers will have access to this information.

How do I agree to participate in this research?

Completing the online questionnaire will be taken as consent to participate.

What do I do if I have concerns about this research?

Any concerns regarding the nature of this project should be notified in the first instance to the Project Leader, Professor Jarrod Haar, jarrod.haar@aut.ac.nz, +64 9 921 9999 ext 5034

Concerns regarding the conduct of the research should be notified to the Executive Secretary of ATEC, Kate O'Connor, ethics@aut.ac.nz, 921 9999 ext 6038.

Whom do I contact for further information about this research?

Any concerns regarding the nature of this project should be notified in the first instance to the Project Leader, Professor Jarrod Haar, jarrod.haar@aut.ac.nz, +64 9 921 9999 ext 5034

Concerns regarding the conduct of the research should be notified to the Executive Secretary of ATEC, Kate O'Connor, ethics@aut.ac.nz, 921 9999 ext 6038.

Whom do I contact for further information about this research?

Please keep this Information Sheet and a copy of the Consent Form for your future reference. You are also able to contact the research team as follows:

Researcher Contact Details:

Research Leader Contact Details: Professor Jarrod Haar, jarrod.haar@aut.ac.nz, +64 9 921 9999 ext 5034

Approved by the Auckland University of Technology Ethics Committee on 28th November 2016 final ethics approval was granted, ATEC Reference number 16/423 International work-life balance project.

3) AUTECH Ethics Approved (18/17 - Exploring employee attitudes and behaviours at work: The impact of organisational, psychological and work factors).



AUTECH Secretariat

Auckland University of Technology
D-88, WU406 Level 4 WU Building City Campus
T: +64 9 921 9999 ext. 8316
E: ethics@aut.ac.nz
www.aut.ac.nz/researchethics

1 February 2018

Jarrod Haar
Faculty of Business Economics and Law

Dear Jarrod

Ethics Application: 18/17 Exploring employee attitudes and behaviours at work: The impact of organizational, psychological and work factors

I wish to advise you that a subcommittee of the Auckland University of Technology Ethics Committee (AUTECH) has approved your ethics application.

This approval is for three years, expiring 31 January 2021.

Standard Conditions of Approval

1. A progress report is due annually on the anniversary of the approval date, using form EA2, which is available online through <http://www.aut.ac.nz/researchethics>.
2. A final report is due at the expiration of the approval period, or, upon completion of project, using form EA3, which is available online through <http://www.aut.ac.nz/researchethics>.
3. Any amendments to the project must be approved by AUTECH prior to being implemented. Amendments can be requested using the EA2 form: <http://www.aut.ac.nz/researchethics>.
4. Any serious or unexpected adverse events must be reported to AUTECH Secretariat as a matter of priority.
5. Any unforeseen events that might affect continued ethical acceptability of the project should also be reported to the AUTECH Secretariat as a matter of priority.

Note: The committee recommends trialling the survey to ensure that the estimated completion time advised to participants is correct.

Please quote the application number and title on all future correspondence related to this project.

AUTECH grants ethical approval only. If you require management approval for access for your research from another institution or organisation then you are responsible for obtaining it. If the research is undertaken outside New Zealand, you need to meet all locality legal and ethical obligations and requirements. You are reminded that it is your responsibility to ensure that the spelling and grammar of documents being provided to participants or external organisations is of a high standard.

For any enquiries please contact ethics@aut.ac.nz


Yours sincerely,



Kate O'Connor
Executive Manager
Auckland University of Technology Ethics Committee

Cc: azka.ghafoor@aut.ac.nz; Candice Harris; nstanila@aut.ac.nz

- 4) Participant information sheet (18/17 - Exploring employee attitudes and behaviours at work: The impact of organisational, psychological and work factors)



Participant Information Sheet

Date Information Sheet Produced:

15th October 2017

Project Title

Exploring Employee Attitudes and Behaviours at Work: The Impact of Organizational, Psychological and Work Factors

An Invitation

My name is Azka Ghafoor and I am a PhD student at Auckland University of Technology in New Zealand, and I am interested in exploring different organizational, psychological and work factors as well as their simultaneous influence on creativity behaviours for my PhD. This project is surveying employees in the Dubai, New Zealand and Pakistan. The project focuses on how different factors from organization trigger behaviours of employees. Moreover, the organizational and work factors are studied in terms of demands that are required to be served according to resources owned by employees at work. Participation in this study is voluntary.

What is the purpose of this research?

This research will contribute to understanding how employees manage higher time pressure and work demands at workplace and how such factors contribute towards creativity behaviour. Findings from this research will help determine how both positive and negative factors from the environment can help direct towards positive outcomes like creativity behaviour. Findings from the research may also be used in conference presentations and may be published in one or more journal articles.

How was I identified and why am I being invited to participate in this research?

To be included in this research you need to be working at least 20 hours a week and be over the age of 18.

How do I agree to participate in this research?

Completing the online survey will be taken as consent to participate.

What will happen in this research?

The questionnaire will take around 15-20 minutes to complete. While the survey does allow you to proceed if you miss a question on a particular page, you are free to discontinue the survey at any time.

What are the discomforts and risks?

There is no risk and discomfort involved in this process. The research does not collect your name or that of your employer - hence all responses are to be recorded as anonymous. Overall, your responses will be added to a number of other employees across the countries and be analysed at the aggregate level only.

How will these discomforts and risks be alleviated?

There are no risks and discomfort involved in their process. The data collected will be kept by the researcher and in a locked file at AUT university. The responses will be recorded and treated with complete anonymity.

What are the benefits?

This research will contribute to understanding of multiple organization, psychological and work factors influencing creativity behaviours and will help supervisors promote creativity related behaviours in the workplace.

How will my privacy be protected?

As stated above, responses are anonymous and all information pertaining to you will be kept confidential and data will be stored in a locked file at AUT. No one other than the researchers will have access to this information.

What are the costs of participating in this research?

The cost in terms of the participant's time is less than 20 minutes in total.

What opportunity do I have to consider this invitation?

The website link stays open for three weeks, so potential respondents do have time to consider if they would like to participate and thus click on the survey link.

Will I receive feedback on the results of this research?

You will be provided with an option to enter your email address (this is not captured with your responses) at the end of survey to receive summary of research in the future.

What do I do if I have concerns about this research?

Any concerns regarding the nature of this project should be notified in the first instance to the primary researcher Azka Ghafoor, azka.ghafoor@aut.ac.nz.

Concerns regarding the conduct of the research should be notified to the Executive Secretary of AUTECH, Kate O'Connor, ethics@aut.ac.nz, 921 9999 ext. 6038.

Whom do I contact for further information about this research?

Any concerns regarding the nature of this project should be notified in the first instance to the primary researcher Azka Ghafoor, azka.ghafoor@aut.ac.nz.

Concerns regarding the conduct of the research should be notified to the Executive Secretary of AUTECH, Kate O'Connor, ethics@aut.ac.nz, 921 9999 ext. 6038.

Researcher Contact Details:

Primary researcher: Azka Ghafoor, azka.ghafoor@aut.ac.nz.

Project Supervisor Contact Details:

Professor Jarrod Haar, jarrod.haar@aut.ac.nz, +64 9 921 9999 ext 5034

Org, Psych & Work Factors to Creativity Behaviour - 26-4-18AG - shortened - LIVE

Start of Block: Introduction block

Q28 Hello. This survey is focused on work experience and is open to those currently in paid employment (not self employed), working at least 20 hours/week?

- ☐ Less than 20 hours a week (1)
- ☐ 20 hours a week or more (2)

Skip To: End of Survey If Hello. This survey is focused on work experience and is open to those currently in paid employment... = Less than 20 hours a week

Skip To: Q29 If Hello. This survey is focused on work experience and is open to those currently in paid employment... = 20 hours a week or more

Q29 Employee Attitudes and Behaviours Study

Dear employee,

My name is Azka Ghafoor (PhD student, Auckland University of Technology) and along with my Chief Supervisor Professor Jarrod Haar (PhD), we are conducting a study of employees attitudes and behaviours and are asking for your participation. This involves completing the following survey, which is expected to take most people 15-20 minutes to complete. Your participation in the research is completely voluntary. I am NOT collecting your personal name or workplace so you will never be personally identified – so you will be totally anonymous - and your anonymity will not be compromised.

Please be aware there are no right or wrong answers to the questions asked – just click the response that corresponds closest to what you feel or agree/disagree with. Choosing not to answer a question does not exclude answering subsequent questions.

With thanks,

Azka Ghafoor (PhD student) and Professor Jarrod Haar (PhD) Auckland University of Technology (AUT) To begin the survey, please click >> below

Q1 Click to write the question text

End of Block: Introduction block

Start of Block: Demographics

Q38 D1. As this survey is across different countries - please indicate which country you live in?

▼ Pakistan (1) ... Other (5)

Display This Question:

If D1. As this survey is across different countries - please indicate which country you live in? = Other

Q59 D1A. Please name your country?



Q34 D2. What is your age?

▼ 20 years & under (1) ... 71 years & over (12)

Q36 D3. What is your gender?

▼ Male (1) ... Other (3)

Q40 D4. What is your highest level of education achieved?

▼ High School (1) ... Postgraduate Qualification (4)



Q42 D5. How many years have you worked in your current role/job?

▼ 0.5 (.5) ... 31+ (31)



Q44 D6. Average hours worked per week (including overtime)

▼ 20 hours or less (20) ... 71 or more hours (71)

Q46 D7. What sector do you work in?

▼ Private (1) ... Not-for-Profit (3)

Q48 D8. What is the size of your firm?

▼ Under 50 employees (1) ... 10,000+ employees (8)

Q50 D9. What is your occupation / job title?

End of Block: Demographics

Start of Block: Section 1. Workplace Behaviours...

X+

QCB 1.1 Indicate how characteristic of you the following are:

	Not at all Characteristic of Me (1)	Slightly Characteristic of Me (2)	Somewhat Characteristic of Me (3)	Quite Characteristic of Me (4)	Very Characteristic of Me (5)
I am a good source of creative work ideas (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I come up with new and practical ideas to improve work performance (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I often have new and innovative ideas at work (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

X+

QIVB 1.2 Respond to following statements regarding your behaviour with your work group/team:

	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)
1. I speak up and encourage others in my group to get involved in issues regarding improvements and new ideas. (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. I keep well informed about issues regarding new innovations where my opinion might be useful to my work group. (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. I speak up in my group with ideas for new projects or changes in procedures. (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. At times, I with-hold suggestions that might produce new ideas in my work group. (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. At times, I sabotage potentially useful ideas from my co-workers and	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

tell them they are not useful. (5)

6. At times, I fail to adequately instigate new ideas that might create new useful solutions in my work group. (6)

☐ ☐ ☐ ☐ ☐



QQPPO 1.3 Indicate your dis/agreement with the following items regarding how being innovative or creative influences your performance?

	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)
1. The more innovative I am, the better my job performance. (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Coming up with creative ideas helps me do well in my job. (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. My work unit will perform better if I often suggest new ways to achieve objectives. (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



QIWB 1.5 How often do you perform the following work behaviors in the workplace?

	Never (1)	Seldom (2)	Sometimes (3)	Often (4)	Almost always (5)
1. Creating new ideas for difficult issues. (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Searching out new working methods, techniques, or instruments. (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Generating original solutions for problems. (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. Mobilizing support for innovative ideas. (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. Acquiring approval for innovative ideas. (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. Making important organizational members enthusiastic for innovative ideas. (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. Transforming innovative ideas into useful applications. (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. Introducing innovative ideas into the work	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

environment
in a
systematic
way. (8)

9. Evaluating
the utility of
innovative
ideas. (9)

☐
☐
☐
☐
☐

X→

QCOCB 1.6 Indicate how characteristic of you, the following are:

	Not at all Characteristic of Me (1)	Slightly Characteristic of Me (2)	Somewhat Characteristic of Me (3)	Quite Characteristic of Me (4)	Very Characteristic of Me (5)
1. Willingly give your time to help others who have creativity-related problems (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Give up time to help others who have a specific creativity-related work problems (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Assist others with their duties as it relates to being more creative. (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

End of Block: Section 1. Workplace Behaviours...

Start of Block: Section 2. About Your Organization...



QPSS 2.1 How do you perceive your supervisor's role in your job?

	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)
My supervisor is willing to extend themselves in order to help me perform my job to the best of my ability. (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My supervisor takes pride in my accomplishments at work. (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My supervisor tries to make my job as interesting as possible. (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



QCStress 2.3 Indicate how often do you deal with the following at work:

	Never (1)	Seldom (2)	Sometimes (3)	Often (4)	Extremely often (5)
1. Having to complete a lot of work. (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Having to work very hard. (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Time pressures. (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. Having to work at a rapid pace to complete all of my tasks. (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. Performing complex tasks. (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. Having to use a broad set of skills and abilities. (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. Having to balance several projects at once. (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. Having to multitask your assigned projects. (8)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. Having high levels of responsibility. (9)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10. A high level of accountability for your work.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

(10)

X→

QHStress 2.4 Indicate how often do you deal with the following at work:

	Never (1)	Seldom (2)	Sometimes (3)	Often (4)	Extremely often (5)
1. Administrative hassles. (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Bureaucratic constraints to completing work (red tape). (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Conflicting instructions and expectations from your supervisor(s). (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. Unclear job tasks. (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. Conflicting requests from your supervisor(s). (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. Inadequate resources to accomplish tasks. (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. Conflict with peers. (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. Disputes with coworkers. (8)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. Office politics. (9)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10. Coworkers receiving undeserved	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

rewards/
promotions.
(10)

X→

QCApr 2.5 Indicate your dis/agreement to the following statements.

	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)
1. Working to fulfill the demands of my job helps to improve my personal growth and well-being; (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. I feel the demands of my job challenge me to achieve personal goals and accomplishment (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. In general, I feel that my job promotes my personal accomplishment (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

X→

QHApr 2.6 Indicate your dis/agreement to the following statements.

	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)
1. Working to fulfill the demands of my job thwarts my personal growth and well-being (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. I feel the demands of my job constrain my achievement of personal goals and development (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. In general, I feel that my job hinders my personal accomplishment (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

End of Block: Section 2. About Your Organization...

Start of Block: Section 2. About Your Organization Cont.



Q71SOC 2.7 Response to the following statements regarding your organization.

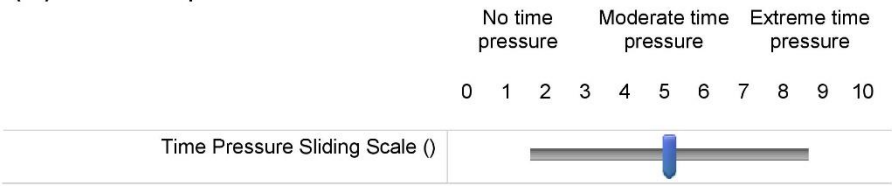
	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)
1. My organization follows through on commitments (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. My organization clearly communicates work objectives and responsibilities (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. My organization takes action on new ideas provided by employees (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. My organization consistently treat everyone with respect (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. My organization inspires commitment to the organization's missions and goals (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. My organization considers both the organization's goals and employees when making decisions (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



Q72JD 2.8 Indicate the frequency of the following as they relate to you and your work...

	Never (1)	Seldom (2)	About Half the Time (3)	Usually (4)	Always (5)
Do you have to work fast? (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Do you have too much work to do? (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Do you have to work extra hard to finish a task? (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Do you work under time pressure? (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Can you do your work in comfort? (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Do you have to deal with a backlog at work? (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Do you have problems with the pace of work? (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Do you have problems with the workload? (8)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q73 2.9 Overall rate Time Pressure you experience at work from (0) No time pressure to (10) extreme time pressure...



X+

Q74 2.10 How do you think your organization is supportive of innovation?

	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)
1. Creativity is encouraged here. (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Our ability to function creatively is respected by the leadership. (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Around here, people are allowed to try to solve the same problems in different ways. (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. This organization can be described as flexible and continually adapting to change. (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. People around here are expected to deal with problems in the same way. (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. In this organization, we tend to stick to tried and true ways. (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



Q76 2.12 Referring to how much control you have over your work. . .

	Very little (1)	Little (2)	A moderate amount (3)	Much (4)	Very much (5)
1. How much control do you have over the variety of methods you use in completing your work? (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. How much control do you have over the quality of your work? (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. How much are you able to predict what the results of decisions you make on the job will be? (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. How much influence do you have over the sources of information you need to do your job? (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. How much control do you have over the amount of resources (tools, materials) you get? (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

End of Block: Section 2. About Your Organization Cont.

Start of Block: Section 3. About Yourself...

X→

QOBSE 3.1 Rate how your presence at work is appreciated...

	Never (1)	Seldom (2)	Sometimes (3)	Often (4)	Always (5)
I count around here (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am taken seriously around here (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am important around here (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am trusted around here (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
There is faith in me around here (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can make a difference around here (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am valuable around here (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am helpful around here (8)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am efficient around here (9)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am cooperative around here (10)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



QEE 3.2 Read the following statements and indicate the extent to which you experience the following statements:

	Never (1)	A few times a Year (2)	A few times a Month (3)	A few times a Week (4)	Everyday (5)
When I get up in the morning, I feel like going to work (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
At my work, I feel bursting with energy (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
At my job I feel strong and vigorous (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



Q40 3.3 Below is a collection of statements about your everyday experience. Please indicate how frequently or infrequently you currently have each experience. Please answer according to what really reflects your experience rather than what you think your experience should be.

	Never (1)	Some of the time (2)	Much of the time (3)	Most of the time (4)	All of the time (5)
I find it difficult to stay focused on what's happening in the present (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It seems I am "running on automatic" without much awareness of what I'm doing (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I do jobs or tasks automatically, without being aware of what I'm doing (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I find myself listening to someone with one ear, doing something else at the same time (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I find myself doing things without paying attention (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



QPsyCap 3.4 Describe how you may think about yourself right now...

	Strongly Disagree (1)	Disagree (2)	Slightly Disagree (3)	Slightly Agree (4)	Agree (5)	Strongly Agree (6)
1. I feel confident in representing my work area in meetings with management. (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. I feel confident contributing to discussions about the organisation's strategy. (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. I feel confident presenting information to a group of colleagues. (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. If I should find myself in a jam at work, I could think of many ways to get out of it. (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. Right now I see myself as being pretty successful at work. (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. I can think of many ways to reach my current work	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

goals. (6)						
7. At this time, I am meeting the work goals that I have set for myself. (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. I can be "on my own" so to speak at work if I have to. (8)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. I usually take stressful things at work in stride. (9)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10. I can get through difficult times at work because I've experienced difficulty before. (10)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11. I always look on the bright side of things regarding my job. (11)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12. I'm optimistic about what will happen to me in the future as it pertains to work. (12)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



QPsySaf 3.5 Rate the following statements based on your experience with your work team:

	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)
1. If you make a mistake on this team, it is often held against you. (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Members of this team are able to bring up problems and tough issues. (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. People on this team sometimes reject others for being different. (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. It is safe to take a risk on this team. (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. It is difficult to ask other members of this team for help. (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. No one on this team would deliberately act in a way that undermines my efforts. (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. Working with members of this team, my	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

unique skills
and talents
are valued
and utilized.
(7)



QIR 3.6 Rate your characteristics on following scale:

	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)
1. I demand nothing less than perfection of myself (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. I am perfectionistic in setting my goals (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. One of my goals is to be perfect in everything I do (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. It makes me uneasy to see an error in my work (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. I never aim for perfection in my work (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. I must work to my full potential at all times (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. I must always be successful at work (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. I am always prepared (8)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. I pay attention to details (9)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10. I like order (10)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

11. I follow a schedule (11)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12. I am exacting in my work (12)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
13. At work, I get my work done right away (13)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14. I tend to bounce back quickly after hard times (14)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15. I have a hard time making it through stressful events (15)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
16. It does not take me long to recover from a stressful event (16)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
17. It is hard for me to snap back when something bad happens (17)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
18. I usually come through difficult times with little trouble (18)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
19. I tend to take a long time to get over set-backs in my life (19)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

End of Block: Section 3. About Yourself...

Start of Block: Section 4. Work Factors...



QMF4.1 Indicate your dis/agreement with the following items about your work...

	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)
Most days I am enthusiastic about my work (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel fairly satisfied with my present job (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I find real enjoyment in my work (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The work I do on this job is very important to me (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My job activities are personally meaningful to me (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The work I do on this job is meaningful to me (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would be very happy to spend the rest of my career with this organisation (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I really feel as if this organisation's problems are my own (8)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
This organisation has a great deal of	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

personal meaning for me (9)					
I am satisfied with my work-life balance, enjoying both roles (10)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nowadays, I seem to enjoy every part of my life equally well (11)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I manage to balance the demands of my work and personal/family life well (12)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am thinking about leaving my organization (13)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am planning to look for a new job (14)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I intend to ask people about new job opportunities (15)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I don't plan to be at my organisation much longer (16)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If I were to quit my job, I could find another job that is just as good (17)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would have no problem	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

finding an acceptable job if I quit (18)

There are multiple jobs available that I am experienced for (19)



QAB 4.2 Rate the extent that you personally...

	Never (1)	Some of the time (2)	Much of the time (3)	Most of the time (4)	All of the time (5)
1. Help to decide how much work your team will do. (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Help to allocate jobs among team members. (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Get involved in the selection of new team members. (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. Arrange cover for people. (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. Get involved in improvement teams. (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. Help to monitor your team's overall performance. (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. Train other people. (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. Get involved in the discipline of other team members. (8)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. Help to manage the budget for	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

your team.
(9)

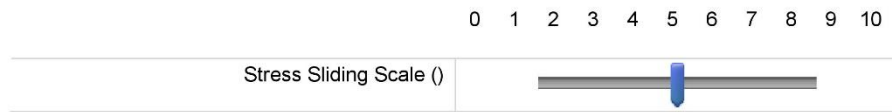


QPro 4.3 Rate how true are the following questions are about you...

	Not at all (1)	Slightly (2)	Moderately (3)	Very (4)	Extremely (5)
1. No matter what the odds, if I believe in something, I will make it happen. (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. I love being a champion for my ideas, even against others' opposition. (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. I am excellent at identifying opportunities. (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. If I believe in an idea, no obstacle will prevent me from making it happen. (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

QJS 4.4 Overall rate your Stress at work from (0) No Stress to (10) Extreme Stress...

No Stress Moderate Stress Extreme Stress



End of Block: Section 4. Work Factors...

Start of Block: Follow-Up

Q44

Thank you for investing your time in filling up the survey.

We would be grateful if you provide us with your email address here for future correspondence.

We shall contact you again in 1-2 months time with selected questions from the survey. The future survey would be briefer and would take less time to complete. The findings of this research would be shared with you and if the intended quality of data is obtained, the study would be of great use for all the stakeholders.

End of Block: Follow-Up

Location

The research is conducted in Auckland, New Zealand. Data collection process was administrated from Auckland, New Zealand with data collected from Pakistan, Dubai (UAE), New Zealand and USA. The communication with respondents was managed through emails, and online survey platforms.

Appendix 4: Publications and Presentations

Following table includes all the conferences presentations and publications throughout the PhD period.

Publications

Ghafoor, A. & Haar, J. M. (2020, forthcoming). Organisational-Based Self Esteem, Meaningful Work, and Creativity Behaviours: A Moderated-Mediation Model with Supervisor Support. *New Zealand Journal of Employment Relations*, 44 (3), 11-31.

Ghafoor, A. & Haar, J. M. (2020). A climate and personality approach towards creativity behaviours: A moderated mediation study. *International Journal of Innovation Management*, 24(6), 2050080, DOI: 10.1142/S1363919620500802

Conferences Presentations

1. The 8th Aotearoa New Zealand Organisational Psychology & Organisational Behaviour Conference (29th November 2019) at the Auckland University of Technology (AUT)
 - Under what conditions can stressors-strains positively influence creativity behaviours? A repeat-measure study of psychological resources
2. 32nd Annual Australian & New Zealand Academy of Management Conference (ANZAM, 4–7th December, 2018) at the Auckland University of Technology, Auckland
 - High Performance Work Systems and Employee Creativity Behaviors: Testing a Moderated-Mediation Model
3. 32nd Annual Australian & New Zealand Academy of Management Conference (ANZAM) Doctoral Workshop (4th December, 2018) at the Auckland University of Technology, Auckland

- Longitudinally Exploring the Role of Psychological Stress on Psychological Resources towards Creativity Behaviors: Help or Hindrance?
4. The 7th Aotearoa New Zealand Organisational Psychology and Organisational Behaviour Conference (3rd December, 2018) at The University of Auckland, Auckland.
 - Can an Individual Enhance Team Effects? A Team-Based Time-Lagged Study of Creativity and the Role of Individual Proactive Personality
 5. The 1st Conference of Asia Pacific Academy for Psychological Factors at Work (29-30 November, 2018) at Massey University, Auckland.
 - A Climate and Personality Approach towards Creativity Behaviors: A Moderated-Mediation Study
 6. The 6th Aotearoa New Zealand Organisational Psychology and Organisational Behaviour Conference (24th November, 2017) at Massey University, Auckland.
 - From Negative to Positive: Job Stress, Psychological Capital, and Creative Behaviours

Other Publications

Following are other papers (in-progress) related to thesis

- 1) Exploring Creativity Behaviour in the New Zealand Hospitality Sector:
Examining Multiple Factors for Moderated-Mediation Model
- 2) A Moderated-Mediation approach to Ethical Leadership and Innovative Behaviours