The glass scaffold: Women in construction responding to industry conditions

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ABSTRACT

Exploring women's experiences of entering, working in, or leaving the Christchurch construction industry between 2010 and 2018 led to the creation of the theory of "deferential tailoring." Deferential tailoring explains how women shape their responses to industry conditions as an intentional behavioural adjustment process. Most importantly, this theory provides insight into women's unseen efforts to build positive workplace relationships, their capability to advance, and challenges to existing views of gender roles in this context.

Research on women in construction focusses primarily on identifying and explaining barriers that impact on women's entry, progression, and retention in the industry. There is an absence of process studies that explain the actions women take to manage industry conditions in business-as-usual, let alone post-disaster contexts. In the eight years following the 2010 Canterbury (New Zealand) earthquakes, rapid changes to the construction industry meant women had unprecedented access and new opportunities in this historically male-dominated domain. This setting provided a unique context within which to investigate how women respond to industry opportunities and challenges. The aim of this interpretive research was to construct a response theory, particular to women working in the Christchurch construction industry.

Applying a constructivist grounded theory approach, theoretical sampling, coding and memo writing allowed for the collection and comparative analysis of 36 semi-structured interviews conducted with women working in a cross-section of industry occupations. Three inter-related categories were built: capitalising on opportunity, building capability and token tolerance, which together constitute the deferential tailoring process. Akin to building an invisible glass scaffold, women intentionally regulate their behaviours to successfully seize opportunities and manage social challenges. In building this scaffold, women draw heavily on personal values and positive, proactive attributes as a response to industry conditions. In contrast to previous research, which suggests that women conform to the male-dominated norms of the industry, the theory of deferential tailoring proposes that women are prepared to regulate their behaviour to address the gendered norms that impact on their work experiences.

This research contributes towards an evolving body of knowledge that aims to understand how women's entry into the construction industry, retention, and workplace relationships can be improved. By expanding the view of how women respond to industry conditions over time, this research has generated knowledge that addresses gaps in construction industry literature relating to the management of coping strategies, capitalising on opportunities, and building positive workplace relationships. Knowledge and concepts generated from this research could be integrated into recruitment and training programmes to enhance women's professional development, shift perceptions of women's work, and address cultural norms that impact on women's retention in the construction industry.

DEDICATION

I dedicate this thesis to the extraordinary people who have shaped my view of the construction world.

To Robert Bradbury, my amazing father, the man who encouraged me throughout my childhood and into adulthood to build everything I desired. My dad regularly told me that I could, and should, do anything that motivates my interest. His love and support were always generous and valued.

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Finally, this research is a symbol that represents my parent's (Robert and Gwen Bradbury) encouragement in me to value family, people, education and my faith.

GLOSSARY

ANZSIC - The Australian and New Zealand Standard Industrial Classification

BCITO - Building Construction Industry Training Organisation

CECC - Canterbury Employers' Chamber of Commerce

CERA - Canterbury Earthquake Recovery Authority

FWLB - Family work life balance

GTM - Grounded theory methodology

NAWIC - National Association of Women in Construction

PPE - Personal protective equipment

QC - Earthquake Commission

RSS - Really Simple Syndication

SCIRT - Stronger Christchurch Infrastructure Rebuild Team

SWIC - (SCIRT) Women in construction - subgroup of SCIRT set up to promote the construction industry to women

WIC - Women in Construction

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CHAPTER 1 INTRODUCING THE TOPIC

INTRODUCTION

This thesis presents a theory of "deferential tailoring" that explains how women regulate their behaviour to respond to construction industry conditions. The eight year post-disaster interval following the 2010 Canterbury New Zealand earthquake represents a unique interval in which rapid structural and social change to this industry gave women access and opportunities in this traditionally male-dominated domain. During this time, a rare labour force change occurred in Christchurch with an influx of women entering the industry and stable retention as many women sought to stay. This demographic shift presents an opportunity to investigate and explain women's experiences of working in a post-disaster context. Examining women's experiences of working in this setting, this qualitative research explores how women respond to the opportunities and challenges they encounter. From analysis, using a grounded theory method, the deferential tailoring theory was built. This theory explains how women intentionally adjust their thinking and actions to address the impact of the industry conditions, to establish positive workplace relationships, to achieve occupational gains, and to establish a greater sense of inclusivity.

This introductory chapter provides a brief overview of the research context. An examination of prior literature provides the reasoning behind the exploration of the selected research topic. Outlining the purpose of the research and the associated research questions affirms the choice of the inductive qualitative grounded theory approach as selected for this research. The chapter concludes by summarising the thesis' structure.

RESEARCH CONTEXT

The period after the 2010 Canterbury earthquake, which occurred on Saturday 4th of September, provides a suitable context to research how women in construction interpret and respond to industry conditions. The Christchurch post-disaster setting did not represent a simple change to the construction community, it was a total upheaval which had powerful social implications. This post-disaster construction setting was characterised by an agglomeration of overlapping large and small-scale projects, including infrastructural, residential, and commercial rebuild activities across an entire community. The Christchurch city rebuild represented something far bigger than what would normally be considered a "mega project" (as defined in the literature review in page 32). The Christchurch crisis

presented a complex equation in which the size, cost and over-lay of activities and human resources over a sustained period, was extremely difficult to plan, manage and deliver.

Notable differences do exist in the construction industry between a business-as-usual period and a post-disaster period. Construction industry activity in a business-as-usual context focuses on community expansion or redevelopment which is usually driven by commercial companies and supported by the local government. In a business-as-usual context, the existing community would experience minimal disruption and the infrastructure or built environment remains relatively static. Primarily it is the new development zone and nearby landscape (natural or built environment) which are most impacted by construction activities. Whilst time and other pressures are still relevant, there is less urgency due to community desperation or survival elements. During a business-as-usual period, construction companies tend to operate under normal, individualistic competitive modes. There are simple demand dynamics affecting the labour workforce and the supply of resources. Furthermore, there is far less centralised governmental and inter-organisational intervention in the market.

The post-disaster context is far more complex than a business-as-usual context. Construction companies may be involved in all post-disaster phases, from rescue and recovery through to the full spectrum of rebuild activities. There is a heightened demand for recreating essential infrastructural services to restore essential survival services, stabilise mobility in the environment and address the repair and rebuild of residential properties. Another major distinguishing feature between these two work environments is the condition of the physical subsurface and surface environment. In the event of a natural disaster like an earthquake, there is often extensive destruction of the physical environment which greatly impacts on construction companies' operational activities. Even though construction industry operators are familiar with disruption, demands and delays, these features are exacerbated after a disaster. When there is widespread physical destruction or extensive damage to the built environment, the community's psychological health is also likely to be poor. The Canterbury earthquake caused significant damage to the infrastructure. The post-earthquake environment was characterised by continuous aftershocks, increased health and safety risks for workers, funding delays, and a highly anxious and sometimes demanding community. Such features inevitably hindered recovery and rebuild progress in the Christchurch setting.

After a natural disaster, like an earthquake, there is a greater demand for workers and urgency associated with the completion of construction activities. However, early recovery can be constrained by widespread disruption to the labour market (due to turbulence from supply companies or business closures). This may also be compounded by financial constraints associated with lengthy delays in insurance and government funding. Additionally, public demands for urgent repairs and rebuilds can lead to intense media scrutiny. Extensive centralised political intervention is an obvious feature of the post-disaster environment which can have a significant impact both on the processes and pace of construction industry activities and the mobility of the labour market. Commercial companies are often required to make radical operational changes or establish collaborative alliances to address the volume of work and/or community demands. In Christchurch, for example, two large alliances included the Canterbury Earthquake Recovery Authority (CERA) and the Stronger Christchurch Infrastructure Rebuild Team (SCIRT). Collectively these features made for a unique context that radically affected the construction workers and the work they are involved in. The post-disaster conditions described above are all applicable to the Christchurch construction industry setting.

The Christchurch urban centre, situated on the eastern coast of the South Island, is the third largest city in Aotearoa, New Zealand. At the centre of the Canterbury region, and encompassing coastal plains and port hill topography, Christchurch (Ōtautahi) city has a population of approximately 400,000 people (World Population Review, 2019). On Saturday the 4th of September 2010, the Canterbury region was hit by a powerful 7.1 magnitude earthquake which caused extensive damage to land, homes and infrastructure across the city and the surrounding hinterland. Just months later, on the 22nd of February 2011, the region was hit by a strong aftershock. Although this earthquake had a weaker magnitude of 6.3, the six-kilometre depth and proximity to the Christchurch city centre meant that the damage it caused was more extensive. This aftershock led to the collapse of several buildings that had been weakened by the September earthquake and destroyed large areas of land, buildings and infrastructure (Fleischman et al., 2014, p. 279). The second event also resulted in 185 deaths (Fleischman et al., 2014, p. 279). A year after the first earthquake, over 12,000 aftershocks had been recorded, which “included 52 of magnitude 5 or above” (Nilakant, Walker, Rochford, & Van Heugten, 2013, p. 2). Aftershocks continued to shake the region for

two years after the initial earthquake. The extensive physical damage and ongoing social disruption hindered the demolition of damaged areas, the rebuild of the physical resources and the recovery of people living in the Canterbury region.

The profound effects of the September 2010 earthquake had an immediate physical, economic, and social impact on Christchurch city, leading to a long recovery period. The social, economic, and fiscal impact of these two major earthquakes was greater than anything experienced in New Zealand's recent history. With nearly 170,000 homes damaged (Wood, Noy, & Parker, 2016, p. 6), 80% of the commercial centre damaged, 52% of Christchurch's urban sealed roads damaged, 30 bridges needing repair, 51 km of water supply mains and 528 km of the wastewater network damaged (Rebuild Christchurch, 2012) the rebuild costs rose quickly. In 2015 the Reserve Bank estimated that it would cost $NZD40 billion to rebuild Christchurch city (p. 3).

In the first two years after the Canterbury earthquake "population estimates based on the 2013 census, suggested that the population of Canterbury fell by almost 12,000 people, or around 2 percent" (Wood et al., 2016, p. 7). For employers in this city, the Canterbury earthquake created widespread labour force difficulties. Employment in Canterbury initially declined by 5% after the earthquakes, reaching a low in June 2012. By 2016 the employment levels rose "by about 16%, almost exclusively accounted for by the construction industry" (Wood et al., 2016, p. 8). As with all catastrophic natural disasters, there are obvious swings and shifts in the labour force which affect men and women differently. In the initial aftermath of the two major earthquakes, the male population fell more sharply than the female population. This trend soon reversed, with the male working-age population projecting upwards from the middle of 2011 as the rebuild activities began. Declining sharply from the start of 2011, the statistics for women did not start recovering until the second half of 2012. Initially hit by the characteristic sharp decline of employment after the natural disaster, female employment figures from 2013 onwards indicated a steady return towards employment recovery, with the most obvious rise in employment levels found in the construction sector (Wood et al., 2016).

After the earthquake, there was a greater urgency for construction workers and operations to be completed in the Canterbury region (Construction Sector Leaders Group, 2013). In

response to the recognised changing employment patterns and the growing need for workers in all occupations of the construction sector, an effort was made to attract more women, both to the trade and profession areas of the construction industry. In New Zealand two separate reports were instrumental in stimulating the rising numbers of women entering the construction industry, the "Building Back Better: Utilising women's labour in the Canterbury recovery" report (2013) and the "Getting It Done: Utilising women's skills in the workforce" report (2015). According to Murphy (2015) the number of women working in construction in the Canterbury region more than doubled in the four years after 2011, "from 3660 to 8600" (p. 1). Prior to the Canterbury earthquake, only 9% of the construction workforce in Canterbury were women. By the start of 2016 the percentage of women participating in this industry had doubled to 18%, a change that equates to 5000 more women working in this sector. At the time of data collection, the percentage of women working in construction in the Christchurch region was above the national average of 15.9%. Significantly, in Canterbury "the number of women enrolling in trades training has increased 800 percent since 2011" (Murphy, 2015, p. 1). Collectively these figures mark an employment movement that was not only uncommon in New Zealand construction industry history but also in the construction industry worldwide. This makes the Christchurch setting an ideal context for studying the experiences of women working in this industry. In building a grounded theory of women's responses, consideration was given to how the post-disaster context influenced the research design and participants' response actions.

THE NEED TO RESEARCH WOMEN'S RESPONSES TO INDUSTRY CONDITIONS

The construction sector "is the world's largest industrial employer with seven percent of the total world employment and 28 percent of industrial employment" (Patel & Pitroda, 2016, p. 17). The construction industry is the most male-dominated of all industries in the world, with 84% of the workforce men (Jamenya, 2018). In addition, this is a sector that is plagued by workforce complexities involving extreme labour shortages and the under-representation of women (Agapiou, 2002; Dainty & Loosemore, 2013). The demand for a more skilled labour force in this sector necessitates a more inclusive and diverse workforce that fully utilises both men and women's capabilities (Clarke, Michielsens, & Snijders, 2017). The under-representation of women in the construction industry, the continued impact of gender bias and discrimination on their experiences and the underutilisation of their abilities in the sector

provide compelling reasons for researchers to explore how women adjust to the complex conditions of this industry. Empirical research exploring how women manage their way in this industry has yet to be fully explained. Prior research has indicated that women are physically capable of performing any role in the sector; moreover, they are interested in being involved in the diverse roles the industry offers (Agapiou, 2002; Clarke, Michielsens, Snijders, & Wall, 2017). As the development of women's theory in this industry has been slow, scholars and practitioners should thus consider research that explores and explains how women manage their entry into and challenges in their career development in this industry.

Internationally, women's entry and representation in the construction industry has remained low, except during periods of acute labour force shortage (Clarke, Michielsens, Snijders, et al., 2017). This is also the case within the Christchurch setting. Having worked in the construction industry before and after the 2010 Canterbury New Zealand earthquake I had witnessed a rapid increase of women moving into and working in many different occupational roles and leadership positions. This usual situation stirred my desire to learn more about women's experiences in the post-disaster environment. Favourable employment conditions made the Christchurch setting a unique context and a fortuitous time to document the experiences and responses of women.

Most of the research on the construction industry focuses on business-as-usual contexts and concentrates on innovation, productivity, and risk management. After a natural disaster like an earthquake, there tends to be more scholarly attention on rescue and recovery work as the construction industry plays a primary role in the rebuilding of a community (Amaratunga & Haigh, 2011; Wilkinson, Chang-Richards, & Sapeciay, 2014). However, there is a notable lack of research on women's experiences internationally and how they respond to industry conditions, both in business-as-usual or in post-disaster contexts. In particular, there is no post-disaster industry research documenting women's responses to industry conditions during community rescue, recovery or rebuild phases. This is concerning, because without such knowledge women's understanding and perspectives of the industry remain unexplained. Knowledge of how women interpret and manage their experiences is important so members of the industry can learn and plan positive change from the people affected by it, rather than leaving the responsibility to predominately male leaders. Hence without

women's perspectives there will be the propensity toward continuation of male dominance over women's experiences in the industry.

Despite the size of the industry, research exploring women's employment in this sector has developed slowly and remains relatively limited. Over the past four decades scholars have agreed that women's entry, retention and working life in the construction industry has been problematic (Aulin & Jingmond, 2011; Bagilhole, 2002). Much of the research has focussed primarily on comparisons between men and women (Agapiou, 2002; Bennett, Davidson, & Galeand, 1999), or the challenges women face which limit their entry, progression and retention (Amaratunga, Haigh, Shanmugam, Lee, & Elvitigalage, 2006; Vijayaragunathan & Rasanthi, 2019). A small number of literature reviews have identified and discussed the complex array of barriers that affect women's positioning in this industry (Amaratunga et al., 2006; Aulin & Jingmond, 2011; Barreto, Pellicer, Carrión, & Torres-Machí, 2017; Fielden, Davidson, Gale, & Davey, 2000; Menches & Abraham, 2007; Moir, Thomson, & Kelleher, 2011; Wangle, 2009; Worrall, Harris, Stewart, Thomas, & McDermott, 2010). This literature was useful for gaining an insight into the conditions of the industry in a business-as-usual context. The common constraints women encounter as detailed in this literature include the industry culture, gender segregation and discrimination, the lack of integration of work and family life, and men as the gate keepers of the industry. An underlying theme that runs through these studies is that this industry has a male-dominated culture where women continue to hold a peripheral position within the largest industrial sector of the world.

Due to the concentrated interest in studying the entry and retention of women in this industry, feminist theory and career theory feature as prominent theoretical lenses through which to study women's work experiences in this industry. Research viewed from these perspectives has been instrumental in exposing power relations which continue to reinforce traditional gender norms, gender inequality and gender oppression in this sector. However, research generated from both these fields of study have also focussed heavily on documenting the structural and cultural constraints that impact on women's recruitment, retention, and satisfaction in this industry (Barreto et al., 2017; Fielden et al., 2000).

There are far fewer studies which examine how women respond to the challenges they encounter in the industry over longer intervals of time (Agapiou, 2002; Bennett et al., 1999).

There is an absence of in-depth empirical material explaining what actions women themselves adopt to buffer the conditions or enhance workplace relationships and occupational status. Many of the barrier-centred studies have touched on short-term passive response strategies such as ignoring social adversities (Agapiou, 2002; Watts, 2007; Yates, 2001), avoiding socialising (Wright, 2013), or adopting male characteristics to fit in (Bagilhole, 2002; Martin & Barnard, 2013; Wright, 2014) as these are considered common coping strategies adopted by women. Prior research has uncovered a diverse range of mitigating factors, such as age, length of experience, male dominance or distancing, safety, harsh work environments and tenure, to explain why women tend to choose passive responses. However, while this information is useful for exposing issues and describing coping strategies, detailed elaboration of women's actions beyond short-term interactions are largely missing. This focus limits how we see women's responses to these conditions, how they develop workplace relationships and how they enhance their own personal development.

Limiting the focus to short-term responses and making assumptions around the position of women at this interaction point is not a faithful depiction of how women respond to the conditions in which they find themselves. This focus can further perpetuate their already assumed socially submissive status which can be detrimental to the long-term positioning and work-status of women in this sector. Furthermore, focussing predominately on short-term responses means women have a reduced understanding of how other women deal with issues or how they embrace opportunities. Unfortunately, this can promote a negative perception of women working in the industry and affect others considering a career in the same field. This research argues that focussing on the short-term passive response perpetuates the common view that women respond submissively and conform to the prevailing male dominant culture.

For women to gain improved representation in this industry, it is necessary to conduct research from differing theoretical and practical perspectives. It is important not only to identify the issues pertaining to women's recruitment and retention, but also explore how they interpret and respond to the social conditions in which they are situated. To achieve this, one must gain a holistic view of the interactional processes that occur between men and women. Construction industry researchers, employers and practitioners recognise that qualitative research exploring the meaning held in lived experiences can provide this broader

insight (Hegewisch & O'Farrell, 2015). Using this approach, researchers can look beyond barrier-centred literature and uncover specific areas of women's work that require attention and clarify the actions or strategies that individuals employ to manage the industry conditions.

To date, research documenting the processes of how women respond to industry conditions remains sparse. Notable exceptions that consider interactive processes can be found in studies that address visibility and gender in management (Watts, 2012), sexuality (Wright, 2013), and sexual harassment (Denissen, 2010a; Denissen & Saguy, 2014). For example, examining how tradeswomen interpret and respond to sexual conduct, Denissen (2010a) considers response actions beyond the initial interaction, showing how interpretations affect the process of responding to difficult sexualised interactions. Examples of this type of study in the construction industry, demonstrate the importance of conceptualising interpretations as a process rather than a single event. Going beyond the initial problematic interaction, process studies of this nature can provide alternative explanations that add to understandings of how women manage social relationships, their own personal development, and inclusivity in this industry.

As women are continually working to integrate themselves and progress in the construction industry, it is necessary to view this process from women's own perspective. Qualitative research on women's experiences can create new knowledge and recommendations based upon the daily life of the people affected by long standing industry conditions. Research in this area can provide new understanding of how women situate themselves in this industry, how they contribute to the industry and what they require to stay in it. Highlighting effective response strategies women apply may reduce or eliminate existing gender issues, provide new insights into how to address women's underrepresentation and encourage other women to pursue their career goals. Furthermore, opening these avenues of exploration could be useful in advancing social training for both women and men that addresses the industry culture. Generating new knowledge in this area thus contributes towards meeting many long-term industry needs. This thesis claims that a broader, more holistic understanding of how women interpret and respond to opportunities and challenges is necessary.

PURPOSE OF THE RESEARCH

This research constructs a substantive theory of women's responses in the workplace. As noted, there has been limited research explaining how women respond to construction industry conditions. In addition, there are no studies which document how women respond to construction industry conditions in a post-disaster setting. Therefore, the primary purpose of this research is to gain an understanding of how contextual influences and personal factors shape women's subjective experiences and interpretations working in the construction industry. More specifically, it constructs a new theory which clarifies how women respond to opportunities and challenges they encounter. This research provides women a voice to communicate how they situate themselves in this industry (Van Maanen, 1998). The constructivist framework and theory developed from this research provides a platform from which other researchers can conduct future research.

RESEARCH QUESTIONS

The research purpose leads to an overarching research question from which two sub-questions were developed. To gain insight and understanding into women's experiences and response actions of working in construction in a post-disaster environment the following research question was investigated:

> How do women working in the Christchurch construction industry between 2010 and 2018 understand their experiences and respond to industry conditions?

This question framed the scope and boundaries of the research by determining the post-disaster interval and the methodology. From this question, additional questions were generated during the research process. Using a constructivist grounded theory perspective as suggested by Creswell (2014), the following research sub-questions were explored:

a) What are the opportunities and challenges women experience while working in a post-disaster environment?
b) Why do women enter, stay or leave the construction industry after a natural disaster?

These sub-questions guided the development of the interview guide questions and new questions raised during the interviews.

OVERVIEW OF THE RESEARCH METHODOLOGY

As a new researcher fresh out of the construction industry in 2015, it was decided that this research would not be directed or governed by a set theoretical stance or position. An inductive qualitative research methodology was chosen in order to capture the experiences and actions of the participants which would generate "thick descriptions" and address the research questions (Tracy, 2012, p. 4). Aiming to construct theory from the ground up, this research applied the Charmaz (2006) constructivist grounded theory procedures for data collection and analysis. Charmaz (2006) presents an interpretive framework that articulates a relativist-centred subjective ontology that aligns well with a subjective constructivist epistemology in which theory can be constructed. This approach provides strategies that are well suited for studying the lived experiences of a minority group within a complex social setting (Locke, 2000). Placing the participants at the centre of the research made it easier to explore what their work life is like, and explain a social process that holds meaning for the participants. Taking this approach, it is also acknowledged that the researcher's personal views and experiences contribute towards shaping the eventual interpretation and outcome of the research (Crotty, 1998).

Empirical data was gathered through document searches and 36 semi-structured interviews conducted with women working in a cross-section of construction industry occupations. The research participants were employed in the industry at some time between 2010 and 2018. Theoretical sampling allowed for the selection of participants. New questions and concepts were built from the expressions and situations articulated by participants (Corbin & Strauss, 2008). The interview data was fragmented, coded, compared and categorised. This approach allowed for the iterative collection, coding, memo note writing and comparative analysis of a diverse range of resources. The data analysis moved from dense open coding through to concentrated focused coding and then onto conceptual refinement. From this analysis three categories relevant to the core category of deferential tailoring were built. Near the end of the analysis five participants were selected to view and comment on the new concepts. From here, further refinement of the properties and the relationships of key categories was made. The final process involved comprehensive theorising and writing up the findings.

PRESENTATION STYLE

Throughout the thesis selected text has been highlighted in various ways to help support the discussion, illuminate codes, categories and concepts, demonstrate how concepts have been constructed from the data, and/or highlight verbatim evidence.

- Text in quotation marks is from previous research or literature.
- Text in italics highlights significant open codes, focused codes, categories and concepts that are applicable to the construction of the theory presented in this thesis (more detail on these aspects is provided in Chapter 4).
- Larger passages of italicised text highlight important memo writing, or participants' verbatim support evidence.

STRUCTURE OF THE RESEARCH

This thesis is comprised of six chapters with accompanying references and appendices.

This first chapter has introduced the research topic, provided the context for it, outlined the research's purpose and primary questions, and provided an overview of the research's approach.

Even though this research takes a grounded theory approach, Chapter 2 includes a comprehensive review of the pre-existing literature. This review was necessary to provide insight into the socio-cultural conditions of the industry that shape women's work experiences. Moreover, the review identifies gaps in the literature from which the research question, purpose, methodological choices and new theory were constructed. As the literature was mostly set in a business-as-unusual context, this resource material was also useful for completing a comparative analysis with the post-disaster conditions as a foundation for understanding the participants' experiences.

Chapter 3 justifies the research approach taken and in doing so outlines the ontological, epistemological, axiological and methodological assumptions relevant to the research. The chapter explains the application of the constructivist grounded theory methodology. Furthermore, this chapter provides in-depth narrative coverage of the researcher's position and perceptions applicable to the purpose and approach of this thesis.

Chapter 4 builds on the previous chapter by providing detailed information of the theoretical sampling and interview data collection procedures. It also explains the concurrent iterative codification, memo writing and comparative analysis of the data applicable to the grounded theory approach. The chapter also outlines the ethical considerations relevant to such procedures. Examples of the data analysis procedures are included in this chapter to demonstrate the construction of the core conceptual category. To conclude, this chapter details three review strategies applied to establish the clarity and credibility of the core category.

Chapter 5 presents the research findings. The chapter begins by outlining the industry conditions to provide insight into the context in which women were responding to on entering the industry and throughout their time in it. It then explains the findings applicable to the three sub-processes of capitalising on opportunity, building capability and token tolerance that comprise the adjustment behavioural processes of deferential tailoring.

Chapter 6 collates and synthesises the research findings with the presentation of the deferential tailoring grounded theory. The chapter begins by defining the conceptual elements and explaining them in order to substantiate this theory. It then discusses the theoretical contributions. The chapter also outlines the practical recommendations applicable to the deferential tailoring theory. Near the end of the chapter stemming from the research limitations, a set of recommendations are suggested for future research. To conclude the thesis, one participant's words and message provide a fitting final statement of the participants' interpretation of their experiences and of the theory constructed in this research.

CHAPTER 2 LITERATURE REVIEW

INTRODUCTION

After a natural disaster, industries such as the construction industry may receive greater scholarly interest (Wilkinson et al., 2014). This increased attention is even more likely because there are many areas to explore, such as innovation and technology, recruitment, and risk management. However, as the previous chapter has indicated, academic research which documents women's experiences and responses to industry conditions in a post-disaster context is extremely limited. This chapter reviews the research detailing women's work experiences and responses to industry conditions in this sector. Utilising previous literature reviews to gain insight into industry conditions, the main challenges affecting women's experiences are identified and discussed. The review outlines how these constraints have been addressed through structural changes in the industry and how women themselves respond to industry challenges and opportunities. In addition, the chapter outlines women's representation within the post-disaster research context.

To provide an up-to-date and accurate picture of the relevant literature in this field, a comprehensive search of scholarly articles accessible on the internet (Fink, 2014; Hewson, Yule, Laurent, & Vogel, 2002) and the University of Canterbury library was conducted and regularly reviewed. Initially, a search of keywords and prominent authors relating to women's work experiences in the industry was carried out, then a search of selected databases was performed (as detailed in the women in construction electronic search summary sheet in Appendix A). Further refined searches were carried out on a set of secondary level key words and additional material was obtained using Google alerts and Really Simple Syndication alert.

THE CONSTRUCTION INDUSTRY

The construction industry has been the subject of much research, not only because it is crucial in periods of economic growth but also, for community recovery after a natural disaster (Haigh & Amaratunga, 2010). The term "construction" involves multiple activities, including constructing new buildings and engineering structures, as well as maintaining and repairing of existing facilities (Rameezdeen, 2007). The societal and global scope and reach of this industrial activity makes it a difficult industry to define. Below is an early definition:

> The construction industry comprises all those organisations and persons concerned with the process by which building and civil engineering works are procured, produced, altered, repaired, maintained and demolished (Hillebrandt, 1985, p. 4).

The word “comprises” in this statement masks a multifaceted industry made up of overlapping activities.

The Australian and New Zealand Standard Industrial Classification (ANZSIC) provides an updated definition:

> The construction industry includes firms engaged in the construction of buildings and other structures, additions, alterations, reconstruction, installation, maintenance and repairs (Ministry of Business Innovation & Employment, 2013, p. 13).

Due to the complex nature of this sector, a universal definition of the industry has proven elusive. Instead, this sector has come to be defined in a variety of ways. In brief, the organisational composition of this industry encompasses a variety of small, medium and large sized organisations with numerous overlapping occupational groups and activities including design, architecture, building, trades, engineering, infrastructure services, consultancy and training. The construction industry is characterised by a broad workforce scope, a highly fragmented project-based structure (Dainty, Green, & Bagilhole, 2007; Loosemore, Dainty, & Lingard, 2003), homogeneity of the prevailing workforce (Langford, Hancock, Fellows, & Gale, 2014) and cyclical work.

The fluid nature of this industrial sector means it is a difficult environment to describe, examine, and explain in a research capacity. As a result, researchers have not fully ascertained whether this is an industry which has a single culture or a variety of cultures. This lack of clarity stems from the construction industry itself being subject to a range of different boundary definitions which make it difficult to determine whether the construction industry is a single industry, or made up of separate sub-industries (Dainty et al., 2007). To add further fragmentation to the contextual composition of this industry, sub-cultures are defined in a variety of ways across a range of construction settings. For example, the construction literature has freely utilised the sub-culture concept to (a) describe a specific group of workers: for example, “sub-contractors”; (b) to refer to a specific workplace behavioural activity: for example, a “safety subculture”; (c) to describe the term “quasi-firm” (Eccles, 1981); or (d) to refer to organisations within the sector as sub-industry cultures defined by size and output (Gale, 1994). Interestingly, research in this industry, does not use the sub-culture concept for discussions involving ethnic or gender-specific groups; instead, in this case, the industry uses the term “minority” (Byrne, Clarke, & Van Der Meer, 2005; Dainty,

Bagilhole, Ansari, & Jackson, 2004; Toor, Suresh, & Renukappa, 2017). Watts (2012) defines minorities as "any cohort that represents less than fifty percent of the total and to which the feature of standing out as different is attached" (p. 2). Scholarly research on minority groups in this industry is sparse and concentrates largely on recruitment and retention issues. There is a notable lack of research on how minority groups, such as women, actively respond to industry conditions or how they contribute to shaping the industry's culture.

WOMEN IN CONSTRUCTION

Construction industry research is largely concentrated in developed nations, with far less work on developing countries. For example, Patel and Pitroda (2016) recently noted that "The construction industry remains one of the least researched industries in India" (p. 19). This is a major concern for women because India currently has the highest percentage of women working in construction compared to men in this industry (see Table 1, p. 19). General research from within this industry largely concentrates on organisational processes involving productivity, innovation, risk management, and human resource management. Research related to women is sparse and fragmented, relative to the size of the industry. Internationally, women in the construction sector are an under-represented minority group, both in the industry and as participants in research studies. With the exceptions of India and Thailand, the percentage of women working in the construction industry continues to remain low world-wide (see Table 1).

Table 1 Percentage of women working in construction

Country	Date	Percentage	Source
India	2016	51%	(WIEGO, 2016)
Thailand	2016	40%	(Kang, 2016)
Cambodia	2016	Estimated 30%	(CARE Cambodia, 2016)
Cuba	2019	20.3%	(Ikiao & Wanyonyi, 2019)
New Zealand	2016	15.9%	(Statistics New Zealand, 2016)
Japan	2015	14.2%	(Catalyst, 2015)
Austria	2008	13.5%	(Aulin & Jingmond, 2011)
United Kingdom	2017	12.8%	(Schouten, 2017)
Germany	2008	12%	(Aulin & Jingmond, 2011)
Switzerland	2005	12%	(Clarke, Pedersen, Michielsens, & Susman, 2005)
Australia	2015	11.7%	(Australian Bureau of Statistics, 2016)
Canada	2015	11.5%	(Catalyst, 2015)
France	2015	12%	(FIEC, 2015)
USA	2016	9.1%	(NAWIC, 2016)
Ethiopia	2017	9%	(Macabodbod, Cerna, & Abas, 2017)
South Africa	2011	8.2%	(English & Le Jeune, 2011)

In labour statistics, Aulin and Jingmond (2011) have revealed that "the majority of European Union countries employ an average of 10% female workforce in the construction sector" (p. 313). In the last decade, due to the Christchurch rebuild and housing demand in Auckland, New Zealand is now positioned above other developed nations. Including the developed countries cited above, research has identified that women in this industry are largely employed in supportive administrative roles, or technical and professional work, with less involvement in trade activities (Aulin & Jingmond, 2011; Jimoh, Oyewobi, Adamu, & Bajere, 2016; Kolade & Kehinde, 2013).

As indicated above, there are a small number of developing nations in Asia, (India, Thailand, and Cambodia) which have a much higher percentage of women working in construction activities. In these nations, the majority of women are involved in hazardous intensive heavy labouring duties as unskilled workers or head load carriers (Acharya & Reddy, 2017; CARE Cambodia, 2016; WIEGO, 2016). In these countries, this informal sector is the main source of employment for women in construction (Chen, 2001). Fewer women participate in professional management or leadership roles. However, while women's physical visibility and the roles they are employed in vary across nations, there remains one strong commonality for all women working in this industry: as a group, they continue to hold a peripheral position within the largest industrial sector of the world.

In the last forty years, most of the published literature on women in construction has come from the United Kingdom (Worrall et al., 2010), the United States (Bilbo, Bigelow, Rybkowski, & Kamranzadeh, 2014; Moir et al., 2011), Canada (MacIsaac & Domene, 2014), and Australia (Lingard & Francis, 2004; Loosemore & Galea, 2008) where value, support, and funding has been attached to this line of research. This is followed by sporadic contributions from European, Asian, and African countries. New Zealand's position is very limited on the research front, with applicable academic work relevant to this research reporting on barriers impacting on women's career path or retention (Hodgkinson, 2006; Naismith, Robertson, & Tookey, 2017; Vainikolo, 2017). The Women in Construction Scientific Research Project, established to address the under-representation of women involved in construction research in Europe, found that women were "severely under-represented in construction research" (Powell, Hassan, Dainty, & Carter, 2009, p. 888).

Research on women in the construction sector provides a plethora of imbalances and challenges faced by women that limit their entry and progression in this industry (Agapiou, 2002; Amaratunga et al., 2006; Ericksen & Schultheiss, 2009; Sommerville, Kennedy, & Orr, 1993). In contrast, there are few studies that allow women to reflect on their experiences and explain how they respond to the barriers they encounter over time. As Mohammadi, Mohaamadi, and Karji (2019) state, "there is a need for qualitative research to find out how to empower and support women to survive and thrive in the existing conditions" (p. 160).

Since the 1980s, published work relating to women working in the construction industry has concentrated heavily on women in management (Watts, 2009b) or in professions such as engineering (Engineering New Zealand, 2017; Kaewsri & Tongthong, 2011; Powell, Bagilhole, & Dainty, 2009) and architecture (Caven, 2006). This research consistently demonstrates that a range of barriers contribute towards women's under-representation in both membership and leadership. While these areas have received research attention, the literature remains sporadic and limited (Kaewsri & Tongthong, 2011; Watts, 2012). This oversight is evident in the lack of research resources that are available for peer review or research. For example, undertaking doctoral research investigating women leaders in and the effectiveness of motivation practices and success strategies on their advancement in the industry, Zech-Artis (2015), found only 11 peer-review articles relevant to the subject area. Furthermore, much of the earlier research in management and professional roles concentrates on investigating differences between men and women, rather than examining women's perspectives or experiences in the industry.

Historically, research detailing women's experiences of working in the trades is found to be limited (Clarke & Wall, 2006; Watts, 2009a). Around the turn of the millennium, a small number of oral histories on women working in trades were published in the United States (Byrd, 1999; Eisenberg, 1999; Goldfrank, 1995; Latour, 2001; Martin, 1988). These histories remain well-cited resources throughout the construction industry literature today. While such histories provide valuable insights into women's work within the industry, they do not offer detailed analysis and explanation of how women respond to industry conditions.

Three separate literature reviews of women working in the trades provide evidence that there has been limited progress for women in this sector. First, identifying gaps in knowledge

regarding the career development process for women in skilled trades and construction, Ericksen and Schultheiss (2009) found only 27 applicable research articles. Second, taking a wider scope and drawing on published and unpublished literature over 30 years on women in building trades in the United States, Moir et al. (2011) found that here has been "a failure of institutional stakeholders to implement the change in social policy that had been law since 1978" (p. 2). Third, Dabke, Salem, Genaidy, and Daraiseh (2008) suggested that research in the trade area is still "limited and largely concentrated on measures that attract and retain women in construction," with "empirical evidence detailing women's perceptions about different elements of construction work" not being well documented (p. 215). These omissions shape the call and justification for more qualitative experience centred process research.

Construction industry researchers have used a range of theories to explore and explain women's situation in this sector. Feminist theory and career theory (Moore, 2006; Pumroy, 2016; Vainikolo, 2017) are common theoretical approaches. In particular, the application of feminist theory by scholars (Bastalich et al., 2007; MacIsaac &Domene, 2012; Watts, Watts, 2007; Watts, 2012) has been instrumental in exposing organisational, structural, and cultural factors that reinforce difference, inequality, oppression and power relations, and which create numerous challenges for women in this industry. Further to this, research through the feminist lens has helped to raise issues relating to visibility, disparities between men and women's advancements, earning and disadvantages women encounter with the integration of work and family life (Gale, 1994; Sospeter et al., 2014; Watts 2009). Unfortunately with research fragmented by different occupations (trades, engineering and management) and a broad range of issues to be considered, research using these perspectives has focussed heavily on documenting barriers that impact on women's entry, progression, and retention in this industry. This focus may explain why approaches that explore processes explaining how women respond to industry conditions remain relatively unexplored in the construction sector.

CHALLENGES ENCOUNTERED BY WOMEN IN THE CONSTRUCTION INDUSTRY

According to Lekchiri and Kamm (2020) "women are faced with a momentous number of challenges" on entering, working in or attempting to reach leadership positions in the construction industry (p.3). As demonstrated in the following five sub-sections (industry

culture, gender segregation, discrimination, integration of work and family life, gatekeepers), many of the challenges encountered by women overlap and can be aligned to the male-dominated culture of the industry.

Industry culture

The culture of an organisation or a sector describes the way that people act and interact (Greenwood, 1997) and the power structures that may exist (Robinson & McIlwee, 1991). The literature on women working in the construction sector shows that the heterogeneous structure of the industry and the male hegemonic composition creates an industry culture that has impacted significantly on the representation of women working in this industry. Reviewing the literature, relating to women's work in the construction industry in the United Kingdom, Fielden et al. (2000) identified and examined the main barriers to women working in this sector. These included: "the industry's image; career knowledge; selection criteria and male-dominated courses; recruitment practices and procedures; sexist attitudes; and the work environment" (p. 116). The authors concluded that these barriers were the result of the male-dominated culture that permeates this sector. This review remains one of the most frequently cited papers in the women in construction literature.

Since then, additional reviews have followed (Amaratunga et al., 2006; Aulin & Jingmond, 2011; Wangle, 2009; Worrall et al., 2010) which reinforce Fielden et al. (2000). The underlying theme is that women are not well represented or welcomed in the construction industry. Menches and Abraham (2007) review of 20 international scholarly articles published since 1970, found that researchers still focus on the negative aspects of women's work in this sector. Researchers have examined the difference between men and women in the industry, discrimination, attitudes, lack of equality, barriers, work-family balance, stress, career progression, and the harsh social working conditions. This review also concluded that the "single largest contributor to women leaving the construction industry and failing to choose construction as a viable career was the culture" (p. 703). More recently, studying qualified male and female professionals in Peru, Barreto et al. (2017) selected 20 barriers for their analysis. They came to the same conclusion that "the key barrier to address is the male culture" (p. 8). In New Zealand, industry culture barriers also feature as the prominent issue impacting on the experiences of female professionals in engineering (Naismith et al., 2017).

Studies of this nature have been effective in displaying the diverse cultural complexities that women in this industry face.

An abstract, yet dominant feature, of the industry culture that has a significant impact on how women respond to industry conditions, is the image of an industry. Internationally, the construction industry is a dynamic, innovative, and technically advanced industry. Unfortunately, the industry image does not match this same standard (Smith, 2003). The image is the general impression that the industry presents or how the industry is viewed or perceived by others from either inside or outside the industry. The literature regularly reports that attracting women to the industry is difficult due to the poor image this industry consistently projects (Afolabi, Tunji-Olayeni, Oyeyipo, & Ojelabi, 2017). According to Jones (2005), this industry image is deeply-rooted in the past, or the portrayal of harsh site work and physical labour. Ginige, Amaratunga, and Haigh (2007) have shown that despite attempts to improve the industry image, progress has been slow and this restricts people seeing the reality beyond it.

Informally, the construction sector is known as a "4D industry: dull, dangerous, dirty and demanding" (Jaafar, Othman, & Jalali, 2014, p. 74). Over the years, this male-dominated industry has been criticised as unsafe and hazardous (Ikiao & Wanyonyi, 2019; Ness, 2012) fraught with poor work practices and relationships (Ikiao & Wanyonyi, 2019; Naismith et al., 2005; Ness, 2012), with work-sites characterised by teasing, derogative comments and joke telling (Loosemore, Phua, Dunn, & Ozguc, 2010; MacIsaac & Domene, 2014) lacking environmental and human sensitivity (Fielden et al., 2000), well known for high levels of interpersonal and inter-organisational conflict (Loosemore & Galea, 2008) and excluding or marginalising of women (Dainty, Bagilhole, & Neale, 2000; Gale, 1994; Ginige et al., 2007; Menches & Abraham, 2007). Furthermore, the construction site remains an arena for macho behaviours that continue to impact on women (Watts, 2012). Investigating factors influencing women's career choices in South Africa, Madikizela and Haupt (2010) found that:

> The construction industry is perceived as being the epitome of crisis, conflict and masculinity manifesting in the unsociable, confrontational behaviour that discourages women and ethnic minorities from considering construction as a meaningful career. (p. 3)

Research generated over the last forty years strongly suggests that the high percentage of men in the industry has contributed towards building and sustaining an industry image that women find challenging, and which has impacted significantly on their movement into and through this sector (Agapiou, 2002; Dainty et al., 2007; Fielden et al., 2000). Globally, the construction industry carries an image that, "under values both the industry itself and the women who work in it" (as cited in Worrall et al., 2010, p. 269). Prior to 2000, UK research reported that the industry's image was a major reason for women's low entry and participation rates, Bagilhole, Dainty, and Neale (1997); Fielden et al. (2000); Gale (1994); Greed (2000). Around the same time, Agapiou (2002) found that industry image and perception of the industry in Scotland were significant factors in determining women's career choices. Ginige et al. (2007) also confirmed that this negative image remained a "barrier for the recruitment and retention of women" in the UK despite considerable efforts to address these issues (p. 377). These early British studies were instrumental in uncovering the main factors linked to image that curb women's entry and progress in this industry. These include informal unstructured recruitment procedures (for example, ringing up mates and employing "who you know"), advertising which focused on masculine values and interests (for example, men working on heavy machinery), sexist attitudes, discrimination in the workplace, and distinctive stereotypical roles across the industry. These factors also serve to reinforce messages that women are not suited to, or welcomed in this industry, discouraging women from entering this sector (English, Haupt, & Smallwood, 2006). A lack of information sharing in schools and recruitment outlets which provides a more realistic view of the industry, also affects women's entry into this sector. Recent research suggests that the industry image creates structural and social constraints that continue to minimise women's entry into and progress in this industry (Jaafar et al., 2014).

Gender segregation

A second major component that women find challenging in this industry has been the issue of workplace gender segregation (Dainty et al., 2004; Ness, 2012; Watts, 2007; Wright, 2013). Historically, the construction labour force has been segregated horizontally and vertically along gender lines (Blackburn, Browne, Brooks, & Jarman, 2002; Fielden et al., 2000; Greed, 2006; Powell, Hassan, et al., 2009). With the exception of a small number of Asian nations (detailed on Table 2, p. 18), the composition of the construction industry workforce has been

influenced by stereotypical expectations and norms which discourage women from participating in heavy, dirty industries. When they do participate, women are judged on their physical ability to perform (Agapiou, 2002) or directed to gender specific workplace roles (Bennett et al., 1999; Dainty et al., 2000; Hossain & Kusakabe, 2005; Kaewsri & Tongthong, 2011; Malone & Issa, 2012). Furthermore, there are often distinguishable pay disparities between the genders, which impacts on the positioning and recognition of women in this industry (Clarke et al., 2005; Greed, 2006; Madikizela & Haupt, 2010).

As members of the minority group and due to the physicality of work, women are highly visible when entering or working in the construction industry (Paap, 2006; Watts, 2007). For example, women entering the construction industry may first be viewed as a woman before being seen as a worker (Smith, 2013). According to Watts (2007), in management engineering, women face greater scrutiny of their work. Their visibility is also considered problematic as they are expected to be seen doing long hours on the job. The same can be said for women working in the trades where their ability to do their work is judged primarily on their physical appearance (Aulin & Jingmond, 2011; Smith, 2013). Such visibility may result in women being seen as tokens, where they are viewed as different or outsiders from their male peers (Watts, 2012).

Person-centred theories assume that differences in men's and women's personal characteristics and behaviour can disadvantage women (Morrison & Von Glinow, 1990). In short, women are seen to have characteristics that make them unsuitable for certain roles in the workplace. Women are perceived as physically weak or not strong enough for the construction industry (Macabodbod et al., 2017). Even though Dainty and Lingard (2006) found that women in this industry are capable of performing any job on a construction site, studies in the recent decade confirm that gender divisive ideologies continue to hinder women's progress in this industry. For example, Aulin and Jingmond (2011) found that "women in construction are seen as the wrong gender to be around, for the construction occupations require not only manual dexterity but physical strength" (p. 1). Furthermore, women's physical characteristics are further highlighted by inappropriate physical resources such as unclean ablution facilities, tools and equipment that are not suitable for women's physique, and ill-fitting personal protection clothing; all of these issues serve to accentuate their differences from men (Jamenya, 2018; Macabodbod et al., 2017).

In this industry, women are considered detail orientated and good communicators, effectively pushing them towards support roles such as administration, health and safety or specialised technical and project work (Clarke et al., 2005; Hossain & Kusakabe, 2005; Ibáñez & Narocki, 2011). Consequently, women continue to be found mainly in the low paid, non-manual, low profile, supporting roles (Byrne et al., 2005; English & Le Jeune, 2011; Fielden et al., 2000). New Zealand is not exempt from this position with national reports confirming that this industry remains one of the most gender-imbalanced sectors of the local economy "The building, construction and engineering industries are still a man's world, evidence suggests women are employed in occupations that support the industry rather than core areas of the sector" (New Zealand Human Rights Commission Te Kahui Tika Tangata, 2012, p. 58).

The prevalence of women in support roles can be explained by societal norms which assume that women are caring and nurturing by nature (Kaewsri & Tongthong, 2011; Watts, 2009b; Wright, 2014). Studies in developing countries have revealed that the segregation women face in this industry may be based on a country's particular culture or socio-cultural norms: these may include the belief that women should not work in this industry but instead should be at home looking after the family (Aluko-Olokun, Adogbo, & Ibrahim, 2015; Jamenya, 2018).

In this industry, for women, gender segregation may take many forms. In the UK, Watts (2012) examined how gender segregation impacted on women's career progression. This study found that very few women took up senior management roles as "their success depended on assuming male behavioural norms and intensified work patterns because belonging in construction workplace cultures is highly gendered" (Watts, 2012, p. 1). Martin and Barnard (2013) noted that women's own stereotypical gender role expectations formed additional internal barriers that limited their progress in the industry. Dainty et al. (2004) found that workplace segregation and discrimination were leading factors in the creation of a "glass ceiling" and "glass walls" for women and ethnic minorities working in the industry. Similarly, Merghani (2016) found that employment segregation by gender contributed to both the "glass wall" phenomenon of segregating women into traditional roles, and to the "glass ceiling" phenomenon, which made it difficult for women to gain promotions and enter higher level occupations in the industry (p. 44). According to Kolade and Kehinde (2013), the "glass ceiling" barrier phenomenon is still firmly in place in construction organisations. Merghani (2016) noted that these factors also contribute to the "leaky pipe syndrome", a phenomenon

which explains why women opt out of the construction industry (p. 38). In addition to this, in Australia Galea, Powell, Loosemore, and Chappell (2015) report that gender equality initiatives and policies lacked the capacity to challenge gendered norms and practice in the industry. Collectively these studies expose the complexities and concerns that surround gender segregation and the need for this social barrier to be regularly reported and reviewed.

Discrimination

Bias-centred theories assume that discrimination, stereotyping and bias by the main group within a population is the primary cause of inequality (Morrison & Von Glinow, 1990). The complexity of gender disparities in the construction sector is further compounded by a broad range of overlapping overt and covert forms of discrimination which mean women are treated differently because of their gender (Azhar & Amos-Griffin, 2014; Galea et al., 2015; Yates, 2001). Construction has been described as one of the most discriminatory industries in the world (Bagilhole, Dainty, & Neale, 2000). This fact is obviously a major concern and challenge for women working in this industry.

Discrimination can include direct verbal and psychological prejudicial mistreatment of people based on personal characteristics such as age, gender, race, ethnicity and sexual orientation. There have been worldwide reports of gender discrimination in this industry in the UK, (Dainty et al., 2000; Gale, 1994), Europe (Byrne et al., 2005), USA (Lekchiri & Kamm, 2020; Yates, 2001), Canada (MacIsaac & Domene, 2014), India (Patel & Pitroda, 2016), Nigeria (Adenugba & Oderinde, 2019; Kolade & Kehinde, 2013), South Africa (Madikizela & Haupt, 2010), Australia (Loosemore & Waters, 2004) and New Zealand (Naismith et al., 2017). Discrimination impacts on women's recruitment, retention, mentoring and pay. To use an extreme example, Kakad (2002) found various forms of discrimination and gender segregation displayed towards women in the Indian construction industry. According to Kakad (2002), women's work is labour intensive: involves lifting heavy materials over long distances and climbing scaffolding. Women's work is seen as simple, requiring less skill and suitable for the weak, hence justifying their low wages. Women working in this area are often called "chithals" which means low person. In contrast, unskilled male workers are often called "periyal" which means big person. Although they are performing the same duties, men are portrayed as strong and their work as skilled (due to the risk associated with it), hence entitling them to

higher wagers. As Kakad (2002) contends, women are doubly exploited in this context, as "neither their needs, nor their rights as workers are addressed" (p. 367).

The research investigates diverse cases and components of discrimination. For example, documenting female civil engineers' experiences of working on construction sites in the UK, Watts (2007) found that intimidation and gender bias discrimination impacted negatively on their career choices and progression. For women working in trades, sexual discrimination is one of the most prevalent forms of discrimination mentioned in the literature. According to Byrd (1999) sexual harassment is a "fact of life on the construction site" (p. 14). Unfortunately, this "fact of life" continues to be reported in more recent studies (Dabke et al., 2008; Denissen, 2010a; Denissen & Saguy, 2014), with women stating that they have experienced sexual assault, sexual teasing, unwanted touching, crude comments, and gestures from both male peers and supervisors. In Bangladesh, Choudhury (2013) found that female construction workers regularly experienced sexual harassment during their work. To counter or reduce sexual advances many women developed coping mechanisms which included "establishing kinship, avoiding co-workers, and helping or making friends with other women" (p. 894).

Studying women and ethnic minorities, Dainty et al. (2004) found that being part of an ethnic minority further exacerbated the level of discrimination. Further to this, there are less obvious or subtle forms of discrimination that may have a compounding impact on women's social experiences and career paths: these include, being ignored and excluded from activities or patronised (Dainty et al., 2004; Latour, 2001). The damage experienced by women exposed to such discrimination can take many forms, including a loss of self-confidence, decreased motivation, reduced productivity, and a deterioration of relationships.

From a structural angle, Martin and Barnard (2013) identified how discrimination can be found in formal tangible policy resources, and informal "covert aspects of the organisational culture that reflected debilitating stereotypes and male resistance" (p. 9). Trades research has found that women still face hidden discriminatory practices in the USA even though changing policy and education programmes have been established to deal with such issues (Moir et al., 2011). Over the years, construction industry research has provided recommendations aimed at addressing discrimination. For example, Madikizela and Haupt (2010) boldly recommended that, "the underlying causes of discrimination be systematically

identified and removed in order to give women and men equal opportunities in every sphere of life" (p. 2). However, it seems that what is recommended in research is not always translated into practice.

Integration of work and family life

One regular explanation of the under representation of women in the construction industry is centred on the challenges associated with work and family life conflict. Contemporary research has shown that women's careers and private lives are inextricably interconnected and complex (O'Neil, Hopkins, & Bilimoria, 2008). Research on the integration of work and family life, frequently uses the term "work-life balance", a concept that is vast and multifaceted (Watts, 2009a). Reviewing the work life balance literature, Malone and Issa (2012) found that issues and initiatives vary across industries. They questioned whether it is even appropriate to use the term "balance," noting that such a term suggests "a formula, a right answer or equilibrium" for something that is not a simple equation (p. 87). Instead, they propose the term "integration" as more appropriate. The "integration" is the term adhered to in the current research.

The masculine culture of the construction industry is considered incompatible with the traditional idea of femininity and family expectations that are placed on women in society (Bastalich, Franzway, Gill, Mills, & Sharp, 2007). Twenty years ago, Dainty et al. (2000) found that most women felt they needed to choose between a career in the construction industry or a more family-orientated lifestyle. Today, industry research continues to report how negotiating the tightrope between personal and professional lives remains as a significant barrier affecting the entry and career advancement of women (Wall & Clarke, 2014). It has been found that across different industry occupations women can experience a decline in work motivation as the salience of family life or the attached discrimination becomes more significant (Dainty et al., 2004; Jamenya, 2018).

Within the construction sector, the integration of work and family life further accentuates the dichotomy that exists between genders in this industry. As an occupation, construction work has been at odds with primary family and care-giving responsibilities. The construction industry is known for its unpredictable work environment, long hours (Ness, 2012) and demanding workplace expectations (Sutherland & Davidson, 1993). These factors inevitably

impact upon family life and challenge women in this environment (Agapiou, 2002; Dainty et al., 2000; English & Le Jeune, 2011; Malone & Issa, 2012; Ness, 2012; Sospeter, Rwelamila, Nchimbi, & Masoud, 2014; Watts, 2007). While this conflict between work and family life is a significant ongoing problem for women entering or progressing in the industry, it does not appear to affect men in the same way (Amaratunga et al., 2006; Fielden et al., 2000; Watts, 2009a). Lingard and Francis (2004) found that "women are more likely to experience conflict between work and home life than men as they factor in domestic duties, childcare, and family commitments" (p. 411). Furthermore, some of this conflict may be reinforced by women themselves.

Limited research is available in the construction industry detailing how women integrate work and family life. Studying how female engineers in the UK construction industry perceive work-life balance, Watts (2009a) found participants adopted a range of strategies to improve or achieve their work-life balance. These included prioritising work at certain times and family at other times, allowing family life to take precedence, creating limits or boundaries between work and out of work time, giving family maximum time and attention when at home, being self-employed or choosing not to have children (pp. 50-51). As Watts (2009a) confirmed, the minority status of women in this profession is central to the conflict they face when trying to manage these dual roles. While prior studies have done much to expose the main issues that women face integrating work and family life, given the size of this industry, there is room for many more studies to investigate the complexities of this challenge.

Gate keepers

Gender research has shown that inequality is perpetuated in the workplace by organisational practices that privilege men's experiences over women (Acker, 1990; Donnelly, Parker, Douglas, Ravenswood, & Weatherall, 2018). Similarly, "structural-centred theories assume that the root causes of inequality are the structural customs and policies of a social system, such as a social structure dominated by men" (Hopman & Lord, 2009, p. 9). These same assumptions can be found in the construction industry research. Historically men have dominated the construction industry worldwide. Even with increasing numbers of women moving into the industry, men have continued to maintain the dominant position (Ginige et al., 2007).

Over the past four decades, research has consistently found that the construction industry is demonstrably a male domain in which men dominate policy development (Watts, 2007), maintain a male model of career progression (Martin & Barnard, 2013), gain greater access to mentoring and training, establish exclusive networks and informal recruitment practices that favour men (Ginige et al., 2007; Hossain & Kusakabe, 2005; MacIsaac & Domene, 2014; Shanmugam, Anaratunga, & Haigh, 2006), continue to earn more than women, and dominate in leadership roles (Fielden et al., 2000). It is this highly gendered hierarchical status and yoking of privilege that sees men make, manage, and maintain organisational processes; they effectively act as industry gate-keepers (Agapiou, 2002).

According to Dainty et al. (2000), men's deliberate social segregation, control of workplace subcultures and downplaying of women's contribution to the industry, helps to preserve their dominance and assist their career trajectory. In a recent study in the UK, Naoum, Harris, Rizzuto, and Egbu (2020) found that men tend to experience an upward trajectory in their career path while women's career progression tends to follow a zig-zag path. Unfortunately, this does not bode well for women, because as Sewalk and Nietfeld (2013) recognised, "the man's way of doing business is deeply ingrained in the construction industry and many workers and owners of construction companies are very reluctant to change their existing hierarchies and work practices" (p. 242). Hence, such long-term preservation remains a major challenge and concern for all women working or trying to progress in the industry.

As in many other male-dominated industries, in this "man's world" an "old boys club" or network actively shapes the structure of the industry and serves to exclude women, make them feel unwelcomed (Sewalk & Nietfeld, 2013) or leaves them with a lack of role models (Wright, 2016). Exclusion by gender is an additional social component linked to the industry cultural conditions that contribute to poor levels of recruitment, slow career progression, staff dissatisfaction and high turn-over of women in this industry (Amaratunga et al., 2006). Worrall (2012) survey of 231 women in construction outlined how workplace barriers in this sector affected different age groups. The study concluded that women were continuing to battle against "white, male-dominated organisational perceptions and cultures" (p. 18). Ness' (2012) critical discourse analysis also discovered similar behaviours. Focussing on the role of discourse in reflecting and reproducing the "absence of women in the construction trades," Ness (2012) found that male "dominant ideologies" remain and continue to reproduce in this

industry (p. 654). Possibly the most concerning feature relating to male gate-keeping is that it is difficult to regulate through legislation (Miller, 1997). Hence minority groups may have to deal largely with these issues on their own.

The structural, cultural, and social barriers detailed in this section continue to be common challenges women face across the construction industry internationally. The complex industry culture constrains women's equal progression into and through this sector. The accumulative effect of these overlapping constraints has had a significant impact on how women interpret and respond to such conditions.

RESPONDING TO CHALLENGES

The research canvassed in the previous sections documents a wide range of negative workplace conditions that impact on the representation of women working in this sector. The following subsections outline how the industry and women working in it, respond to such challenges.

Industry responding

Early research in this industry which placed a spotlight on the representation of women exposed the communal obligation of governments, construction industry leaders, educators and practitioners to improve the culture and the working conditions within this sector (Bagilhole et al., 1997; Dainty et al., 2000; Fielden et al., 2000; Gale, 1994; Sommerville et al., 1993). Studies in the UK, Europe and the USA have indicated that an absence of state regulation, the nature of the labour market, and a lack of employer responsibility curb industry progress in addressing the representation of women in the construction industry and the issues they encounter (Clarke, Michielsens, Snijders, et al., 2017; Clarke et al., 2005; Wright, 2015).

Increased research, labour shortages (for both men and women), and more women undertaking construction education over the past two decades provide major reasons for further examination of the industry structure and the implementation of new legislation and programmes to improve working conditions in this sector. Compliance with legislation and the establishment of support initiatives have meant more interest in the diversity of the industry and the inclusion of women. In developed nations, this interest is evident in new legislative policies, such as the Sex Discrimination Act (1975), the Equality Act (2010) and the

Public Services Act (2012) in the UK; the Charter on Fundamental Rights Article 23 (2009) and the European Trade Union Confederation Policy for gender equality in Europe; the amendment to the Executive Order (1978), the Equal Opportunity in Apprenticeship and Training (1978) and the Women in Apprenticeship and Non-traditional Occupations Act (1992) in the USA. Significant support initiatives have included the Training and Opportunity Programme Scheme (TOPS) and the Union of Construction and Allied Technical Trades (UCATT) in the UK; the Respect for People Working Group, the Women in Trades, the American Apprenticeship Initiative (2014) and the Million Women Mentor Scheme in the USA, and internationally, the National Association of Women in Construction (NAWIC). These structural changes and initiatives have led to increased attention on minority groups in this sector. However, as Clarke, Michielsens, Snijders, et al. (2017) found, while "addressing the deeply rooted structural and cultural issues represents a significant challenge for the industry, relatively little progress has been made" (p. 30). This remains an ongoing concern for the entire industry.

The slow pace of industry change has been identified in a recent study exploring European Union gender equality initiatives in France and the UK. Comparing practices and experiences between these two nations, Ackrill, Caven, and Alaktif (2017) found that France and the UK have taken different legislative approaches to address gender issues in the construction sector, both with limited success. The authors found that despite multiple European Union policy interventions and national and industry initiatives, widespread discrepancies exist between initiative and structural improvements. For example, in France, women in construction are promoted through organisations such as the Union Internationale des Femmes Architects (UIFA) which is focussed on a single profession. Another example is Les Groupes Femmes de la Federation Francaise du Batiment which includes all women employed in construction. These associations have to comply with the Association Law (1901). In the UK, promotion efforts are less regulated and varied, with support coming from groups such as Women and Manual Trades, Women in Property, the National Association of Women in Construction or additional initiatives such as Building Design 50:50 and Chicks with Bricks. Interestingly, as the authors note, there are additional simplistic variations to the ones listed that further restrict development. For example, "in neither country do professional bodies, craft organisations, or training providers representing construction industry employees, have

explicit gender diversity policies for their membership" (p. 2988). These findings suggest that gaps remain between policy goals and on-the-ground implementation, that there are fragmented efforts to address equality, and the industry lacks the "collective will" to address change (p. 2991). Furthermore, the authors recognise that studies reviewing institutions and their policy outcomes are notably absent in this industry; this additional constraint explains the industry's slow progress in this area.

While reforming industry norms is a gradual process, it has the power to transform the industry. Kakad (2002) suggested that in India transforming the basic structures of work would benefit women working in this industry. According to Kakad (2002) five specific areas need attention, including industry-wide gender sensitisation; skills development to build women's skills capacities; implementation and tightening of legislation; encouraging women to move into leadership positions; and utilising market mechanisms to improve employers and employee relationships (p. 370).

Addressing the nature of employment relations and encouraging diversity are considered structural catalysts that will enable transformation. In recent years, research has shown an increased interest and movement towards encompassing a wider set of ethical considerations that would not only encourage new recruitment and training procedures, but also sustainable construction and green building activities (Hegewisch & O'Farrell, 2015). Implementing these changes would have positive effect on women. Reporting on change in the UK and the EU, Clarke, Michielsens, Snijders, et al. (2017) outlined such moves:

> Forces for change include, imperatives for low-energy construction, which requires greater educational input to achieve thermal literacy for low-energy construction, broader qualifications profiles to overcome interfaces between the activities of different professionals and occupations, and integrated team working and communication process given the complex work processes involved. All opening the possibility to include more women, especially considering their higher educational achievements and greater presence in environmentally orientated subject courses. (p. 4)

To initiate such change would require the recruitment of graduates who have completed full-time courses (those that included placements or internships to obtain the necessary work experience). Employers would need to recruit directly from colleges and universities, where a higher proportion of women are found. The employment relations system also needs to

change from the traditional “old boy’s network” method of recruitment to the use of recruitment agencies. These formal recruitment practices would enable greater recognition of formal qualifications (Clarke & Wall, 2006), and enable women to be profiled in a more favourable light.

International research on equality and diversity in this industry has highlighted the value of closer monitoring of recruitment and training activities. One way to enable closer monitoring is through initiatives created during mega projects. Although in the construction industry research the term “mega project” has no formal definition (Fiori & Kovaka, 2005; Zhai, Xin, & Cheng, 2009), a mega project is typically characterized by the large deployment of human and physical resources. Such projects have widespread social, economic and environmental impacts (Kardes, Ozturk, Cavusgil, & Cavusgil, 2013; Li & Guo, 2011). A mega project may cost between 100-500 million US dollars (Clarke, Michielsens, Snijders, et al., 2017). Examples of mega projects include, the Vancouver Island Highway Project in Canada; the Los Angeles Century Freeway Project, the New York Times Building and the Boston Big Dig Tunnel Project in the USA. In the UK projects such as Terminal 5 at Heathrow Airport and the Olympic Park are considered mega projects. Mega projects have provided opportunities for new initiatives to report and address gender imbalances in the industry. Large industry projects of this kind have the ability to use their size, capacity, and profile to introduce and implement new strategies designed to increase gender inclusivity. By setting ambitious targets these projects can provide a platform for action. Such activities can include:

- Documenting employment targets for women
- Running promotion days for women
- Educating people involved in recruitment and promotion about unconscious biases
- Providing support for potential employees especially in the areas of childcare and health care
- Encouraging contractors to recruit a more diverse workforce by advertising externally
- Establishing women’s forums, diversity working groups, and mentoring programmes
- Encouraging flexible working policies and inclusive maternity leave
- Organising women-in-construction meetings or events
- Encouraging research to be conducted on these projects.

(Clarke, Michielsens, Snijders, et al., 2017; Kardes et al., 2013; Wright, 2015)

These types of actions can provide the resources to measure and identify factors that impact upon the recruitment and retention of women. They will also provide insight into effective activities that help women overcome challenges in this sector.

One early established global non-profit organisation that has been committed to addressing the challenges that women face in this industry is the National Association of Women in Construction (NAWIC). Established in the USA in 1952, NAWIC provides valuable assistance and forward movement for the development of women in this industry. This organisation is now active in the UK, Ireland, Canada, South Africa, Qatar, Australia and New Zealand. Internationally, members of this organisation uphold the common aims: to attract women to the construction industry, improve recruitment and retention processes, and most importantly address the prevailing hegemonic culture. NAWIC New Zealand has been active in Wellington since 1996 and has recently established chapters in Auckland, Bay of Plenty, Canterbury and Queenstown (NAWIC, 2020). The Canterbury chapter of this organisation was established two years after the Canterbury earthquakes in 2013 due primarily to the increased number of women moving into the sector (Ministry for Women, 2015). In Christchurch, membership has rapidly expanded. Members have been actively involved in co-ordinating and participating in key events that promote the visibility of women and collectively address issues they have encountered.

While legislative and organisational initiatives signal changes in the industry, these developments have been slow and predominantly managed by male leaders. There has been little attention given to how women respond to industry conditions and their contributions to change. Industry research regularly suggests that there is still “a long way to go” for women in the construction industry and an ongoing review of industry standards is required (Hegewisch & O’Farrell, 2015). Achieving better outcomes for women in this industry may require a shift in research, one which considers new theoretical or practical research approaches.

Having addressed how the construction industry is responding to workplace barriers, I now identify and explain how women react to challenges they encounter in this environment.

Women responding

The task of identifying women's responses, rather than the actions taken on behalf of women, is complex. This issue has not yet received concentrated research attention in the wider construction community. While previous studies have indicated that women have developed ways of managing their experiences (Agapiou, 2002), detailed investigations and explanations of various response processes over time remain scarce when compared to the vast array of issues women face.

Dealing with the double bind

The concept of gender is complex, not least because scholars have different definitions and opinions about the gender. Gender can be viewed as a personal identity, a social status, or a set of social role relationships aligned with being male or female or based on perceived differences between men and women (Broadbridge & Simpson, 2011; Powell & Graves, 2003; Scott, 1986). Since the late 1970's, gender has encompassed many areas of the work environment including, but not limited to: workplace relations, career barriers, integration of work and family life, and gendered organisational cultures (Broadbridge & Simpson, 2011). For women, gender is accentuated when working in a male-dominated industry, as they can be held accountable to the occupational and gender norms of an industry. As a minority group because of their gender women in the construction industry find they are often required to adopt coping or adaptive strategies to gain acceptance by the majority cohort (Watts, 2007).

Research has found, that in dealing with gender women working in the construction sector may face a double bind dilemma where their femininity and competence are seen as mutually exclusive (Jamieson & Hall, 1995; Peterson, 2010). According to Gherardi and Poggio (2007), in this scenario, women are required to assume male characteristics while attempting to preserve their female characteristics. Peterson (2010) suggested that women working in male-dominated industries "are measured against a double yardstick of gender appropriateness and masculine work ideals" which creates a "no win" situation (p. 69). When women respond by displaying behaviours that are consistent with femininity (collaborating, showing empathy, nurturing) they may be viewed as less competent. If women respond competitively or assertively in a way that is characterised as masculine, their behaviour is seen as unfeminine and aggressive (Jamieson & Hall, 1995; Peterson, 2010; Sabattini, 2007). Women can thus be perceived as either too masculine, too feminine or not appropriately

feminine (West & Zimmerman, 1987). In this bind, women are forced to find a balance between conflicting masculine culture, expectations of how they should behave as a women (Sabattini, 2007) and their own personal beliefs and values. As a result of this double bind women are often seen as resorting to coping strategies.

In resisting the dilemma of double binds, previous research has shown that women find different ways to "do gender" (Denissen, 2010b; Sabattini, 2007; West & Zimmerman, 1987) as a process of adjustment to a male-dominated environment. Examining women's experiences of working in the trades in the USA, Denissen (2010b) argued that the gender bind conditions create new possibilities for resistance and change by women. Denissen (2010b) demonstrated that women use gender as an identity tool to address industry conditions. Various response tools include adopting masculine behaviours and acting like "one of the boys" to gain membership. Other strategies include resisting the pressure to do things like a man and instead calling out respect as a female, or de-emphasising or suppressing gender to be seen as a worker (p. 1059-1062). Rather than being forced to select between masculine norms or feminine expectations, the tradeswomen chose to manipulate gender rules by engaging in reflexive gender displays that allowed them to ascertain the most advantageous identity for each challenging situation. In a separate study, Denissen and Saguy (2014) demonstrate how tradeswomen challenge gender dualities when they demand respectful recognition while performing masculinity, or when they invoke shared identities that help to emphasis gender difference. Unfortunately, in-depth research which focuses on women dealing with, or resisting the double bind is limited in this sector.

Coping responses

Studies that have documented women's responses to negative workplace conditions often conceptualise such responses as a way of coping with male resistance or discrimination (Clark, Anderson, Clark, & Williams, 1999; Lazarus & Folkman, 1987), gender relations, or the male-dominated culture. For example, studying women working in engineering, Evetts (1998) argued that women could cope with their engineering work but resorted to the coping strategies of "fronting it out"; "playing the little women" and "building a reputations" to deal with the culture and gender relations of the industry. In two separate studies between the UK and Australia exploring women's careers, Dainty and Lingard (2006) found that women trying to "fit in" adopted coping strategies to deal with behaviours that challenged their credibility.

These involved being “thick skinned” by ignoring disruptive behaviours, playing down their own achievements, and maintaining a high degree of single mindedness. Exploring the workplace experiences of female engineering students, Powell, Bagilhole, et al. (2009) documented various response actions such as “acting like one of the boys, accepting gender discrimination, achieving a reputation and adopting an anti-women approach” to cope (p. 411). This last study provided new insight into how women perform gender in a way designed to gain male acceptance and enculturation into the industry. Unfortunately for women and the industry, this study concluded that such practices do little to challenge the engineering culture. More importantly, this behaviour was found to contribute to the maintenance of an environment which remains unwelcoming to women.

A review of the literature shows that the longer-term strategy of adopting male attitudes and male characteristics to fit in and gain acceptance is another common coping strategy women adopt in this industry (Bagilhole, 2002; Denissen & Saguy, 2014; Gale, 1994; Martin & Barnard, 2013; Watts, 2012). Researchers use a variety of terms to describe the coping strategy of adopting masculine traits or performing in a masculine way. Some apply the term “fitting in” (Bagilhole, 2002; Wright, 2013) to describe how women minimise their differences from men by wearing masculine clothing. Halberstam (2018) refers to this response action as “female masculinities.” Likewise, Denissen and Saguy (2014) use the term “gender blending” for women who combine interactional strategies that are coded as “feminine” or “masculine” (Denissen & Saguy, 2014, p. 385). In contrast to the “fit-in” approach, Lekchiri and Kamm (2020) found some women are prepared to deal with discriminatory challenges by not trying to fit-in to appease those around them. Though Lekchiri and Kamm (2020) go on to explain how most women use social support to protect themselves or apply the passive mechanism of positive reappraisal (creating a different meaning of a situation by focusing on beneficial effects instead of the harmful effects) to deal with challenges they encounter.

Common coping strategies are varied and generally involve women ignoring negative behaviours (Agapiou, 2002; Bastalich et al., 2007; Dainty & Lingard, 2006; Denissen, 2010a), just getting on with their work (Agapiou, 2002), censoring their own behaviour (Denissen & Saguy, 2014), avoiding socialising (Wright, 2013) or normalising negative behaviours as something that is just part of the environment (MacIsaac & Domene, 2014). In response to the culture of conflict, the passive coping strategies adopted by women can suggest they are

accepting of culture norms. Research has uncovered a diverse range of mitigating factors such as gender, age, length of experience, workplace status, being a leader, relationship to colleagues and job tenure that explain why women's responses tend to be a passive.

Focusing predominately on women's passive coping strategies may be detrimental to how they are viewed in this industry. When women are seen as ignoring or tolerating poor male behaviour (Agapiou, 2002; Denissen, 2010a), or having the attitude "if you can't beat them join them" (Watts, 2007, p. 311), then women in this industry may be labelled as "submissive", "accepting industry norms", "supporting that this is the way men behave" or "conceding that this is just the way it is in the industry". This "blame the victim" approach can in turn justify the subtle social injustices that exist in this industry (Ryan, 1976). Denissen (2010a) has argued that focussing on passive coping strategies may be harmful for women because women may be viewed as conforming or conceding to the prevailing male dominating culture: in doing so, they are seen to ensure its continuation.

While previous studies have been useful for identifying and describing coping strategies, two limitations remain. First similar patterns of behaviour can be labelled differently, and second, there is limited in-depth empirical studies available which explain the detailed thinking or actions women take around their coping responses or beyond. This is where this research makes its most valuable contribution. It is therefore argued in this research that women's responses contain many differing personal and contextual components that require consideration over a longer time interval and that these actions may sit outside of a coping frame. Attentive to the findings of the studies documented in this sub-section, I decided to adopt a methodological approach that was not bound by a coping theoretical frame, but instead aimed to expose the finer nuanced interactive details of women's response actions as a process.

Proving yourself

One additional response process significant to women in this industry, but not yet fully explored, is the concept of "proving yourself". This is a concept closely associated with demonstrating competence in the work place. According to Glaesser (2019) one way of conceptualising competence theoretically is that it is a skill which may be conceived of as a disposition which enables a person to cope with particular situational demands. For women

working in construction, these demands can be centred on the assumption that they are not suitable to work in this industry.

Aware of gendered attitudes and practices embedded in the construction culture, many women working in the industry have revealed that they feel the need to work harder, be more precise and prove themselves to counter such conditions, or to progress (Agapiou, 2002; Dainty et al., 2000; Dainty & Lingard, 2006; Goldenhar & Sweeney, 1996; Hossain & Kusakabe, 2005; Jamenya, 2018; MacIsaac & Domene, 2014). According to Smith (2013) the feeling of having to prove oneself “largely comes from women not feeling welcomed in the workplace, and being hyper-surveyed by men” (p. 596). For many women, this can be a burdensome position, as achieving workplace outcomes do not occur just from short-term passive coping responses. Women are required to demonstrate both physical and technical skills as well as psychological stamina to prove their competence (Aulin & Jingmond, 2011). This can be very demanding and time consuming.

The fact that the abstract concept of “proving yourself” is widely used in different ways in the industry literature, confirms the lack of clarity around this concept. When explaining how non-traditional engineering and construction professional women and underrepresented minorities deal with subtle discrimination in the USA, Yates (2001) mentioned “proving yourself” as part of this process. According to Agapiou (2002) women working in the industry spend extra time and energy becoming good at their job so they can successfully integrate into the workplace. This remains a common theme across the literature. MacIsaac and Domene (2014) also found that the theme of wanting to "prove oneself” is important for tradeswomen working on construction sites. “Proving yourself” thus refers to women attempting to compensate for the assumptions and beliefs that co-workers hold about their abilities. For some women, this may also include family members, supervisors, and future employers. More recently in a study into the positive career experiences of professional women in Nigeria, Aluko-Olokun et al. (2015) found that women still felt they needed to prove themselves to overcome industry challenges and find reward.

While the term “proving yourself” is mentioned in construction industry research documents, the complexity of this concept and its relationship to the concept of competency or establishing workplace relationships remains unexplored. This in turn stimulated my interest

in researching response as a process, with consideration given for time, context, and relationship management.

Response as a process

Process is about what actions an individual takes, and why. Considering the actions people take and the associated variations in their behaviour can be achieved through in-depth subjective qualitative research. The complexity and importance of exploring women in the construction industry's actions as a process has been demonstrated by a small number of authors. Two studies in particular influenced the methodological choices for this research. Investigating how tradeswomen in the USA construction industry respond to sexualised industry conditions that are often overlooked, Denissen (2010a) and Denissen and Saguy (2014) have foregrounded the importance of considering process in analyses of women's experiences.

First, in an earlier study, Denissen (2010a) considered intra-personal processes and sociocultural influences when tradeswomen experience and respond to sexual conduct from their male co-workers in the workplace. Taking a qualitative approach, Denissen (2010a) used a "micro politics of trouble" framework to demonstrate how interpretations of sexual conduct came to be shaped in the process of responding to problematic interactions. The analysis revealed a broad range of informal response remedies and sanctions that women have available to them for responding to unwanted sexual conduct, such as ignoring comments, social withdrawal, modifying actions and clothing, communicating to stop, or complaining to a supervisor. Formal response options include lodging a formal complaint or leaving the job. This study illustrates the ambiguous nature and complexity of women's responses as they decide if male co-workers' sexualised behaviours "cross the line." Others may be unsure when or how to respond because they do not know "where the line is." Others still decide they will when men "cross the line." A significant feature of this study is that "the analysis moves beyond previous qualitative studies by showing the relationship between assertive and passive responses as women shape up intra and interpersonal meanings of sexual conduct overtime" (Denissen, 2010a, p. 298). The study also considered how women attempt to restore good relations with their co-workers. This goal is achieved by seeking measures of relief from problematic interactions without having to confront offending co-workers. For some they rely on their own ability to use informal responses to stop unwanted sexual

conduct while preserving the working relationship. Finally, and most importantly, this research highlights the value of conceptualising interpretations of sexual conduct as a process rather than a single incident or event.

In a separate study, examining the meaning of sexual orientation, Denissen and Saguy (2014) explained how tradeswomen develop "individual resistance strategies which can be constrained or enabled by the intersection of their sexual identity, gender presentation, race, and body size" (p. 381). Creative strategies may involve avoidance, engaging in complex risk assessments, censoring their responses out of fear of resistance; being selectively open yet guarded about personal information, resisting traditional gender dynamics by turning the tables on co-workers who sexualise them, and becoming more assertive or visible when better qualified. The study's findings suggest that as tradeswomen respond to industry conditions, they use gender manoeuvring (Schippers, 2002) to combine performances of femininity and masculinity, to gain a sense of acceptance, and to prove their competence as workers. Denissen and Saguy (2014) explained how the sexual objectification of women by tradesmen can be understood as a way for men to neutralise threats to heteronormativity and male privilege.

The two studies reviewed above, contributed towards the agenda for this research. I felt it was necessary to gain a broader, more meaningful understanding of the nuanced response actions women apply to deflect or deal with challenges, and how relationships are managed in this industry. With a limited number of qualitative studies displaying this depth of understanding, I decided to explore how women respond to industry conditions in the Christchurch post-disaster setting. While short-term coping strategies are considered in the research as part of women's response to industry conditions, career progression and relationship management over time, were also consider important.

RESPONDING TO OPPORTUNITIES

It is rewarding to find research which reports on how women enjoy working in the construction industry (Dabke et al., 2008; Hegewisch & O'Farrell, 2015; MacIsaac & Domene, 2014), and how they enjoy being involved in the construction of a building project (Aluko-Olokun et al., 2015; Watts, 2007). Likewise, research that documents a steady increase in the number of female students registering and graduating from construction education

programmes (Clarke, Michielsens, Snijders, et al., 2017), and how women are given the space to express themselves about their career opportunities (Hegewisch & O'Farrell, 2015), helps to project women in a better light in this industry. Unfortunately, research in this area is limited and not specifically centred on women responding to opportunities. Instead, such messages are often small segments that form part of larger studies concerned with the challenges that dominate women's experiences. For example, in Nigeria, Aluko-Olokun et al. (2015) identified four features that women associate with their positive work experiences in the industry. Women being included as part of a respective professional body, receiving recognition that they are a professional and equal to men in the field, being free to call the shots and give advice and instructions without being questioned, and being involved in large projects is where women can see their work come to life. The findings of this study also show that in achieving these positive experiences women work hard and are motivated to overcome challenges of the industry.

With internal and external barriers dominating women's work in this sector, the lack of opportunities and the constraints to opportunities tend to shape discussions of women's career path literature in this industry (Madikizela & Haupt, 2010). Likewise, there is a scarcity of in-depth published research available to explain how women respond to what they perceive as workplace opportunities in this industry.

One particular study in the USA, which touched on women experiencing opportunity was considered relevant to the current study. According to Besser (2006), the concept of opportunity is central to women's experiences of working in management and is presented as one of five themes. The other themes are communicating, caring, being on-site and working in a changing industry. Exploring the broader meaning of opportunity, Besser (2006) found that women needed to take it upon themselves to seek and create new opportunities in the workplace as such rewards were not easily available. This is demonstrated in the four sub-themes linked to opportunity. First, opportunities denied, refers to women recognising that they are deprived of opportunities (they wanted or felt they could succeed at) due to their gender, discrimination and the power structures that limit or deny access. Constrained by the "old boys club", participants in the study demonstrated how they would create opportunities for themselves by gaining experience or taking the technical training route as alternative ways to progress. Second, opportunities created, highlights the new opportunities

that women were given or that they made for themselves in unlikely places and at unexpected times. In taking these opportunities the women used their own initiative or tried to prove they were highly capable. Third, participants in this study valued learning from their previous mistakes, from self-study or gaining knowledge from others. Fourth, opportunities enjoyed refers to the satisfaction gain by the participants to have the opportunity to work in the industry. In taking opportunities, the study's participants were primarily responding to the negative conditions that prevailed in the industry.

Besser's (2006) study became vital to the current research for two reasons. First, it provided a business-as-usual context comparable resource. Second, it triggered further interest in exploring in-depth the women's response to new opportunities generated by an acute labour force demand in the Christchurch post-disaster setting.

SNAPSHOT OF WOMEN'S EXPERIENCES IN A POST-DISASTER ENVIRONMENT

History has shown that after a natural or human disaster women are given greater access to male-dominated industries. This appears to be the case for women moving into the Christchurch construction industry after the 2010 disaster. Unfortunately, this does not necessarily equate to a greater number of research studies in this area. Prior to the 1990s, little was documented about women's experiences working in post-disaster environments. A key theme in post-disaster research is that people experience disasters differently according to age, gender, race, economic status, and/or geographical location (Drolet et al., 2015). In post-disaster research, the discourse of vulnerability has dominated, with women identified as highly vulnerable to the impacts of disasters (Ginige, Amaratunga, & Haigh, 2014; West & Orr, 2007). Furthermore, much of the earlier post-disaster literature is gender-blind, with material focussing heavily on men's experiences of working in the rescue and recovery phases of the post-disaster interval.

Since the 1990s, feminist and sociological researchers around the globe have led the way in documenting women's experiences of working in post-disaster environments (Enarson, 2012; Peacock, Morrow, & Gladwin, 1997). Fothergill (2012) specifically addressed such a gap by documenting women's experiences in the Grand Forks flooding disaster by "placing the lives of these women at the centre of the analysis" (p. 8). However, across a number of academic fields including gender-based research, feminist research, and disaster risk management

research, there still remains a familiar underlying theme: women's work in a post-disaster environment has been overshadowed by the consistent portrayal of men as the leaders and dominant figures driving the reconstruction processes (Amaratunga & Haigh, 2011; Fordham, 1998).

Post-disaster literature often categorises women's work into three main roles: reproductive roles, community roles, and productive roles (Amaratunga & Haigh, 2011; Ariyabanda & Wickramasinghe, 2003). Existing societal gendered practices have shaped post-disaster research, in particular steering the focus towards women's social vulnerabilities and primary care giving duties in the response and recovery phases (Blaikie, Cannon, Davis, & Wisner, 2014; Enarson, 2012). Determining women's participation in disaster response and recovery by demographic characteristics such as gender or age can be problematic because it defines and assigns females certain roles and routines. For example, outlining the gender disparities that were prevalent after Hurricane Katrina in the USA, Enarson (2006) recognised that "it is often said that men rebuild buildings while women reweave the social fabric of community life" (p. 1). While some may suggest that these strong in-grained research themes contribute towards "reinforcing gender inequalities in society" (Drolet et al., 2015, p. 439) and elevate men in post-disaster situations, there are others who acknowledged that such work has initiated change and exposed the need to highlight women's capabilities in post-disaster environments (Enarson, Fothergill, & Peek, 2007). Highlighting women's capabilities in this context researchers can explore women's experiences assigning value to their overall contribution and resilience in community recovery after a disaster.

In Christchurch, an example of this type of work was conducted by the National Women's Council of New Zealand as they recognised the need to document women's experiences after the natural disaster. The Christchurch Women's Voices Project (2013) identified three specific roles for women in this post-disaster environment: women as family coordinators, working with, or leading disaster relief services, and/or as advocates and restorers of the community environment. This oral history, narrated local women's voices, effectively demonstrating the women's remarkable resilience and the many ways in which they contributed towards the post-disaster recovery of the Christchurch community (Gordon, 2013; Gordon, Sutherland, Du Plessis, & Gibson, 2014).

An industry snapshot

Internationally, the construction industry post-disaster research detailing women's productive experiences and their contributions to leadership, planning, design, risk management, infrastructure development or rebuild activities is extremely undervalued and poorly represented globally. The most consistent documentation of women working in construction activities in a post-disaster context can be found within gender-based disaster studies set in developing nations (Blaikie et al., 2014). Research in this area has provided case studies describing "what women's work is like" in adverse conditions, as they contribute to community planning, reconstruction, house repair activities and manual labouring duties (Yonder, Akcar, & Gopalan, 2005). Unfortunately, this material does not draw out the deeper meanings or response processes held in such experiences. Furthermore, it is not aligned directly to construction industry research. Women working in such roles are often seen as volunteers. Many are not formally employed, or they are involved in transient intensive labouring duties that are not valued or clearly documented. Hence, this informal status of women in the industry may be seen reinforcing the existing gendered inequalities in this sector.

That aside, post-disaster research has been instrumental in uncovering differences that exist between men and women in a post-disaster environment, as well as exposing the embedded societal gendered expectations that are placed on women after a disaster. Since 1985, gender mainstreaming (public policy concept of assessing the different implications for people of different genders) has emerged as an important policy strategy for the United Nations Disaster Risk Reduction programme. This is designed to bring a gender perspective into disaster risk management, to address women's disadvantages and to promote empowerment opportunities for women to participate in post-disaster responses and reconstruction. However, as Ginige et al. (2014) suggested, the mainstreaming of women into the Disaster Risk Reduction Management must be considered in the built environment, as this is an area that has not yet been previously explored.

Unlike developing countries, research from within developed nations on women working in construction in post-disaster settings is rare. This material is often secondary segments in research reporting on labour shortages, risk management or recruitment. Fragmented material can also be found in organisational reports or media snips, however, these items

only provide a brief glimpse into women's experiences in this sector. The Christchurch post-disaster site provides a suitable example of this continued construction industry research deficiency.

A local snapshot

Current research relating directly to women moving into, and working in the Christchurch construction industry has not kept pace with the increase of women into this sector. A steady flow of post-disaster research has been produced since the Canterbury earthquake in a variety of fields: resilience, engineering, health services, human services (Van Heugten, 2014), management (Hall, Malinen, Vosslamber, & Wordsworth, 2016) and health and safety (Houghton & Cornforth-Camden, 2017). Unfortunately, there has been an obvious absence of academic material relating to women working in construction and their experiences in this post-disaster environment. Significantly, there are no peer-review research articles available on this topic in New Zealand.

To date, the most detailed information relating to women working in construction in post-disaster Christchurch has been documented in two separate organisational research reports prepared for the Ministry for Women in New Zealand. The first report, Building back better (2013) provides an overview of women's employment situation in Canterbury after the major earthquakes. This illustrative document identified that Canterbury women were a "hidden labour force" that was under-utilised. It also heightened the under-representation of women in the construction sector (Ministry of Women's Affairs, 2013). Uncovering barriers that appeared to curb women's employment opportunities in the rebuild, the "Building back better report" (2013) also reveals that in the post-earthquake environment, Canterbury women were unsure how to access jobs in the construction sector. Exploring possible means to overcome such barriers, the report highlighted three main factors identified by women that would encourage them to consider work in construction rebuild activities: flexibility of hours and work environment, good pay, and increased information about rebuild opportunities (p. 41). Essentially, this report provided a structural resource that contributed towards more women taking up trades training and construction based rebuild activities.

Two years on, the Ministry for Women released a second document, the Getting it done report (2015). This report provided a progressive picture of women's situation in the

construction workforce. This document outlined the collaborative action of key organisations, including the Ministry for Women, the National Association of Women in Construction (NAWIC), the Building Construction Industry Training Organisation (BCITO), the Canterbury Earthquake Recovery Authority (CERA), the Canterbury Employers' Chambers of Commerce (CECC), the Stronger Christchurch Infrastructure Rebuild Team (SCIRT) and the Christchurch Polytechnic Institute of Technology (CPIT), in training more women, increasing the number of women into construction occupations, improving women's visibility and profile in this industry and implementing strategies to ensure women's long term retention (p. 14). This report also summarised effective actions that contributed to increasing the number of women involved in trade activities in Canterbury.

The impact of such resources was soon evident. For example, in 2011, CPIT had only 50 women enrolled in trade courses in Canterbury. At the start of 2014 that number had risen to 414 women. By June 2015, there were 2,400 more women employed in the construction industry in Canterbury than the same time in 2014 (Ministry for Women, 2015, p. 14). This swift labour force shift is unusual for this industry, both here and overseas. Both these reports cited have been beneficial in providing a quick, concise, snapshot of women's labour force situation, as well as revealing the efforts and innovation of collective groups towards improving women's situations in this region. However, such resources do not provide in-depth descriptions or explanation of the response processes relevant to the experiences of women in this post-disaster setting. This is where this research can contribute new knowledge.

In addition to the reports cited above, a small amount of literature has been generated between 2010 and 2017. It briefly details women's work experiences in the industry through organisational reports (Construction Sector Leaders Group, 2013), website reporting (NAWIC, SCIRT, CERA, BCITO, CPIT/ARA) or as small descriptive snippets in press articles and radio reports. To overcome the shortage of in-depth literature relating to this topic, a list of 15 website articles were reviewed and analysed to identify the main themes of discussion that prevailed in local reports between 2013 and 2016 (see Appendix B). Even though this is a small sample and the written material is brief, the codification of this secondary data helped to generate three identifiable themes that were consistently woven into this local material. 1) The rapid increase of women moving into the Christchurch construction industry as significant

to the construction community, 2) innovation and achievement being celebrated and appreciated by women, 3) women displaying their satisfaction working in the construction industry. From this material, it can be ascertained that the visibility of Christchurch women working in a post-disaster environment has made an impact in this traditionally male-dominated sector and that women value the opportunity to share their experiences. However, due to the high profile of the SCIRT organisation, much of the material generated on women is centred on this organisation. While these articles demonstrate women's enthusiasm to share their experiences, they do not provide in-depth detail or dialogue to ascertain the meaning of such workplace experiences or provide insight into how women respond to industry conditions. Instead, the presented material only provides a partial picture of women's experiences in this post-disaster environment.

Statistical information presented in this section of the literature review highlights the rapid increase in the number of women moving into the Christchurch construction industry during the post-disaster interval 2010 and 2018. However, this quantitative material does not explain how women experience and respond to the industry conditions in such a setting. This is where this research makes a significant contribution.

SUMMARY COMMENTS

This review of the literature has indicated that research and literature pertaining to women experiences in the construction industry in a post-disaster environment has yet to be thoroughly explored. The existing research investigating the position of women in the construction sector has focussed heavily on the negative implications that have resulted from numerous barriers and imbalances that are ingrained in this industry. Further to this, the available research concentrates on finding ways to encourage women to enter, or stay in the industry, and left unattended are personal experiences which can explain what draws women to the industry, and how women perceive their situation, how they respond to industry conditions and how they contribute to the industry. This review help to shaped the primary research question and clarified the research purpose (to look beyond the barriers women face in this industry and instead consider how women respond to opportunities and challenges in a post-disaster context). As a result of this review process, I decided to use a constructivist grounded theory approach to examine women working in construction. Justification for, and a detailed description of this methodological approach, are provided in the following chapter.

CHAPTER 3 METHODOLOGICAL APPROACH

INTRODUCTION

When embarking on a research project, the research question, the chosen research approach and the researcher's personal values and beliefs need to cohere (Hinton, 2013). This chapter justifies the research process and explains why a constructivist grounded theory approach was adopted. It commences with a discussion of the research question. The chapter outlines the research approach and the associated ontological, epistemological and axiological positions that underpin the research. This discussion is followed by a brief review of the relevant qualitative methodologies considered for this research. The final section of this chapter discusses the rationale and justification behind the selection of a grounded theory methodology.

QUALITATIVE RESEARCH APPROACH

When preparing and designing this research there were several important choices to contend with. To establish a strong research design, Mills, Bonner, and Francis (2006) recommended that researchers "choose a research paradigm that is congruent with their beliefs and the nature of reality" (p. 2). In considering this selection, I started to anticipate the type of data that I needed to gather and how it should be gathered to ensure it answered the research question (Williams, 2007). The decision to conduct an inductive qualitative research approach that captured detailed accounts of women's experiences of working in the construction industry was largely informed by the research question (Creswell, 2014; Marshall, 1996):

> How do women working in the Christchurch construction industry between 2010 and 2018 understand their experiences and respond to industry conditions?

The question contained two specific words ("experience" and "how") that shaped the research purpose and directed the inquiry towards appropriate methodological choices. The word "experience," signalled an investigation of individuals' subjective experiences within a given context (Guba & Lincoln, 1994). The qualitative approach offers participants a voice to articulate their stories and own understandings of their experiences. Essentially this provided the participants an opportunity to make sense of their experiences and the world they live in (Holloway & Wheeler, 2010). The qualitative approach does not claim a single objective reality or truth which pertains to a deductive quantitative research approach. Instead, social reality

is viewed as a construction created by individuals or groups based on their own lived experience (Lincoln & Guba, 2003). This approach fits with my view of reality.

The research question also necessitated an exploration of women's response actions in the construction industry context. The word "how" fits with investigations of process and in turn, aligned with an interpretive epistemology. From here, the context and the research purpose had a strong influence on the direction taken and choices made. A qualitative approach is particularly useful for close examinations of processes in relation to a particular time, location, and phenomenon (Van Manen, 1990). The Christchurch construction setting and the allocated eight-year post-disaster interval following the 2010 earthquake event presented a complex research environment. The qualitative approach could provide flexible data collection procedures that could be adjusted according to the demands and unpredictable nature of this setting (Charmaz, 2014). The socially interactive nature of qualitative research also made it highly appropriate and applicable to explore and explain circumstances and interactions involving individuals from different backgrounds and occupations. This approach was also particularly valuable for understanding how this male-dominated context influenced research participants' lives.

The qualitative approach taken in this research is based on a relativist ontology and a constructivist interpretivist epistemology. The interpretive nature of qualitative research was instantly appealing as I valued the opportunity to collect rich data and gain understanding of participants' views and shared meanings to construct knowledge or theory. Because prior research and theories do not sufficiently explain how women working in construction respond to industry conditions, the purpose of the research then became to create new knowledge through the construction of theory. Further, I realised that an interpretive approach would enable me to participate in the research process and to capture broad meaningful information that holds relevance for the female participants and the wider construction community.

Taking place in the research participants' natural environment, qualitative methodologies such as case study, ethnography, phenomenology, feminist methodology or grounded theory which enable close collaborative interaction with participants and which gives them a voice to explain their experiences from their view of the world (Liamputtong, 2013), were considered. Focussed on relatively small samples, qualitative methodologies provide the

opportunity to carry out careful, intensive data inspection (Patton, 2002). Drawing out rich meaningful expressions of a participant's experiences through a qualitative methodology was seen as the best way to gather and analyse data that would answer the broad open-ended research question.

RESEARCH ASSUMPTIONS

In selecting a suitable research methodology, it is important to consider the underlying philosophical assumptions regarding the nature of reality (ontology), how knowledge is generated (epistemology) and the researcher's beliefs and values. Therefore a rigorous examination of the ontological, epistemological, axiological and methodological assumptions was required (Creswell, 2014; Denzin & Lincoln, 2011).

Ontology

Central to the research process is the concept of ontology, the "study of being" (Crotty, 1998, p. 10). Ontology is concerned with assumptions the researcher makes about the nature of reality (Saunders, Lewis, & Thornhill, 2015), and includes what an individual can learn about reality. To establish an ontological position, a researcher needs to consider how they are positioned in relation to two strongly opposing schools of thought classified under ontology: the realist (naïve realism) position, or the relativist (idealism) position. From the realist perspective, any explanation of a phenomenon is considered objective and independent from a researcher's personal perceptions and assumptions (Levers, 2013). Proponents believe in the existence of a single reality (Guba & Lincoln, 1994). In the current research, this objective reality was seen as conflicting with my practical experiences and values. The construction industry is a complex, multifaceted environment, with many over-lapping operations. Moreover, there are diverse individual and group perspectives and working relationships. Hence one objective reality did not seem to align with this context. The aim of the current research was to explore participants' varied experiences and how they experienced their time in the industry; hence, it is about a social reality. This socially constructed subjective interpretation of participants' experiences and of their reality, does not fit within a realist perspective.

Instead, the ontological assumptions embedded in this research adhere to a relativist approach that deny claims to objectivity and the possibility of one single true reality (Zalta,

Nodelman, Allen & Perry, 1995). I chose a relativist ontological stance because I believe that multiple realities can exist and that reality cannot be separated from the context in which it exists. In this research, the phenomenon under investigation is highly contextualised, involving individuals from a diverse range of occupational backgrounds, group actions, and researcher actions. For example, as a researcher with a background in the construction industry, I was challenged when reviewing the literature by the view that woman's responses were primarily seen as submissive and merely framed as coping. I felt that a submissive or passive response was part of a wider phenomenon that touched the lives of all women working within this industry. Furthermore, there is limited prior research available to compare women's responses working in the industry beyond short-term challenging social interactions. My assumption of multiple realities also ignited my interest in exploring how women respond to industry conditions over a longer interval, and the move to consider "context" in the data analysis. Essentially, the relativist approach appealed because it provided an opportunity to explore and analyse participant experiences. These experiences could be used to identify and explain a social process in a setting not previously well explored.

Epistemology

Epistemology is concerned with assumptions about how knowledge is generated and comprehended (Morehouse & Maykut, 2002), and what constitutes acceptable and legitimate knowledge (Saunders et al., 2015). For the researcher this involves considering what knowledge is, how people develop knowledge, how that knowledge is evaluated, and the relationship between the builder of knowledge and the formation of new information (Lincoln, Lynham, & Guba, 2011). Within social scientific research, there are a variety of acceptable epistemologies, meaning that the researcher has many to choose from. These epistemologies range in their degrees of objectivity or subjectivity. Each, in its own way, influences the selection of research strategies applicable to the construction of knowledge.

Subjective approaches view knowledge as shaped and generated through a process of engaged interaction between the researcher and the research participant (Lincoln et al., 2011; Saunders et al., 2015). Leavy (2014) argues that it is the interaction between the researcher and the participants that leads to the creation of new knowledge. This relationship is important for understanding how knowledge is generated, how it is evaluated, and the meaning of that knowledge. The subjective approach is highly flexible and reflective,

generating detailed and nuanced information that is often missing in objective positivistic studies. The subjective interpretivist philosophy which developed out of a critique of positivism and in opposition to the post-positivist paradigm (Levers, 2013), is central to my epistemological choices. An interpretivist researcher believes that multiple realities exist (Lincoln et al., 2011), and that these realities have been constructed in people's minds (Hudson & Ozanne, 1988) based on their own lived experiences (Lincoln & Guba, 2003). The interpretivist researcher's primary purpose is to study these meanings and construct a detailed view of social worlds from the perspective of people in them. To enter, interpret, and report on this world from other people's point of view is challenging for a researcher. I chose to use this method after considering my research questions, the goal of theory construction and my personal preferences.

The interpretivist approach taken in this research is built on the premise that individuals create meaning of their world, and that this social world is fundamentally different from the natural world. Rather than trying to emulate the natural sciences, interpretivists argue that because humans inhabit a social world, the researcher should focus on their subjective and intersubjective experiences. In generating knowledge from subjective experiences, it is essential for the researcher to pay close attention to participants' different backgrounds, circumstances, times, and the meanings they attribute to various events/experiences (Saunders et al., 2015). Viewed as highly interactive, and transactional (Patton, 2002) from an interpretive position, knowledge and reality are something that are co-created and evaluated through multiple subjective interactions and interpretations that are shaped by the researcher, the participants, and the context (Bryant & Charmaz, 2007). As a research participant cannot be separated from their knowledge, there is corresponding link between the researcher and the participants (Mertens, 2014). As I have a background in the construction industry and am familiar with different construction contexts, occupations and routines, and I was highly interested to interact face-to-face with the research participants, I believed this close interaction would further enhance the generation of knowledge (Polit & Beck, 2010). Hence this personal preference influenced the epistemological and methodological choices I made.

Social theoretical constructions that are personal and dynamic require methodological approaches that advance the research process. Drawing out rich sensitive data about

women's experiences of working in a male domain called for the application of communicative "dialectical methodologies" (Lincoln et al., 2011, p. 184). Such methodologies provide an opportunity to listen to participants' stories, engage in ongoing discussions, reflect on what was heard, interpret material, gain insight into the meaning and then reconstruct and evaluate the information (Van Maanen, 1998). These approaches are useful for exploring an individual's day-to-day experiences and demonstrating that the data is provided by the participants rather than derived from the researcher's imagination. Coming from a building background, this theoretical construction process sat kindly with me.

Axiology

Saunders et al. (2015) suggest that a researcher's philosophy reflects their values. In turn, these axiological assumptions shape their selection of a robust methodological approach and data collection techniques, as well as governing the overall research process. From the beginning of this research I was aware that my personal and professional experiences shaped the way I view the world (Leavy, 2014). This had influenced my decision to conduct qualitative research. My research philosophy also guided choices made during the development of the research process.

Working in the Christchurch construction environment after the 2010 earthquake, I had first-hand insight into the intensity and complexity of the issues that people faced in the industry and the wider community. With a background in education, and having worked closely with families on a residential repair recovery programme, I valued working with people. I believed I had good knowledge of the context and communication skills necessary to conduct research in the community. Respecting each research participant's experience, and valuing interactions with individuals, influenced my decision to adopt data collection activities that required close collaboration with research participants (Liamputtong, 2013). I believed that this was the most effective way to gather detailed information in this context and reveal a social process that held meaning to those involved (and others who may share similar work experiences). Hence, I valued the opportunity to generate knowledge with people, for people. From this qualitative stance, the rigorous attentiveness to the importance and representativeness of human subjectivity held in the data and the meanings attached, held the strongest appeal for me (Thomas & Magilvy, 2011).

By considering how the research question could be examined and explained, I discovered that I was interested in a research approach that was people-centred, value-laden, flexible, and context sensitive (Yilmaz, 2013). With limited research experience, I valued a research approach that enabled me to regularly declare my values, actions, and biases. Having these regularly reviewed by others provided reassurance that I was keeping to the ethical guidelines required for research. This process also assisted in the ongoing evaluation of the research process, contributed greatly to the development of my theoretical thinking and it added to the overall credibility of the research.

RESEARCH METHODOLOGIES CONSIDERED

Methodology involves establishing the "best means of gaining knowledge about the world" (Denzin & Lincoln, 2011, p. 91). Within the interpretive paradigm, researchers can choose from several interpretive methodologies. As the research's purpose was to yield an in-depth explanation of how women respond to industry conditions, I considered case study, ethnography, phenomenology, feminist and grounded theory methodologies. I used three criteria to select an applicable methodology and corresponding methods: relevance to the topic's aims, the research context, and my axiological position.

Case study

Initially the core features of the case study approach appeared to be useful for addressing the research question and facilitating the development of theory (Yin, 2013). However, there were fundamental features that meant this approach was not entirely suitable for the current research. As detailed in the literature review (pp. 16-18), the complex composition of the construction industry makes it difficult to decide on specific boundaries. With industry literature concentrating on women working in the trades or professions, this research instead aimed to gather varied experiences by building a research sample consisting of participants drawn from a wide cross-section of industry occupations. Being confined to a set occupational or organisational group, boundaries may have limited the opportunity to follow new lines of inquiry during theoretical sampling. In addition, during the post-disaster interval, there were only a small number of high-profile earthquake-related organisations in Christchurch such as EQC, CERA, and SCIRT, that had significant numbers of women employed. At the commencement of this research, these organisations were under intense pressure, facing

ongoing media scrutiny, and were already receiving research attention. Access to potential participants within such organisations may have proven difficult, especially as their employment tenure was unpredictable. The practical issues detailed here also featured in my decision not to use an ethnographic research approach.

Ethnography

As the current research needed to consider response actions over time, the longitudinal nature of ethnography which encompasses the lived experience and the culture of the people involved in the study, seemed appealing (Leedy & Ormond, 2001; Williams, 2007). Whilst it is a time-consuming approach, when the practical, professional, and personal elements have been properly anticipated and evaluated, ethnography provides rich data resources and rewarding experiences for those involved. For example, in an experience centred study, Watts (2012) adopted an ethnographic approach to investigate the career experiences of women civil engineers in the UK. By getting close to the interface of the industry culture, Watts (2012) was able to gain insight into and highlight cultural issues of visibility and the presenteeism ethos within the industry.

Ethnography is often used for studies involving women due to its focus on everyday behaviours, norms, beliefs and social structures. This, along with the close interaction with participants and the inductive nature of this research strategy also made it very appealing. However, as with the case study approach, there were potential practical limitations that impacted on my choice in using the ethnographic approach. As Saunders et al. (2015) noted, ethnographic researchers must accommodate for the complexities of context, the observational requirements, and the emergent nature of this strategy. Gaining support and ethical clearance for close observations over a long duration of time in any avenue of the industry would have been time consuming and difficult to achieve in a post-disaster setting where people and organisations were in flux (for example, moving work premises, taking on heavy workloads, changing jobs or roles). Hence ethnography was deemed inappropriate for this research.

Phenomenology

Essentially, a phenomenological study investigates participants' day to day lived experiences in relation to a phenomenon of interest that influences the shape of their world (Creswell,

2012; Daley, 2007). As phenomenology places the research participants and their experiences at the centre of analysis (Levesque-Lopman, 1988), it is useful for allowing minority or oppressed groups to articulate their understanding of reality from their own position; it is for these reasons that I considered using this approach. Adopting a phenomenological approach would address the "how" in the research question (Todres, 2005) as it is well suited for investigating response processes. However, the phenomenological approach seeks to describe the impact of previously identified social factors. It was my preference to allow interpretations of participants' experiences to influence the construction and explanation of a phenomenon rather than construct theory from a pre-existing phenomenon. Also, a significant feature of the phenomenological methodology is that the researcher must suspend any pre-judgements they hold about the physical world so they can see the world as a participant sees it (Carpenter & Suto, 2008; Daley, 2007). As I have previous work experience in this industry, separating my thoughts and assumptions about the construction world is an unrealistic expectation. Therefore, I felt it more appropriate to choose an approach that enabled me to acknowledge my position and thought processes throughout the entire research journey.

Feminist methodology

Of the remaining approaches, feminist methodology and constructivist grounded theory held features that captivated my interest. In recent years a shift in grounded theory towards a more interpretive and constructivist position led scholars to identify methodological similarities that exist with the feminist approach (Plummer & Young, 2010), all of which were appealing and considered for this research. First, constructivist grounded theory or feminist methodologies enable a researcher to design studies with the potential to reveal issues particular to the lives and experience of marginalised women. They are thus relevant for exploring complex changing times and contexts. Second, and related to the first point, these methodologies can capture women's "lived experiences" in a way that validates their voices as a source of knowledge (Campbell & Wasco, 2000). Third, both approaches value the central role of human experience and knowledge generation. In particular, they support the idea that knowledge is generated through social exchange between a researcher and the participants. In short, they appreciate the intersubjective nature of the relationship between the researcher and the participant. Fourth, both approaches emphasize the interpretation of

language and symbols to derive meaning from experience. Fifth, they also value and advocate for reflexivity which opens the way for the researcher to include their own experiences and establish veracity and integrity (Campbell & Wasco, 2000). Finally, research conducted using either of these two approaches can challenge social norms and promote positive social change.

Despite these similarities, scholars contend that different priorities drive each methodology (Wuest & Merritt-Gray, 2001). Wanting to study women in a male-dominated environment I was initially drawn to the feminist methodology. However, subtle methodological and personal preference priorities meant that the constructivist grounded theory approach was a better fit. With extant research heavily focussed on exploring male-dominated barriers that impact on women's career path, it is not surprising that many studies in this field use a feminist approach. Yet, this was the first of two deciding reasons why I did not combine the two approaches and why I ultimately chose a constructivist grounded theory approach.

Second, a feminist methodology directs the researcher's attention specifically towards witnessing resistance, gender, power relations and inequalities, as women and their concerns are the primary focus of such studies. While I knew these factors might surface and require consideration in this male-dominated context, I felt a constructivist grounded theory approach would enable me to be led by the data rather these factors, and/or my own assumptions. In asking an open-ended experience-centred research question, my intention was to construct information of how women respond to both challenges and opportunity. Due to the favourable employment context and with limited research material documenting how women respond to opportunity in this industry, I wanted to leave the interpretation and analysis open, so that I could consider opportunity if necessary. As a female researcher examining women's experiences within the same sector, I also realised that people might assume I was taking a feminist approach to the research. Watts (2006) notes that this perception can hinder participants from freely expressing themselves. Investigating the career experiences of women civil engineers in the UK, Watts (2006) reported camouflaging her feminist theoretical position through her careful use of language and her "insider knowledge" of the industry (p.399). Ultimately her concerns were unfounded; Watts revealed that participants were willing to share their experiences. As a researcher with previous

experience in the industry, I needed to be aware of my position in the research process, it is for these reasons that I decided against using a feminist approach.

Grounded theory

After careful consideration of the research question, the research purpose, and my own personal philosophical research assumptions, I decided that grounded theory would be the most appropriate research method. Grounded theory methodology (GTM) prioritises understanding and interpretation. It is useful for distilling issues of importance and examining complex social processes for specific groups (Mills et al., 2006). GTM utilises systematic, yet flexible strategies, for collecting and analysing subjective qualitative data, and inductively constructing concepts and theory that are grounded in the research participants' experiences (Charmaz, 2014; Van Maanen, 1998). Without having to be fully immersed in the industry culture, the grounded theory approach allows for both interaction with the participants and consideration of the researcher's preconceptions due to previous work experiences or exposure to extant theory. I saw grounded theory as the most effective approach for giving me access to and constructing the nuanced process features that could explain how women respond to construction industry conditions.

Grounded theory has evolved over the last 70 years with various subtleties and differences that are the result of major scholars' various philosophical standpoints (Charmaz, 2006; Corbin & Strauss, 2008; Glaser & Strauss, 1967). This research approach was originally developed by the two prominent sociologists, Barney Glaser and Anselm Strauss, who came from very different traditions. Trained as a positivist, Glaser brought an objectivist perspective. This background is reflected in the epistemological assumptions and systematic approach of original grounded theory principles. In contrast, Anselm Strauss, who came from the Chicago school of pragmatism, brought notions of subjectivity, human agency, emergent processes, and open-ended study to grounded theory. In the 1960s, these two sociologists came together at the University of California to study the management and care of dying patients in hospitals (Liamputtong, 2013). The critical success of this joint research collaboration was the co-creation of a grounded theory approach which can be used to generate substantive theories that explain individuals' social behaviour and ontological realities (Suddaby, 2006).

Frustrated by the dominance of positivistic quantitative methods in social science research, Glaser and Strauss sought to legitimise the application of inductive qualitative theorising. In The Discovery of Grounded Theory, Glaser and Strauss (1967) proclaimed a revolutionary message by proposing "that systematic qualitative analysis held its own logic and could generate theory" (Charmaz, 2014, p. 7). Through logical critique and practical guidelines for action, they developed principles for the management and analysis of qualitative data and the inductive construction of theory. Glaser and Strauss' goal was to move qualitative research beyond descriptive studies through to theoretical frameworks that generated conceptual understandings of the studied phenomena (Charmaz, 2014). This new method of inquiry sparked a growing interest in qualitative methods.

Over time, as the philosophical positions of these two pioneers diverged, grounded theory developed in different directions. According to Charmaz (2006), Glaser (1992) remained faithful to the original version of grounded theory, advocating for the emergent discovery model of theory generation. Hinton and Hamilton (2015) argued that Glaser's version of grounded theory stemmed from a critical realist post-positivist ontology which leant towards an objectivist epistemology. Yet, Hallberg (2006) argued that Glaser's focus on "emergence" suggested an objectivist/dualist position with a more positivistic tendency. Remaining close to the positivist principles of discovery, Glaser (1992) continued to practise grounded theory through rigorous codification, emergent discoveries, and language that resembled quantitative methods. Glaser (1992) strongly believed that reality and knowledge exist in data and is awaiting discovery and understanding. From this position, Glaser (1992) was resolute that meaning should not be forced on participants but rather, the method would allow the meaning to emerge.

In conjunction with Juliet Corbin, Strauss proposed a more systematic reformulation of the original grounded theory (Strauss & Corbin, 1990). Rooted in a pragmatic and interactionist epistemology, Strauss and Corbin (1990) added technical analytical procedures. Taking a more interpretive position and relativist ontology, Strauss and Corbin (1990) believed that prior experience and the act of reviewing literature before commencing the study was useful for understanding human interaction and knowledge generation. Most significantly, Strauss and Corbin (1990) introduced procedures such as the conditional/consequential matrix which encourage researchers to consider how contextual elements influence the phenomenon

under study. They also introduced axial coding which shifted the grounded theory method towards the verification of relationships in the data. Glaser (1992) criticised them for this, contending that such procedures forced the data and the analysis into pre-conceived categories, which contradicts the emergent nature of grounded theory. Glaser (1992) advised researchers to remain neutral and not to form pre-conceived ideas or understanding. In addition, he believed that researchers should abstain from the use of literature and avoid formulating research questions prior to beginning the study because this could corrupt the purity of data.

In response to postmodernist criticisms of grounded theory Charmaz (2006) added a new perspective by proposing a constructivist approach that shifted grounded theory from its objectivist positivist foundations (Wilson & Barn, 2012) into the sphere of interpretive social science. From the constructivist perspective, theory is constructed from the data rather than discovered from the data. As the above variations of grounded theory stem from differing ontological and epistemological beliefs and understandings, they are labelled "traditional grounded theory" (Glaser & Strauss, 1967), "emergent grounded theory" (Glaser, 1992), "systematic grounded theory" (Corbin & Strauss, 2008) and "constructivist grounded theory" (Charmaz, 2014).

After reviewing the various strategies, and taking into consideration my limited research experience, I chose constructivist grounded theory as the most suitable approach for addressing the research topic.

CONSTRUCTIVIST GROUNDED THEORY

This research uses the constructivist grounded theory approach developed by Charmaz (2006) to underpin the methodological strategies for the collection and analysis of data. Charmaz (2006) defined grounded theory methods "as a set of principles and practices, not as prescriptions or packages," seeing the proposed strategies as "flexible guidelines, not methodological rules, recipes and requirements" (p. 11). The inductive, interactive, comparative and iterative methods of this approach were seen as suitable for the exploration of women's lived experiences of working in the construction industry and appropriate for addressing the tasks required for this research (Wilson & Barn, 2012). Charmaz (2006) presented an interpretive and constructivist theoretical perspective that articulated a

relativist ontology; this aligns with my view of the world. The research participants' lived experience is believed to be made up of multiple realities perceived as real and inter-subjectively constructed through multiple meanings developed socially and influenced by context (Mills et al., 2006). The notion of relativism holds that this social world is only accessible to us through the interpretations provided by the research participant, as this is a reality that remains separate from the researcher's identification and description of it. Essentially, it is the researcher's responsibility to capture the multiple dimensions of a person's subjective experience and the meaning held in that experience. According to Charmaz (2006), the researcher and their perspective remain part of the studied world, with theory being constructed through the interactions that occurs between the researcher, the participants, and the contexts. To Charmaz (2006) the research process is viewed as a construction process. As a builder I found both the practical and symbolic importance of this approach resonated strongly.

Although the various approaches to grounded theory differ somewhat in their ontological assumptions (Glaser & Strauss, 1967; Strauss & Corbin, 1990), they do share a common view that ideas, codes, categories, and theory originate from data presented by the research participants. In contrast to Glaser and Strauss (1967), Charmaz (2006) argued that "neither the data nor theories are discovered" (p. 10) but rather, they are constructed by applying naturalistic methods to interpret the world (Carter & Little, 2007). The constructivist grounded theorists who share in this perspective, considered that the iterative way in which data is collected, analysed, constructed and reported is where the constructivist approach establishes credibility (Bryant, 2006; Clarke, 2005; Henwood & Pidgeon, 2003; Mills et al., 2006). This close relationship is evident in the research procedures described by Martin and Barnard (2013) who suggested that "constructivist grounded theory allows data collection, data analysis, and theory to stand in reciprocal relationships with each other and follows an iterative process of constant comparison within and amongst data, researcher field notes, memos, and theory" (p. 3).

In adopting a constructivist approach, I was aware that it was my role to interpret and report as accurately as possible the multiple meanings within the participant's own interpretation of their social world. Theoretical sampling and the constant comparison of coded and memo data allowed me to take these interpretations of experience and let this influence the

direction and construction of theory. Therefore, the resulting categories and theory detailed in the research are a shared "interpretive portrayal of the studied world, not an exact picture of it" (Charmaz & Belgrave, 2012, p. 5). Aware that I could not fully replicate the participants' experiences, I strived to provide reliable, authentic theory that was as close to the participants' reality as possible. The construction of knowledge in this way is a complex and time-consuming process. However, the constructivist strategies proposed by Charmaz (2006) were effective for achieving detailed insight into a phenomenon that is often unseen or difficult for people to describe. For this research, the close coordination of data collection and analysis activities was well-suited to the examination of women's experiences in this complex construction post-disaster environment.

The constructivist qualitative paradigm that underpins the strategies set out in this research is congruent with my understanding of the nature of reality. The following four features further confirm why the Charmaz (2006) GTM approach is well suited to this research:

1. Addressing the research question.

Realigning GTM with interpretive and constructivist theoretical perspectives, Charmaz (2006) provided a version of grounded theory that was suitable for addressing both the "experience" and the "how" part of the research question. The constructivist grounded theory approach places the participant's "experience" at the centre of the research and allows for an interpretive portrayal of the participant's worldview, rather than a precise truth. Holding a relativist view of this world, it was important for me to become part of this world to hear how they responded to their experiences and understand the attached meanings. The relationship between myself and the research participants was active and an essential part of the data collection and analysis process (Charmaz, 2014; Creswell, 2014). From this position, the participants could also be involved in evaluating the knowledge as it was being constructed. This close relationship was essential for ensuring that the interpretation of the experiences expressed was embedded in the final grounded theory.

While traditional grounded theorists have focussed on the examination of events and actions (Glaser & Strauss, 1968), contemporary grounded theorists (Bryant, 2006; Charmaz, 2006) have moved towards understanding processes and actions through the exploration of personal experience. In particular, the Charmaz (2006) approach to grounded theory focusses

of how meaning is created from the process of social interaction. Constructivist grounded theorists aim to construct process theory that accounts for variation in the participant behaviour in various interactive situations and in the larger social context. This goal was of central importance to this research as an early assumption was made that the post-disaster context could have a significant impact on the participants' response actions. Exploring process is a complex task that requires a range of data collection, fragmentation and restructuring procedures. The flexible framework of theoretical sampling combined with codification and memo options made the investigation of process within this complex multifaceted industrial sector manageable.

2. Supporting a review of the literature

The use of literature has been a source of debate for grounded theorists. In the early development of grounded theory, Glaser and Strauss (1967) argued against a review of the literature suggesting that it could contaminate the collection and analysis of data or bias the development of original theory. However, they acknowledged that no researcher enters the field as an empty slate (Glaser & Strauss, 1967). Many years later, Strauss and Corbin (1990) suggested that reading literature prior to the research could be informative for shaping the primary research question, additional questioning and for enhancing theoretical sensitivity during the analysis process (all of which were applicable to this research). According to Dey (2007), the "knowledge that researchers draw from the literature can offer a useful guide" for understanding and conducting the grounded theory process (p. 176). Clarke (2005), Charmaz (2006), Lempert (2007) and I all share this view.

As I transitioned directly from the construction industry into the world of academia, I found it necessary to review the literature in order to shape the research question and gain a good understanding of how the research topic could be examined. Being close to the literature was a fine balancing act between exploring scholars' thoughts and avoiding confirmatory bias. Reviewing the literature prior to the data collection was crucial for identifying gaps, avoiding replicating themes or theories already well explored, and justifying the formulation of the research questions. Whilst this step conflicts with the basic principles of traditional grounded theory, the acquired knowledge continued to hold significant practical value throughout the entire research process. This prior knowledge also helped to stimulate analytical departure

points of reference (Charmaz, 2006) during the analysis, and to develop my own philosophical perspective and thoughts as the theory was being constructed.

3. The importance of researcher reflexivity

In adopting a constructivist approach, the research context and researcher's stance are recognised as central components which influence the shape and eventual construction of theory (Wertz, 2011). Taking a constructivist approach, the researcher needs to be aware of their subjectivity and presuppositions and provide detailed information about how taken-for-granted values, beliefs or routine actions may affect the research process (Dwyer & Buckle, 2009). As Charmaz (2006) acknowledged, "we are part of the world we study and the data we collect" (p. 10). To achieve this, it was imperative that throughout the entire research process that I provided clarity to the participants and readers around my involvement and interpretation of the world being studied (Charmaz, 2006). This personal inquisition was important to me and was achieved through the process of reflexivity. Put simply, reflexivity is an intensive, critical self-reflection process which highlights the researcher's values, thoughts, biases, concerns and theoretical positioning throughout the entire research process (Urquhart, 2012). As Johnson and Waterfield (2004) argued, reflexivity makes explicit the contribution of the researcher to the interpretive process. In addition, reflexivity "is central to establishing the integrity and critical abilities of the researcher and must be evident in the process to assure that the interpretation is valid and grounded within the data" (Whittemore, Chase, & Mandle, 2001, p. 531). New to the grounded theory process, I found it reassuring to know that my position and actions as the researcher in the development of theory was regularly reviewed.

4. Accepting of previous work experience

As Toma (2000) argued, "subjective researchers cannot separate themselves from the phenomena and the people they study" (p. 178). This is certainly the case for researchers who hold previous industry experience. Traditional grounded theorists Glaser and Strauss (1967) viewed pre-existing work experience and knowledge of the work environment under study as detrimental to the grounded theory process. More recently, the development of constructivist grounded theory sees the link between the researcher and research

participants working in a similar field as being natural and advantageous to the research process (Bryant & Charmaz, 2007; Mills et al., 2006).

Having lived and worked through the upheavals and changes of disaster response, recovery, and reconstruction, I could not ignore that I have been part of the context which I investigated. During this time, I witnessed a new level of work commitment and intensity from a wide cross-section of workers within the construction industry. Reflecting on such experiences heightened my awareness of how I see reality and how the research participants may see reality. It also gave me first-hand insight into how certain social and contextual components interact to create working conditions for people in the construction industry after a disaster.

As a female researcher investigating women's experiences in this sector, I shared with the participants' the natural commonality of gender having influenced my work experiences. This functioned as "a form of kinship" that enabled me to develop a natural connection and credibility with the research participants (Watts, 2006, p. 400). This enabled me to establish close rapport. Additionally, my previous post-earthquake and construction-related work experiences, allowed for deeper comprehension of the complexity and intensity of this work environment and understanding of participants' realities.

SUMMARY COMMENTS

This chapter has outlined the rationale for employing an inductive qualitative approach. The research paradigm and methodological approach selected and discussed in this chapter are aligned to the primary research question and the purpose of the research that was established from the first review of the literature. Taking into consideration the research question, the purpose of the research, ontological and epistemological assumptions, as well as my own personal values and experiences, it seemed natural that I use a constructivist grounded theory approach. Building on this philosophical foundation, Chapter 4 details the data collection and analysis procedures relevant to this research approach and to the topic.

CHAPTER 4 DATA COLLECTION AND ANALYSIS

INTRODUCTION

This chapter discusses the research methods employed to collect, analyse, and synthesise a diverse range of research material. The chapter commences with a description of the theoretical sampling techniques and the research participants involved. It provides detailed information about the data collection activities, focussing in particular on the interview techniques. The chapter provides a comprehensive explanation of data analysis procedures which were characterised by constant comparison, coding, memo writing, and diagramming. It explains how the data was synthesised to produce the final theory. The chapter concludes with a discussion of the procedures applied to establish academic rigour.

SAMPLING PROCEDURES AND RESEARCH PARTICIPANTS

Initial purposive sampling

The aim of this research was to investigate women's experiences and how they respond to conditions in the construction industry, therefore men were not interviewed for this research. I used purposive sampling to begin the process and generate contacts with potential research participants. This process involved making contact with NAWIC and non-NAWIC women involved in the Christchurch construction industry (as mentioned in Chapter 2 NAWIC is the National Association of Women in Construction). As the Christchurch chapter of NAWIC had been established in 2013 (after the two major earthquakes), and it was not a NAWIC centred study, it was important to ensure that also I recruited non-NAWIC members. The first link in the theoretical sample sequence was established through an initial interview with a member of the Christchurch Chapter of NAWIC. This interview was crucial to the referral process as it helped to establish an initial set of potential participants. I also posted a message on the NAWIC Facebook page to create awareness of the research and to provide information for those wanting to participate. The recruitment of potential participants mainly came through referrals from individuals within the industry: those who had heard about the research through word of mouth or through referrals made by participants who were already involved in the research. While some of the potential participants contacted me directly by phone or email, most of the individuals who had made a referral provided relevant contact details. I then contacted these individuals via phone or email and asked if they were interested in participating.

Criteria to start the sampling process involved selecting volunteers from different occupations, with differing lengths of experience. These individuals had either entered the industry after 2010, were already working in the industry, or had left the industry prior to 2017. The first three participants interviewed came from an occupation in either the trade area, management, or a specialised profession. This mixture of occupations provided distinctively different configurations of experiences and they addressed all three research questions. Beyond these three interviews, the data and theoretical thinking directed the theoretical sampling process.

Theoretical sampling

Theoretical sampling is a core tenet of the GTM. The theoretical sampling procedures distinguish grounded theory from other qualitative approaches by not establishing the sampling criteria prior to sampling. This process demonstrates the construction of theory as grounded in data (Breckenridge & Jones, 2009; Hood, 2007). The selection process is fluid, and is undertaken concurrently with the data collection and analysis procedures. According to Glaser and Strauss (1967), two questions steer the theoretical sampling procedure: "what groups or subgroups does one turn to next in data collection, and for what theoretical purpose?" (p. 47). Hence the criteria or reasons underpinning the selection of participants changes in accordance with the theoretical development of the research (Breckenridge & Jones, 2009). At each step, the researcher considers people, experience, settings, events, incidents and phrases which will generate data that allows features of the emerging codes and categories to be reviewed, refined or rebuilt. Through theoretical sampling, I was hoping to find participants and data that helped to elaborate on themes or concepts which had emerged in previous interviews. Moving back and forth between the participants, data and the analysis allowed me to construct codes to categories and develop one core conceptual category. Additional details and examples relevant to the theoretical sampling process are explained in the data collection and analysis subsections of this chapter.

Research participants

The research participants had all been involved in the Christchurch construction industry during the research period (between 2010 and 2018). Participants worked in different occupations and were employed by large commercial contractors, small to medium sized businesses, were independent subcontractors or company owners. The research sample

included married women, single women, and single mothers. Three participants had migrated to New Zealand to enter the industry. Participants' experiences of working in the industry provided rich data for analysis, particularly as they were all at varying stages of their careers.

In line with grounded theory practice, I did not have a pre-determined sample size. The eventual sample size was dictated by the theoretical sampling process, data collection and analysis procedures, and time constraints. In total, thirty women participated; they provided a wide cross-section of occupations and experiences. A basic career history for each participant is presented in Table 2. To protect participants' anonymity and confidentiality, all the names used throughout the thesis are pseudonyms.

Table 2 Participant's details

Participant	Tenure	Role in the Christchurch construction sector
Alayna	Entered after earthquake. Left before 2019.	*From 2011-2016, I worked for a steel company, on the accounts and administrative side, but I also got involved in health and safety.*
Amelia	Working in the industry prior to the earthquake.	*I moved into my current position as a geotechnical team leader for an engineering company in 2011.*
Amy	Working in the industry prior to the earthquake.	*I come from civil construction and during the rebuild I worked as a site engineer and then progressed up to a project engineer.*
Arianna	Entered after earthquake.	*I work as an environmental scientist at an engineering firm.*
Aroha	Working in the industry prior to earthquake.	*From 2010 to 2016, I was involved in residential and light commercial construction as a project manager.*
Brooklyn	Working in the industry prior to earthquake.	*I am a qualified carpenter, but I moved into the project management side of things soon after the earthquake.*
Diana	Entered after earthquake.	*I work as a manager for an organisation working on the rebuild programme.*

Participant	Tenure	Role in the Christchurch construction sector
Grace	Entered after earthquake. Left before 2019.	*I am a media and communications manager for a construction organisation. I have worked in communications on the residential and commercial rebuild in Christchurch.*
Hannah	Entered after earthquake.	*Currently I am a completion manager with a large infrastructural organisation. My role has changed a couple of times since the earthquake.*
Harriett	Working in the industry prior to earthquake.	*I am a director of a construction company, but also heavily involved in the design side of the business.*
Hayley	Entered after earthquake.	*I am a team leader for a large hardware organisation. We do everything and anything that holds your house up.*
Jade	Entered after earthquake.	*I work for the Canterbury Rebuild Safety Charter getting out on-site and educating people to shift thinking and values around health and safety.*
Jessica	Working in the industry in Australia prior to earthquake.	*My role involves leading a design project, from documentation through to observation completion. As part of architectural projects, it can be a real mix of different types of buildings and spaces.*
Kay	Entered after earthquake.	*I am an apprentice electrician. This is the fourth year of my apprenticeship.*
Kendall	Working in the industry prior to earthquake.	*I work as a project manager, for my own company, completing residential builds.*
Kirstin	Working in the industry prior to earthquake.	*I'm in the trades, been on the tools 12 years now.*
Lauren	Entered after earthquake.	*I've been working in Christchurch for about 5 years as a quantity surveyor. I have had 3 jobs since coming here: working on house repairs, then I got a project analyst role and then I moved into commercial construction.*
Leah	Entered after earthquake.	*I work as a health and safety advisor in a construction role, but it's a construction role rather than health and safety.*

Participant	Tenure	Role in the Christchurch construction sector
Linda	Working in the industry in the UK prior to earthquake.	*I'm a structural engineer in commercial construction. I work for consultancy firms, mainly based in the office but different projects mean I go out on-site as well.*
Mia	Entered after earthquake.	*I work for an organisation that manages trade training and apprenticeships.*
Nicola	Entered after earthquake. Left before 2019.	*I worked in communications, working for a large company involved on the earthquake recovery programme with residential home repairs.*
Rachel	Working in the industry prior to earthquake.	*I have been in the construction industry since 1992. I have been a Human Resources Manager and a HR business partner with a large Christchurch construction company.*
Reagan	Working in the industry prior to earthquake.	*I worked in earthmoving, as a digger driver and owner of the business, but have since gone into retraining in quantity surveying.*
Robin	Entered after the earthquake.	*I started in 2014. I am involved in training and providing workplace solutions.*
Rose	Working in the industry prior to earthquake.	*I've been involved as a manager, working for a large Christchurch organisation managing work-related injuries.*
Ruby	Working in the UK industry prior to earthquake.	*I am a geo-technical engineer. I specialise in retaining walls. I moved here from the UK after the earthquakes, as there was a diverse range of work.*
Ryleigh	Entered after earthquake.	*My role is as an Environmental Services Manager in infrastructural civil works. Since the earthquake, I have had six role changes.*
Shelly	Working in the industry prior to earthquake.	*I'm a construction industry recruitment consultant.*
Teagan	Entered after earthquake.	*My job is painting and decorating. I started my apprenticeship back in 2012 and have been on the journey ever since.*

Participant	Tenure	Role in the Christchurch construction sector
Zoey	Working in the industry prior to earthquake.	*I'm a compliance manager in large scale commercial construction. While I am office based, I am now taking more of a national role.*

A unique feature of the 2010-2018 interval is that it covers both the main post-disaster phases (rescue, recovery, and reconstruction) and the construction phases (infrastructure reconstruction, demolition, residential repair and rebuild, and commercial repair and rebuild). This post-disaster interval allowed access to 17 participants working in the construction industry prior to the 2010 Canterbury earthquake and 13 who had entered the industry (from a different sector) at some stage after 2010.

All potential participants were individually contacted by phone. During this call, I explained to them the background of the research, the purpose of the research, their involvement, and the interview process. This phone call provided participants with an opportunity to ask me any questions that they had. In accordance with the ethical standards established by the University of Canterbury Human Ethics Committee, a letter of invitation was then sent via email formally inviting them to participate in the research (see the information sheet in Appendix C). This information sheet outlined the research objectives, the data collection procedures, and explained that respondents were participating as volunteers. The participants were also informed that the research findings might be used by scholars and practitioners in the industry. It assured them that their identities would be concealed and that data would be store securely.

Contact details were provided on the information sheet enabling participants to contact me directly by phone or email to ask any further questions. After receiving this information, potential participants were given one week to consider the nature of their contribution to this research and to contact me to arrange a suitable time and location for their first interview. During the theoretical sampling process, one potential participant declined to be involved due to being located outside of Christchurch. Another potential participant withdrew after mentioning the research to her male supervisor and becoming concerned about the ramifications of participating. In contrast to this example, three separate participants

mentioned how their male supervisors encouraged them to participate in this research. Prior to commencing an interview, research participants were required to sign a consent form (see Appendix D) agreeing to the terms stated in the information sheet.

DATA COLLECTION

Interviews

The credibility of qualitative research resides largely in a researcher's ability and commitment to collect, record, and analyse raw data (Angen, 2000). The use of in-depth interviews was ideal for drawing out the participants' perspectives of industry conditions and how these perceptions shaped their interactions, as well as the processes they use to manage such conditions.

Pilot interviews

The original set of interview questions were prepared prior to ethics approval (see Appendix E). Following ethics approval, I conducted two casual (non-recorded) trial interviews. This process involved interviewing a personal acquaintance from outside the industry, and another who had been working in the Christchurch construction industry. These interviews enabled me to check the timing, the flow of conversation, and identify any language difficulties. Further, they allowed me to assess how the interview questions linked back to the primary research question and sub-questions. The two volunteers were asked to comment on the suitability of each question and secondly, to advise whether further amendments were required.

Prior to the pilot interviews, I considered two of the research's limitations and how I would mitigate the potential effects of them. First, the fact that the presence of a researcher who holds experience in the same industry as the research participants can influence participants' responses in a manner that can be disadvantageous to the research exercise. Second, during an interview, a participant's response may be limited, dislocated and without core detail due to a participant assuming the researcher already has industry knowledge. These assumptions manifested in statements such as, "You know what I mean?" Participants in this research used this particular statement, as is seen in the following examples:

> *I am not super-sensitive to the fact that I'm a woman and have my radar out, if you know what I mean? (Brooklyn)*

> *I learnt how to put something on the table in a way that people went oh yeah that's something we should talk about. I learned a different approach, you know what I mean? (Rachel)*

During the interviews, I was alert to these situations and used such phrases as a prompt to dig deeper and ask further questions.

On first contact with the participants and again at the start of the interviews, I felt it was important to inform the participants that the research was not directed by a specified theoretical stance. I believed that this helped to alleviate any prior assumptions by the participants that the research was being investigated through a feminist lens, which in turn may influence the choice to participate. Despite this, two participants questioned whether I was a feminist, and three other participants disclosed that they held a feminist perspective.

Interview guide

An essential part of the theoretical sampling process included preparing and reviewing the interview guide, prior to its use in the field. Following Charmaz (2006) and Creswell (2014) recommendations, the interview guide was designed to establish clear links to the research sub-questions, explore processes, and generate a natural flow of conversation which would examine the main research question. It is important to acknowledge that the theoretical sampling process was not guided by the original set of interview questions (see Appendix E). Theoretical sampling was an ongoing process with additional questions added and others removed to assist with the constant comparison of data and to assist with the construction of concepts. This process is evident in interview 21 (see Appendix E) which is far more comprehensive than the original interview question set. At times, during the later interviews, unstructured questions were added. This activity helped to create new leads, build on the properties of new concepts, and often resulted in the generation of new questions for use in subsequent interviews. As directed by Charmaz (2014), this process allowed me to construct and sensitise concepts and for the examination of the primary research question. Occasionally, questions introduced in interviews were discarded as they held no further relevance to the theoretical sampling process.

In this research, theoretical sampling progressed as the content of the interview questions and memo notes evolved. Although the sampling process was complex, unpredictable, and challenging, it was a very effective strategy for identifying, examining, and constructing

concepts that originated directly from the participants' interpretation of experience. The flexibility and interactive nature of this constructivist strategy allowed me to be led by the data. Furthermore, it allowed me to analyse and explain the webs of meaning (Geertz, 1973).

The interview process

In total, I conducted 36 separate semi-structured interviews. The first 30 interviews were completed between, February 2017 and September 2018. Beyond the main 30 interviews, I conducted six additional separate interviews between January 2019 and March 2019. This included four participants being interviewed twice and one participant being interviewed on three separate occasions. These additional interviews were required to gain further background information, refine the concepts, and to confirm that the core category developed from the analysis resonated with participants. The participant interviewed three times provided additional resource information relevant to material held in the first literature review.

Each participant was advised (see information sheet Appendix C) that they could be involved in a total of one to three interviews, each taking approximately one hour. This information was communicated to all research participants at the start of the research process and again prior to their initial interview. Each interview commenced with an explanation of the interview process, consent, confidentiality and anonymity, security of information and the option to withdraw from the research. I also informed each participant that the interviews would be conducted in English. The participant was then given the opportunity to ask questions. On completion of the discussion, they were invited to sign the consent form (see the consent form in Appendix D). As the research sample was small, and drawn from a minority group, there was the possibility that the research participant would know others participating, therefore research participants were informed that personal confidentiality would be applied at every step of the process. For the participants, the consent form guaranteed confidentiality, and explained the steps that would be used to reduce risks (Guenther, 2009). On the information sheet, and on completion of the interview, research participants were informed that during the research process all data would be stored in a secure location at the university. Then on completion of the research, the data would be stored by the university for 10 years before being destroyed (unless further permission was sought).

Following the signing of the consent form, each participant was allocated an anonymous code relating to a sample number. This practice allowed ease of analysis and cross-comparison. On completion of the analysis, the codes were renamed using computer-generated, randomly allocated fictitious names. It was only myself, and my supervisors who had access to the master list identifying the research participants. The participants were informed that the fictitious names would be applied throughout, for the presentation and publication of the research. During the entire research process, and the write up of the thesis, the research participants were not identified. Many found comfort in knowing they could participate while having their name and any identifiable information omitted from all future publications relating to this research. To further enhance participant confidentiality, participants were given the opportunity to complete the interview in a neutral location, away from a work site if required. Interviews were conducted during working hours or after work hours at a quiet university premise, a private premise, or an organisational premise agreed upon by both parties. 12 participants chose to be interviewed at their work, 10 in their residential home, and 8 at alternative locations. This ensured that the participant was comfortable with the surroundings, that there were no interruptions, and that the room was suitable for audio recording the interview.

In conducting interviews, it was important to display respect and sensitivity to the individual participants and the organisation they belonged to. It was also crucial to be aware of ethical issues that could arise as they divulged sensitive information relating to their personal experiences (Hesse-Biber & Leavy, 2011). Therefore, all interviews were completed face to face as this enabled me to monitor participants' facial expressions and tone of voice to determine their level of personal comfort. To minimise the risk of the participant feeling embarrassment or uncomfortable I was attentive to the sensitivity of information communicated, the participant's wellbeing and to work time constraints. Cues considered included, dropping their eyes, long-pauses, disengaging in face to face conversation, restlessness in the seat, clock watching, or an obvious hesitation to provide additional information when recounting a story. One participant asked me to stop recording during the interview as she was providing sensitive information that she did not want recorded. The recording was restarted later in the interview.

The inherent flexibility of the grounded theory process to "follow the data where it may lead" within an interview can create challenges and test the boundaries of ethical standards (Remenyi, 2014, p. 49). At times, situations such as a participant displaying discontent or discomfort in relation to an incident or organisation, or a participant involved in legal action within the industry were memo noted or eliminated as irrelevant during the research process. To reduce the chance of these problematic paths of inquiry, I ensured that the ethical standards were strictly adhered to, and sought regular guidance and advice regarding any ethical concerns.

As a researcher with previous work experience in this industry, I was also aware that overt familiarity and casualness during the interview process could result in detrimental consequences. This could include being influenced by the participants, generating a poor standard of data collection and analysis, reducing my ability to capture information that required further exploration, or me being seen as impressing my own personal biases:

> ***Reflective Memo:*** *During an interview to help minimise the risk of casualness, disruption and bias, I tried to be vigilant and hold in abeyance any personal preferences, values or information relating to what was being shared by the participant. On completion of the first three interviews, the transcripts were critiqued to evaluate this position and review my interviewing skills. This exercise proved to be very useful as I quickly ascertained that as the interviewer, I was suffering from a bad case of what I would call, "cut syndrome". This involved cutting in, cutting over and cutting off the participants in the course of their discussion. These actions were hindering not only the amount of discussion that was being contributed, but it was also impacting on the quality of data that was being generated. From this point onwards, to avoid such situations, during the analysis each interview was reviewed to identify any further delivery disruptions. Over time, the interruptive interactions eased off, and my interviewing techniques improved. The main interruptions made were to repeat the question, elaborate on a question, explain properties of a new concept or to follow a lead. This allowed the participants more time to relay their own detailed information and interpretations.*

The interview setting provided a discursive opportunity for the research participant to meander through, and interpret, their own world experiences. The flexibility of the interview technique allowed me to explore ideas and uncover new directions (Maykut & Morehouse, 1994) relevant for pursuing leads and developing the theoretical framework (Charmaz, 2006). Most interviews were completed within one hour, with the shortest being 45 minutes and the longest one hour and 40 minutes. Having flexibility around the timing gave participants the opportunity to provide all the information they wanted to communicate. The interviews

were recorded onto two audio recorders with a second recorder used as a back-up in case the other one failed to record.

On completion of an interview, I listened to the recording and supplemented this data with written memos and personal reflections. I paid attention to significant pauses, emotion, and expressions of significant meaning. To further reduce the chance of researcher bias, all interview recordings were sent to a third party for transcription (see confidentiality agreement in Appendix F). Interview transcripts were verified against the original recording and edited if required. After the interviews, participants were given the opportunity to review their transcripts.

DATA ANALYSIS

Data collection and analysis often appears as a linear process. This is seldom the reality in qualitative studies which are flexible and fluid (Liamputtong, 2013). From the initial literature review through to the last interview, the analysis activities involved iterative coding and constant comparisons with the application of memo writing, questioning, and diagramming. The codes, categories and memos constructed during the analysis formed the conceptual building blocks for the final theory.

Theoretical sampling overview

At the beginning of the data collection and analysis phase, I decided that the theoretical sampling, coding and analysis of the interviews would be reviewed in sets of five. This allowed for the analysis to be shared with supervisors, and for interview questions and memos to be reviewed, removed, and/or new material to be included. This practice also ensured that data collection and analysis proceeded along theoretical lines.

In preparing and conducting the first ten interviews, the focus was exploring participants' thoughts, feelings and actions as they responded to new opportunities or on their response to challenging interactions with people in the workplace. This largely constituted the first cycle of line by line open coding. During these interviews theoretical sampling also followed lines of inquiry triggered by five open codes *unique environment, seizing the moment, noticing those little things, a man's world* and *be strong.* As context is central to understanding process in this research, the *unique environment* and *a man's world* were compared with previous interviews and literature to ascertain contextual differences between a post-disaster context

and a business-as-usual context. They were also used to identify the conditions or changes that were affecting participants' interpretation and response actions in this setting. *Seizing the moment* explored how the participants were responding to opportunity. The open codes *noticing those little things* and *be strong* were valuable for uncovering the personal and social challenges women were facing, distinguishing the personal attributes that the participants felt were important for responding to industry conditions and establishing an understanding of why women felt they needed to *be strong* in this context.

Interviews 10-15 saw the focus of the sampling move towards identifying and defining the characteristics of participants' particular response strategies and the various feelings, meanings and assumptions they attached to such experiences. These were compared to response strategies detailed in previous literature. This is where the second cycle of focused coding was applied with significant codes selected and raised to tentative categories. From interview 15 the in vivo code *glass scaffold,* led the analysis and inquiry in a new direction. Beyond interview 15, criteria for theoretical sampling activities concentrated on distinguishing participants' response intentions and how they justified their actions. Theoretical sampling aimed to distinguish the self-initiated or self-directed behaviours of the participants and the progressive and protective nature of the new response strategies that were constructed from the data. The third cycle of coding and relevant theoretical sampling was instrumental in helping to distinguish the key relationship links of how women purposefully regulated their behaviours to gain confidence, respect, and acceptance. The relationships common to three identified response sub-processes were aligned to the core category of *deferential tailoring*. The last five interviews primarily concentrated on ascertaining whether the core category resonated with the participants and their personal experiences.

Constant comparison

To drive the analysis process and to establish analytical distinctions (Charmaz, 2014) and develop concepts (Kolb, 2012), this research involved the successive comparison of experiences. Beginning with the open coding of interview transcripts, the process involved comparing data that displayed similar or differing characteristics, then assembling them under relevant codes with properties distinguished. This analysis was essential to the critical decisions relevant to subsequent interviews. In this research, theoretical sampling and the

concurrent data collection and analysis process was directed by the constant comparison of interviews, different context, events, incidents, codes, and categories (Boeije, 2002). This process continued through to the write up of the final thesis.

For example, taking a context to context situation, during the first five interviews I noticed the participants expressed how this setting was *different* or *unique* when describing the industry conditions or the challenges that were affecting them. The open code *unique environment* provided a useful theoretical sampling departure point as it was important to distinguish the conditions that were influencing the participant's interpretations and response actions. Comparisons between the participants' data of those new to the industry compared to those working in the industry prior to the 2010 event was completed first to distinguish post-disaster industry conditions. This data was compared with extant concepts in the literature to determine similarities or difference with business-as-usual contextual conditions. The comparative analysis led to the identification of six industry features which impacted on women's experiences and response actions in this setting. The open codes included *male-dominated industry, industry upheaval, a shared rebuild purpose, an acute labour force need, shifting industry standards* and the *increased visibility of women.* In keeping with the constructivist discourse to develop and define constructs, such material contributed towards building a more accurate understanding of the nature of industry conditions that exist in a post-disaster context from which the participants responded. This material was utilised to prepare the context description presented in the introduction chapter of this research. It was also used to identify the industry and social challenges that the participants were experiencing. From the first interview onwards, the comparative analysis of data allowed me to seek out and eventually confirm significant relationships between codes and concepts.

Open coding

Contemporary grounded theorists such as Charmaz (2006) and Henwood and Pidgeon (2003) advocate examining patterns of personal experience as this can expose social processes that are significant to people's lives. I took a similar position. In examining experience and process Charmaz (2006) employs several coding steps during data collection and analysis. This research applied three coding strategies to help construct and define categories and concepts. These involved open coding (in vivo coding and process coding), focused coding and

theoretical coding. These three strategies also formed the three main analysis cycles. Figure 1 displays the iterative coding and analysis process applied in this research.

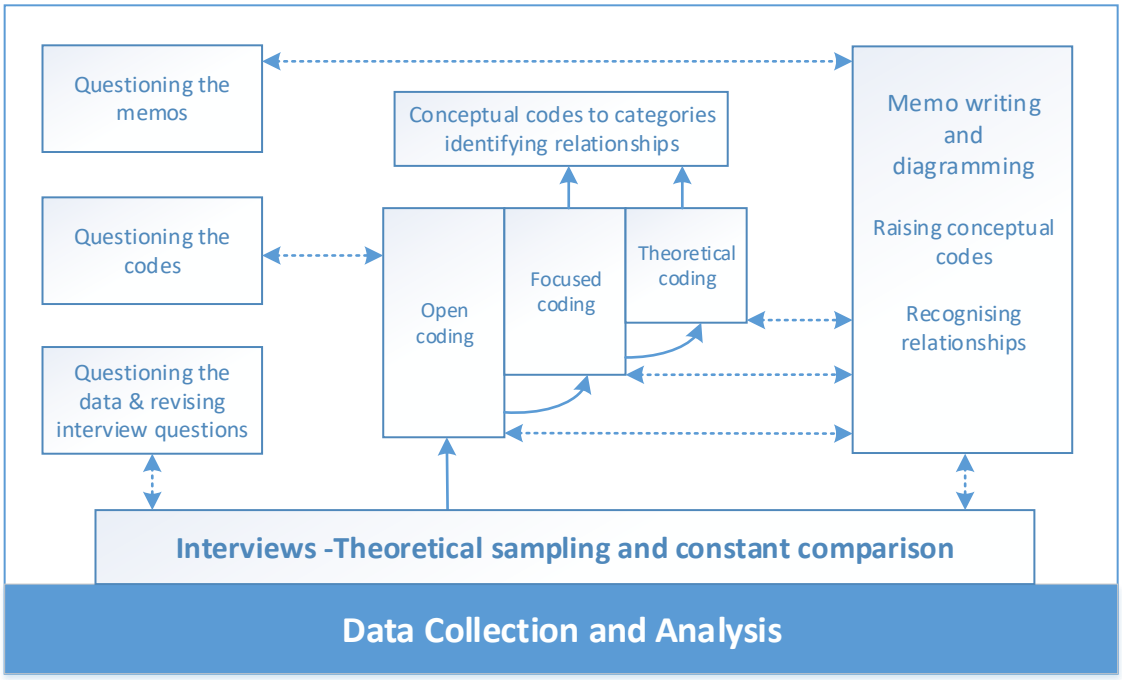

Figure 1 Iterative nature of the coding and analysis process

Describing the qualitative coding process, Grbich (2007) explained that the data needs to be "segregated, grouped, regrouped and relinked in order to consolidate meaning and explanation" (p. 21). Open coding is considered the "first run" at coding the data (Liamputtong, 2013, p. 229). This first cycle of coding is where I broke open, viewed and reflected on the context and nuances that existed in the data (Saldaña, 2015). At this stage, while relationships between events or situations were considered, it was important, "to remain open to all possible theoretical directions" (Charmaz, 2006, p. 46). The systematic fracturing and codification of the interview transcription material was conducted immediately after the transcripts were returned from the transcriber. Called "initial coding" (Charmaz, 2006), this process involved a rigorous line by line fragmentation and constant comparison of each transcript (p. 109). This procedure was used at the early stage to understand what the participants were talking about, and to identify any unique situations, phrases or terms in the narratives.

While the first cycle of coding produced over 500 codes, only 120 were selected as relevant to the research question. To assist with the storage and physical allocation of all the codes, data was stored on a password locked computer using the electronic software NVivo (version 11). This system proved to be a useful means for capturing and storing a complex range of coded material that required reconstruction. It also provided a better visual representation of the codification process. However, as Wordsworth (2017) pointed out, the software serves only as "a digital filing cabinet rather than a tool to drive the analysis" (p. 116).

To avoid treating open coding as a routine mechanical labelling process (Corbin & Strauss, 2008) constant comparison, memo writing, and questioning occurred simultaneously alongside each interview transcript in a comment text box of a Microsoft Word document. Taking this approach made it easier to find corresponding information when making comparisons between sets of data. The concurrent recording of codes and memo notes together enabled me to establish a continuous dialogue with the data and stay close to the participant's interpretation of reality. Furthermore, it was an effective way to capture the development of my thinking over the course of the analysis and to view the analysis pathway taken:

> ***Reflective memo:*** *It is fair to report that as the bank of codes and memos quickly built up, it seemed daunting to think that such data could be rebuilt into a comprehensive conceptual frame. Due to the density of open codes, I realised that there was always going to be an excess of material that was primarily descriptive, and which held minimal meaning or linkage to the formulation of categories and concepts presented in this final thesis. Regularly reviewing coding practices set out in the grounded theory literature, help to ease my dilemma surrounding the reduction and reconstruction of coded material. (Birks & Mills, 2015; Bryant & Charmaz, 2007; Charmaz, 2014)*

In vivo coding

The open coding procedure (in vivo coding) was very effective because it enabled me to stay sensitive to the participant's individual experiences. This procedure involved identifying words or phrases that held meaning for the participants and which were useful to move the analysis forward. In vivo coding is about recognising emotion in participants' expressions; these become an important part of the analysis. This form of emotional coding is useful for exploring "interpersonal experience and actions, especially in relation to relationships, reasoning, decision making, judgement and risk taking; providing deeper insight into participant's perspectives and world views" (Saldaña, 2015, p. 125). The exploration of

interpersonal experience and action in relation to relationships is demonstrated in example two (as presented in Table 3), displays the analysis centred on the in vivo code: *those little things*.

Table 3 In vivo code: Those little things

Hannah	In vivo code "those little things"
I was in a role at the time where I was going out on-site and assessing progress and quality of work. I experienced a number of incidences where foremen, junior leaders, or supervisors were resistant and would make jovial comments about me being a woman or question what I knew about the work they were doing. It's *those little things* that are tricky to address.	***Memo Note:*** *working for a large construction organisation this participant is working in a management role. In this situation she has noticed these little comments, and the different ways in which male colleagues interact with her or treat her because she is a woman. She finds this unsettling.* This example centres on the challenges encountered during interpersonal interaction. ***Additional questions considered for theoretical sampling:*** *What do those little things look and feel like?* *Why are they characterised as "little things"?* *Is this because they are not big like overt sexual harassment, or are there other reasons?* *How does it feel to be singled out by your gender?* *How do participants interpret and respond to these little situations?* ***Comparisons with prior data:*** *other participants have experienced feeling uncomfortable or affected by subtle negative behaviours from male colleagues (Nicola, Kirstin, Shelly, Kay, Brooklyn, and Ruby).* *From the data a range of factors were identified which suggest why these women experience such interactions, including gender, age, length of experience on-site, and leadership.* *Evidence of responses to adverse male behaviours include: brushing it off, joking it off, or ignoring it.* ***New open codes generated from comparisons:*** *subtle adversity/experiencing being singled out/experiencing distancing/disengaging/hard to manage.* ***Theoretical thinking sampling considerations:***

	Men's behaviours correlate with micro-aggressions identified in the literature (Byrd & Scott, 2018; Sue et al., 2007). *The participants' responses correlate closely with previous research; women in the industry use passive submissive behaviours as coping strategies.* *I need to consider how the participants respond within and beyond these short-term responses.* *Several participants have commented that these situations can vary between office and site locations. Further comparisons between on-site and in-office interactions would be useful here.* ***Open codes elevated**: during this cycle of coding analysis the new open codes generated were eventually attached to the higher order focused code: made to feel different.*

This open code was instrumental in directing the theoretical sampling towards identifying and exploring the social interactive challenges participants face, and how they respond to such situations.

In vivo codes were useful for turning my attention away from any preconceptions relating to the topic and allowing me to focus specifically on the common language and expressions that were important in the participant's world. As displayed in the above example, they were also useful for generating new open codes and for moving the theoretical sampling process along.

Process coding

Central to the Charmaz (2006) approach, and to this research, is the concept of process. Identifying process was not just limited to expanding upon general events or incidents; it was applied to all aspects of a participant's experience. To use the language of construction, it meant drilling down deeper to include specific thoughts, decisions, actions, and emotions found within interaction in this research context (Corbin & Strauss, 2008). It involved considering the complex interplay of factors that constitute a process and how actions or events originate, evolve and impact (Dey, 2007).

Process coding which uses gerunds to imply action in the data was an essential part of the analysis (Saldaña, 2015). Charmaz (2006) advocated the use of gerunds to distinguish action in participants' language, and to build a sense of action into the analysis from the beginning.

This form of coding was very effective when searching for ongoing actions, exploring the details of these interactions, and distinguishing participants' emotions as they responded to an issue or attempted to reach a certain outcome. Process coding allowed me to identify actions within an interaction or situations that were routine, deflective, spontaneous, strategic, or thoughtful. This coding strategy also allowed me to distinguish actions that were intertwined with certain situations and dynamics of time. These features are demonstrated in the following example. Historically, women's entry into and progression in the construction industry has been hindered by cultural constraints. Therefore, it was unusual, but rewarding, to hear participants speak of ease of entry or an abundance of opportunities to progress in this setting. These ideas and related codes were explored closely in the theoretical sampling and analysis. Example three (presented in Table 4), provides a brief, but concise, summary of the process coding activities that were instrumental in the construction of the first category: *capitalising on opportunity.*

Table 4 Process coding: Capitalising on opportunity

Original process codes	**Dynamics considered (taken from memo notes)**	**Interplay of factors (taken from memo notes)**
Radar out (routine action) *Gauging the scene* (routine action) These codes were later linked to the focused code: *Contextual awareness*	This is an ongoing action/process Here the participants appear to be continuously looking out for changes to the environment that may be favourable for them.	The participants are aware that it can be difficult for women to enter or progress in this industry. Participants are aware that the earthquake is the impetus for change. Many participants displayed a consistent interest in looking out for new opportunities. Participants noticing the acute labour force need.
Moving location or role (strategic action)	Actions are thought through, but are carried out over a short time frame.	The participants are wanting to create opportunities for themselves.

Pushing the door open (Strategic and thoughtful action) *Chasing big project work* (Strategic and thoughtful action) *Climbing the career ladder* (Strategic and thoughtful action) *Wanting to be part of this* (Emotional action) *Valuing gaining new opportunity* (Emotional action) These codes were later linked to the focused code: *capitalising*	Some actions display a longer term vision for personal development. Emotions display a desire and interest to be involved in something different. Emotions are centred on appreciating something while it is available.	Participants considering their career paths. Participants are aware of the unusual diversity of projects. Interested to participate in big project work. Participants are aware that such opportunities could be temporary for them. Participants are prepared to take responsibility for their career development.
Putting hand up (Spontaneous action) *Stepping forward* (Spontaneous action) *Choosing crucial moment* (Strategic action) *Addressing* (spontaneously) These codes were later linked to the focused code: *enhancing visibility*	Participants display how they are prepared to react or respond immediately. These actions could be found during one on one interactions or within a group setting. Prior knowledge and contextual awareness allows the participants to be flexible and adapt quickly to change.	Participants have mentioned the "old boys' network" and how traditional recruitment procedures can be difficult for women. Participants notice that in the current setting application procedures appear fluid and unorthodox. These actions help with the process of capitalising.

This initial open coding procedure provided early insight into the sequential nature of the *capitalising on opportunity* process. The process codes above helped to build a sense of action. As indicated, participants were aware of changes to the construction environment or changes in interactions that were favourable to them. They chose to make themselves visible at crucial moments to ensure they could capitalise on opportunities while these were available. Later in the analysis, the subtle regulated adjustments characteristics of these

process codes were recognised. This became a central relationship feature that helped me link the *capitalising on opportunity* category to the core category of *deferential tailoring*. Process coding activities of this kind, were instrumental in providing direction to the theoretical sampling process.

Analytical memo writing

The various approaches to GTM (as detailed in Chapter 3) offer different conceptual frameworks that can be applied to the data. Stemming from the interactionist orientation of this research, I developed questions and memos simultaneously with coding around the margins of process as guided by Charmaz (2006). Memo writing involved me applying the questioning framework presented in Figure 2. This framework was prepared to guide and give structure to the data analysis by "posing how, why and what questions" (Charmaz, 1990, p. 1166). This process enabled me to draw out the meaning held in the participants' interpretation of experience.

Figure 2 Constructing meaning held in response

Utilised extensively throughout the course of the analysis, this resource was an invaluable tool for activating and shaping memo writing. Memo writing is possibly the most practical purpose-filled activity of the research process and involves recording detailed information relating to reflections, codes, concepts and relationships (Birks & Mills, 2015; Braun & Clarke,

2013; Charmaz, 2006; Saldaña, 2011). According to Charmaz and Belgrave (2012), memo-writing "is the crucial step that moves the analysis forward" (cited in Gubrium, 2012, p. 357). The practice of memo writing was first introduced by Glaser (1978) who viewed memo writing as the "bedrock of theory generation" (p. 83). It soon became widely integrated into qualitative research. According to Lempert (2007), memos are "the analytical locations where researchers are most fully present, these are the places where they express, formulate, reconfigure, expand, explore and ultimately distil their ideas" (p. 247). According to Charmaz (2014), memo writing is critical in the early stages of the grounded theory process when it is unclear where the theorising may be headed. Keeping this in mind, I began memo writing from the start of the research process by recording ideas and thoughts relating to the research design and the literature review. This helped me to practice and develop the skill of memo writing as well as establish a regular routine around this activity.

During the analysis, I kept close to the advice of Saldaña (2011) who suggests: whenever anything significant about the coding or analysis of the data comes to mind, stop what you are doing and write a memo about it immediately. To avoid imposing preconceptions on the development of theory, it was essential that I also examined and documented my activities, assumptions, and interpretations throughout the research process. To do this I kept a comprehensive set of personal analytical memo notes which applied the following four questions:

1. What were my personal feelings and reflections during this experience?
2. What meaning can be drawn out of such an experience?
3. Did this experience stimulate new questions relevant to this research?
4. What codes or concepts stood out in this experience?

This reflexive practice enabled me to move past my first impression or early assumptions and explore what I heard from the participants or saw in the data gathered.

The memos served to facilitate the constant comparison process. They provided significant theoretical markers or trigger points alongside specific codes and categories. More importantly, in accordance with the constructivist grounded theory approach, the memo notes helped to record my thoughts on paper and tease out ideas about participant's experiences and the response phenomenon under investigation. This simultaneous recording

of notes alongside all incoming data continued during the entire research process and through to the construction of theory.

Whilst there are no set rules around the quantity and quality of memo notes, at the start of the research process, my notes were brief and basic, and then over time I developed more detailed and thought-provoking notes. Example four below, demonstrates how one selected open code is explored further as the memo notes become more detailed (as presented in Table 5). Three specific levels of memos are used to show how the depth of detail in a memo can move the analysis forward from open code to concept:

Initial memo: is the first memo written alongside an allocated code. This memo recorded my first thought, impression, or a new idea or question.

Intermediate memo: recorded my expanded thinking during the constant comparison of data, or when considering theoretical sampling path or my personal thoughts.

Advanced memo: these explain my analysis activities or the outcomes. It also includes new questions, considered relationships, elevated codes and my personal thoughts.

During the first ten interviews, I noticed that participants would often mention the need to *be strong* as a response to industry conditions. This is exemplified in Diana's comment:

> *You have to be strong to survive in this industry, in the moment you have to be very strong.*

Many memos were generated beyond the original statement.

Table 5 Analytical memo writing: Be strong

Initial memo: *open code: Be strong. From previous work experience I could understand the sentiment that women need to manage and display both mental and physical strength, but I need to find out what this "be strong" means to the participants. Also, what is meant by "in the moment"?*
Intermediate memo: *I have noticed this term scattered through the literature relating to the need to be psychologically strong (Macabodbod et al., 2017), or have strong character (Toor et al., 2017). To be strong may be linked to proving yourself (Adogbo, Ibrahim, & Ibrahim, 2015; Aluko-Olokun et al., 2015). This feature is closely tied to intrapersonal qualities, but most importantly the interpersonal challenges women face in this industry and what they need personally to handle them. However, I cannot find any specific studies or evidence defining a generic set of "be strong" characteristics in this sector. This would be worth following up on. It is important to distinguish the characteristics of such a term and*

to consider how, when, and where such characteristics impact on the participants' response actions. This may help to ascertain what and where those moments are that women need to be strong. It would be also interesting to know how long it takes for a woman to become strong in this industry. This may need to be considered in future research.

Advanced memo: *Considering relationships. Ongoing theoretical sampling and analysis has resulted in the formation of a comprehensive set of coded personal characteristics that women bring into, or try to develop, to manage industry conditions. These characteristics include being values centred, interested in people, realistic about ability, patience, tolerance, determination, motivation, confidence, courage, flexibility, self-efficacy, cautiousness and good communication (as seen in Appendix G). Taking these terms, further questioning was carried out, such as:*

What does this indicate about women behaviours in the industry?

What do they need to be tolerant of and why? How long does this tolerance last?

Why is confidence always so important? How do women build or establish confidence?

How does flexibility make them strong?

This additional analysis activity helped to distinguish corresponding process and focused codes that are already in place, such as: partial tolerance, lacking confidence, navigating, and demonstrating competence.

Reviewing existing transcripts, I can now see the moments where and when these characteristics are positioned in the participants' responses, such as:

When women are trying to build their confidence.

When women are trying to demonstrate their knowledge or ability.

When women encounter difficult social interactions with men.

When women are attempting to gain support.

When women are demonstrating respect to others.

The data suggests that women require or utilise the "be strong" attributes to self-regulate their behaviours. By self-regulating their behaviours are women effectively drawing on their "be strong" abilities and strength? This requires further exploration in the theoretical sampling.

The "be strong" in vivo code sits alongside many process codes and focused codes that share the following relationship:

Relationship identified: *The need to be mentally strong stems from male resistance and discrimination and the longstanding assumption that women are not physically strong enough to work in the industry.*

Hence the "be strong" code needs to be elevated to a conceptual category.

Through memo writing and constant comparison, my interpretation, analysis and coding changed as my thoughts around the concept of "being strong" developed. This process enabled a clear understanding of how participants attempt to build confidence by developing their mental stamina. This *be strong* memo exercise was significant to the construction of the second category: *building capability.*

While there are a multitude of memos written for a grounded theory analysis, on occasions as demonstrated here, it can be a simple memo that leads to in-depth interpretations, refinement, and relationship links that are useful for theory development. Collectively, the open coding, constant comparison, and memo writing procedures outlined in this chapter helped to fragment, break open and reconstruct the data. These activities also help to expose contextual influences, such as the time and place of the response, the participant's work experience, the positional status of the people involved, perceptions (of the participant or male colleagues) and long-standing industry issues. These features made it easier to identify underlying intrapersonal, interpersonal, and interactional relationships that were essential for constructing a process concept:

> ***Reflective memo:*** *Clarke (2005) described memos as the "intellectual capital in the bank" (p. 85), as a builder, I saw the memos as the "theoretical cladding of the research" which help to galvanise all the analysis material back together into theory.*

Diagramming

On completion of each transcript, I prepared a table of open codes to help summarise the participant's experiences. Having a bountiful store of open codes was beneficial for the construction and reconstruction of diagrams (Corbin & Strauss, 2008) which naturally started from the clustering of related open codes (Charmaz, 2006). Diagramming the data in these ways promoted access to growing ideas and helped me to advance more detailed complex diagrams under a key idea, category or concept. Later in the analysis, this visualisation of conceptual thinking made it easier to construct coding trees, descriptions, definitions, and various properties and relationships that existed between codes, categories, or concepts (Birks & Mills, 2015). I found diagramming particularly useful for the second and third cycles of coding.

Focused coding

Collectively the coding procedures and activities described above assisted in the identification of similarities, differences and conceptual reoccurrences that were displayed in the data. From here, a second cycle of coding began which allowed for salient frequently occurring open codes to be subsumed under a higher order focused code. This process involved unifying first-order codes with similar properties around a focused code that represented a central idea or concept. In some instances, characteristics of a focused code became subsumed under a new category or concept. This process was a productive means to reduce codes and understand the relationships between codes. Corbin and Strauss (2008) refer to this process as "selective coding". Charmaz (2014) calls this "focused coding," a form of coding which results in conceptual categories that have evolved over time. During focused coding, I conducted further questioning, memo writing, and conceptual thinking in order to identify relationships between events, interactions and actions and to construct a new way of thinking about these relationships. The focused codes presented in this research are more abstract than the initial open codes they are derived from. Hence, it was the focused codes that provided valued insight into the conceptualised development of the categories and eventual theory presented in this thesis.

Focused coding resulted in the identification of four different response types: the *brush-off response,* the *stand-up response, seizing the moment* and *practice proving* (see Appendix H). While these response types were useful to the analysis, they did not represent an overarching response process that could explain how all the participants were experiencing and managing the industry conditions. Hence, the data needed to be revisited and my interpretations refined.

Returning to the data, and coming across the following statement, by Jade, resulted in a significant serendipitous grounded theory moment. The following phrase was crucial in redirecting the theoretical sampling:

> *Women construct their own invisible glass scaffold to manage their way safely in this industry. (Jade)*

In a grounded theory study, drawing on a person's personal symbolism can be useful for comprehending and interpreting the meaning held in their experience. From this one line, the

metaphoric focused code labelled *glass scaffold* was constructed from existing open codes. This code was instrumental in the construction of the *deferential tailoring* process. Essentially, the term *glass scaffold* was grounded from the data, it is applicable to the context and the industry it came from and the participants could relate to the term. Therefore, an active theoretical sampling trail began which aimed to identify:

- What were the participants building and why?
- What characteristics make up this invisible glass scaffold construct?

Comparative analysis of previous data, and incoming new data concentrated on identifying the commonalities that lay in participants' response intentions and their justifications. Additional theoretical sampling proved useful as it helped to identify how participants intentionally applied additional thinking, energy and effort in *building their own capability* to deal with industry conditions and to *demonstrate good professional practice* within the workplace. The analysis then focused on identifying the capabilities the participants were trying to build and why. Three process codes stood out in the analysis: *building relationships, learning from others* (which was later coded: *learning*) and *securing social support* (which was later coded *leveraging social support*). The main relationship established between these three codes was how women deliberately moved their behaviour and carried out additional tasks to acquire resources which they needed to be more effective at responding to industry conditions. Hence this reinforced an earlier idea (in the "be strong" analysis) that women self-regulate their behaviour to achieve certain outcomes (gain confidence, or prove competency). The three process codes were then raised to second order focused codes. With additional theoretical coding, the three focused codes were later linked to the category labelled *building capability.* It was here, that I could now recognise how these behaviours formed the structure of the *glass scaffold* as referred to by Jade. I now started to realise that I was theoretically constructing a broader response process that was applicable to all the participants and to the research questions.

In the analysis, the self-regulated behaviours required by the participants to build their own capability were carried out over longer intervals of time (months or years) and were seen as part of a longer-term process. From here, the theoretical sampling and second cycle of coding analysis aimed to identify self-directed or regulated thinking, or behaviours that was carried

out by the participants in their response to short-term daily interactions: in particular, viewing challenging immediate or short term interpersonal interactions with men. It was through this analysis that I was able to identify new codes and construct the third category labelled *token tolerance* that would later be linked to the *deferential tailoring* process. Table 6 is included to provide an example of the second cycle of focused coding analysis and theorising process and how this resulted in the construction of the *token tolerance* category. Several features are displayed on this table:

- The detailed synthesis of open codes to focused codes, and focused codes to category.
- The open codes are predominately a combination of process codes and in vivo codes (P = process code/ I = in vivo code), which is important for constructing process from experience.
- The properties of the focused codes which help to define the new category. These focused codes also provide insight into the participants' sequential actions.
- Consideration is given to the relationships that exists between the three focused codes that made up the category.
- Memo notes provide a brief summation of theoretical thinking and advance the analysis.

Table 6 Token tolerance: A conceptual category

Conceptual category: *Token tolerance*		
Defined as: when experiencing negative male behaviours, women often choose to remain calm and composed. While on the surface women may appear tolerant of adverse male behaviours, this is not the case. They do not always accept these situations internally: however they choose to remain positive in their outward countenance in order to model a different standard. This is a partial superficial tolerance process.		
Open codes *Radar on* (O) *Surveying the scene* (P) *Noticing those little things* (P) *Made to feel different* (I) *Checking where you stand* (P) *Recognising a miss-alignment of values* (P/I) *Noticing a relationship distance* (P)	**Open codes** *Quietly adjusting quickly* (I) *Weighing up options* (P) *Ignoring* (P) *Avoiding* (P) *Disengaging from the tone of adversity* (P/I) *Engages an understanding of the causes* (I) *Considering where personal values sit with other party* (I) *Being strong by displaying tolerance* (P/) *Inwardly not accepting adverse behaviours* (I) *Demonstrating personal flexibility* (P) *Considering responsible options* (P) *Avoids over projecting self* (I)	**Open codes** *Considering relationship to offending party* (P/I) *Understanding where the other party is at* (P/I) *Engaging a positive tone* (P/I) *Acting with integrity* (P/I) *Displaying respect* (P/I) *Avoids over projecting self* (P) *Being mentally strong* (P/I) *Avoiding conflict* (P) *Working towards a new norm* (P)
Focused code: *Social attentiveness*	**Focused code:** *Playing it calm*	**Focused code:** *Demonstrating good practice*

Relationship link Holding contextual awareness to provide personal protection.	**Relationship link** Attempting to maintain emotional stability to avoid further disruption to the workplace relationship.	**Relationship Link** The superficial tolerance shapes the intention to demonstrate a different standard. There is a passive coping and control coping relationship link here.
Memo note Consistent gauging actions suggests self-regulation of behaviour. This correlates to the building capability actions.	**Memo note** Participants regularly display consideration to others, this needs to be explored. This may challenge the assumption that women respond submissively (considering themselves) to negative male behaviours.	**Memo note** The behaviour by the participants to demonstrate good practice is interesting, and this needs to be factored in when considering/building a wider response process. Modelling a different standard also challenges the idea of submissiveness.

The relationship links I identified between the three higher order focused codes were instrumental in identifying the existence of subtle variations in the actions of the participants' that were deliberate, self-controlled and considerate. These characteristics were confirming of the self-initiated regulated behaviours of the participants. The identification of the *token tolerance* concept was instrumental in moving the analysis, and my thinking, beyond the traditional submissive coping perspectives that dominate literature describing how women respond to challenging social interactions with male colleagues.

In line with the theoretical sampling process, emerging concepts such as *seizing opportunity, building relationships, proving yourself, securing support* and *token tolerance* were incorporated into the interview guide. This enabled the participants to define the properties and contribute to the development of newly constructed concepts. This process was also productive for distinguishing additional self-regulated actions participants conducted or additional tasks beyond their normal routines.

Theoretical coding

The three categories emerging from the previous two coding cycles were elevated in the analysis during theoretical coding because they were applicable to all participants, and they

answered the research questions. *Capitalising on opportunity* covered actions explaining how women responded to industry change and opportunity. This category also covered why women enter the construction industry and why they were interested to stay. The categories of *building capability* and *token tolerance* provided insight into the actions women adopted to respond to industry change, social challenges and personal development. These two categories also provided insight into why women may choose to leave, or stay in, the industry. Independently, these three categories did not provide an overarching process theory. The third cycle of coding concentrated on constructing an abstract core category which represented a response process applicable to all participants. This was achieved by focussing the analysis on four specific tasks:

- First, identifying coded actions within the three categorises which held common intentions. The outcomes of these actions were then considered. Selected coded actions were found to be consistent with the participants taking extra time, consideration, thought, and effort in their responses for the purpose of protecting themselves, gaining confidence, gaining respect, gaining acceptance, to progress, or to demonstrate positive behaviours. These codes reconfirmed evidence of deliberate and self-directed actions and additional emotional labour and physical labour.
- Second, clarifying the underlying assumptions that were important in influencing the participants' behaviours and my theoretical thinking. Three underlying assumptions where found to be linked to the three categories. 1) Participants challenged the assumption that women's entry and progress in the construction industry is difficult; 2) Participants were attempting to compensate for assumptions or beliefs men hold about their competency to do the job, and/or their right to work in the industry; 3) Participants' contest the assumption that women respond submissively to industry conditions.
- Third, clarifying the common contextual factors that were influencing participants' behaviours. Rapid industry changes and the male-dominated conditions of the industry were commanding contextual factors influencing the variations in the participants' behaviours.
- Fourth, clarifying the relationships that unified the three categories. Further comparative analysis between the codes in each category and a review of the memo

notes confirmed that the participants' behaviours were centred on them gaining confidence, respect and acceptance or career advancement. This showed how the three sub-categories could be subsumed under the core category.

The amalgamation of recoded material is a challenging part of the grounded theory analysis process. This process was achieved utilising coding trees (as presented in Chapter 5). A theoretical coding structure was created to assist with the long comparison of material and the refinement of data into the core conceptual category. Though extremely challenging and time consuming, the iterative process of moving between the data, codes, memos and my own conceptual thinking allowed for the theoretical concept of *deferential tailoring* to be constructed. A simplified theoretical coding structure is presented in Figure 3 below.

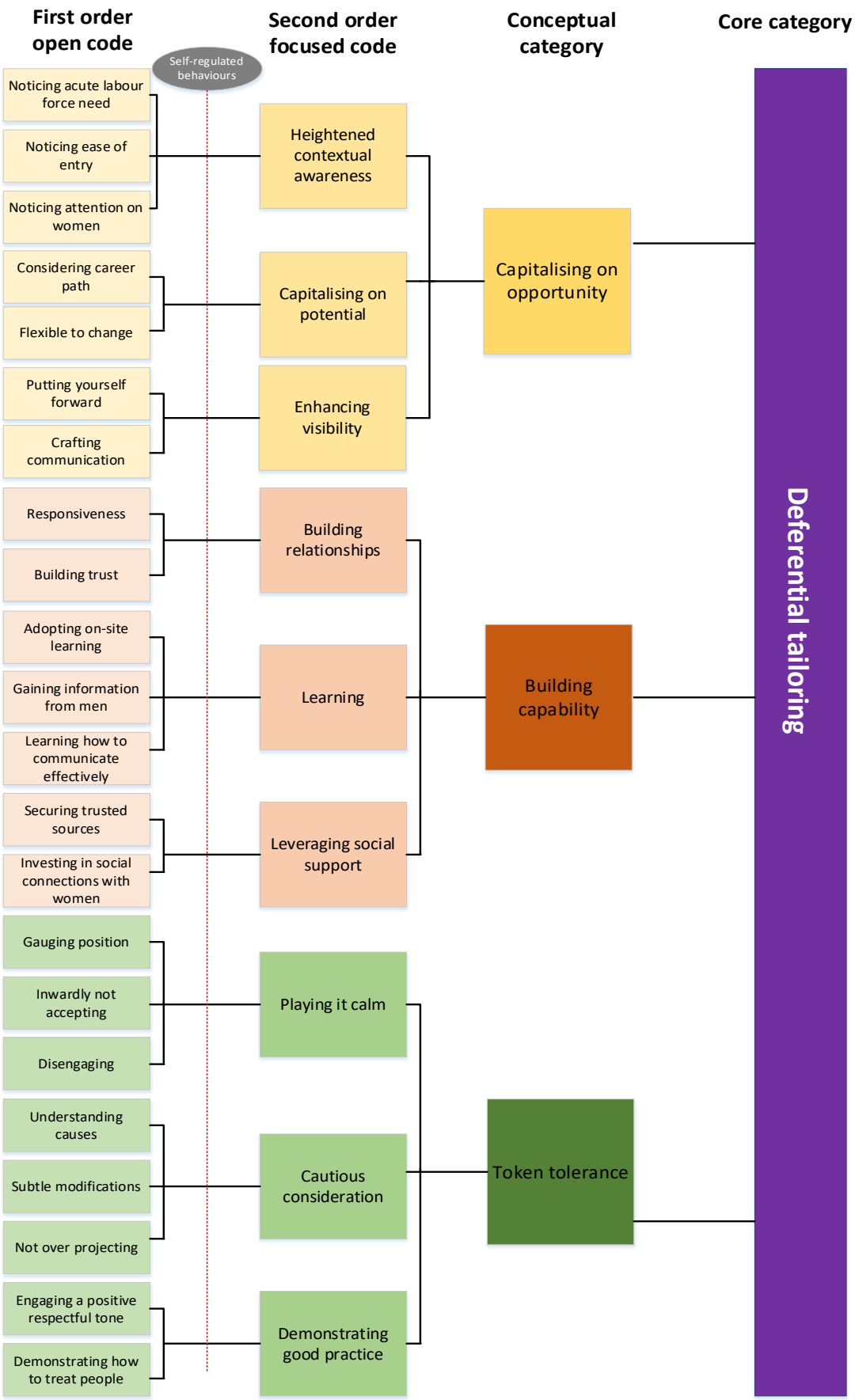

Figure 3 Theoretical coding overview

Theory saturation

One of the challenges researchers confront when using grounded theory is how to decide when to stop collecting data. Within grounded theory research, there has been much disagreement about the meaning and endpoint of theoretical saturation. Charmaz (2006) argued that theoretical saturation is not the same as data saturation where data is gathered until similar patterns emerge. Instead, Charmaz (2006) encouraged the researcher to be open to what is happening in the field, recode earlier data if required, and continue comparing higher order categories to subsume them into the abstract category. I used the same process. Taking this approach was essential for establishing fresh leads and examining ideas thoroughly until no new material could be generated (Charmaz, 2006). This practice enabled me to see the big picture and led to "theory saturation" (Charmaz, 2006). At this point, the new theoretical concept had been constructed and the research goals had been achieved. Alayna's statement was also instrumental in helping me to reach this goal and establish saturation of this research's core category:

> *As an individual, you think this is just your individual experience, but you've (the researcher) talked to so many other people and you can see the crossover in our experiences.*

This comment paralleled Charmaz (2006) argument that theoretical crossover occurs when "an abstract theoretical understanding of the studied experience" is established (p. 4). Clearly identifying that collective crossover of common experience and the strong relationships between the higher order sub-categories was the stage when I felt the core category for this research was saturated. It was here that I realised that new data no longer provided further theoretical insight (Charmaz, 2006) and I now wanted to concentrate on refining, defining and explaining only the core category.

The term *deferential tailoring* was selected as it captured many aspects relevant to the behaviours of the participants that I identified from the data (awareness, thoughtfulness, consideration, respectfulness, flexibility, and deliberate, initiated, self-directed, and regulated behaviours). Furthermore, while it may appear to be synonymous with submissiveness, it is not. Most importantly, this core category made analytical sense of participants' stories and answered the research question (Charmaz, 2006). Once the core category had been established, and the properties defined and explained, there was one

important step required. This step was necessary to ensure that the core concept resonated with the research participants' real-world experiences.

ATTENTIVENESS TO RIGOUR

The subjective nature of theoretical sampling, coding and memo note writing leaves this grounded theory research open to critique. Even though I have attempted to demonstrate strong links between the data analysis and the research findings, it is necessary to acknowledge that given the same context and participants, another researcher may analyse the data differently and/or construct a different theory. This research does not claim an absolute truth, instead it assumes that the reality expressed by the participants relates to their personal situation and the context in which it exists. A primary aim of this qualitative research was to demonstrate that the findings were not derived from my imagination, but instead clearly linked to the participants' data (Chilisa, 2012). Hence, attention to rigour was an important aspect of this research. Davies and Dodd (2002) proposed that rigour should be renamed to better reflect the nature of qualitative research. They suggested words like "attentiveness, empathy, carefulness, sensitivity, respect, honesty, reflection, conscientiousness, engagement, awareness, openness, and context" (p. 288). These terms are not designed to solve issues of rigour, but rather, represent an attempt to draw researchers' attention to the research data collection and analysis procedures. These were words that aligned closely to my ontological and epistemological views, and the grounded theory research strategies employed.

To achieve attentiveness to rigour, I applied three review strategies to establish clarity of the newly constructed core category and to enhance the overall credibility of the final theory. First, due to the nature of the theoretical sampling process, and the continual constructing and review of categories and concepts, it was not necessary to involve all the participants of this research in a formalised member checking process as suggested by Guba and Lincoln (1989). In other words, participants would validate the researcher's interpretive process and the perceived accuracy of the research findings. To do so would be problematic, as it would conflict with the ontological constructivist approach I have taken in this research. Angen (2000) argued that member checking relies heavily on the assumption that there is a fixed truth or reality against which the account can be measured. Instead, clarification of the properties of categories was achieved through the ongoing process of theoretical sampling,

right through to theory saturation. This process reflects the core values of this qualitative research: to provide an accurate representation of each participant's reality.

Second, the fit and modifiability (Glaser, 1978) of the *deferential tailoring* process was enhanced by returning to five purposefully selected existing participants to ascertain whether this process resonated with their own personal experience. A range of experiences was achieved by selecting one participant to fit the following criteria: a participant previously working in the industry; a participant new to the industry; a participant who had left the industry prior to 2017; a participant who had experienced significant role change and the participant who mentioned the term *glass scaffold*. To consider their level of comprehension and attachment to the core category, participants were shown in diagram form, the sub-categories of the *differential tailoring* process and provided brief definitions. Beyond this, they were given the opportunity to relate examples from their own personal experiences. This stimulated further discussion. The participants were then invited to make any additional contributions they felt were relevant. This practice helped to strengthen the accuracy of the properties within the corresponding sub-categories and the relationships that had been constructed. As a result of these interviews, amendments were made and then the write up began. Participants confirmed that the *deferential tailoring* process rung true for them. In qualitative research, credibility is determined by "how vivid and faithful the description of the phenomenon is" to the participants (Beck, 1993, p. 264). The three following comments clearly depict the closeness of the *deferential tailoring* phenomenon to the participants' reality:

> *That's us for sure. It's nice to see it mapped out in black in white like that, in a more simplistic form, because it's a very hard thing to explain. But it's true, we do vary our behaviour to accommodate how it is in that sector. It can be quite tiring actually, but to progress, we have to build our own rungs on the ladder. (Nicola)*
>
> *I can see examples of all of those in my experience and the experience of others that we have found through the Facebook interactions on the organisations website, through events I have attended, and through people I have met at industry networking functions. All of these things I can see, and also the different types of behaviour and things change over time. (Grace)*
>
> *That's it 100% definitely. It is quite over-whelming to see that, it is nice to have a term that makes what we do, feel so real. It's a lot of extra work to put in place that protection, but it's worth it when you see the progress you can make. (Ryleigh)*

The third and final review step involved sharing the core concept with two women working in different male-dominated industries: one in the fire service and one from the legal sector. These volunteers also felt that they could relate such a concept to their own experiences and working environments. The findings were also presented at a conference, and to fellow graduate students at two thesis competitions where the ideas and concepts resonated well with those outside the industry. This was a useful way to establish whether others could understand how the theory was constructed and how the associated concepts related to the core category.

On completion of this review, a second review of the literature occurred and I began the write up of the thesis.

SUMMARY COMMENTS

In constructivist grounded theory where "the researcher is positioned as active in the research process and concepts do not just emerge" it is the researcher's responsibility to be vigilant and highly attentive during the concurrent collection and analysis of data (Braun & Clarke, 2013, p. 287). In closing this chapter, it is accurate to report that the construction and quality of the *deferential tailoring* grounded theory presented in Chapter 6 has been achieved through the meticulous data collection and analysis procedures adopted in this research. This chapter has described the theoretical sampling procedure implemented, the participants' involved, and how great care was taken to gather and process information grounded from the participants' experiences in order to answer the research questions. This information was gathered and constructed through semi-structured interviews with 30 participants and then analysed using a range of rigorous codification and analysis procedures. From the synthesised and interpreted data new concepts were constructed that held value and relevance for the research participants and for the wider construction industry community. Near the end of the chapter, the attentiveness given to rigour helps to demonstrate how credibility has been established in this research. The following chapter outlines the findings generated from this comprehensive set of research activities.

CHAPTER 5 FINDINGS: BUILDING THE GLASS SCAFFOLD

INTRODUCTION

The 2010 Canterbury earthquake affected the Christchurch construction industry, both in terms of its environment and employment conditions. These changes presented women with a unique opportunity to enter the industry. However, capitalising on this opportunity and succeeding in a traditionally male-dominated work environment was not without its challenges. This chapter explains how women working in the Canterbury construction industry responded to these opportunities and challenges through a process of *deferential tailoring*.

Deferential tailoring is an adjustment process whereby women intentionally regulate their thinking, emotions and behaviour. More specifically, it explains how women manage their reactions and responses in a male-dominated work environment. The practice of *deferential tailoring* is comprised of three inter-related sub-processes: (1) *capitalising on opportunity*; (2) *building capability* and (3) *token tolerance*.

Although the industry conditions are not part of the *deferential tailoring* process, they are discussed at the beginning of the chapter as they provide the context in which women were responding to when entering the industry and throughout their time in it. After outlining the context, I discuss the first sub-process relevant to *deferential tailoring*, labelled *capitalising on opportunity*. This sub-process describes how women experienced an uncharacteristic ease of entry into the industry and in doing so, capitalised on favourable conditions by seizing available employment opportunities. The remainder of the chapter outlines the *deferential tailoring* behaviours involved in addressing challenges through *building capability* and *token tolerance*. While the chapter demonstrates how women's responses to industry conditions are largely influenced by context, it argues that this is a self-managed process that generated positive outcomes for women and the industry.

EXPERIENCING INDUSTRY CONDITIONS

Before discussing how the participants responded to industry conditions, it is necessary to identify the contextual conditions and personal challenges that the participants encountered in the post-disaster setting. This places context alongside the challenges experienced. It also highlights why it is important to look within and beyond short-term response behaviours. Figure 4 below shows the three sub-categories linked to the category labelled *experiencing*

industry conditions. This category distinguishes two features, first, how the participants viewed the construction industry context and second the main challenges they faced in this setting. These features provide insight into the conditions that participants were responding to. While they shape the participants' actions, they are not part of the *deferential tailoring* process. This category formed the foundation from which the *deferential tailoring* process was constructed.

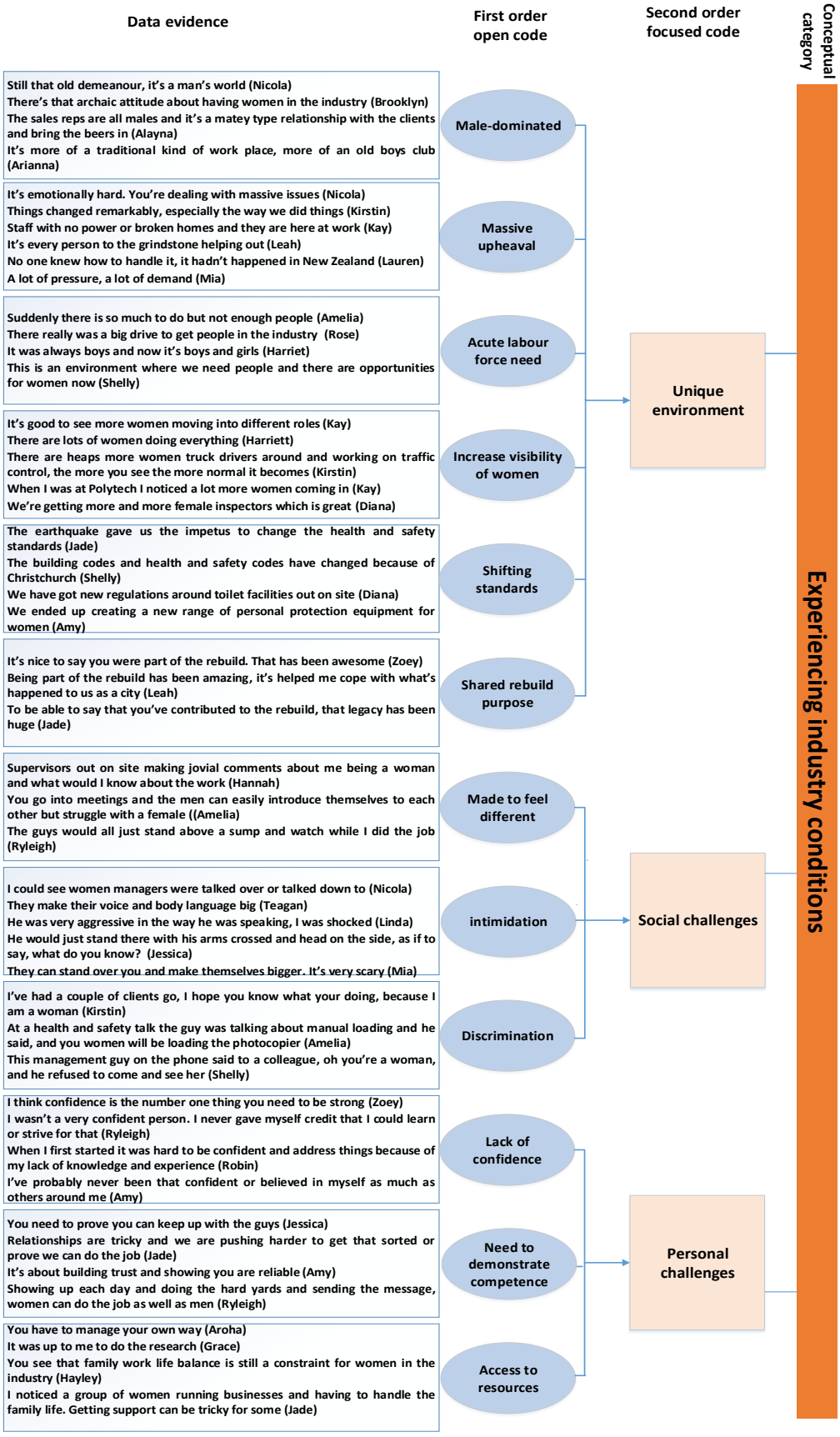

Figure 4 Coding tree: Experiencing industry conditions

Unique environment

The first sub-category labelled *unique environment* captured the participants' impressions of the industry in a post-disaster setting. This sub-category was largely determined by how the participants felt on entry into the industry or by their perceptions of male colleagues' attitudes or behaviours. The male domain, industry pressures, and an acute labour force need had a strong impact on participants' experiences in this context.

The findings concur with previous research that describes the industry as exceedingly male-dominated and biased against women (Bagilhole et al., 2000; Jimoh et al., 2016). The inherently male-dominated culture of this industry made a strong impression on the participants. With almost half of the participants entering the industry for the first time, their early impression of the industry conditions was centred on the impact of stepping into a man's world. The first two comments below are provided by participants new to the industry:

> *It's such a man's world, and lots of men have the impression that a female should not be in construction. (Lauren)*
>
> *The biggest thing to overcome coming into this industry was the fact that it was so male-dominated, and still is. I still get "oh love, is there a man I can talk to?" (Hayley)*

Significantly, even participants who had been working in the industry for a number of years had similar impressions or had experienced similar events:

> *There is definitely an attitude that, "you're a woman so you don't know and can't understand our job or our work environment." (Leah)*
>
> *Recently there was a man on-site who told me I had done a man's job. Comments like that remind you that you are in an industry that is dominated by men, with some who want to dominate you. (Amelia)*
>
> *There is that semi-archaic dominant type attitude still here, like saying "that's the way my old mate has always done things and that's the way it's always going to be." (Brooklyn)*

Participants would often make reference to differences they had noticed between the construction industry and the sector in which they had been previously employed. These comparisons reinforced participants' strong impression of this male-dominated setting:

> *Construction has not modernised structurally or socially as much as other industries. It's still a real dinosaur, with a lot of women still in support roles and men in command of business. (Rachel)*

It's really archaic and I think it's archaic because it's been the same types of individuals making decisions and grooming the next level of individuals who are just like them. (Hannah)

The industry has a long way to go to catch up to other sectors with regards to the treatment and inclusivity of minority members. (Nicola)

In contrast, there were several experienced participants who noted a shift in attitudes or perceptions by some of their male colleagues in the post-earthquake environment. This shift is illustrated in the following comments:

Since the quakes, I think there has been a change in the mentalities of some men about having women in the industry and about, "actually anybody can do the job." (Shelly)

I think because of post-disaster work we had to change the way we think, how we look at each other and respect people. I think there's an improving acceptance of women. The younger guys in particular are fine. Yet, guys in their fifties or sixties are still a bit hesitant. (Diana)

The Christchurch post-disaster construction context was an agglomeration of overlapping mega projects, with infrastructural, residential and commercial rebuild activities required across an entire city. Due to the nature of the post-disaster context, there were also many environmental and structural changes which had a compounding impact on the participants' impressions of the industry. Documented under the focused code, *unique environment,* these changes included *industry upheaval, an acute labour force need, shifting industry standards, a shared rebuild purpose* and the *increased visibility of women*. The changes and intensity of this new environment are captured in the comments below:

You throw out business-as-usual. That gets kicked out the door. (Amy)

The earthquakes happened and the whole face of everything changed. It was just massive, with a lot of demand and pressure, well beyond the normal intensity. (Rose)

Christchurch was now in the spotlight. The nature of the work was different, the way you interact with the community is quite different. People's lives have been thrown into chaos and now you're coming in and putting cones around everything and making more chaos. (Ruby)

Suddenly there is so much to do, and because there are not enough skilled workers, women have got a greater proportion of opportunity to do that. Now you see more women moving into the industry. (Amelia)

The laws have changed, the building codes, the health and safety codes in New Zealand have been changed, all because of Christchurch. Even new personal protection equipment has even been introduced by women, for women, which is great. (Shelly)

We formed a women-in-construction group. Our focus was on raising the visibility and supporting women coming into the industry. (Amy)

Under normal times there is a lot of planning and setting up processes and setting the ground rules before you get started. Whereas in something like a disaster recovery you hit the ground running and you sort out everything else on the way through. (Ruby)

The rebuilding of the city has given us a shared focus and this has helped to keep people going in this tough environment. (Diana)

These expressions demonstrate participants' comprehensive awareness that the post-disaster construction setting was far removed from a business-as-usual construction industry context. The widespread social impact of the earthquakes, the new demands on the labour force, and the images of devastation and demolition, did much to mask many of the traditional images and impressions of the construction industry and instead it served to deepen women's interest to be involved in this industry.

Social challenges

This research supports the view that woman face numerous social challenges when entering or working in the construction industry (Dainty & Bagilhole, 2006; Fielden et al., 2000; Ikiao & Wanyonyi, 2019). The second sub-category labelled *social challenges* was constructed around participants' working relationships with men. The findings demonstrate that it was the gender-centred interactive tensions or resistance encountered with male colleagues that the participants found most challenging, difficult to address, or accept as the norm. Participants often referred to *those little things* or that *one noticeable thing* when alluding to negative interactions with men where their gender was used to accentuate their difference or devalue women. These two codes were useful departure points in subsequent interviews to identify social challenges that a participant was experiencing. Identifying the feeling of difference is evident in the following example, where Linda starts with the *little things* cue, then explains how minor gender jabs which accentuate women's minority status can be uncomfortable. During analysis, similar situations were evidentially grouped under the focused code *made to feel different*:

There are those little things that happen sometimes. Especially I've noticed it more when I leave the office and go onto site. Someone will be talking and then a swear word gets thrown in and then they go, "oh sorry there's a lady here and now we can't swear." As if it is an unusual case, as though I didn't swear. Just don't swear, or if you swear don't point it out, it's not like I am an alien or someone who is going to be

massively offended. It's not like you've sworn at me. You just don't need to make an example of me. It is little things like that that can be uncomfortable, and which can be hard to address. (Linda)

All the participants revealed they had experienced negative interactions with men and that they perceived these as uncomfortable, inappropriate, demeaning or devaluing. While participants viewed some of these interactions as subtle, others believed they bordered on obvious. To make sense of the data, social challenge evidence was grouped under one or more of the following sections: made to feel different, intimidation and discrimination. For most participants, social interactions with men were particularly challenging when they were made to feel different from the person whom they were interacting with, or from others present in that context. There were three significant features that contributed to the unease of being made to feel different in this environment. First, these feelings were often associated with a sense of distancing, as described by the following comments:

Going out on site I felt like I was in a zoo where they were all just looking at me like they had never seen a woman before. (Leah)

Coming from an educational background and the male-dominated IT sector, I thought I would be fine adjusting to the construction conditions, but I recall going out on-site, and how men changed the moment I arrived, the sneers, and the looks like "what are you doing here?" (Mia)

Participants were often made to feel unwelcomed or different due to stereotypical beliefs about women's roles and inability to perform in industries such as construction. This highlights the second feature of being singled out specifically due to social role assumptions centred on gender:

There was a bit of talking down to associated with ability to do the job, such as, "you're a girl," or "because you're a woman." (Kendall)

It is not unusual to be asked in a meeting, as the only female, to take the notes or get the coffee. (Grace)

Some participants felt they needed to 'prove' themselves to male colleagues who believed that they were unsuitable for the industry. This practice gave rise to the third feature which exacerbated participants' sense of difference in this environment: when a participant was openly devalued by male colleagues who questioned their ability to do their job or made them feel inadequate in front of others. Negative perceptions of women's capabilities can have a significant impact on them. This impact is clearly seen in Ryleigh's comments:

They were always doubting my ability because I was a woman, looking at me like I couldn't carry that, or I couldn't use that machinery. It was in their smart comments and their actions of just standing back and watching me do the work. They would even go to my manager and say, "you need to watch her." It was quite hurtful and hard to endure.

Undermining women may be reinforced in a hostile environment that fosters sexualised language and intimidating behaviour. While the construction industry is renowned for being a harsh physical environment, participants' rarely spoke of the environmental conditions of their work locations. Instead, many participants were concerned by the frequency of subtle hostility that occurred in this environment. Participants noted that subtle physical or psychological intimidation made them feel decidedly uncomfortable. Intimidating interactions ranged from silent encounters where men utilised their physical size to overwhelm female colleagues, through to more obvious confrontational aggression or unpredictable sexual confrontations that are difficult to manage at the immediate time of the interaction. This range of behaviour is illustrated in the following comments:

There was this one guy, not even knowing my name, he was speaking very aggressively with his finger right in my face, like, "You do this!" I was gobsmacked that people speak to people like that. In that situation it was hard to think how to react. (Jessica)

They can stand over you and make themselves or their voice bigger. It's very scary. I actually had a guy who thought it was appropriate to do a sexual dance for me. The worse thing was that the employer thought it was okay. I was shocked. (Mia)

In line with previous studies, this research found that intimidating male behaviours were more prevalent out on construction sites than in the office (Watts, 2012). Working in roles that involved interactions with men, both in office environments and out on construction sites, Linda and Hannah noticed a marked distinction:

The guys are fine in the office, but I can find it a challenge out on-site sometimes, it's mainly men that don't like to be told what to do by a woman. They try to use building terms or certain terminology to sort of blind you. Or they can be quite negative and resistant or just challenge you on everything. (Linda)

Hannah recalls one situation that was memorable primarily because the level of rudeness and intimidation crossed the line into incivility:

It's a bit different out on-site. Face-to-face I only really got into a situation once where someone had a real rant at me about, "who the fuck was I, just a chick with a clipboard, a bitch with a clipboard." It was specifically a dig at gender rather than any kind of competency level.

Many participants had experienced discrimination which they attributed to negative perceptions of women in the industry. For example, even in the favourable post-earthquake employment environment, a small number of participants felt frustrated by barriers to their career development. The disruptive effect of discriminatory barriers is clearly evident in Hannah's comments. She reveals the effect of the gate-keeper's words and the challenges associated with making oneself 'visible':

> *I sat down with the Chief Operations Officer at the time and he was asking what my goals were. So, I shared my plan. He said, "So what I'm hearing from you is that you are looking eventually at executive level management." He then said, "Well, there is two reasons why you're never going to be at the executive level, the first reason is that you're not an engineer and the second reason is because you are a woman." At that time I felt absolutely smashed backwards in my career. I thought, this is a hard-out glass ceiling.*

Sometimes participants cited multiple challenges from different men at one workplace. This was the case for Teagan who was made to feel different, intimidated and discriminated against all on the same day:

> *I had one guy tell me, "You'll never be able to do a certain job because you're a woman". Then on the same site, I had a filling man say to me, "oh you're beautiful" and all this other inappropriate stuff. I find on-site stuff like that has been really bad to be honest.*

Many of the participants felt that such interactions were unnecessary and that more importantly, they negatively affected their mental well-being and impacted on their workplace relationships. For some, such behaviour reduced participant's interest in remaining in this industry. The underlying theme of the interpersonal social challenges was: *these things are just quite hard to negotiate (Kirstin).*

Personal challenges

The third and least visible set of challenges, labelled *personal challenges,* were largely centred on the intra-personal challenges that participants find difficult in this setting. Even though the participants were from different backgrounds, occupations and organisations, they identified three common personal challenges which impacted on their ability to respond to industry conditions. First, participants noted that confidence is something women grapple with when working in this industry. This theme is illustrated in the following comments:

> *Whether it's regarding your work or the social environment, confidence is probably the number one personal challenge for women. (Zoey)*

When I first started, it was hard to feel confident and address those little things, partially because of my lack of knowledge and my lack of experience. (Robin)

Having that lack of confidence and needing to double-check or be sure things are right, I think it's a big thing in the female brain, I've noticed that in myself. (Linda)

Some of the participants new to the industry revealed that their personal level of confidence was below where they felt it needed to be to deal with the industry conditions. This lack of confidence was largely due to them being unfamiliar with the industry and/or feeling that they lacked the necessary skills or knowledge associated with starting a new job. These ideas can be clearly seen in Hayley's comments:

It was hard to feel confident at the start, the pressures were huge and I needed the industry and technical knowledge.

For others, this personal challenge was intensified by male colleagues who made them feel different or inadequate when they entered the industry:

I wasn't very confident when I came into this job, it was a mental step back for me because men treated women so differently, with cheeky knock down comments about your ability to do the job. That just made it even harder. (Ryleigh)

The second challenge, which is closely linked to the concept of confidence, is how the participants felt the need to prove themselves by demonstrating their competency. Jessica suggests that this can take the form of proving one's skills against those of male colleagues:

I think it's about showing you're willing in our industry to really put the hard yards in and prove that you can keep up with the guys.

In contrast to this, Aroha believes that proving oneself is an industry challenge and that it can affect both men and women. However, upon further questioning, Aroha revealed that this process can be more demanding for women:

You definitely need to prove yourself in this industry, and that's a longwinded labour-intensive relationship-building exercise that everyone has to go through, though for women it generally takes longer because you often have to be better than the guys, and develop a rapport with the guys to get accepted or backed up.

Reflective memo: *This description supported the development of theory for two reasons. First, Aroha's comments suggested that the challenge of proving oneself is time intensive and requires work. This ignited my interest in identifying and exploring additional activities beyond the normal work routines, as I believed this was where I would find the finer details of how women manage their challenges. Second, this comment suggested that proving competency was a prerequisite to gaining resources*

that participants needed to overcome other challenges. In particular, for women to gain support or acceptance in this industry, they were first required to build or establish relationships. It became apparent to me that there was a need to consider responses over time, which led to the development and construction of the deferential tailoring process.

The third personal challenge participants identified centred on gaining access to essential resources, including learning and social support. As illustrated below, the participants felt that this was a responsibility they needed to address themselves:

I wasn't in the industry before the earthquakes and I wasn't given any prior industry knowledge on entry, so it was up to me to do the research and get to know all the different sectors. (Grace)

Everyone is on this huge learning curve because people are doing many things that they just haven't done before and as a result, there is so much more new knowledge to take on board. But you just have to get on and find different ways to get the knowledge you need to do your job. (Amelia)

For women in this industry you have to manage your own way, so you source a lot of your own learning, work at the communication skills yourself, and build up the best support you can get. (Aroha)

Those participants with children or family care commitments also expressed how the integration of work and family life was another responsibility that rested largely on them. These participants felt it was crucial to quickly establish support networks to help ease the pressures of working in this environment. Interestingly, all the participants with children labelled themselves "lucky" if they had secured support for childcare and/or if they had a favourable work context that accommodated flexibility for the integration of work and family. Both features are evident in the following passage:

I'm lucky I've got a very supportive family. Having put that in place early has allowed me to follow this career with ease. My mum has got my boys today and they stay the night with her so that I can study on Monday nights. I'm also lucky that the working hours at this organisation fits in with family. I know it's not that easy for other women in this industry. (Kay)

The construction industry context and the main challenges detailed in this section provide insight into the conditions that shaped participants' responses in this setting. They are not part of the *deferential tailoring* process. The following three subsections define and discuss the three sub-processes that constitute the *deferential tailoring* process.

CAPITALISING ON OPPORTUNITY

Statistical information presented in Chapter 1 (p. 6) shows the rapid increase in the number of women moving into the Christchurch construction industry following the earthquakes and during the earthquake rebuild phase. However, this data is devoid of information that provides insight into how women experienced and responded to the industry conditions. The first sub-process, *capitalising on opportunity,* highlights how women's awareness of variations in industry conditions allowed them to take advantage of the favourable conditions either to enter the industry for the first time or to further advance their professional relationships and careers. While participants experienced a relative degree of ease entering into, or progressing in the industry, the findings provide evidence of women conducting additional activities to achieve positive outcomes.

The different situations and responses over time illuminated three specific properties applicable to the response category labelled *capitalising on opportunity,* as displayed in Figure 5 below. The properties of this process include *heightened contextual awareness,* typified by women's attentiveness to uncharacteristic variations in the industry that they could use to their advantage; c*apitalising on potential* which demonstrates the participants' interest in maximising their interactional opportunities and career path development while the conditions were favourable; and *enhancing visibility* where women demonstrated their ability to adjust quickly, by making themselves visible at crucial moments during an interaction or social situations. The three properties also highlight how participants' values and communication skills were instrumental in shaping their decisions to seize opportunities or address industry challenges. Essentially, the three properties of the *capitalising on opportunity* process are linked by the participants' underlying interest and motivation to be alert to industry conditions and move quickly to maximise career progression in this male-dominated industry.

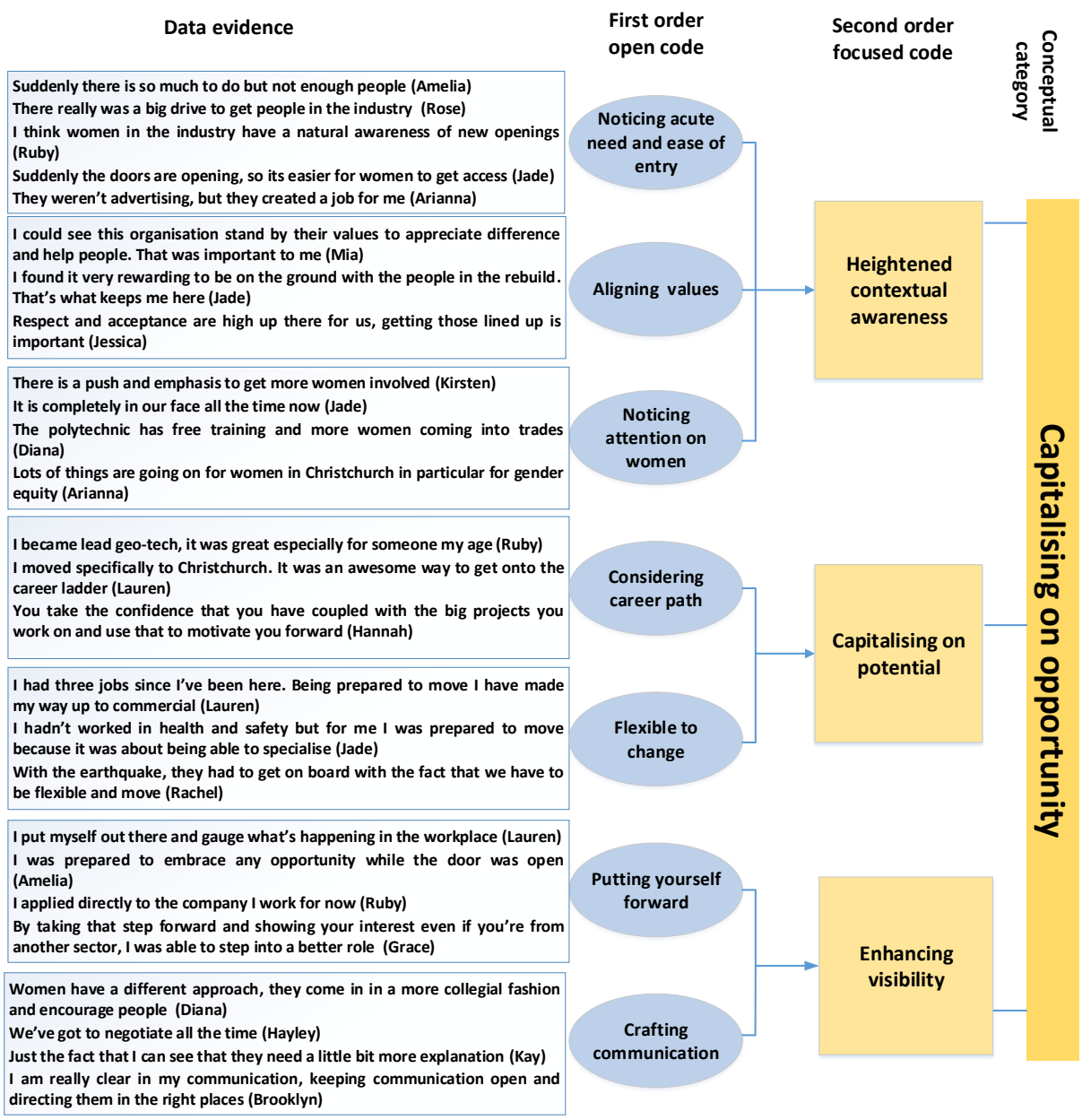

Figure 5 Coding tree: Capitalising on opportunity

Heightened contextual awareness

All the participants recognised and commented on how the Christchurch earthquakes had been the impetus for new employment opportunities in the construction industry. The complexity and volume of rebuild activities required in Christchurch generated an abundance of jobs and created new occupational roles across the sector (Construction Sector Leaders Group, 2013). As the Christchurch construction labour force underwent a significant transformation, industry employers faced an unfamiliar situation as traditional hiring preferences could no longer meet labour demands. With construction companies involved in

a broad cross-section of response, recovery and rebuild activities, there was an urgent need for a diverse range of skills:

> *Many different trade and professional skills were required to rebuild this community. (Grace)*
>
> *A lot of people we had, probably were not particularly right for the job, but everyone was in the same position - you just had to take people. (Rose)*

Entering the construction industry, or working in this sector, participants mentioned how awareness of their minority status made them extra sensitive to changes in the environment. As Ruby explained:

> *As a minority group, normally it can be hard for women to progress here, so I think women in the industry have a natural awareness for new openings. We always have a radar out on that. I certainly did that.*

Changes in the construction industry as a result of the earthquakes led to increased numbers of women in this setting. Although previously denied access to employment in the construction industry, due to their gender and perceived unsuitability for this kind of work (Aulin & Jingmond, 2011), post-earthquake, women became an important part of the Canterbury rebuild activities. This closely parallels women entering male-dominated industries during the world wars (Clarke & Wall, 2010; Montgomerie, 2001). What is unique is that women in this industry had the opportunity to be part of something that they were ordinarily locked out of. Participants interviewed for this research were completely aware of the fact that these new employment conditions were unique and more favourable for them. This awareness is illustrated in the following comments:

> *Whereas previously women might have been struggling to get a foot in the door, because the old ways to recruit shut you out, now that we need that larger workforce, suddenly the doors are opening, so it's easier for women to get access. Because of that women are considering construction as a career opportunity. (Jade)*
>
> *So, as there aren't enough people in construction generally, and in roles where there might have been one person that had been there for ten years, now they need three. Women could now see opportunities to enter and advance much faster. (Grace)*
>
> *Suddenly there is so much to do, and because there are not enough skilled workers, women have got a greater proportion of opportunity to do that. That definitely feels different and most appealing. First of all, you are going to use the people you have in the city to start with. So suddenly people like myself are given an opportunity that we wouldn't have had in a normal situation. (Amelia)*

This was a very rare position for women to find in a male-dominated domain, but something that the participants greatly valued. *Noticing the acute labour need* created a change, transforming the meaning of working in this industry for women. This uncharacteristic employment shift affected the participant's awareness, interest to engage in, and efforts to progress in this male-dominated space. Alert to the changes, many participants were willing to quickly respond to uncharacteristic access where recruitment procedures were noticeably more fluid, absent of traditional obstacles, or even unorthodox. For example, Hayley attributed her decision to consider employment in the construction industry to her recognition of this new ease of entry. Further, Hayley demonstrated how her openness and flexibility to try something new allowed her to quickly secure a new position.

> *We moved into Christchurch six months after the earthquakes. I needed a job. I was from a different sector but construction had so many jobs going so I thought I would give it a go, and I didn't even apply for the department I now work in. I had applied for three other positions in the company. I came here and they interviewed me and they said "do you know anything about hardware" and I said "no". They said, "Do you want to work in hardware?" I just stepped forward and said, "Sure, why not", and I got the job.*

Alayna was also drawn to the construction industry because she noticed that the market was favourable. Pleasantly surprised by the ease of entry, Alayna was then able to leverage this situation to her own economic advantage:

> *I got made redundant after the first earthquake in September. As a solo mother, I was desperate for a job. I was even prepared to look at the construction industry. It was a good market for job seekers. I got a job with a construction company, but I held off saying I would take it, because I had a second interview with another company. It turned out it was a lot better paid. I hadn't been in that position before. When I said to them, "I've been offered another job," the recruitment agent, was quick off the mark - that night she got back to me and said I was going to be offered the job.*

Already working in the industry, Ruby regularly surveyed new possibilities to develop her career. After comparing industry conditions between the UK and Christchurch, Ruby responded quickly to new opportunities to advance her career:

> *I started in the UK, but the job market was drying up at the same time there was the earthquake in New Zealand, and they were calling for engineers of all types. I knew it would be really good for my career. So, then I applied directly to the company I work for now based on an advert they had in an engineering magazine in the UK. I was recruited based on a 10-minute phone interview in the middle of the night. They looked after our visas, paid for flights for me and my partner and gave me some budget for relocation as well. It was nice to have it all fall into place so easily. Now that's unusual!*

Many participants also mentioned how they noticed roles or responsibilities changed rapidly after the earthquake, or once they entered the industry, due to the heavy demands on the industry. For many, this meant additional pressure and greater workloads, yet as Grace noted, for other women this signalled progression:

> *I think one thing that's really interesting that I have noticed is that a lot of women have moved into or on to better roles with other companies. They've actually had much more movement than there would have been in the past.*

Participants frequently mentioned the experience of moving into a new position: twenty-five participants moved into newly created roles between 2010 and 2018, 13 took up new leadership positions, and 12 participants were involved in additional leadership responsibilities. For many participants, the industry changes allowed them to take advantage of the conditions and move more easily into spaces that would normally have been taken by men or be involved in significant projects not previously experienced. Ryleigh and Hannah's rapid occupational progression reflects these unusual times:

> *In six years, I have gone from toilet scrubber, labourer, roadway and sump clearance, to truck driver, to the supervisor, and now the manager. (Ryleigh)*

> *Coming from a different sector, I was employed by this main organisation and when they took me on, they didn't have a role for me. But because I was a business process improvement specialist, they took me on to help with the delivery programme at another organisation they were linked to. Very quickly I progressed into managing three different divisions, so my role has changed a lot in a short time. (Hannah)*

Looking at the women's responses over time provided insight into how important aligning values was for women capitalising on opportunity. The women were regularly gauging and evaluating where or how their values aligned with other people, their organisation, the industry, and/or the wider community. Many of the participants felt that the values they held (respect, acceptance, community, achievement) and personal skills aligned with roles they were interested to pursue in the industry. For some participants, it was these factors that shaped their decision to move from a different sector into the construction industry:

> *I knew there was going to be construction projects which crossed over with the public, a need to help people. It was my passion and my strength. I have worked in industries that have required social services. It was so appealing because I knew my skill set, my whole person was about caring, communicating and knowing I could help, that was the most important thing. (Nicola)*

Reading about this organisation and talking to others I could see that they stand by their values to appreciate difference and to help people to deliver this service to a diverse community and improve the industry through training. That was important to me. With a background in education and having worked in the male-dominated IT industry, I felt my skills were a natural fit. (Mia)

In the years following the earthquakes, the rebuild of the city symbolised a collective construction industry project from which a *shared rebuild purpose* emerged. This was an additional contextual factor which influenced women's interest in participating in this industry:

What keeps me here and what I've liked about working with the construction sector is that they have this really clear goal in mind, they want to rebuild the city. (Diana)

For many women, the scale and importance of the rebuild also closely aligned with their personal values of community and achievement:

In Christchurch construction work has largely been focused on recovering the city and you're helping people. It's a side of our work we often don't see. We're not nurses and doctors, or the emergency services, who are seen as those people helping. But as construction workers we're like that in another sense. We kind of come along a bit later and it's more of a slower process, but at the end of the day we're there to get things fixed and get things moving so that people can recover and have a normal life. It a privilege to work together with colleagues from different organisations on this bigger goal. (Amelia)

The importance of aligning personal values and the influence of the city rebuild are woven into Jade's comments as she explains why she intentionally chose to embrace a new opportunity in the construction industry and why she wants to remain:

This opportunity came up, through people I knew. I happened to be available and I thought it would be a good fit with my values. For me, it was also progression and the opportunity to specialise. I found it very rewarding being on the ground with people in the rebuild. That's what keeps me here, the people, "He tangata, he tangata, he tangata" those are my values. When I have the opportunity to work with people and think I can make a difference, maybe they'll do things differently that will stop an injury or save a life. Also, that desire to contribute to the community recovery is important. For women coming into the industry or working in the industry, they want to contribute to rebuilding Canterbury. Being part of something this big also gave women a sense of belonging to the industry. To be able to say that we've contributed to the rebuild, to be part of this, to stand up and be part of that history, that legacy has been huge.

The sense of belonging generated by the *shared rebuild purpose* motivated some participants to seek opportunities to move towards long term social goals, as mentioned by Nicola:

> *Because we had people working together on the rebuild it was an important time for developing relationships with the guys and the community, fostering a sense of identity, and togetherness. In the first few years that seemed easier. This is something that woman have been, and continue to strive for in this industry.*

The ongoing attention given to rebuild activities by the construction industry impacted on the longevity and influence of the shared rebuild purpose. Hence, this contextual factor may have contributed towards women's retention during the post-disaster period.

Capitalising on potential

The post-earthquake rebuild required an extensive range of overlapping small and large-scale projects, including infrastructural, residential and commercial rebuild activities. For women entering or working in this industry, the range of activities meant that participants were presented with career prospects on a scale not previously witnessed. As seen in the literature, traditionally, women wanting to move into the construction industry often encounter barriers at the start of, or during their career path, due to a combination of factors such as gender, age, or lack of field experience. However, many participants saw this setting as a unique but temporary situation where they could capitalise on a wide selection of occupational choices and major projects while they were available. The *acute labour force need* benefited them in terms of access or progress. Not prepared to be held back by traditional industry constraints such as age or experience, three of the participants (young female graduates) were attracted to Christchurch by the wealth of opportunities in the construction industry. They all acted quickly, entering the industry and advanced rapidly. Demonstrating a willingness to be flexible and change jobs at short notice, Lauren deliberately sought to capitalise on an opportunity presented to her and took steps to create additional opportunities for herself:

> *Fast-tracking my career has been a big push for me so just absorbing and upskilling as much of this new information as I can while I am on different jobs or projects was important. It's been an awesome way to get onto the career ladder, otherwise, I probably would have had to move overseas. I've had three jobs since I've been here. When I first started, I was working doing earthquake house repairs, and then I've made my way up into commercial. It's been very rewarding. But the progression has happened because I put myself out there, spoke to recruiters and I got feedback from people that I work with.*

Three participants who moved to Christchurch from overseas mentioned how they were attracted to the region because of the availability of work on large scale projects that they had not previously experienced. As Linda explained:

Coming from Australia, I was very excited to get stuck into some of the big meaty projects they had here. Especially the diversity of work, that was amazing for a young designer to be part of.

Recognising the diversity of work projects, and also valuing the chance to advance her career, Amelia chose to return to the construction industry. After experiencing easy entry into the construction industry, Amelia was also willing to take on new challenges to maximise her opportunities:

I could see how there would be so many new interesting projects, so I had an interview and it went from there. Within four months, I then got offered the position of team leader, so that was a step up. I don't think I would have had that opportunity so soon if it had been pre-earthquake. The challenge of responding to the post-earthquake environment and the work that was required has stretched me, but it's also benefited my career no end. I never envisaged the growth in my technical ability and the development that I have experienced. I've now just asked the company if I can become a principal engineer.

The participants were aware that this was a favourable context in which to gain technical skills which, in turn, would enable them to seize new opportunities. Eight other participants also acknowledged how they were attracted to the Christchurch setting primarily because they were interested in gaining earthquake-related technical knowledge which they felt would further advance their careers.

Several participants were involved in large group activities that had been established by women in the industry. Collectively women were interested to capitalise on the favourable conditions to address workplace issues. For example, when describing the origins and formation of the first Women in Construction Event, Jade explains how contextual awareness allowed women to collectively consider the bigger picture for their female colleagues, with the aim of leveraging an improved participatory space in this post-disaster setting:

The Women in Construction event arose from a conversation about a group of women who were often not visible in the industry, women who were the wives of the small traders, who were doing the health and safety, doing the bookwork keeping the business running, out on-site talking with the guys. These were women who held a huge workload on their shoulders and they're often managing the home and family life. We wanted the event to be positive. Not just a moan session. We brought a Steering Group of women together to talk about the challenges that we face in the industry such as discrimination, workplace flexibility, support, training, and pay parity. And to consider "how do we deal with those challenges?" At the events, women were also asked to choose an issue or a challenge and focus on "what can we do as individuals on-site, at a leadership level, at government level, at society level? What

> *can we do to shift and create change to our participation and inclusivity as women in the industry?" We really wanted them to start thinking much more broadly about how we address the issues that we face. For all these women to see that they're part of a collective, to know that what they're doing there on that day is feeding into something bigger was hugely effective. The recommendations were then put forward to the industry group.*

In response to industry conditions, these women were collectively drawing on their values and communication skills to lift women's profile in the industry, encourage others into construction, solve their own issues, foster a greater sense of belonging, and cultivate new opportunities. Using collective action, these groups acted as agents of change by enhancing the participatory capacity for others to move into, or progress, in this industry.

Enhancing visibility

As alluded to in the previous examples, to maximise career potential within this setting women made themselves visible for an opportunity through communication. The findings suggest that participants increased their chances to successfully obtain opportunities by having awareness and courage to strategically promote themselves at crucial or unexpected moments. Furthermore, the participants were found to be enhancing their visibility at times when it could provide solutions to both parties. Ruby demonstrated promoting herself in a casual situation:

> *Things around here change quickly. The geotechnical team leader for one of the other teams was leaving, and he said, "I don't know what we're going to do, we will have to disband that team and split them up into the other teams." I suggested in an offhand remark in a corridor, "what about someone taking your role?" He's like, "well, there isn't anybody." I knew this may be my only chance, I just looked at him and said, "what about me?" Then in just over a week, I was the lead geo-tech for that team. Then through that, I became the lead geo-tech engineer for the four teams, which was great, especially for someone my age.*

In this informal setting, Ruby's response is not seen as a challenge to the majority, rather proving a solution for the person in a position of power. Ruby's attentiveness to opportunity gave her the motivation to enhance her visibility through timely communication and avoid being overlooked. In doing so, she effectively created a new set of rewarding career outcomes.

Some participants found it easier to enhance their visibility during social gatherings through direct, yet positive communication. Aroha explains how this approach helped her to capitalise on a new opportunity at a poignant moment:

> *One time in a meeting with the guys, they were discussing a new job that needed to be covered. Most them were pretty snowed under and seemed uninterested. It was nearly the end of the meeting, so I decided to casually throw my hat in the ring to give them something else to consider. I stood up and said, "Sorry guys but I've got to be at a site meeting in ten", then quite enthusiastically I announced, "Hey, look, I'd be really keen to give this a go, I've got a great team and they would manage this fine." And then I left the meeting, with that hanging in the air. As it was, I was offered the role on my return to the office.*

Aware that immediate solutions were required, Aroha used a positive, yet casual communication style to articulate her intention and subtly display her resourcefulness. Aiming to reduce full attention on herself while improving her chances, Aroha promotes her team and leaves the meeting on a positive note. Aroha's subtle enhanced visibility at a crucial time proved rewarding.

The intentional modification of verbal or physical communication was coded in the analysis as *crafting communication.* Appendix I provides a summary of how participants used many *crafting communication* actions to enhance visibility, embrace opportunity or navigate social challenges. Three significant properties stood out as central to this code. First, participants would purposely *reshape a verbal or non-verbal response* to accommodate others' views or actions. Second, participants ensure they used *a positive, respectful tone* in their response to maintain a good standard of conduct and avoid diminishing their own status or the status of others. This also allowed them to reduce risk of harm to themselves or others. Third, participants were committed to *positively influencing people* in a better direction. These properties are evident in other examples that follow in this chapter.

The findings presented in this subsection highlight how the participants' used their *heightened contextual awareness*, their *values alignment* and their *crafting communication* skills to enhance their visibility to capitalise on the favourable industry conditions. Aware of, and stimulated by the post-disaster conditions, participants made the best of the situation by regulating their behaviours according to their values, interests and choices, rather than out of habit. The women's *capitalising on opportunity* behaviours allowed them to monitor and

evaluate the benefits of variations in industry conditions and then manage their responses in relation to recruitment or advancement. This goes some way towards explaining how women moved into, or stayed in, the construction industry at the rates they did between 2010 and 2018.

BUILDING CAPABILITY

Building capability is a crucial sub-process relevant to the *deferential tailoring* process, as seen in Figure 6 below. The rapidly changing demands within the industry, and the participants' motivation to interact effectively with men, advance their skills and gain a sense of belonging in the industry, were the main factors shaping women's intention to build capability. In this process women use adaptive actions to enable them to increase their confidence, acquire resources, develop relationships, deal with social and personal challenges and progress their careers. Aware that access to resources was limited and that responsibility fell on them to acquire them, the participants invested time, effort and patience into building this capability scaffold.

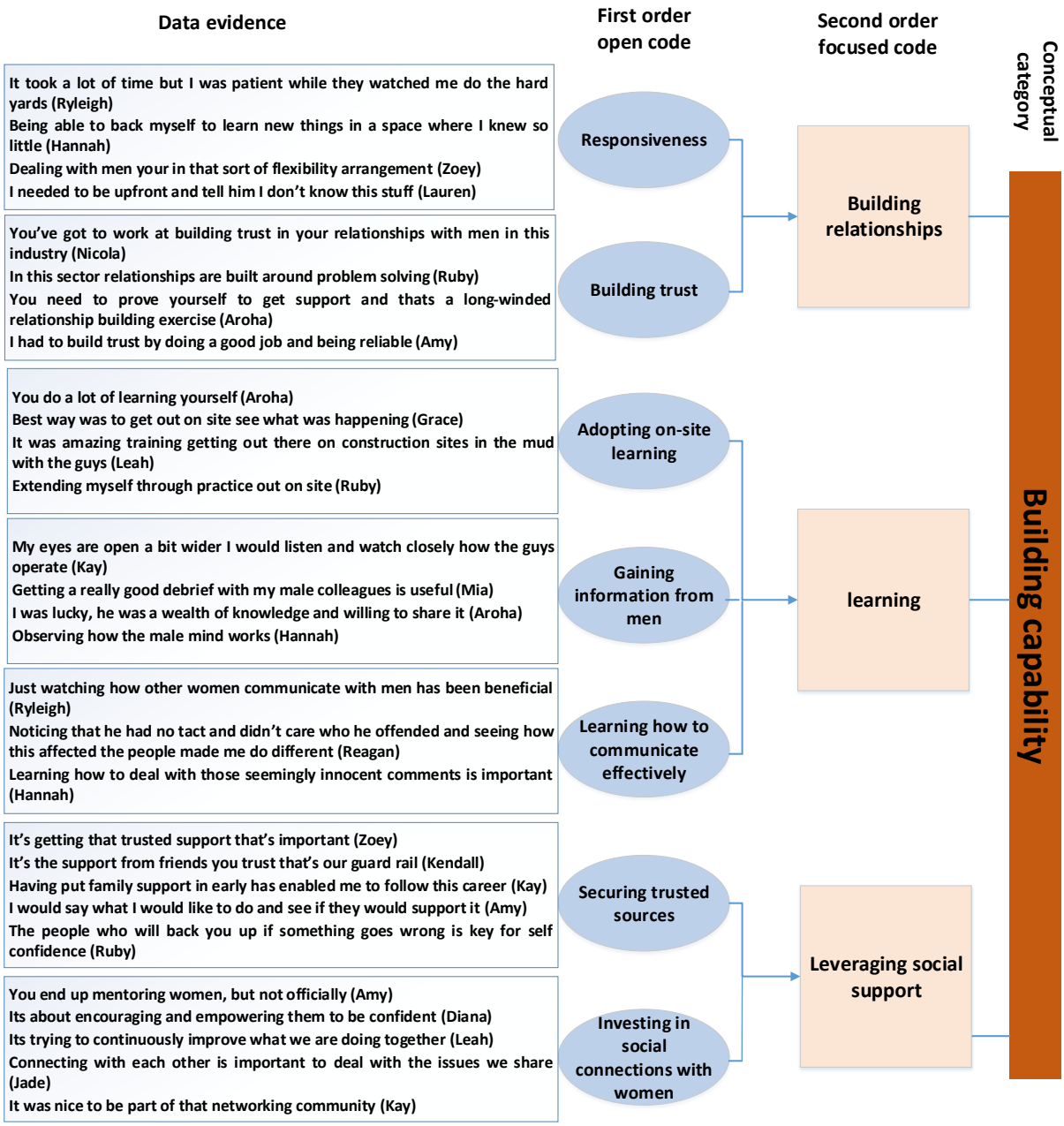

Figure 6 Coding tree: Building capability

The first property of this process, *building relationships,* demonstrates how the participants were aware of, and committed to, utilising additional resources to prove their competency for the purpose of establishing positive work relationships with male colleagues. They were also able to recognise subtle relationship signals that indicated the development of trust. The second property, *learning,* displays the participants' interest in developing their personal and social capabilities by acquiring and absorbing technical or communication information that advanced their ability to interact and communicate with men. The third property, *leveraging social support,* demonstrates how the participants established social support systems which

helped them to gain confidence, respect, and encouragement which they then channelled back into their work. The participants developed their capabilities using self-initiation and self-regulation behaviours to acquire the resources that they needed.

Building relationships

The participants' willingness to build positive work relationships with men was vital for responding to the industry conditions in this setting. A unique finding was that women were willing to expend personal resources (time, effort and patience) to acquire resources (technical or communicative knowledge) that enabled them to build workplace relationships with male colleagues. The participants recognised that building relationships with men would not only help them develop confidence, but also enabled them to gain social support and learning resources. It was these resources that the women would then use to address social challenges. Most participants recognised that relationship building could be difficult and often involved establishing connections by demonstrating competence and developing trust, as suggested in the following comments:

> *When men come into the industry they are already part of the majority. For women, at first, there is the hurdle of being accepted. So, the step we have to take in a male-dominated environment where relationships are tricky, is we are pushing harder to break down the barriers and make that connection. So to get that sorted we have to prove we can do the job, and it takes longer. So, earning that respect and getting that support, it can take longer to. (Jade)*
>
> *To handle the job and get support, you have to be better than the guys, by proving it. But then getting good support that then makes a huge difference to how you will feel and progress. (Aroha)*
>
> *I built trust by doing a good job and being reliable. So, males might form a relationship quicker because they can talk the male talk. It might take me longer, but then the relationship I would build and the level of trust and confidence they have in me often gets feedback. (Amy)*

For the participants, building positive work relationships by demonstrating competence did not come easy. In their attempts to prove or display their competence, the participants found that they were first required to utilise a broad range of personal resources. They needed to show that they were *self-motivated*, they were *determined, reliable, flexible to change* and *patient*. Although these personal qualities may also be relevant to men proving competency in the industry, there were two assumptions linked to gender, that explain why the participants needed to utilise additional resources and effort to build relationships. First,

consistent with previous research (Aulin & Jingmond, 2011; MacIsaac & Domene, 2014), the participants felt that they were required to maintain mental stamina in an attempt to compensate for men's assumption or the belief that women are incapable of working in construction. Thus, they needed to demonstrate their skills and abilities while enduring biased male attitudes or negative male behaviour. The participants would build the relationship by enhancing their *resourcefulness visibility*; positively communicating their motivation to be responsive through sustained effort and displaying their skills and contribution. The following two examples illustrate the psychological tension and required effort involved in this process. Kirstin uses a metaphor to describe the fine psychological adjustments and endurance involved in demonstrating her ability to do the job:

> *You have to have an element of thick skin because there are always guys you will come up against that are a bit of a struggle. You have to walk that fine line between being good at your job, but not too good, like you're an upstart. It's a bit of a balancing act. It's hard initially but you build up a strength and fitness for handling the work and them. I don't shirk any of the heavy work or the responsibility, I muck in like the rest, it's not like I am a princess. You have to get on with it and adjust to the environment.*

Similarly, Ryleigh describes her physical and mental tussles of doing more work while being watched and harassed by male colleagues. Paralleling her experience to playing a game, Ryleigh also distinguishes the underlying egalitarian feature of gaining acceptance by demonstrating that she can do the job that is important for relationship building with men in this industry:

> *It was like playing a game of chess. Being the only woman doing a labourer's job I was up against it, because there were men who thought that I wasn't strong enough to handle the job and they would always doubt that because I was a woman. There could be seven men standing around a sump hole, watching me down there, with plenty of smart comments sent my way about whether I could keep up or do the job properly. I wasn't that confident when I came in, but I had to get strong to play the game. My challenge was trying to make a stand. I did this by demonstrating that you're not better than me, and that I am not better than you, but I can keep up and that's what I did. I did the hard yards. It was a physical job and I did more than my share, and I would get home at night and I was mentally drained also.*

Second, the participants were attentive to signals that came from men indicating a shift in the relationship and that the assumption that woman do not belong in the industry was no longer an issue to them. During the analysis, open coding signals included *backing off, becoming approachable, taken under their wing, they acknowledge you, encouragement, happy to offer*

advice and *open to difference*. For the participants, these subtle signals often indicated a shift in the relationship, which generally resulted in new rewards such as confidence, acceptance and a feeling of equality. This is illustrated in the following examples:

> *Noticing that casual encouragement from the guys or a supervisor - that was key for me feeling support. I think having those direct supports and the people who will back you up if something goes wrong was key to building the self-confidence and the self-esteem to be able to go out and be equal and to feel accepted. That has had a huge impact on my performance and how happy I am in my role. (Ruby)*

Noticing changes to certain workplace relationships, Ryleigh experiences a new freedom to interact with her male colleagues:

> *There were men who thought I didn't belong. But as soon as they knew I had done the job and done more sumps than them, that they weren't up to where I had got, then they would start backing off. It had given them a view of, "she's not just about looking pretty," and it sent the message that women can do the job just as well as them. From this point on things changed, I got to know the people, they wouldn't get as smart and you could truck stuff back at them.*

For three participants, this transition point in a relationship came as a result of declaring their lack of confidence. Lauren felt that communicating her lack of ability was a valuable step because the rewards came quickly and it transformed how she felt about working in this industry:

> *There is a project manager who has been in the industry for years. We used to butt heads at first, but he now helps me a lot on this job. But to get that, I needed to be upfront about my position. I was like, "whoa, I don't know all of this stuff". He just expected me to understand everything and know what I was doing. I'm pleased I did, because ever since then he's been great to talk to and a great source of knowledge. Having this freedom has made working here much more relaxed and enjoyable, plus I've learnt so much.*

For many participants, expending (additional) resources and enhancing their resourcefulness visibility (rather than physical visibility) to demonstrate competency is a prerequisite to being respected, trusted or accepted by men in this setting. These additional adjustment behaviours go some way in explaining why the participants believe that proving competency is more demanding and time consuming for women in this industry. As demonstrated in previous examples, it takes longer and it requires more resource investment to establish this respect or trust, because women first need to break down biases and prejudice before they can even begin building a relationship.

Learning

In working towards building their capability, the participants also engaged in *learning* as this enabled them to gain access to the resources they required to build relationships and manage the conditions. The participants would adopt different learning approaches to advance their technical abilities and also learn how to interact effectively with men in the industry. Being prepared to move out of their standard routines and take initiative, the participants sourced new information through formal training, practical on-site experience, observing others, learning directly from men or investing in connections, woman to woman. Many participants found it easiest to adopt the industry norm of on-site learning as it allowed them to quickly acquire learning resources (Clarke, Michielsens, Snijders, et al., 2017; Vaughan, Kear, & MacKenzie, 2014). The participants displayed their enthusiasm and aptitude for learning by regularly visiting construction worksites to familiarise themselves with the context. As evident in the following examples, the participants used practical familiarising to learn how to interact with men. They also developed personal confidence by testing themselves in challenging interactions:

> *Really, the best way was just to get out on-sites with people and actually see on the ground what was happening. It gave me great insight into an interesting cross-section of working relationships and how to handle them. You build up your knowledge and confidence that way. (Grace)*
>
> *I have adapted to the conditions and extended myself through practice, which meant going into meetings with eight people and you're the only female and practising standing up and presenting your case to the clients and also practising going out on-site and seeing how a project is coming together and confidently handling tricky situations out there, like dealing with resistant or aggressive workers on-site. (Ruby)*
>
> *Working alongside men, I got to know how they work, that was important. It almost became like my everyday challenge to learn more about this male-dominated environment just so I could get the confidence to deal with it. (Ryleigh)*

An interesting paradox found in the data is how some participants would (in) directly rely on men to gain access to essential resources they required: they would then channel these resources back into dealing with social challenges that involved men. Participants noted that the easiest way to acquire new information about how men operate was to observe experienced tradesmen or professionals and watch them share their skills and/or observe how they handled their interactions. Kay found this self-initiated learning approach very

effective. She also recognised how her favourable work environment allowed her to gather technical information easily and subsequently bolster her personal resources:

> *Collectively there are over 200 years of experience in the workshop. As the only woman here, it's been amazing to be part of a generous team who know so much. They all have their different fortes and I have taken learning different technical bits of the job from each of them. Not many people have that chance. You can't trip and stumble over that sort of knowledge. I think as an adult apprentice my eyes are opened a bit wider to the industry and I am more aware of the fact that this is such an amazing opportunity to gain this level of technical knowledge early in my career. For me, it is precious, and I would listen and watch closely. It helped me grow my confidence and my skills to handle things better in this environment.*

Lauren also benefitted from gaining knowledge from male colleagues around her:

> *I'm not a builder, and lots of the guys I work with are builders so they know exactly how things are going to come together on a large construction site. Just having some of them support me around that learning has been important to my progress and to enjoying working here.*

During their learning experiences, many participants specifically sought to improve their communication skills so that they were better prepared for challenging interactions. Aroha explains how her history of witnessing poor male leadership communication practices shaped how she communicates with men in this setting:

> *As a woman leader, you need effective communication strategies, especially when working with the guys who like to be resistant. Over the years, I've seen so many foremen and construction managers who can be quite aggressive or just say to their staff, "right, go do that, don't ask me why, just bloody do it". I've learnt that's only disruptive to the guys' confidence and to workplace relationships. My main strategy is simple, positive communication lined with respect. For me, that reduces resistance, it's a good motivator and it certainly improves outcomes.*

In a different situation, but with a similar learning intention, Hannah, specifically took time to observe and gain an understanding of how other women communicated with men in the new work environment:

> *I think the women that I can think of, that I have observed, who have been really successful in this post-disaster environment, have been really good at learning how the male mind works and the undertones that go along with some of their seemingly innocent comments, and being able to either laugh with that, or pick up on it and challenge it back in humour. For me personally, I've had to learn how to get good at that, get good at the conversation, get good at the topics. This has also come through practical experience, especially out on-site.*

For both Aroha and Hannah, this learning advanced their professional communication skills and in turn, facilitated more effective interpersonal interactions.

As well as on-site learning, two participants mentioned how they were prepared to take up formal training in addition to their normal work duties. Again, they were specifically interested in learning how to improve their communication in this environment:

> *I was very quiet and tentative when I came into the industry, and I found it was hard to get heard in meetings. So, I joined Toastmasters, because I wanted to find my voice. I wanted to be able to take some of these guys on, to be forthright and be able to state my opinion, because I believe I've got something valuable to contribute to the business. That's part of my confidence building. (Alayna)*
>
> *It can be an extra workload, but getting to know how to deal and communicate with men was important. I put myself forward for leadership courses, to learn more about people's behaviours. I learnt about the insecurities that would allow them to get smart. It meant I was better prepared for when they tried to test me out and for building a good rapport. (Ryleigh)*

Learning through various sources enabled the participants to build their technical knowledge, communication skills and confidence, to be better prepared to demonstrate their competency, develop positive workplace relationships and address the social conditions of the industry.

Leveraging social support

Previous construction industry research has reported that women are excluded from support systems (Dainty et al., 2000; Dainty & Lingard, 2006), that they require supportive networks (Worrall, 2012), and that they can find it difficult to marshal support that enables them to sustain their interest and ensure career progression (Clarke, Michielsens, & Snijders, 2017). The participants mentioned that there was a greater need for social support in the Christchurch post-disaster setting, not least because the rebuild, work safety and well-being of Canterbury citizens were regularly reported in the news. As Grace explained:

> *I think support is even more important in a post-disaster setting when you're working in an industry which is dominated by men and there are so many more work and home challenges to contend with.*

The participants prioritised securing social support, in the form of guidance, emotional understanding, encouragement, and empowerment. The participants initially sourced support from people closest to them at home or work who they felt were trustworthy and

encouraging or who could assist with family care responsibilities. Importantly, the participants used social support to leverage additional resources. The following quotes highlight how participants used social support to bolster their confidence levels, many believed it was vital for dealing with the industry conditions:

> *For me, gaining that close trusted support and encouragement from family and colleagues was useful for me to lock in. Having that respect was a major starting point for me gaining confidence to get through the day-to-day pressures and to be successful in this setting. (Zoey)*
>
> *Having that support from people you trust was important; it gave you the confidence to tease out those social things you are dealing with at work and share the vision. That's important. That's our guard rail. (Kendall)*

The guard rail, mentioned by Kendall, refers to the side protection rail found directly above the walking platform on a building scaffold. Kendall used this term to symbolise the nature of the support she received. In the analysis, the *guard rail* code was linked to the *glass scaffold* concept. The concept of the *glass scaffold* encapsulates building capability - the work and behaviours that the participants carried out to ensure they had the necessary skills, stability, and confidence to move within and manage the industry conditions.

The paradoxical feature of some participants relying on men to gain access to essential resources to deal with men was also evident in regards to *leveraging social support*. Some participant's utilised support received from men with whom they had developed a positive workplace relationship, to manage the social challenges they faced with other men. This is seen in the following two examples where both Teagan and Ryleigh channelled the respect and acceptance gained from their supervisors back into their work:

> *I have a new foreman who goes the extra mile. Having his support and respect is important. He understands the issues people can have. I know I can tell him everything. He addresses things that are not acceptable. This can reduce the feeling of isolation and it helps you feel confident to address those little issues quickly. (Teagan)*
>
> *Fortunately, I had a very strong manager and when he saw I was up for the job he was very honest and supported me along the way. All in all, he respects who I am as a Maori, as a woman, my sexuality, where I have come from. He would say to me, "You look around. There are not many Maoris, there are not many females." This helped to instil pride, which has made it easier for me to take on and deal with the smart comments from other guys who just want to challenge you. His support has also motivated me to get places in this organisation. (Ryleigh)*

Most participants' social support came from close family or friends or through connections with other women in the industry. While previous construction industry research has suggested the importance of mentoring for as a valuable resource for women's career development (Moore, 2006; Fernando, Amaratunga and Haigh, 2014; Ericksen & Schultheiss, 2009), in practice the funding, time given and actual application is often limited (English & Hay, 2015). This appeared to be the case in the Christchurch setting. Only four participants spoke of receiving formal training or mentoring on interpersonal communication skills. Many participants in this research invested their own time connecting with other women to create informal mentoring opportunities that provided learning and support. Consistent with the themes attached to *building capability*, the participants involved in mentoring activities found they were sharing information and teaching related to confidence, demonstrating competence and relationships. As Amy explained:

> *There is this different invisible role we are involved in, which was needed, a kind of learning where women end up mentoring other women, but not officially. A lot of learning is about handling the conditions like adaptability, about relationship forming, building trust and confidence, or how to prove yourself.*

Connected by similar work experiences and an awareness of the challenging industry conditions, participants involved in mentoring activities noted how they automatically assumed this role. They provided knowledge to newcomers or other women who they may notice were struggling with the industry conditions. For example, experienced manager Diana kept a lookout for signals from female staff indicating that they might require assistance dealing with social challenges. As mentioned in the following passage, this instruction is closely linked both to helping women establish mental stamina or the ability to "be strong" (as detailed in Appendix H) and developing communication skills:

> *We have had three new women come in, and I know they have had their moments. They get a bit of lip from the guys. I look out for comments around such moments. Especially for the younger ones, it can be quite a challenge to tell these guys, "can you please get off the roof," especially when they have been sworn at, "f off" and, "who the f are you," and "who do you think you are to tell us what to do, because you're a woman." That's the sector. They have talked to me about that and we have talked about how to manage this. A lot of it is about encouraging and empowering them to be confident and to be mentally strong, and to know how and what to communicate to these guys. Knowing that they can say, "that's not ok, this is who I am", and then if things still continue to get out of hand then they can ring for back up, and someone*

will come. I wouldn't say we have had a lot of issues because we have got strong women who will take on that learning and adopt the right communication. (Diana)

Some participants noted that this self-discovery, learning, and support was beneficial to both parties involved in the mentoring. As the mentor, Teagan describes how this experience confirmed her own personal confidence and competency in the industry:

> *It's great getting together with others to share and address our common issues. So, I encourage them to not be afraid to ask for help. Just find someone you feel comfortable with! Watch! You'll see the best technical skills and the good work ethic. I've done the hard yards and now feel confident to share. It's great 'cos it reminds me just how far I have come and my ability now. You just want to encourage them because I know what a difference that sort of support can make. You can see where they're struggling in their daily work because you've been there yourself.*

On a larger scale, several participants were involved in establishing innovative support activities that contributed towards other women building their capabilities. For example, at an organisational level, Amy describes how women working at SCIRT collectively worked together to create support not only within the organisation, but beyond. Yet again, we see how women take responsibility for addressing their own workplace issues, transforming cultural norms through professional behaviour, developing confidence in others and helping other female colleagues find ways to professionally integrate into the industry:

> *SCIRT formed a Women in Construction group (SWIC) within this organisation. It was a great opportunity for women working together to try and share our stories and increase the participation of women working in the rebuild. Our focus was on raising the visibility of women in construction, supporting women in construction, but also to tap into that unseen resource that hadn't necessarily been considered before (an action triggered by the Ministry of Women "Build Back Better" report). Once that started taking off, it just evolved into so many new opportunities to do a number of projects.*
>
> *I was fortunate to be involved in a project introducing new personal protective equipment gear for women, it was great. We knew that women would be out on-site wearing massive PPE that wasn't safe and could get caught up on stuff and you would feel like you didn't fit in. We teamed up with Safety NZ, they were keen to be involved and created a range of women's safety clothing. So, what we were doing was saying we need to create something that fits us for safety but also helps us fit into the industry. So the project was also about breaking down those barriers and the stereotypes we can encounter and creating a new normal. Once the project came together and it went public, it generated positive publicity for women and the industry. It was amazing.*

The impact and value of this initiative and extended support in the wider construction community was evident in the data:

> *That PPE project has been great for women, it's raised the awareness and the profile for dealing with gender equity issues. Sometimes there is a perception that we're in a developed country, and women are treated pretty well compared to some other counties and so why is it a problem, why should we be addressing it? So, these high-profile groups are helping to support women by showing how they can address issues that results in tangible benefits for women and the industry. (Arianna)*
>
> *Sometimes things created by women like the new PPE gear make a huge difference. It's not just the size, I can now get a shirt that is my shape. So, you actually look like a human being whenever you're out and that boosts your conference. Whereas before whenever you go out and you're wearing something that looks like your dad's jacket or a child in dress up clothes, and you've got to tell a contractor not to do what he is doing, it really doesn't do anything for your self-esteem, and confidence to deliver instructions and be taken seriously. (Ruby)*

Building capability through *leveraging social support* is vital for women's retention in the industry. However, not all participants gained social support. Where support was limited or lost, it had an impact on women's interest in staying in the industry. This was the case for two participants. Entering the industry soon after the second earthquake Nicola quickly became comfortable with her new work environment. However, Nicola describes how diminishing levels of support and lack of respect in work relationships with male colleagues ultimately led to her leaving the industry:

> *When I came into the industry, I was nicely surprised with how the management treated you like you were there as people together, they were very supportive, with no barriers. But as the years went on, and the demands set in, this started to breakdown and they returned to the old ways and the boys' club. We could see male managers distancing themselves from women, and there was not a lot of encouragement. Women were talked over and talked down to. It was a very unpleasant time. So, I am glad not to be in the industry, it would be difficult to go back where there is no support, respect or equality.*

This example reinforces the importance of viewing women's experiences over a longer period of time to gain a broader understanding and explanation of how they respond to changing industry conditions and what determines their interest in staying.

Construction industry research regularly recommends providing support and training as a way to retain women in the industry (MacIsaac & Domene, 2014; Worrall, 2012). This research found that women were proactive in regulating their behaviour or creating initiatives that built their own capability to respond to industry conditions. Activities involved *building relationships* with male colleagues, *learning* and *leveraging social support*. These behavioural practices helped the participants to increase their confidence and communication skills, and

to gain resources, respect and acceptance from male colleagues which they could then channel back into their work or interactions. In short, the women took responsibility and regulated their behaviours to adjust to industry conditions and develop professionally. While the practices detailed in this subsection provided the participants with gains, acquiring these resources required expending a significant amount of personal time, energy and effort. In implementing these *building capability* behaviours, women are symbolically building the *glass scaffold* they need to safeguard and facilitate their own retention and progress in the industry.

TOKEN TOLERANCE

While the *building capability* category highlights women's long-term, regulated behaviours in the construction industry, the more short-term regulated behaviours are represented in the process of *token tolerance*.

The female participants in this research did not ignore those *little things* they encountered with their male colleagues; rather, they actively addressed industry norms that constrained their ability to gain resources, build relationships, and progress. The findings presented below define and discuss variations in the participants' behaviour that constitute the process of *token tolerance,* as depicted in Figure 7 below. This section provides a closer view of how the women managed their day-to-day interpersonal challenges. *Playing it calm*, a key property of this process, involves intentional emotionally regulated behaviour to ensure the best outcome for the women. Thus, while the women may appear to tolerate adverse interactions, they are in fact gauging how they feel in an interaction, considering their relationship to the other party, and possibly disengaging from it. In short, the women do not inwardly accept adverse behaviour, even if their countenance seems to suggest otherwise. The second property, *cautious consideration,* involves women considering the causes of the disruption. They think through how to modify their appearance, emotions or language to accommodate or protect their own position, and the position of others, and not to over project themselves. The third property, *demonstrating good practice,* sees women purposefully adopt positive respectful actions during challenging interactions to demonstrate the respect and acceptance they want to receive in return.

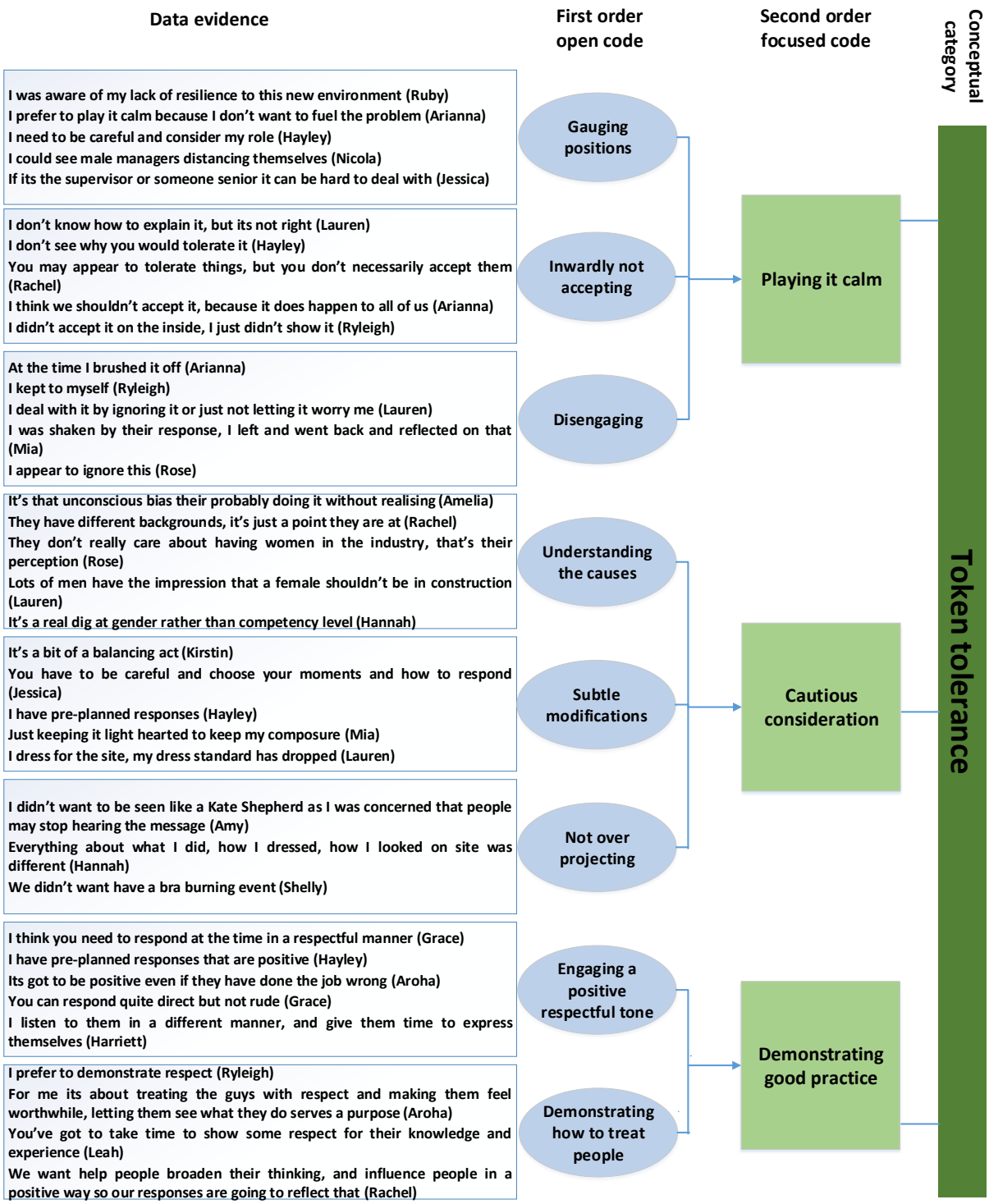

Figure 7 Coding tree: Token tolerance

Reasons why passive responses were common

Women working in the construction industry can find it complex to manage challenging interpersonal interactions involving male colleagues. Before discussing the process of *token tolerance*, I first explain why the participants predominately adopted passive deflective

responses in this post-disaster context, at least initially. During challenging encounters, the participants were unsure whether they should accept, tolerate, deflect or resist the challenging behaviours. Initially, the participants appeared to *ignore an incident*, *play things down, joke things off, brush it off, avoid people* or *dismiss it as an industry norm.* Such actions are conceptualised as passive because women appear to accept or go along with what happens or what others do without active challenge or outward response. There were several reasons why the participants adopted these passive actions. These included feeling singled out, specifically by their gender:

> *I've had a couple of guys or clients go, like, "I hope you know what you are doing on the job", because I'm a woman. (Kirstin)*

Those new to the industry, and young participants who had limited previous experience lacked the confidence to respond directly to negative interactions. Others considered the additional personal and work pressures of the post-disaster conditions to be far more important to address. As demonstrated in the quote below, a *just get on with it* attitude or a *not enough time to address it* attitude seemed to override the need to address *those little things*:

> *With such big workloads, I just tolerate the way some men behave because there is just not enough time to deal with it and I'd rather just get on with the job than bring that up as an example. (Linda)*

The participants mentioned that some negative interactions could be viewed as isolated incidents, others were not considered significant enough to address, or, as Reagan described, were things that had become normalised:

> *I knew I was probably the only woman digger driver, but every now and again there was one noticeable thing: I owned the business, but when people walked up to us, they would either walk up to Dad or walk up to the other guy on-site. No one would ever approach me as being the boss. It didn't worry me, actually, because it's always been like that.*

Many of the participants chose to, or were expected to, participate in site visits where subtle negative interactions were more noticeable. Eight of the participants who were new to the industry were surprised by the prevalence of subtle resistance to women, compared to what they had previously experienced in the workplace in a different sector.

The Christchurch post-disaster construction setting was fluid, as many individuals and organisations had to change physical site locations and businesses had to deal with ever-changing staffing levels. Furthermore, individuals had to move roles quickly to meet new demand. This made it very difficult for women to quickly establish positive working relationships with male colleagues. As mentioned in the previous section, most participants felt that working relationships were largely based on proving competency and earning respect, both of which can take time to establish. As Nicola noted, preferring to take the safe option of establishing relationships meant that subtle negative interactions were often overlooked or dismissed:

> *Because it's not an automatic connection for women in this industry and you've got to work at building your work relationship with men, I guess you just let most of that small stuff slide, because once you seem to be accepted most of that other stuff starts to disappear.*

Job tenure was also extremely unpredictable in this post-disaster setting, making it difficult for women to challenge social adversity, especially if it involved someone in a position of power. Participants were aware of the risks to themselves or to their relationship with others. This issue is clearly seen in Jessica's quote:

> *If it's the supervisor or someone senior it can be hard to deal with those negative remarks or the put-downs. You always have to be careful, consider your position and choose your moments and how to respond. Because you don't want to set the resistance or aggression off even further because that then blows away any chance of developing rapport or your career can be on the line.*

Participants viewed many of the challenges as part of a wider process linked to the common view of the construction industry as a *man's world*, and the permeating unconscious social bias. This is evident in Amelia's comments, where she compares her experiences of being at work with those from her personal life. She is displaying an understanding of the underlying causes of these subtle social disruptions:

> *I think you see that in life as well, not just at work. When I was having the assessments done with EQC for the house, I was single at the time and a male structural engineer said, "I'll come and support if you want," because he had heard of instances where the guys that had gone to do the inspections wouldn't take notice of the woman householder. So, he came around and that was interesting because these guys turned up and they were talking to him, not me. It's that unconscious bias. They're kind of doing it probably without realising.*

Prior literature suggests that these initial deflective responses can reinforce the misconception that women are submissive and accepting of industry norms (Denissen, 2010a), when in fact this may not be the case. The findings demonstrate that the participants were not ignoring or tolerating these negative social interactions. Although on the surface they may have appeared to tolerate adverse interactions, this was only *token tolerance*. The women were not submissive or powerless.

In discussing the adverse behaviours of their male colleagues, most of the women stated that it was *inappropriate*, or *not acceptable.* These comments indicate that the women were not happy with the men's behaviour and did not want to conform to traditional gender norms. The participants' responses (their token tolerance) were a practical protective reflex which enabled them to remain composed while they considered options beyond the immediate adverse encounter. In short, the participants believed that their behaviours enabled them to address the disruption rather than dismiss it. These features are evident in the three stages of *token tolerance*: *playing it calm, cautious consideration* and *demonstrating good practice*.

Playing it calm

The following quotation initially drew my attention to the idea of *playing it calm*. At first glance, it could be assumed that Arianna is behaving submissively to a male colleague's sexualised behaviour. This is because the term she uses, *brush it off,* is often associated with submissive coping behaviours. However, the reflex of brushing it off was found to be part of a broader practical *playing it calm* response:

> *A couple of times on-site I have had comments about my looks. There was one time I went on-site where it was just me and a much older guy and he got a phone call and he is talking on the phone in front of me about how pretty I was and how he felt that "she is very attractive." At the time, I preferred to play it calm and brush it off because I need to protect myself because you don't want to fuel the problem. But I've had that a couple of times and it isn't appropriate. It also doesn't make you feel very comfortable, particularly when you're out there on your own. They wouldn't do it to a man. They think it is acceptable, but it's not because it does happen to all of us.*

During this encounter, Arianna considers her isolation, gender and limited relationship to the other party in her response. While the *playing it calm* approach may initially appear as tolerance, as Arianna's quote indicates, she is not accepting of this behaviour and instead explains how her actions were about protecting herself. She protected herself by *gauging the*

risks, *keeping composure* while *inwardly not accepting* the behaviour and *disengaging*. (As similar to social support, these three features can symbolically represent the guard rail on the glass scaffold). Participants frequently used these three *playing it calm* response actions. These self-regulated techniques provided the participants with time to assess the context, manage their own reactions and remain positive and safe. As the following quotes demonstrate, *playing it calm* is not about being submissive or dismissive:

> *Just because I may appear quiet or calm in a difficult situation doesn't mean I am submissive. It's a practical step to move beyond that and address the situation in a better way. It's about composure and most times it's just part of the sensible, safer option you need to take. (Aroha)*
>
> *By not showing an obvious reaction doesn't make you weak. In fact, it can be more powerful than you think, it can keep them guessing, or it can display your disappointment without words. You've just got to be always considering your position at the time. (Robin)*

Thus, in *playing it calm*, women need to regulate their emotions, in doing so they carrying out additional emotional labour to ensure they can manage these interactions. The women's regulation of their emotions displays their rejection of negative gender-centred behavioural norms:

> *It's all right with the guys that I directly work with because they know that I know what I'm doing. However, when some of the male subcontractors come in, they just expect you to know nothing. Sometimes they just ignore me even though I'm, like, "Hello, I'm here." They look down at you and they just don't really listen to anything I have to say. I don't know how to explain it, but it's not right. I think it is mainly the older men that have been around for years. I guess I've just kind of learnt to deal with that by ignoring it or just not letting it worry me. (Lauren)*

In this excerpt, Lauren recognises the difference between her relationships with her close male colleagues and other men that enter the worksite. Lauren's interpretation of such incidents is shaped by the support of third-party members. As Lauren has already established positive relationships and is confident with her male colleagues, when she encounters these situations she has a heightened awareness of the exclusion she is suddenly subjected to. Lauren displays emotional regulation; she minimises the impact of her disappointment by suggesting it is only a small group of older men and that she has learnt to manage these situations by not displaying her discomfort. Similar to Arianna, Lauren's expression of disappointment displays her internal lack of acceptance. Her comments indicate that she is not actually ignoring the situation. Both participants' interpretations of these negative

interactions and their work relationships provide a clearer picture of how women respond to social challenges. In short, *playing it calm* is effective in dealing with immediate feelings of tension, maintaining a sense of self-preservation, and avoiding further discomfort. Previous industry research has largely ignored the responses outlined in the *playing calm* stage. As demonstrated below, this is only the first stage in the *token tolerance* process.

Cautious consideration

As the *token tolerance* concept arose during the analysis and interview stage, I introduced the idea in subsequent interviews to see if the new term resonated with the participants. Rachel not only understood this abstract concept but added further information:

> *You seem to tolerate their behaviour because you know it's just a point where men are at and if I do XYZ, blah, blah, blah, I can move them from that point to that point. You may appear to tolerate things, but you don't necessarily accept them. They don't sit with your own values, but for you, it's a process and you understand that everybody is on a different continuum and they've got different backgrounds that make them believe or see things in a certain way. We want to help people broaden their thinking and open their eyes to things, and influence people in a positive way. So our responses are going to reflect that.*

As Rachel's quote indicates, *token tolerance* is about understanding where men are situated, moving one-self or others to an improved position of understanding or relationship, and reflecting a better standard of behaviour. The participants' behavioural adjustments (moving through the steps in a positive way) was evident in the data when analysing responses beyond the short-term interaction.

The second stage of *token tolerance* process is labelled *cautious consideration*. Here the women sought to understand where people were positioned in the interaction, and how to move to a better place. In attempting to achieve this aim, the participants were found to be both considerate and cautious in their approach. Participants show consideration through regulating their behaviour; they took extra time, thought and care to assess the context, the possible consequences of their actions, their own personal position, the other party's position and what actions were most appropriate. Participants frequently chose to modify their language, personal appearance or routine. Even though the participants were responding to different social challenges over different time spans, these features were consistent in the findings.

The first example provides insight into the significant amount of thought and effort involved and the commitment participants make to move beyond their normal routines. This example also points to the behavioural adjustments that participants engage in to address traditional gender norms that impact on women's daily work:

> *At least once a day I get asked, "Is there a man I can talk to?" It's from the older tradies, or the older general public, male and female, it's their generation, people who still believe that women don't work with hard product, they should work in offices, answer telephones, or stay at home and raise children. It makes me angry because why is a man better than what I am? I'm more than capable of doing any job a male can do. I definitely defend myself. I've worked too hard to get where I am to let someone tell me I shouldn't be there. So, I have pre-planned responses. Usually, it's "no, honestly I can help you." They will say, "oh no, you won't know what you're doing." I say, "Well, as this is my department, I do need to know," though I do have to be careful and I always remain respectful. But if they persist and they want to see a man, I will take them to one of the guys. But on occasions, my male co-worker will still need to end up coming back around to me, and I'm like, "Hi, how can I help you today?" I just wait and hope they get it. I don't see why you would tolerate it. You can't change it if you tolerate it. (Hayley)*

Frustrated by the effect of the "*man's world"* and the repeated dismissal of her ability by the wider community, Hayley thinks through the adjustments she needs to make to rebut others' perspectives. Hayley regulates her emotions and takes understanding of traditional gender stereotypes to re-orientate her response and protect herself from continuous psychological wear and tear. Integrating well-rehearsed positive verbal responses allows her to build her own capability to earn respect, while trying to shift people's perceptions about women working in this industry. In doing so, Hayley is taking time to build a response which addresses the existing industry gender norm. Hayley's adjustments allow her to move from just coping to gaining a greater sense of worth in this industry.

In the second example, capitalising on the favourable environment to promote women in the industry, Shelly's discussion reveals how *cautious consideration* is also applied to large group activities. In particular, Shelly considers how women are projecting themselves and the impact of such an activity in the industry context:

> *We had the realisation of the increasing number of women moving into the industry, so we decided to start the Women in Construction awards event. We got NAWIC involved, and it became the HAYS/NAWIC Women in Construction Excellence awards. It's a great event, it's a good for recognition and it helps the visibility. But what we didn't want to do when we started this event is, we didn't want to say, "We are better*

than men." There was no discrimination involved and sometimes this sort of event can be taken like that. It can be taken as a gender discrimination thing, which is not the case. But we need this sort of event until we have equal pay, equal opportunity, equal treatment. We still need this sort of event to showcase the skills of women in the industry. We wanted people in the industry to know what we were doing, but at the same time, we didn't want to appear as a bra burning event.

The third example highlights the complexity of the *cautious consideration* step as the participant factors context, gender and her own personal values into how she chooses to adjust her behaviour. The range of self-regulated adjustments made by Hannah demonstrates how cautious she was prepared to be to obtain a positive outcome for herself and the people she was interacting with:

I was in a management role at the time where I was going out and assessing progress and the quality of work. I experienced a number of incidences where foremen or supervisors out on-site would make jovial comments about me being a woman and what did I know about the work. This made it very difficult to gain the relevant information I needed to do my job. Looking back, this sounds so bad, but the approach that always worked for me was facilitated by the fact that I didn't have a lot of experience. Everything about what I did, how I dressed, how I looked on-site was different. I never wore a skirt, always in pants, in boots, always in a collared shirt to match my male counterparts because I didn't want to give them any other reason to think that I was any different. I didn't want to bring any kind of sexuality into it. I mirrored everything they did.

I think women care about relationships and that changes our whole approach to how we do things on-site. So socially my approach with almost all men out on-site was, "Walk me through things. Show me what you've done." So, using open-ended questions which allowed them to talk. I didn't ask close-ended questions, "Have you done this? Did you do that?" So, if I saw something that didn't look right, instead of saying "That's not right," it would be "Hey, I'm no expert at this, but that looks really different from something that I've seen on our other sites. What is that?" Really inquisitive, really stroking egos. I know it sounds bad, but it really worked, asking for help, and I was quite comfortable to temporarily play the submissive role, but I was still able through my questioning to get the information that I needed. Everyone wants to talk about what they know because they like that and it makes them feel good. Then because that worked for me so quickly, I was able to develop a rapport with individuals. Then most of them took me under their wing and they were happy to help. From then, they were okay with me challenging back because it was no longer a policing scenario. Everything I do has always been framed around facilitating and "how can I help you?" rather than "you're doing it wrong, it's not right." Because it takes away "she's just a ball-busting bitch that's out here to create more work for me."

Hannah's managerial status, appearance, and her limited site experience determined her choice to carefully think through how she needed to handle the challenges she faced and

manage her visibility. Initially, Hannah was disappointed by the men's discriminatory behaviour. Feeling tested by this, Hannah realised that she needed to take care with these relationships and quickly adjusted her behaviour to get her work done. The quote demonstrates how Hannah carefully worked on the double bind. First, she built up a shared identity with the men by de-emphasising her gender. Intentionally blurring the lines of gender difference, Hannah went to extraordinary lengths not to over-project her gender or managerial status by desexualising her appearance. For Hannah, this compromise was short-term and was part of a broader adjustment process aimed at shifting the workplace relationship from male resistance to rapport, and achieving her workplace goals. During her interview, Hannah had expressed how she felt these same physical modifications were not necessary in the office environment as there were more women present and the standards appeared to be more professional.

Second, Hannah temporarily shifted her personal boundaries by choosing to appear submissive and fall back on her lack of work experience to create an opportunity to engage with the men. By adhering to conventional gender stereotypes that women need help, Hannah allowed the men to feel good about coming to her rescue. Having gained greater connection from her male colleagues, Hannah recognised the shift in these workplace relationships and capitalised on this. In short, her relationship with her male colleagues shifted from resistance to rescue. Capitalising on these opportunities, Hannah strategically built her capability to gain positive outcomes for each party. By regulating her behaviour, Hannah is able to accomplish her work goals and establish relationship connections rather than simply survive.

Hannah communicated her discomfort in having to adjust her normal behaviour, by stating that "I know it sounds bad". By displaying disappointment in having to change her behaviour in this way, Hannah was aware that the whole situation was not in line with her personal values. Instead, while she knows it may be necessary in the current environment, she also sees the need to regulate emotional and physical behaviours as unnecessary and inconvenient. In this situation, Hannah could be seen as submissive and accepting of male dominance. Yet, her behaviours were not to maintain a submissive status, to become one of the boys, or to conform to the gendered industry norms. Instead, this was a temporary measure, used primarily to build relationships and develop respect between the parties so

that she could complete her work. Hannah was attempting to push out the boundaries without losing personal status or identity. Similar to Hayley, Hannah responds by turning her frustration and disappointment into purposeful action, actions that were beneficial for her workplace relationships and achieving work objectives. These examples demonstrate how participants were prepared to think through and temporarily shift their personal space, identity or femininity to gently nudge existing industry gender norms in a new direction. Hannah and Hayley's response actions are consistent with other participants, showing how women are cautious and considerate, not of "fitting in", but of reconstructing relationship boundaries, breaking through barriers that shape the industry culture, and finding their own way to integrate professionally.

Demonstrating good practice

Another type of interaction the participants noted focusses on how to treat the other party. At the start of the previous section, Rachel says:

> *We want to influence people in a positive way and our responses are going to reflect that.*

There were many instances in the interviews where the participants *demonstrate a better standard* of behaviour than what they encountered. The purpose of such conduct was twofold: to generate a more favourable outcome for both parties, and to address industry norms. *Demonstrating good practice* is part of the *token tolerance* process. It includes speaking and acting in a non-aggressive, positive, and respectful way. While these actions may be perceived as "feminine" or conforming to gender norms, the intention is to reform rather than conform. Participant used this behaviour to move themselves and others to a better position within an interaction or relationship. The following scenarios show different time spans, and contexts, and involve participants with different backgrounds and length of experience. Despite their differences, the women all share a similar goal: to respond to their interpersonal challenges in a respectful manner that demonstrates how they think people should be treated in the workplace. Even in the briefest of disruptive interactive encounters, the examples show participants intentionally addressing stereotypical norms in a positive manner. Grace's quote clearly demonstrates this argument. She explains her response to an incident where she was singled out by her gender:

> *In one situation I was asked if I would like to go to a golf tournament and I said, "I don't play golf and it's not interesting for me." They then said, "But you look nice so it will be nice to have you there to talk to the clients." I calmly and politely said "well, that's totally inappropriate and disrespectful. If you said that I had a lot of interesting things to talk about that would be different." I am not interested to go anywhere just as an attractive piece of furniture. That's very archaic.*

Even though Grace is young and new to the industry, she explains how her background and confidence as a communicator shaped her interpretation and choice to deal with this subtle form of discrimination immediately:

> *I come from a communications and public relations background, so I'm used to speaking up. That's probably my personality and my parents always taught me to say something when something was wrong, whether it was related to me or the other people that were present. I think you need to be confident and respond at the time in a respectful manner, because if you don't say something at the time, something quite direct, firm but not rude, then it will carry on. Your politeness and professionalism set the standard you expect or would like to see. Most of the men respected that I said something. They knew not to say that again to me*.

In a social setting, Grace enhances her visibility by providing a clear, concise and reasoned reply, this sends a message to the concerned party and others present that these actions were not right and should not be repeated. This allowed her to convince the other party why she was not complying with their request and it gained her the respect she expected. Grace made a positive response: one that was direct and firm, without being rude.

Many participants admitted that outwardly addressing social challenges was hard. Their *token tolerance* responses required considerable patience and flexibility, yet, even over a longer interval of time, the same common denominator remained: conveying respect and civility to the other party to help improve a work relationship. For example, feeling belittled and distanced by her male managerial colleagues, Rose worked patiently at reflecting a standard she wished could be reciprocated:

> *There are some men at management level who are quite disrespectful at times: they just ignore you or dismiss your ideas when offered. They treat you like some little administrator and they put you in that hole. It's their perception or how they see women in the industry. I adapt and deal with that in my way. I'm patient, and while I appear to ignore them, I remain nice to them hoping that they will see from me the respect that should be common in the workplace. Eventually, they come to me because they need me or they've figured out it's worth knowing me and that I can actually help them do things they are struggling with in their role. It's at that point that the relationship improves and shifts to a new position. Then they start to acknowledge you*

are in the same office and become more open to your ideas. In this industry we can be more productive if we show that respect to each other sooner.

Women can find it challenging to remain positive in a male-dominated domain, especially if they face ongoing resistance or tensions in the workplace. In the following passage, Aroha suggests that communication is crucial for sustaining this standard. In the quote below, Aroha explains how she aims to consistently demonstrate the good practice of respecting people in the workplace. She uses a positive tone to show staff how she values them:

> *Male resistance is a common challenge in this environment. As a female manager dealing with this, it is around demonstrating good practice through how and what you say. It's about treating the guys with respect and making them feel that they are worthwhile because that is how, as a person, I would like to be treated. This comes from the way you communicate to them in all situations and letting them see that what they do serves a purpose, even if it is de-nailing boxing all day. You need to get the best out of them, so it has always got to be positive and you need to give them a reason why you are asking them to do stuff. Or you use the "can you help me out here" strategy where you say to them, "I am trying to achieve this. Can you give me a hand here?" You are making them think, "oh she's asked for my help, I'll help her." It is only a temporary move, because you know that they'll respond better to that, and you get the work done. They'll always help you out, they are good like that, but if you say, "just do it", well forget it, because they just become more resistant. Further to that, it's about asking questions they can answer rather than telling them what they should have done. It's always got to be positive, even if they have done the job wrong. "Guys, that slab of concrete, we have to pull it up. How can we best do that?" Bring them together and then before you know it, they are answering your questions. So, you need to treat them with the respect you desire back and the standard you want to set in the industry. There's several young guys now managing teams that have worked with me and they are all using these same simple communication strategies.*

For Aroha, demonstrating good practice through crafting communication, allowed her to establish and maintain good work relations, and maximise her opportunities to achieve workplace outcomes for herself and others. In using an ask for help communication strategy, Aroha could be perceived as behaving submissively and conforming to gender and industry norms by allowing the men to come to her rescue. However, as Aroha suggests, other male managers use this same strategy. To Aroha, this is a temporary move only, as her long-term intention is not to conform to industry norms. Instead, her intention was to gently *nudge the norm forward*. This was achieved by her temporarily minimising gender and leadership differences, maintaining positive working relationships, and allowing staff to feel better about their work. Aroha regulated her behaviour to suit the situation and demonstrated to others how she believes people should be treated and valued in the industry.

In a completely different scenario, Rachel, a human resource manager, maximises others' work opportunities by also using a positive communication technique (*enhancing visibility* of others, through communication). Aiming to resolve recruitment demands, Rachel was aware that the stereotypical argument for "best fit" was not suitable in this post-disaster context:

> *You take a brief from the leadership team who are recruiting. It's got to fit, and it's got to have the right technical skills, all of that was challenging. Getting our guys to stop being one-eyed about everything and actually be open to exploring options was tricky. But the thing is, they're driving that stereotype by thinking that what they had or did in the past still fits. But the tighter the pool got, the more the recruitment timelines extended, our guys could not make a decision. They weren't comfortable looking at things that weren't normal for them. They would do everything that you're not allowed to do legally. They would ring up their mate and say 'oh, someone has just sent me a CV, can you tell me about them?" when they hadn't even been shortlisted. That kind of thing. The old boys' network in Canterbury is very strong. It was about getting them to be brave and to take a chance and to forget it's a woman or a guy from another country that they are looking at. I got very good at telling stories about, "remember when you took this person on? They didn't have this, they didn't have that, but they did a great job." So, trying to tell stories that made them go, "okay, maybe it will work." It was about moving them from the old traditional lane into a new lane.*

While Rachel is challenged by the blatant nepotism of some male members as they stayed close to their traditional *boys' club* methods of recruiting people, she used creative communication techniques to challenge others' assumptions about workers' credentials. She found ways to highlight other workers' worthiness as they seized an opportunity. Maintaining patience for her male counterparts, Rachel allowed them time to adjust and understand the new recruitment conditions. Rachel's aim, in crafting her communication, was to influence in a positive way by moving the men from their traditional mind-set to a new way of thinking. Using this response, Rachel also sought to *nudge the industry norm* through positive demonstration: illustrating the correct procedures for staff recruitment.

Among the research sample, there was only one participant who felt compelled to lodge a formal complaint due to ongoing discriminatory challenges she encountered with her supervisor:

> *My direct supervisor and I don't have a great relationship and that affected my study last year significantly. It's even been commented on by the guys I work with that he talks to them one way and to me in a totally different way. It's something to do with one of the minority groups I belong to, whether it's because I'm an apprentice, a woman or even my ethnicity I'm not sure. It's my first ever putting in a formal complaint, which was horrible for me because I love my job and the team. Sometimes*

> *you have to stand up for yourself, even if it is uncomfortable because it might stop those behaviours and help others coming through. (Kay)*

Kay felt singled out in the workplace over an extended period of time. The information and support she received from her male colleagues were instrumental in helping shape her decision to respond formally. While this example displays the participant's depth of discomfort, the purpose of Kay's response is consistent with that displayed by previous participants: to resolve social challenges by demonstrating an improved standard of practice in the workplace.

As shown in this section, *token tolerance* is a process which involves women working towards becoming respected and accepted in the industry as capable individuals, rather than being singled out or treated differently due to their gender. Shelly's message provides a concise summary of this aspiration:

> *This is a woman working on-site, not "the woman" on-site. She is not one of the blokes or one of the boys. She is a person that is on-site as part of the crew, a member like everybody else, doing a job. You don't need to make any assumption or treat them differently. This woman has chosen that path because it is the job they want to do.*

The findings presented in this section demonstrate that women are aware of the potential consequences that their own interpretations of negative interactions may have on their well-being or their work relationships with their male colleagues. The participants have demonstrated how they can transform their behaviours and perceptions to lessen or change the impact of social challenges they encounter. Through regulating their behaviour, the women are able to progress beyond discomfort and resistance and to project a good standard of behaviour themselves. The participants displayed an interest in establishing or maintaining positive relations with their male colleagues. Defining and explaining the properties of the *token tolerance* concept has exposed the practical, protective and progressive nature of how women respond to industry conditions, and may be behind many other response types such as ignoring, avoiding and joking things off. This new concept refutes the proposition that women respond submissively to industry conditions.

SUMMARY COMMENTS

Using grounded theory to analyse the data, this research has shown that the participants' interpretations of industry conditions and the meanings they attach are shaped through the intentional behavioural adjustment process of *deferential tailoring*. The sub-processes of

deferential tailoring outlined in this chapter brings to light women's complex array of nuanced regulated behaviours they adopt in response to opportunity and challenging industry conditions. The findings presented in this chapter provide an understanding of how women apply contextual awareness, values, thoughtfulness, caution, learning and flexibility in their thinking and physical actions to respond to opportunities or challenges. In response to post-disaster industry conditions, the participants demonstrated how they were prepared to *capitalise on opportunities* and to *build their own capabilities* using *token tolerance* for the purpose of developing positive work relationships that provide access to resources. These behaviours ultimately enabled them to build the glass scaffold they need to address industry norms and progress.

CHAPTER 6 A GROUNDED THEORY OF DEFERENTIAL TAILORING

INTRODUCTION

Exploring the meaning contained in women's experiences of entering, working in, or leaving the Christchurch construction industry led to the development of the deferential tailoring theory. The deferential tailoring theory presented in this chapter explains women's responses as an intentional behavioural adjustment process. Deferential tailoring accounts for the contextual, personal and interactive conditions that influenced variations in participants' behaviours as they responded to industry changes in the Christchurch post-disaster setting. The theory proposes that women's regulated behaviours are aimed at achieving personal development, maximising career opportunities, and addressing industry norms.

This chapter is divided into four sections. The first section explicates the deferential tailoring process. The second section discusses the theoretical contributions that this thesis makes. Section three outlines the practical implications which stem from this new theory. The final section discusses the limitations of the research and makes recommendations for future research. The chapter concludes with an illustration of the research's importance, encapsulated in the words of one of the research participants.

DEFERENTIAL TAILORING

During the third cycle of coding (to ascertain an over-arching response process applicable to all participants), I experienced a serendipitous moment labelling the core category of deferential tailoring. The three key behavioural sub-categories constructed in the analysis were neatly subsumed under the definition of the word deferential. This term held several associated synonyms that shared common meanings to the participants' behaviours. First, the feature of attentiveness, as shown by the participants heightened awareness of the contextual conditions, their personal situations and actions, and their attentiveness to the needs of others were central to their response behaviours. Second, the participants' thoughtfulness was observed when they critically reflected and considered how to carefully manage their interactions and advancement opportunities in this post-disaster setting. The word consideration resonated with the values alignment and cautious consideration behavioural actions displayed by the women. Third, the moral focus of women's choice to show and earn respect aligned with their personal and professional standards of good conduct. Fourth, the association of the word submissiveness to the term deferential confirmed my interest in attaching the deferential label to the core category. The concept of

submissiveness was central to the original argument established from the literature review and developed in the discussion. As a noun, tailoring is associated with the variation of thinking, feeling or action: in this case the women modifying their behaviour to respond to the conditions they find themselves in. The research participants demonstrated how they can spontaneously, purposefully, or intentionally move their thinking and/or modify their emotions or behaviours as they prepare and implement their response. Having established the deferential tailoring term, it was easier to refine the properties of the three behavioural types linked to the process and explain the theory.

Deferential tailoring is a response process that explains how women working in male-dominated environments purposely adapt their thinking and behaviour in order to capitalise on various opportunities and address personal challenges or gender norms that impact upon their work. The process of deferential tailoring entails regulating one's behaviour during interactions with male colleagues, or during daily work. The regulated behaviours of deferential tailoring are aimed at carefully reducing the frequency and intensity of stress or embracing opportunity in order to achieve personal and organisational outcomes. While the deferential tailoring process encompasses a range of short-term sub-conscious and long-term conscious adjustment behaviours, the behaviours pertaining to this process were found to be predominately conscious and deliberate. Further to this, the conscious behaviours are largely determined by personal standards of good conduct and the motivation to meet those standards. Over various time intervals it is the women's conscious awareness of their circumstances and their adjustment actions that determine whether they meet their desired outcomes. While Figure 8 depicts deferential tailoring as a linear process, it does not necessarily occur sequentially. Instead, there exists a dynamic interplay between the three key behaviours: capitalising on opportunity, building capability, and token tolerance. These three key behaviours are linked by women's desire to gain confidence, respect and acceptance and achieve career advancement in a male-dominated environment.

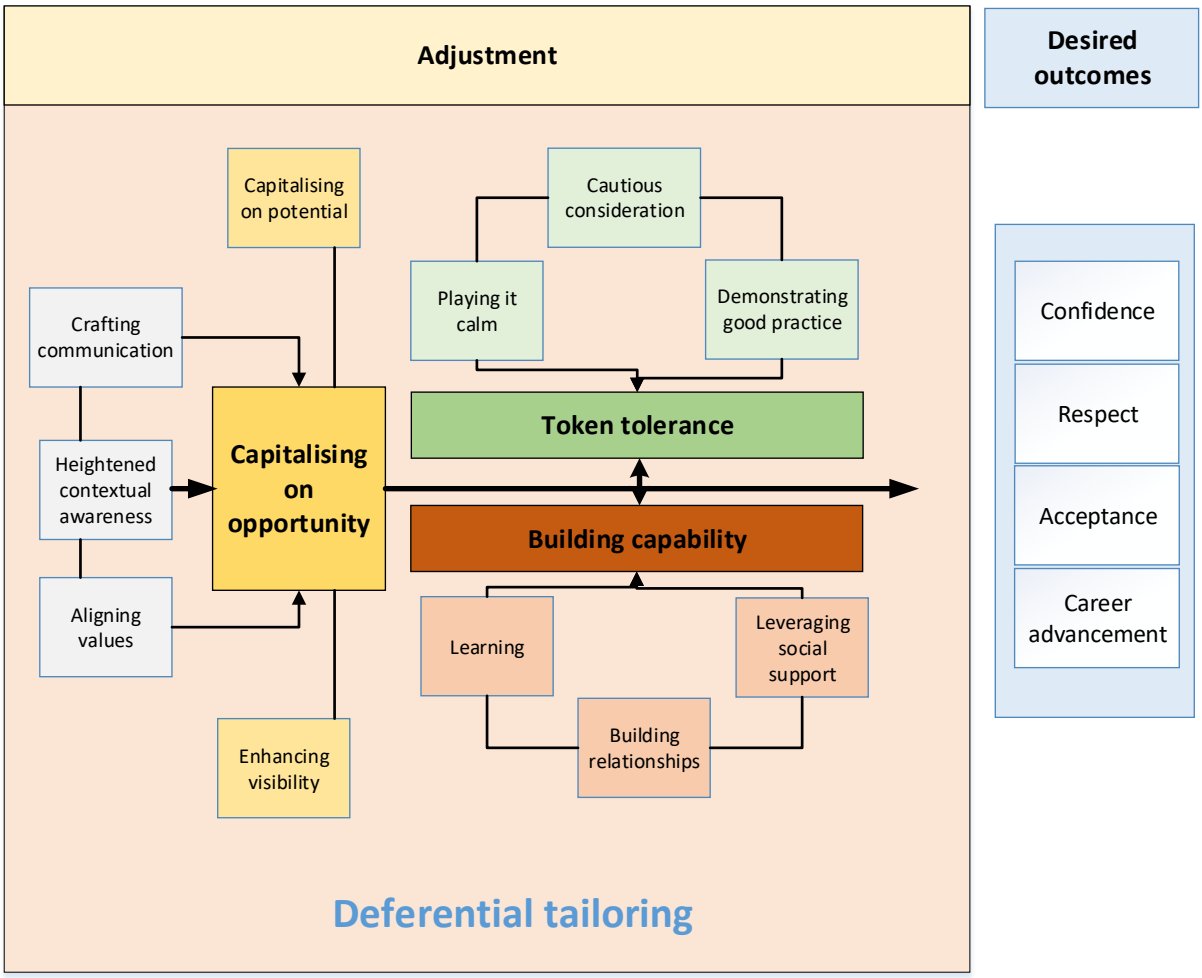

Figure 8 Deferential tailoring

The capitalising on opportunity behaviours describe how women are aware of environmental, structural and social variations in industry conditions or in workplace relationships. In response, they engage in proactive behaviours to enhance their visibility and capitalise on positive professional outcomes when the conditions are favourable. Capitalising on opportunity behaviours are characterised by alertness, thoughtfulness, and flexibility.

Central to capitalising on opportunity, and also important throughout the deferential tailoring process, is how women sustain a heightened awareness of the context around them, align their decision making and actions with their personal values, and purposely craft communication during key interactions with male colleagues. These three behaviours enable women to build strong platforms. These platforms assist them to move beyond barriers and utilise the prevailing conditions to their advantage. The women's attentiveness to the industry conditions and to workplace relationships is ongoing, and therefore crucial in shaping their interpretation of how and when to regulate their behaviour. By being aware of the changing

employment or social conditions of the industry, women are able to stay close to their personal values. They can also choose when to regulate their thoughts and decide how and when to respond to opportunities or social tension. This allows women to make thoughtful deliberate choices within interactions or regarding occupational change. Central to women's behaviours in this context is the adjustment of communication patterns. This generally involves maintaining positive verbal or non-verbal language or expressions, or temporarily adopting male characteristics to suit a situation or the person/parties involved. While the three behaviours enable women to capitalise on opportunities as they present themselves, they also provide a foundation for building capability and token tolerance.

The longer-term process of building capability explains how women take personal responsibility for their own professional development and the acquisition of important resources in order to respond to industry conditions and advance their careers. The conscious behaviours associated with building capability are centred on acquiring resources (respect, acceptance, confidence and technical skills) through building relationships with male colleagues and increasing technical and social confidence through learning and leveraging social support. As access to resources can be limited, women intentionally utilise additional personal resources such as time, energy, thought, and patience to develop relationships with male colleagues and in so doing build their capability. The behaviours associated with building capability become integrated into women's normal work routines, but nonetheless represent additional labouring as they require a considerable investment of personal resources.

The process of token tolerance explains how women initially appear to tolerate disruptive behaviours by male colleagues while remaining outwardly positive as they covertly process the experience and determine how best to respond. During such interactions women choose to overtly demonstrate a professional standard of conduct which they believe models appropriate behaviour for how people should be treated in the workplace. Token tolerance involves a combination of short-term sub-conscious and conscious subtle behavioural adjustments. Women are quick to notice when certain male behaviours make them feel different or devalued, or when such behaviours do not align with their personal values. Taking into account the surrounding contextual conditions, women initially choose to play it calm.

Playing it calm involves covert actions which allow for the temporary suppression of emotional responses in order to maintain composure, and to sustain or project a positive countenance. This enables greater thoughtfulness and cautious consideration of how to regulate behaviour. Cautious consideration involves taking into account time, place, situation, personal position (age, ethnicity, sexuality, occupational status), and one's relationship to male colleagues. This process allows women to think through how to protect themselves from further negativity and how to project a positive countenance. Demonstrating good practice is key to token tolerance and the entire deferential tailoring process. Through the purposeful use of positive and respectful communication women demonstrate how they think people should be treated in all interactions in the industry and in day-to-day life. Through the subtle adjustment of their personal boundaries, women are able to model the different standard they wish to project. Token tolerance enables women to address gender norms and discriminatory behaviours that impact on their work and in so doing build positive workplace relationships.

The behaviours of the deferential tailoring process explain the "how" in the response experiences of the research participants as they adjusted to rapid change and the conditions of the construction industry in the Christchurch post-disaster setting. The deferential tailoring process aligns with Bandura's (1991) view of self-regulation theory in that self-regulation is a continuously active process in which people monitor their own behaviour and the influences on their behaviour; judge their behaviour in relation to personal or contextual standards and react to what they think or feel about the context and their own behaviour. The main distinction that exist to self-regulation theory is how the deferential tailoring process considers both conscious and sub-conscious self-regulated behaviours over short or long-term intervals. In doing so, the deferential tailoring process demonstrates how well women are able to regulate, influence and control their own behaviour and emotions. According to Ackerman (2020), those with high self-regulation skills are better able to navigate the workplace. The current research is supportive of such a statement as demonstrated through women's extensive application of deferential tailoring behaviours to manage challenging industry conditions, embrace opportunity and advance.

Metaphorically, the behaviours of the deferential tailoring process represent the invisible capabilities (scaffold) women build in order to break down barriers and biases, address

gendered power relations and norms, establish positive workplace relationships, and progress. The behavioural adjustments involved in the deferential tailoring process constitute additional forms of emotional, psychological and physical labour over and above regular occupational requirements. Such behaviours provide insight into the effort women are prepared to go to in order to demonstrate, maintain and achieved good standards of conduct in the workplace. While time consuming and burdensome, this additional adjustment labouring enables women to be effective in embracing opportunities and achieving desired outcomes. Essentially the deferential tailoring process highlights the adaptive responsive capabilities and agency of woman working in a male-dominated context.

DISCUSSION AND THEORETICAL CONTRIBUTION

The central theoretical contribution of this research is in explicating the process of deferential tailoring by which women regulate their behaviours to support their endeavours to enter, address challenges, achieve career advancement, and to professionally integrate into the construction industry. In the sub-section that follows I discuss how the theory of deferential tailoring supports, and more importantly extends, research on coping and positive work relationships in the extant management and gender studies literatures.

Conceptualising women's response as a process

Within the field of management, there is a large body of research which concentrates on barriers that impact on the entry and retention of individuals in the workforce. Construction industry research has also focussed on the structural and cultural constraints which impact on women's entry, progression and retention in the industry (Amaratunga et al., 2006; Aulin & Jingmond, 2011; Fielden et al., 2000). The current research found that male behaviours detailed in existing literature, such as discrimination against and intimidation of women (Lekchiri & Kamm, 2020; MacIsaac & Domene, 2014), acting as gatekeepers (Ness, 2012; Sewalk & Nietfeld, 2013), and resisting women's entry and advancement in the industry, were apparent in the Christchurch post-disaster context. However, the qualitative research design of the current research provided a more emic understanding of how women responded to these negative male behaviours. Whereas previous research in a business-as-usual context suggests that women predominately behave passively to these challenges (Watts, 2007; Denissen, 2010a), the present research identified a different pattern of responses: in particular, how women turn such constraints into practical positive outcomes. In doing so,

this research makes a significant contribution to both the management field and the construction industry literature where there is limited research on how women working in this industry respond to employment and social conditions (both favourable and unfavourable).

Gender studies scholars have shown how women working in male-dominated industries manage their minority status and oppressive gender norms by adopting or performing different masculine and feminine behaviours, both actively and subconsciously. Gender as a process has been introduced to explain how women manage these challenges by "doing gender" (West & Zimmerman, 1987); working the "double bind dilemma" (Bagilhole & Goode, 2001; Jamieson & Hall, 1995; Sabattini, 2007), or "gender manoeuvring" (Schippers, 2002). The dominant frameworks for examining women's gendered responses in male-dominated industries, including those in the construction industry research, conceptualise responses as a form of individual coping with social stressors in the workplace (Bennett et al., 1999; Evetts, 1998; Powell, Bagilhole, et al., 2009). The current research offers some support for this conceptualisation and shows that women adopt a broad range of fluid, reflexive coping behaviours to manage gender norms in the construction industry.

Construction industry literature which details individuals' work experiences tend to focus on work-related stress and coping (Lingard, Francis, & Turner, 2010; Love, Edwards, & Irani, 2010). Widely examined in the field of psychology, coping is a multidimensional concept. According to Folkman and Lazarus (1984) in the theory of psychological stress and coping, coping is a cognitive and behavioural effort used to manage tensions that are appraised as demanding or exceeding an individual's resources. Lazarus and Folkman (1987) suggest that dealing with stressors in the workplace is largely determined by an individual's appraisal of their circumstances and their options for coping – what can be done to cope with a particular circumstance. Prior coping research has concentrated on measuring, defining and describing specific coping behaviours relating to incidents or events (Carver & Connor-Smith, 2010; Folkman & Moskowitz, 2004). Construction industry research relating to women coping with interactive stressors with male colleagues, have largely concentrated on describing women's short-term reactive coping behaviours as they related to negative interactions or focusses on creating a typology of response types (Denissen, 2010a).

In contrast, deferential tailoring considers how women respond to challenges and opportunities within both short-term and long-term situations. The deferential tailoring model conceptualises women's interpretations of industry conditions and their behaviours as a process that takes place over time and can involve multiple experiences or interactions rather than as separate events or response types. Viewing women's behaviours over a longer interval of time allowed for three broader behavioural patterns to emerge in terms of coping, embracing opportunity and management of gendered relations. This approach provides new insight into the diverse behaviours women adopt, and conceptualises deferential tailoring as a proactive and progressive process based on personal and professional standards of good conduct.

Essentially, the deferential tailoring process provides insight into women's appraisal of stressors. It also illustrates how they implement a combination of coping strategies that allow them to reduce or address the impact of negative circumstances and create more favourable outcomes. Within the literature, coping is generally framed as sub-conscious and reactive response to stressors (Brannon, Feist, & Updegraff, 2013). In the present research, the three behavioural patterns of capitalising on opportunity, building capability and token tolerance, were found to be more conscious and deliberate. In short, the deferential tailoring behaviours of women are intentional and self-regulated.

The deferential tailoring behaviours adopted by women were found to be utilised throughout their work experiences (when moving into, working in, or leaving the industry). The agentic nature of women's regulated behaviours aligns closely with literature on emotional focussed coping, engagement coping, and problem solving coping strategies that allow individuals to address stressors and advance beyond them (Carver & Connor-Smith, 2010). In the token tolerance process, the passive strategy of disengagement coping can be aligned to literature relating to escape strategies (Latack & Havlovic, 1992). The management of this diverse range of coping strategies displays women's independent capacity to deal with social challenges they encounter. In particular, women make practical evaluations of the context, consider the underlying causes of disruptions, are respectful of others in interactions, and consider how they project themselves. Then, based on their experiences, values, and learning, women respond in a way designed to have a positive impact on themselves and others. In this male dominated context, women take their learning from stressful interactions and use this to build

positive relationships with male colleagues. Hence, the deferential tailoring process encompasses the regulated behaviours women adopt as mechanisms to ensure they cope with constraints and progress in a male-dominated domain.

Experiencing and responding to opportunity

While existing construction industry literature abounds with recommendations of how to recruit and retain women (Fielden et al., 2000; Sommerville et al., 1993), there is far less research that explains how women manage their entry into the industry. Furthermore, it is unusual to find research relating to women's experiences of occupational opportunity in a favourable employment context, in this industry. Besser (2006) has discussed the theme of opportunity as central to the experiences of women in management as they respond to industry constraints in a business-as-usual context. The current research supports the view of Besser (2006) suggesting that women independently take responsibility for seeking out and creating opportunities. In addition to this, the current research extends our understanding of how women manage opportunity in the industry by illustrating that the capitalising on opportunity behaviours of women were predominately proactive and ultimately led to favourable personal and occupational outcomes.

The women's interest, intent and ability to regulate their behaviours to maximise interactional or occupational opportunities largely stemmed from a heightened contextual awareness. The concept of heightened contextual awareness hinges on the term "awareness," which, in this research is defined as the state of being conscious of, sensing, observing or perceiving something. The concept of heightened contextual awareness can be explained as cognitive appraisal which Folkman and Lazarus (1984) define as subjective interpretations made by an individual in response to stimuli in an environment. The women were fully aware of their minority status. This made them sensitive to variations in the environment, within interactions, when building relationships with male colleagues or when seeking new opportunities. The current research found that women were attuned to variations in the labour market as displayed by their consistent gauging of the employment situation of the industry. Most participants recognised that the favourable employment conditions and ease of entry into the industry would be a short-term trend. They responded by taking advantage while these conditions were present. In capitalising on potential, women considered what they valued and were conscious of what would provide potential personal

gains. The findings suggest that the participants valued the opportunity to work on projects contributing to the city rebuild and earthquake-related work. They also appreciated the ability to move into roles that enabled them to advance in their careers faster than what they may have experienced in a business-as-usual context. Women's regular attentiveness to occupational change, ability to make quick, conscious decisions, and flexibility to move locations, enhance their visibility and change roles, enabled them to go after what they wanted to gain and experience progression more readily. These nuanced details of how women capitalise on opportunity, are largely missing from previous industry research.

Prior studies examining women's entry and retention in the construction industry have tended to focus on the impact of structural and cultural constraints (Worrall et al., 2008) rather than consider how women's values shape their interest in either entering or staying in the industry. The current research addresses this gap through identifying values alignment as a key behaviour which influences the deferential tailoring process. In particular, as shown in the capitalising on opportunity findings, values alignment played a significant role in influencing the decisions of participants entering the industry after the Christchurch disaster. Aligning values corresponds closely with intrapersonal alignment, which according to Hultman and Gellerman (2002) occurs when an individual's values and behaviour are integrated or compatible with an organisation's values. Looking at response actions over a longer interval of time allowed insight into this behaviour. When considering their decisions regarding occupational opportunity, participants would regularly gauge and evaluate where and how their values aligned to organisational or industry values or norms. Additionally, while aligning values the women simultaneously considered the context, and their occupational and personal goals. The images of devastation and social disruption present in the Christchurch setting stirred the interest of some women to enter and work in an industry which was seen to be helping people and serving the whole community. The findings suggest that many participants entering the industry aligned their own personal values of respect, compassion, and community to the new context. Some participants aligned their values directly to an occupational role which involved serving the community, communication or health and safety. Others aligned their achievement-oriented values to the opportunity to work on large earthquake projects not previously experienced, or advance their careers by moving into roles that would normally take years to achieve. Hence, aligning values provides an additional

explanation of why women moved into the construction industry at this particular period of time.

Aligning values was also found to be an important behavioural strategy for women to gain a sense of belonging. According to Richman, Vandellen, and Wood (2011) one way women cope with their minority status in a male-dominated environment is to focus on experiences that imply belongingness. The current research found that attaching a sense of belongingness to new experiences was another coping strategy. The participants spoke of gaining a sense of belonging to the industry through the shared purpose of rebuilding Christchurch city. By aligning their work on community projects or earthquake recovery work and their personal values to a wider community purpose, the participants gained a sense of value, pride and acceptance in this context. The longevity of construction projects in Christchurch city may have contributed towards many participants sustaining a sense of belonging and interest in staying in the industry in what was a very disruptive time. These findings also relate closely with previous construction industry literature that has reported the importance of "community and togetherness" for retaining women in this industry (Mohammadi et al., 2019), or to the theme of "project pride" where women express their satisfaction of working on projects that contribute toward the good of a community (Watts, 2007). For some participants, working on large team projects fostered a sense of identity and togetherness and this helped to reinforce their feeling of belongingness to the industry. Adding to this, the current research also found that the participants' experiences of observing the increasing numbers of women moving into the industry, being involved in initiatives organised by women, and sharing mentoring experiences with other women in the workplace, led to greater feelings of belonging to the industry.

One feature that can affect a woman's sense of belonging and experiences in the construction industry is her visibility. According to Kanter (1993), women's minority status in a male-dominated industry can make their visibility difficult to manage. Research attention has been given to women's bodies and their sexuality when they enter male-dominated industries, as this challenges the sexual division of labour and their ability to integrate (Hinze, 2004; Wright, 2013). Much of the research has focussed on how women present themselves in relation to concepts of "gender" and "femininity" or "masculinity". The literature has also concentrated on women's management of their physical appearance, for the purpose of reducing

interpersonal tensions with men, or to “fit into” to the industry (Bagilhole, 2002; Watts, 2009a; Wright, 2013). The findings of the current research aligns with and supports previous literature which suggests that women modify their physical appearance to either minimise or maximise their visibility, to cope with adversity, achieve occupational gains and integrate into the industry. As with previous literature, the current research also concurs that women find construction site contexts more challenging with regards to their visibility (Watts, 2007). However, the concept of enhancing visibility provides two subtle yet significant distinctions, relating to visibility that can add to existing research.

The first distinction is how women strategically promote themselves by applying subtle, yet direct communication at critical times or in significant situations. The behaviour of enhancing visibility is centred on women considering factors such as context, and time, and crafting their communication, rather than solely modifying their physical appearance. Relying, on their contextual awareness, women choose significant moments to highlight their interest in participating or embracing an opportunity. In particular, women choose to enhance their visibility during informal moments, social gatherings or when work demands or labour needs are high. As such, this behaviour is carried out when it can provide immediate solutions for both parties. Instead of enhancing their “physical” or “feminine visibility”, women enhanced the visibility of their “resourcefulness” by highlighting what they could bring or contribute to a changing situation. This is a conceptualisation of visibility not previously explored in the construction industry literature. As this behaviour is informal and rapid, it may have previously been dismissed as spontaneous or reactive. However, the participants’ contextual awareness and values alignment suggest that prior consideration and thought was given to such behaviour. Hence, this behaviour increases the chance of rewarding outcomes. Such behaviours not only demonstrate women’s ability to be flexible to sudden changes in the environment, but also how they were prepared to take responsibility for their own advancement. The participants’ enhancing visibility behaviours demonstrate how women can take advantage of the contextual conditions to speed up their entry or progress in the industry.

The second distinctive feature of enhancing visibility is how the participants’ self-regulation of physical appearance (when it did occur), was largely applied as a temporary action rather than a full-term commitment. It was used to influence people in a positive way, rather than

being a conforming or fitting in formula. In the case of demonstrating good practice, women can, at times, project a positive outward countenance over a longer interval of time. However, women use this as a temporary enhancing visibility measure again to establish a positive relationship with male colleagues and to gain their respect and acceptance. In theorising gender, this research has shown how women may combine gender practices of temporarily moving between masculinities and femininities to gain an advantage and address gender boundaries on which their identity and membership of the industry is based. Therefore, this research is consistent with Denissen (2010b) in claiming that women engage in reflexive gender displays that emphasise the most advantageous identity for a given situation in order to address the dominant gender order.

The deferential tailoring behaviours of women capitalising on opportunity provide new insight into how women manage their entry into, and progression in, the construction industry. Key findings suggest that women still need to rely heavily on themselves to optimise opportunities in a favourable employment environment, this is because they still need to contend with, and overcome, the unfavourable social conditions of working in a male-dominated environment. As discussed in the following sections, the participants' behaviour displays their interest in embracing opportunities and overcoming unfavourable conditions by building their individual capabilities and positive workplace relationships with male colleagues.

Contributing to the field of positive relationships at work

While management research has focussed on how organisations measure or build organisational capability (Bredin, 2008; Gill & Delahaye, 2004; Hase, 2000) or develop employee capability (Hase, 2000), it has largely neglected to address how individuals within an organisation build personal capability. The identification and explanation of the building capability behaviours of women in the current research serves to address this gap. The three building capability behaviours provided women with the resources and skills they needed, allowed them to manage relational aspects of their work experiences (Brotheridge & Lee, 2003), and enhanced their ability to advance their careers. In particular, building capability adds to the literature by explaining the complex regulated behaviours women adopt to improve workplace relationships.

According to Sen (2001), a capabilities approach considers whether a person starts from a different position to others. It examines whether they are able to function fully and be, or do, what they value. Sen (2001) has argued that policies should focus on what people are able to do and be, and on removing obstacles so that individuals have the freedom to live or work in ways they value (Robeyns, 2005). Sen's (2001) capability approach is important to the current research because it offers a lens through which to explain why women take responsibility for building capability themselves. The current research identifies that women start from a different position to men because they are often singled out as a result of their minority status or made to feel different. On appraisal of their circumstances, the participants were aware that the social exchange of resources in work relationships can be limited. Furthermore, participants revealed that they sometimes felt their views were not heard or valued in organisational processes or they had limited access to learning or social support. The findings suggest that women working in the Christchurch construction industry took control of their own technical and social development. A unique finding of this research is how women utilised their efforts to address stressors, and applied their learning and social support from their experiences to building positive relationships with male colleagues. Most participants expressed that establishing positive work relationships with male colleagues was a key behaviour to advancing their ability to manage industry conditions.

Gender-based barriers make it difficult for women to build positive relationships with men in the construction industry (Loosemore & Galea, 2008; Wright, 2013). This research has shown that women face similar challenges to relationships both with male peers and with male supervisors. Hence, in the current research, the term "male colleagues" was purposely applied to encompass both parties. Much of the relationship literature concentrates on negative supervisor-subordinate or peer relationships (Sias, 2008), with considerably fewer resources which detail positive relationship development generated from the perspective of a minority group experiencing adversity in an organisational context. The current research makes a contribution to this area through identifying and explaining how women build positive relationships by being responsive to social conditions, building trust by demonstrating competency, and learning and leveraging social support. These approaches enable women to transform their work relationships from ones characterised by adversity to ones characterised by respect.

The current research demonstrates that the participants were aware that relationships with men could be difficult to establish in the industry, and that they needed to find ways to open lines of connection. Consistent with prior industry literature, this research found that the participants needed to overcome biases and prejudices by proving their competency (Agapiou, 2002; Dainty et al., 2000; Hossain & Kusakabe, 2005). Hence, proving competency was found to be an integral part of building relationships with men (part of the larger building capability process). A complex process, building relationships involved the utilisation of personal resources for the purpose of demonstrating ability and acquiring additional resources that could then be invested back into the relationship building process. This relationship building view is not conducive to the dominant theoretical relationship-forming perspective of social exchange theory (Blau, 2017). This is primarily because women's proving competency actions are centred on their individual acquisition of resources and enhancing visibility by demonstrating their ability and resourcefulness, rather than the exchange of resources between women and men. For women, the rewards gained from an exchange of resources between both parties comes later in the relationship building process. Instead, the findings align closely with a relationship-based commitment perspective. This approach accounts for women's willingness and sacrifice of personal resources to manage both negative and positive elements of interactions in order to build positive relationships in a male-dominated context (Rusbult & Buunk, 1993).

The current research found that the participants felt they needed to utilise personal resources such as time, thought, energy, and patience to acquire additional resources useful for proving their competency before they could build relationships that would lead to positive outcomes. The current research also identified the resources women valued and sourced: personal resources such as confidence and communication skills, respect, technical learning, communication learning and social support. A feature of the relationship building behaviours was the participants' responsiveness to the contextual conditions (a resistant male culture, a lack of acceptance and the need to prove themselves), and how they used these constraints as motivation for regulating their behaviour and acquiring the resources they required. The participants felt that by utilising personal resources to demonstrate their reliability and skill, they were more likely to open lines of connection, establish trust with male colleagues and gain traction in building positive workplace relationships.

Scholars have struggled to find common ground in defining positive work relationships. According to Dutton and Ragins (2017) "positive work relationships can be defined in terms of the states or processes in the relationships, the experienced quality of the relationship, or the outcomes of the relationship" (p. 8). Positive workplace relationships that are developed from adversity and defined in terms of experiences, processes and outcomes are relevant to the current research. Taking the process approach, Davidson and James (2007) considered the issue of diversity and how employees transform relationships that stem from cynicism, enmity and mistrust. Davidson and James (2007) presented a process model based on social identity theory that outlines the factors that create strong relationships across boundaries of cultural difference. According to Davidson and James (2007) transforming conflict into learning is the only means by which high quality relationships across different cultures can emerge. The current research's findings and concepts align with this relationship model. First, the findings support the view that the development of positive relationships transformed by learning can begin from negative personal experiences of being made to feel different. Second, the learning occurs because women recognise that they can hold different perspectives and values and that it is important for them to address industry norms that conflict with their values. Third, women rely on their contextual awareness, aligning values and learning to move beyond stereotypes and prejudices to build relationships. The current research also makes a contribution to this area by suggesting that the learning process can involve self-regulated actions, personal sacrifice, and investment on behalf of the minority group to move the relationship from a state of adversity through to one of respect.

As discussed in the literature review, women working in the construction industry often find it difficult to obtain vital resources (technical and communication knowledge and social support), that enable them to manage the challenging social conditions, to progress or to remain in the industry. The current research supports this view, and shows that in an attempt to build positive relationships with male colleagues, women established their own learning and social support base. Consistent with social learning theory (Bandura, 1977), and the research of findings of MacIsaac and Domene (2014), the participants developed confidence and self-efficacy through their exposure to construction sites and reinforcement during mentoring. Central to the deferential tailoring model, is an individual's willingness and ability to learn about others for the purpose of improving relationship connections. In their

responsiveness to establishing connections with male colleagues, the participants carry out informal, self-initiated activities that allow them to gain knowledge from men as they work alongside them. Practices involve observing the technical skills of men or observing how men interact and communicate. Some participants also observe how other women communicated effectively with men, or put themselves in challenging situations with male colleagues to test their own communication skills and capability. While this can be viewed as a gendered practice, it can also be viewed as a covert, practical practice adopted to overcome biases that stem from gender norms. Hence, the participants are intentionally utilising their personal resources to learn how to interact effectively with men, and in doing so, finding ways to establish positive connections and manage gendered norms. In a small number of cases, participants establish connections quickly with male colleagues by openly declaring their limited technical abilities.

The current research supports prior work that has shown that there are limited social support resources available for women working in the construction industry (Clarke, Michielsens, Snijders, et al., 2017; Dainty & Lingard, 2006). This research found that the women addressed this by taking time to invest in connections with other women working in the industry. According to Dutton and Ragins (2017), positive relationships provide psychological support and the inspiration required for identity affirmation and growth. This was evident in the current research, where the participants would intentionally leverage social support from other women to gain reassurance of how to handle the industry conditions, or to gather information relevant to building positive relationships with men. Some participants were also involved in initiating new activities that provided platforms from which other women could leverage social support. The practice of connecting with other women through mentoring enabled participants to experience positive emotions and learn how to address challenges. Informal mentoring also created positive identity enhancing experiences where women could gain belief in their abilities and learn how to manage gender without giving up their self-identity. As Ragins and Verbos (2007) have suggested, “mentoring exemplifies a positive relationship at work in action” (p. 91). The confidence women gained from such experiences served as a new resource that they would then channel back into managing social challenges encountered or building relationships.

A feature of this research is how women's regulated behaviours display the values, thoughtfulness, and consideration that is applied to managing the relationship building process. The importance women placed on gaining respect and positive communication skills display the attitude and effort they are willing to commit to maintaining good standards of professional conduct and build positive relationships with male colleagues. The participants' acquisition of resources and proving competency then played a significant role in facilitating their access to additional resources provided by male colleagues such as respect, encouragement, and acceptance. The women's contextual awareness allowed them to recognise signals of encouragement, advice or support from male colleagues. This feedback implied a positive shift in a relationship. As a result of new positive relational energy from the men, the participants were able to affirm their new connection. Further, such encounters increased the participants' confidence and sense of acceptance, as they felt rewarded by the outcomes they had achieved. The participants would then inject the resources back into their daily routines. Women's injection of resources back into the relationship building process demonstrates their ongoing investment in the learning process, as suggested by Davidson and James (2007), and their commitment to developing positive connectivity in relationships across boundaries of difference in the construction industry.

Challenging the perception of submissiveness

The finer details of establishing positive relationships in the workplace is often hidden in the nuanced behaviours that occur during short-term interactions between people. The findings from this research provide insight into the relationship between passive and controlled coping responses as women interpret interpersonal meanings within adverse social interactions. The theory of deferential tailoring serves to challenge existing assumptions about how women respond during negative interactions with male colleagues. Gaining a clearer insight into the positive intentions of the token tolerance behaviours of women led to knowledge that challenges perceptions of how women are seen in the construction industry and other male-dominated domains.

Prior literature has documented a broad range of actions women adopt in responding to social challenges in male-dominated industries (Etzkowitz, Kemelgor, & Uzzi, 2000; Kanter, 1993; Powell, Bagilhole, et al., 2009). In the construction industry, common behaviours can involve: women compromising or suppressing their female identity, desexualising

themselves, modifying their language, ignoring or avoiding men, using humour to diminish discomfort, or adopting male behaviours. All of these responses were found in the current research. In the literature, these actions are consistently described as passive and are often viewed negatively. In the construction industry, these behaviours may be perceived as reinforcing the dominant culture rather than challenging it (Whittock, 2002). Furthermore, because such actions are centred on immediate negative interpersonal challenges, they are largely reactive. As a result, women's responses are predominately described as covert and framed as coping strategies (Agapiou, 2002; Bastalich et al., 2007; Dainty & Lingard, 2006). Denissen (2010b) has argued that a coping framework of analysis can position women as submissive or conforming to masculine gendered norms. Such perspectives can further perpetuate the view that women are "different" and unsuitable for the industry. However, this research suggests that behaviours by women that are perceived as passive, feminine or gender-specific, do not render women submissive to or powerless against the industry norm. Instead, this research argues that the intentions attached to the covert, self-regulated behaviours of token tolerance challenge such assumptions.

Consistent with the theory of self-regulation (Bandura, 1991), the token tolerance behaviours of women involve the regulation of emotions to reduce or manage interpersonal stressors between them and male colleagues and achieve positive outcomes. Token tolerance does not involve a single coping strategy. Instead, it includes several contrasting emotionally regulated strategies found in the coping literature (Carver & Connor-Smith, 2010; Ito & Brotheridge, 2003). While prior industry research indicates that women are passive and submissive in their typical responses to negative male behaviours, this research provides a different view. This research contends that perceived submissive strategies are coping mechanisms that allow women to gain resources and make positive connections with male colleagues over time.

Inwardly not accepting and disengaging are two behaviours covered under the playing it calm concept that involve the intentional suppression of emotions that a woman actually feels during negative interactions with men. These behaviours are consistent with emotional disengagement which typically involves avoiding or escaping stressors (Carver & Connor-Smith, 2010). This research argues that within the immediate response, women apply a combination of disengagement and control coping strategies. While a woman may display physical actions of avoidance or ignoring, it does not mean that she is always completely

dismissing the adversity or intending to do so. The findings suggest that women are not ignoring, fully tolerating or accepting the negative, resistant and discriminatory behaviours of male colleagues. Instead, the participants' disengagement masks their feelings of discontent or dissatisfaction with disruptive male behaviour. This behaviour is not in line with the women's personal values and expectations of what is appropriate workplace behaviour. Furthermore, in this research, emotional regulation involves presenting a controlled positive outward countenance. These behaviours are an effective form of emotional focussed coping: they enable the women to manage negative stress and make it possible for them to consider how to deal with the issue in a calm and considerate manner (Carver & Connor-Smith, 2010).

The adverse behaviours of men serve to shape the women's thinking and stimulate them to consciously deal with the stressors in order to gain what is needed (composure, safety, completion of work, confidence, and respect). Viewing responses beyond the immediate interaction allow insight into the calm, measured behaviours associated with cautious consideration. In the literature, cautiousness displayed by women working in male-dominated industries is often associated with "under confidence" (Bastalich et al., 2007; Haupt & Ndimande, 2019) or "avoiding disruption" (Rose, 2019). The initial findings suggested that these two factors contributed towards some participants choosing to adopt a cautious approach in their response actions. However, in the analysis, the term consideration was attached to this concept to fully encapsulate the protective and progressive intentions that were linked to this behavioural strategy. Women's cautious consideration behaviours of understanding the causes of a disruption, their subtle modifications or not over projecting are well-thought through regulated behaviours. Such behaviours allow women to buffer the psychological impact of a negative interaction. These three behaviours demonstrate control and align closely with engagement coping which includes problem focussed coping and some forms of emotional focussed coping directed at the stressor itself (Carver & Connor-Smith, 2010; Folkman & Lazarus, 1984). They enable an individual to conduct themselves in a professional manner and consider what positive steps to use to evade, address or remove the stressor.

The findings suggest that the participants are aware of how the passiveness associated with playing it calm or cautious consideration could be viewed as submissive, especially when their immediate actions did not appear to directly challenge or address negative male behaviours.

The participants were adamant that their actions, which could be interpreted as passive, were not an indication of their acceptance of adverse male behaviours. Furthermore, the women did not believe that such behaviours rendered them submissive. Even subtle regulation, which can include ignoring, declaring inadequacy, desexualising self, or adopting male characteristics do not need to be seen as succumbing to the masculine gender norm. This research argues that playing it calm and cautious consideration are largely temporary practical protective coping mechanisms which are part of an individual's appraisal of their circumstances or cognitive appraisal as defined by Folkman and Lazarus (1984). The nuanced behaviours allow women time to evaluate the context in which they are situated, their level of personal confidence and their relationship with the other party/parties. The intentions behind the participants' emotionally regulated actions demonstrate that they are focussed on controlling their own reactions, self-preservation, remaining positive and protecting themselves from further adversity. This process provides a safe and effective means to sustain a positive outward countenance while they consider steps required to address the issue at hand. Hence, token tolerance contributes a new perspective that may broaden our understanding of how women perceive and apply tolerance in the workplace.

The current research is supportive of the view of Powell, Dainty, Bagilhole, and Neale (2005), who claim that women's responses to disruptive male behaviours in male-dominated industries can become just coping strategies, rather than solutions to the problems they encounter. Taking a process approach, the concept of token tolerance has provided insight into solution-based behaviours women adopt to address issues that they face. The findings suggest that participants are aware that avoidance and resignation to industry norms are short-term solutions for dealing with stress; in other words, they knew that such approaches do not provide long-term solutions. However, an exploration of the intentions and behaviours beyond the immediate interaction provides an insight into the solutions considered or implemented. The regulated actions associated with demonstrating good practice are conducive to engagement coping, problem focussed coping and progression (Carver & Connor-Smith, 2010). Here, women directly address resistance, discrimination or devaluation, rather than submitting, conforming or accepting adverse male behaviours. Of critical importance to the token tolerance behaviours, is how women consistently choose not to fully embody the masculine norms, image or values. The demonstrating good practice behaviours

are influenced by personal values such as integrity and respect and self-imposed personal standards. Regardless of the nature of the interaction, the women prefer to control their emotions in positive ways to display how they wish to behave and to model a positive image that demonstrates respect for other people. Sustaining a positive outward countenance was demanding for the women, yet many believe this is best for building relationships.

The emotionally regulated behaviours attached to the token tolerance concept also offers a new perspective on emotional labour in the workplace. Until the early 1980s, limited research attention had been given to the concept of emotional self-regulation in organisations. Studies detailing women's emotional regulation in the workplace largely concentrate on emotional labouring in service industries. The term "emotional labour," coined by Hochschild (1983), explains how people self-manage their internal feelings and present external expressions in a different way during social interactions to accomplish certain outcomes. Much of the organisational literature reports how a worker's emotional labouring is required to be performed, or is the expected emotion (politeness or friendliness displayed to clients and customers). As such, the emotional regulated behaviours of workers are largely governed by organisational norms, workplace expectations, or as a result of worker training (Diefendorff, Erickson, Grandey, & Dahling, 2011; Maxwell & Riley, 2017; Pilcher, 2007).

The token tolerance behaviours of women to change their emotions and present themselves in different ways, essentially lends support to the Hochschild (1983) definition of emotional labour. However, the Hochschild (1983) account of emotional labour emphasises the ability of management to govern people's emotions, the current research emphasises the significance of human agency. In contrast to existing emotional labouring literature, this research demonstrates that employees do not regulate their emotions in order to comply with organisational expectations. Instead, the token tolerance process demonstrates how women in construction are aware that gender impacts on their interactions with male colleagues. As a result, they regulate their emotions and behaviours in line with their personal values and standards. The women's self-regulation of their emotions aligns with what they believe is most suitable for their own personal emotional stability. They also choose to regulate their own emotions to model a different standard of behaviour and to achieve personal, rather than organisational, outcomes.

As the participants were engaging in certain behaviours to influence men in a positive way, their gendered emotional displays did not render them powerless. Over time, through behaviour modification, women can create connections and better relationships with male colleagues. Furthermore, the emotional labouring highlighted in this research intersects closely with the concept of gender labouring and offers support to the views of Paap (2006) and Smith (2013) who claim that gendered labouring is an extra form of work for women employed in male-dominated industries. However, as suggested in the findings, women were prepared to do this extra work largely to address, rather than to dismiss, their challenges. By gaining a new perspective on how women respond to the day-to-day social conditions of the industry through token tolerance, this research refutes the assumption that women respond submissively to gendered norms, thus challenging our perceptions of gender roles. Therefore this new perspective contributes to the literature by bringing to light that gender related issues have not been solved in this male-dominated industry; that women are actively addressing gendered power issues that impact on their work and careers, and that gender should not be ignored just because women are progressing in the workplace.

Due to the participants' positive intentions to demonstrate better standards within interactions and build positive relationships, this research also argues that women's regulated behaviours result in their professional integration into the industry. The deferential tailoring behaviours of women demonstrate how they do not accept disruptive male behaviours and more importantly, that they do not wish to "fit in" or assimilate to industry norms. In the current research, the participants expressed and demonstrated their interest in reinforcing and maintaining their identity, rather than surrendering it. This is seen by their individual efforts to gain respect and acceptance from their male colleagues as employees, rather than to be seen or judged as "a woman who works in the construction industry." This is a goal that is often overlooked in the literature. Powell, Bagilhole, et al. (2009) have argued that while women are prepared to deny aspects of themselves to succeed in male-dominated environments, they are not choosing to become more like men. Token tolerance suggests that if a woman chooses to regulate her behaviour and deny aspects of herself, it may be a temporary and deliberate response that is part of the wider deferential tailoring process.

The remainder of the chapter discusses the practical implications and the proposed future research that emerged from the research findings and limitations.

PRACTICAL IMPLICATIONS

The theory of deferential tailoring explains behaviours which have not been previously explored in this industry and therefore provides knowledge that industry members and others can comprehend and find applicable. The credibility and value of this research stems from the practical adaptability of the deferential tailoring theory, equipping the industry with information which allows members to proactively respond to and address issues that remain embedded in its culture (Birks & Mills, 2015; Glaser & Strauss, 1967). Knowledge generated from this research will provide industry members with a new understanding of their own behaviours and a stronger awareness of how to meet challenges that continue to hinder women's entry, retention, and progress in the industry. The following practical implications may be beneficial to individual construction industry workers, industry leaders, educators, minority groups, employers, and the wider research community.

Addressing industry culture

Construction industry research has widely reported that the biggest challenge facing this sector is the difficulty associated with changing its culture (Naismith et al., 2017). As detailed in the literature review, the underrepresentation of women in this industry is largely the result of a workplace culture that is driven by an underlying intolerance of diversity (Clarke, Michielsens, Snijders, et al., 2017) and a reluctance to address gender relations and inequalities (Franzway, Sharp, Mills, & Gill, 2009). From the field of engineering, Byanyima (1994) has argued that the strategy of "add women and stir" has done little to change gender relations, primarily because it does not deal with the root of the problem: the dominant male culture (p. 61). Recent research has indicated that political and industry policy have also proven largely ineffective in eliciting widespread change (Ackrill et al., 2017). In order to deal with these issues effectively, industry leaders must be proactive rather than reactive; they must move away from strategies that target women as the solution, and instead, directly address the longstanding male dominating norms that shape the industry culture (Bastalich et al., 2007; Dainty et al., 2000; Madikizela & Haupt, 2010; Menches & Abraham, 2007).

The current research makes a practical contribution to this ambitious goal by encouraging industry members to first, recognise that women do not genuinely accept the masculine gendered norms of the industry. Second, this research prompts them to utilise the deferential tailoring theory to generate and promote a new perspective on women's work in this industry.

The theory shows a conceptual response process that exposes the continued unequal treatment of women, especially on construction sites, and advances our understanding of how women positively address industry conditions. Embracing an understanding of the three behavioural processes of deferential tailoring enables industry members to recognise how men and women participate and the different social standards they bring to this industry. To improve the culture of the industry, leaders and employers must act upon the differences, disruptions and disparities that still remain embedded in the industry. This could be achieved by introducing a zero-tolerance policy on gender bias and introducing relationship training at all levels of the industry.

According to Chun, Arditi, and Balci (2009) negative perceptions of women's capabilities in the industry have done much to obscure women's contributions to this sector, and to discourage others from entering this space, and hinder women's progress. The findings demonstrate that women are aware that the industry culture and associated norms project a poor image of their participation in the industry, and they accept that such deep-seated ideologies and attitudes may take a long time to shift. Hannah metaphorically acknowledged this, saying: *"It is like turning the Titanic."* However, the participants' regulated behaviours indicate that they are prepared to be patient and vary their thinking and actions to contribute towards transforming relationships from resistance to respect and moving towards a new inclusive norm.

Construction industry leaders and employers need to be consistently given information that reveals the advantages of employing, promoting and sustaining a diverse workforce. Appreciating women's strategic agency in managing industry conditions in a post-disaster setting is a useful step in this direction. Building on the need to shift perceptions, it would be useful to make visible women's resourcefulness, resilience and commitment to building positive workplace relationships and improving the industry culture. Women's positive attitudes, aptitude for learning, communication skills and people-centred behaviours, detailed through the deferential tailoring process, are valuable human resource skills and should be treated as such during the recruitment process. In order to retain women and improve the image of the industry, women's practices need to be acknowledged and promoted positively.

Recruitment

The Christchurch post-disaster setting provided favourable employment conditions for women to move into the construction industry. Participants entering the industry reported an unusual interest in having women join the industry and examples of unorthodox, informal recruitment procedures. Since the Christchurch event, the New Zealand construction industry has moved towards the use of formal recruitment agencies. However, closer monitoring of recruitment procedures is still required across the industry to eliminate the traditional old boys' network recruitment method and give women equal opportunities to enter this sector (Clarke, Michielsens, Snijders, et al., 2017). This process can be enhanced in two ways. First, recruitment processes need to be made open and transparent. This could be achieved by adopting nationwide recording procedures. This practice would help to eliminate the use of traditional informal recruitment procedures, ease the movement of employees between work locations, and make it easier to monitor the representation of the labour force. Second, it would useful for recruitment agencies to advertise the benefits of working on large community projects and promote the idea of a "shared work purpose" in the construction industry. As seen in this research, women find it rewarding working on projects that contribute to the community and that women align their personal values with their decision to enter or stay in the industry.

Creating leadership opportunities

This research has shown that women lead in the cultural development of the industry; they are already participating heavily in such activities through their deferential tailoring. In order to facilitate positive change to the industry culture, it is vital for industry leaders and employers to provide women with opportunities to bring these leadership skills into roles where they are involved in business decision making and dealing with employees and the wider community. Traditionally, women are poorly represented in managerial, board and leadership roles in the construction industry (Lekchiri & Kamm, 2020; Toor et al., 2017). Much of the management literature about women seeking or achieving leadership opportunities adopts a negative view or focusses on the barriers to progression and/or achieving equal status. As a result, leadership career success for women is often seen as breaking through the glass ceiling (Fernandez & Campero, 2017). In contrast, the current research aligns itself with

a capabilities perspective, like the one suggested by Cornelius and Skinner (2005). This perspective shapes the practical recommendations outlined below.

The current research has shown that women are motivated to seek opportunities to move into leadership roles. While women have demonstrated through deferential tailoring behaviours, that they are prepared to maximise opportunities to advance their careers, industry leaders and employers must provide greater learning opportunities and social support for women working in the industry. The women in this research have shown great tenacity in obtaining resources that they need, others may not have the same ability to do so. Having learnt about the behaviours of women in the current research, industry leaders and employers interested in improving the representation of women in leadership roles should: be aware of and remove gate keeper behaviours in organisations, provide women with opportunities to take on leadership tasks to develop their practical experience, provide flexible working arrangements that enable them to advance their learning, and encourage women to engage in conversations with supervisors or role models about planning their career path (Aulin & Jingmond, 2011). As this research has shown that women rely on their own personal characteristics and values to manage industry conditions, it also supports the recommendation of Rosa, Hon, Xia, and Lamari (2017) for employers to consider personal development programmes for women. This would enable women to clarify their leadership aspirations and develop their capabilities away from gender biases. Most importantly, the commonly cited recommendation to provide formal training and mentoring should continue to be a high priority to sustain women's interest in moving into leadership roles or remaining in the industry.

Training and mentoring

Viewing the extensive range of regulated behaviours women adopt to ensure they build capability suggests that industry leaders and employers still need to create better training, support, and mentoring opportunities for women in the industry. One practical way to ensure progress is made towards transforming industry culture and impact positively on women's representation, would be to incorporate the knowledge, strategies, and concepts of this research into new or existing training and mentoring initiatives. By gaining insight into women's response behaviours, and their learning and support requirements, industry

leaders, employers and educators could create training that endorses new standards which eventually trickle through to frontline practices.

In order to retain women in construction, industry leaders and employers need to provide both men and women with a realistic view of the industry and help women build their capability faster through education. This research has exposed the need for male members of the industry to seriously consider the role they play in the deferential tailoring process. The token tolerance behaviours of women display their genuine interest and efforts to demonstrate to men how they would like all employees to be treated in the industry. Introducing men and women to the properties of deferential tailoring through training or mentoring would be a suitable way to integrate improved behavioural standards. Beyond this, best practices could be standardised as part of a code of conduct and implemented into industry policy. In addition, to reduce or eliminate gender bias in the workplace, gender awareness, communication and interpersonal skills training would also be beneficial for both men and women. In particular, the current research supports the view of Haupt and Ndimande (2019) who suggest that in creating gender awareness in the workplace, women need to be encouraged to understand that their work is valued and that they "do not need to act like men or do the same things men do in order to gain respect" (p. 14).

Since the Christchurch earthquake, women involved in the construction industry have been active in creating new initiatives (NAWIC, SWIC, Work-safe Events, HAYS/NAWIC Excellence Awards) and investing in connections through informal mentoring that enhances their ability to manage industry conditions. In order to sustain the advances women have made for themselves and/or the industry, government and industry leaders are advised to support such initiatives and consider making a positive contribution to the development of formalised mentoring or diversity programmes. Further to this, in offices or on the construction worksite, employers and supervisors would do well to be attentive to and to address inappropriate behaviours and encourage their staff to provide learning and support to each other. These simple changes may have a significant impact on the retention of women in this industry.

Taking a lead from the participants, one simple yet practical way to improve the culture, is to encourage industry members to embrace and articulate new terms or phrases from this research. This may help to promote a new perspective. For example, during the interviews,

participants used phrases such as *towards a new norm (Amy), nudging the norm (Aroha), difference is good (Rachel)*, and *inclusivity is the new norm (Arianna).* If the women are already thinking in these terms, it would be worthwhile for the industry as a whole to embrace this new perspective by integrating such terms into work conversations, policy, training and promotional activities. This may help to reduce the prevalent use of contrasting divisive discourse such as *it's an archaic industry*, *it's a man's world*, and *the boys' club,* which only serve to reinforce the male-dominated culture of the industry.

Over time, the practical recommendations proposed in this research may help shift how others view and treat women and other minority groups in this industry. However, these are rather grand goals which will require further in-depth research and a consistent collective commitment from industry leaders, employers, educators and employees. If taken seriously, the practical actions recommended in this research will continue to move the industry in the right direction.

FUTURE RESEARCH

The underrepresentation of women in the construction industry and the contributions they offer are compelling reasons for researchers to further examine women's response processes.

As this research is limited to a post-disaster setting, it is recommended that researchers consider studies which follow women through different contexts or pathways of experience. This step is necessary for ongoing discussions about how women manage their entry and retention in the construction industry. While this research has constructed a theory of women working in a male-dominated post-disaster context, it would be useful to apply the concepts in business-as-usual settings and other industries. Future studies could examine the replicability of the findings to determine whether the three behavioural categories relevant to the deferential tailoring theory apply to women working in other male-dominated workplaces such as the police, the armed forces or the fire service. Longitudinal studies involving women in different occupations, organisations or geographical locations may also yield new in-depth information about how deferential tailoring is conceptualised and managed. Future studies could also consider female-dominated environments to determine if men apply similar patterns of behaviours. In addition to this, due to the broadness of the deferential tailoring process, it would be worthwhile elaborating on the value of the three

behaviours and also distinguishing the various coping strategies that are applicable to these behaviours.

Another limitation of this research relates to the small sample size and the highly motivated participants. While some of the participants were encouraged by friends, colleagues or supervisors to participate, many of the participants displayed an immediate interest in participating in this research. This introduces the possibility of bias on two fronts. First, the participants may be projecting a positive view only. Second, because the research is set in a favourable employment context, and many participants experienced ease of entry or progression, the behaviours to overcome entry constraints could be under-represented. Future research could address these assumptions by taking a random selection from a larger group of potential participants, by considering the inclusion of focus groups, by quantitative research using surveys or by asking questions that specifically address constraints encountered during recruitment or career advancement. These different approaches may reveal a wider range of behaviours.

No research can cover all the personal and contextual features that influence a participants thinking or actions, nor the process under investigation (Johns, 2006). The limitations identified and discussed in this research do not detract from the categories and theory that has been constructed; rather, they raise the possibility that there may be other features which stem from the women's experiences that did not emerge. As the grounded theory presented in this research is but one view, future research should ask new questions and thus develop the theory of deferential tailoring. In particular, the current findings may stimulate future industry researchers to consider the following:

- Increased research is required to explore and explain how women manage their entry and retention in the construction industry. In terms of women's career progression, longitudinal studies would enable researchers to examine how women build their capability and whether deferential tailoring behaviours change as they progress through their careers.
- On entry to the industry, several participants noticed significant social differences between their previous sector of employment and the construction industry. Due to the participants' widespread application of emotional and controlled self-regulation

and the need to improve the industry culture, it would be worth examining the differences that may exist between men and women's expectations of professional standards and industry norms. Comparisons could then be made across other sectors.

- Prior research has considered how women contend with and manage issues relating to their physical visibility (Watts, 2012). For the purpose of gaining an in-depth understanding of women's experiences, it would be useful to explore how women utilise their resourcefulness (contextual awareness, technical skills, flexibility and communication skills), to enhance their visibility and achieve entry into the construction industry and advance their career.
- As detailed in the literature review, and supported by this research, proving competency is a continuing concern for women working in the construction industry (Aulin & Jingmond, 2011; MacIsaac & Domene, 2014). This research has identified the relationship between women proving competency and their motivation to build positive workplace relationships with men. This is a process that requires further research attention in order to consider the longevity of such a process and how it impacts on the retention of women.

Finally, in the spirit of grounded theory, I would encourage future researchers to be willing to explore abstract concepts that originate from research of this kind. In particular, the use of metaphors can be very powerful in careers research (Harris, Ravenswood, & Myers, 2013). For example, management researchers considering the career progression of women working in male-dominated industries may choose to explore literature documenting metaphoric barriers such as the glass ceiling (Barrios & DiDona, 2013; Kehinde & Okoli, 2004; Kolade & Kehinde, 2013) or the glass wall (Dainty et al., 2004; Merghani, 2016). In seeking to understand how women break through such barriers, researchers may wish to question and develop the contrasting concept of the glass scaffold (conceptualised as the protective and progressive regulated behaviours of women to navigate obstacles, or break through barriers), which in this grounded theory analysis, had contributed to the construction of the deferential tailoring theory. While the glass ceiling and the glass wall are seen a solid barriers that impact on women's career path, the glass scaffold is not a permanent structure, it can be found to be changing shape and contribute to the positive transformation of women's work situations. Thus women's behaviours can be a "temporary scaffold" about building protection and skills

enabling them to build positive workplace relationships and move beyond barriers that impede their work or progress.

CLOSING COMMENTS

By considering women's response actions within interactions and over time, this research highlights the benefit of framing behaviours as a process. The deferential tailoring theory provides new insight into how women use a diverse range of strategies to cope and advance in a male-dominated domain. This process also contributes to positive relationship literature, by demonstrating how women work hard to transform challenging negative relationships with their male colleagues into relationships characterised by respect and acceptance. Furthermore, women's positive intentions and professional conduct, encapsulated in their behaviour and responses, challenge the belief that women respond submissively to traditional gender norms. Ultimately, this research presents an alternative view of women working in this industry.

In closing it is fitting to conclude with a snippet from one of the interviews. In the following example Arianna adopts deferential tailoring behaviours to progress professionally and to manage a challenging interaction with a male colleague.

Working for a large engineering organisation, Arianna was asked by the senior management to run the company's diversity programme. Arianna was delighted to be given this opportunity. Over the coming weeks, Arianna spent time building her capability by learning policy information, preparing resources, and networking with people in other organisations who could provide guidance on the project. At the start of the programme she was given a subtle reminder of why diversity programmes were so important for the construction industry. Just before a meeting, a male colleague approached her and asked:

> *Why do we have to have these meetings? Why can't you just wait? Eventually things will just get better.*

Young and relatively new to the industry, Arianna felt a rise of disappointment inside. But in this space, she remained composed as she activated her token tolerance. Processing this internally, Ariana considered her colleague's comment. Factoring in that her male colleague was senior to her, she decided to suppress her feelings of discomfort. Her own youthfulness

and enthusiasm towards the diversity project determined her outward response. Preferring to keep the interaction positive and professional, Arianna calmly replied:

> *When people value diversity in the workplace, and inclusivity is the new norm, this is when these meetings are no longer necessary.*

Clearly, as this research has shown, we have not yet achieved this new norm, but it is hoped that this research is a step in the right direction. Further research is essential, because the world that Arianna refers to is one where women working in the construction industry will finally be able to take down the glass scaffold.

REFERENCES

Acharya, S. S., & Reddy, S. (2017). Migrant women workers in construction and domestic work: Issues and challenges. In S. S. Acharya, S. Sen, M. Punia & S. Reddy (Eds.), *Marginalization in globalizing Delhi: Issues of land, livelihoods and health* (pp. 207-226). New Delhi, India: Springer.

Acker, J. (1990). Hierarchies, jobs, bodies: A theory of gendered organizations. *Gender & Society, 4*(2), 139-158. doi: 10.1177/089124390004002002

Arkerman, C. (2020). *What is self-regulation? (+95 skills and strategies).* Retrieved from https://positivepsychology.com/self-regulation/

Ackrill, R., Caven, V., & Alaktif, J. (2017). 'Black boxes' and 'fracture points': The regulation of gender equality in the UK and French construction industries. *International Journal of Human Resource Management, 28*(21), 3027-3046. doi: 10.1080/09585192.2016.1277366

Adenugba, A., & Oderinde, O. (2019). Wage differentials and discrimination against women in informal construction sites: A study in Ibadan, Nigeria. *The Nigerian Journal of Sociology and Anthropology, 15*(1), 85-103.

Adogbo, K., J, Ibrahim, A., D, & Ibrahim, Y., M. (2015). Development of a framework for attracting and retaining women in construction practice. *Journal of Construction in Developing Countries, 20*(1), 99-115.

Afolabi, A. O., Tunji-Olayeni, P. F., Oyeyipo, O. O., & Ojelabi, R. A. (2017). The socio-economics of women inclusion in green construction. *Construction Economics and Building, 17*(1), 70-89. doi: 10.5130/AJCEB.v17i1.5344

Agapiou, A. (2002). Perceptions of gender roles and attitudes toward work among male and female operatives in the Scottish construction industry. *Construction Management & Economics, 20*(8), 697-705. doi: 10.1080/0144619021000024989

Aluko-Olokun, B., Adogbo, K., & Ibrahim, A. (2015). *An investigation into the postive career experiences of professional women in the Nigerian construction industry*. Paper presented at the Nigerian Institute of Quantity Surveyors: 2nd Research Conference–ReCon2 September 2015, Abuja.

Amaratunga, R., & Haigh, R. (2011). *Post-disaster reconstruction of the built environment: Rebuilding for resilience*. Oxford, UK: John Wiley.

Amaratunga, R., Haigh, R., Shanmugam, M., Lee, A., & Elvitigalage D. (2006). *Construction industry and women: A review of the barriers.* Paper presented at the Proceedings of the 3rd International SCRI Research Symposium, 2006, Delf University, Netherlands.

Angen, M. J. (2000). Evaluating interpretive inquiry: Reviewing the validity debate and opening the dialogue. *Qualitative Health Research, 10*(3), 378-395. doi: 10.1177/104973200129118516

Ariyabanda, M. M., & Wickramasinghe, M. (2003). *Gender dimensions in disaster management*. Colombo, Sri Lanka: South Asian Publications.

Aulin, R., & Jingmond, M. (2011). *Issues confronting women participation in the construction industry*. Paper presented at the Advances in Engineering and Technology-Contribution of

Scientific Research in Development. Paper retrieved from https://lup.lub.lu.se/search/publication/1834659

Australian Bureau of Statistics. (2016). *Gender composition of the workforce: By industry.* Retrieved from https://www.wgea.gov.au/sites/default/files/Gender%20composition-of-the-workforce-by-industry.pdf

Azhar, S., & Amos-Griffin, M. (2014). *Women in construction, success, challenges and opportunities*. Paper presented at the 50th ASC Annual International Conference Proceedings. Paper retrieved from http://ascpro0.ascweb.org/archives/cd/2014/paper/CPRT249002014.pdf

Bagilhole, B. (2002). *Women in non-traditional occupations: Challenging men*. Basingstoke, UK: Palgrave Macmillan.

Bagilhole, B., Dainty, A., & Neale, R. (1997). Women in construction: Undervalued participants in an undervalued industry. *Gates: An International Journal Promoting Greater Access to Technology Engineering and Science 4*(1), 3-12.

Bagilhole, B., Dainty, A., & Neale, R. (2000). Women in the construction industry in the UK: A cultural discord? *Journal of Women and Minorities in Science and Engineering, 6*(1), 1-10.

Bagilhole, B., & Goode, J. (2001). The contradiction of the myth of individual merit, and the reality of a patriarchal support system in academic careers: A feminist investigation. *European Journal of Women's Studies, 8*(2), 161-180. doi: https://www.jstor.org/stable/pdf/20676752.pdf

Bandura, A. (1977). *Social learning theory*. Englewood Cliffs, NJ: Prentice-hall.

Bandura, A. (1991). Social cognitive theory of self-regulation. *Organizational Behavior and Human Decision Processes, 50*(2), 248-287. doi: 10.1016/0749-5978(91)90022-L

Barreto, U., Pellicer, E., Carrión, A., & Torres-Machí, C. (2017). Barriers to the professional development of qualified women in the Peruvian construction industry. *Journal of Professional Issues in Engineering Education and Practice, 143*(4), 1-10. doi: 10.1061/(ASCE)EI.1943-5541.0000331

Barrios, Y., & DiDona, T. (2013). Gender dominated industries: Breaking through the glass ceiling. *Journal of Academic and Business Ethics, 7*(1), 1-6.

Bastalich, W., Franzway, S., Gill, J., Mills, J., & Sharp, R. (2007). Disrupting masculinities: Women engineers and engineering workplace culture. *Australian Feminist Studies, 22*(54), 385-400. doi: https://doi.org/10.1080/08164640701578765

Beck, C. T. (1993). Qualitative research: The evaluation of its credibility, fittingness, and auditability. *Western Journal of Nursing Research, 15*(2), 263-266.

Beckman, L. J. (2014). Training in feminist research methodology: Doing research on the margins. *Women & Therapy, 37*(1-2), 164-177. doi: 10.1080/02703149.2014.850347

Bennett, J., Davidson, M., & Galeand, J. (1999). Women in construction: A comparative investigation into the expectations and experiences of female and male construction undergraduates and employees. *Women in Management Review, 14*(7), 273-292. doi: 10.1108/09649429910291122

Besser, D. (2006). *The experience of women in construction management: A hermeneutic phenomenological study (Doctoral dissertation).* Retrieved from ProQuest Dissertations and Thesis Database (UMI No. 3225712)

Bilbo, D., Bigelow, B. F., Rybkowski, Z., & Kamranzadeh, A. (2014). Effects of family-related factors on female project managers' salaries in the construction industry in the United States. *International Journal of Construction Education and Research, 10*(4), 255-267. doi: 10.1080/15578771.2014.886641

Birks, M., & Mills, J. (2015). *Grounded theory: A practical guide* (2nd ed.). Los Angeles, CA: Sage.

Blackburn, R. M., Browne, J., Brooks, B., & Jarman, J. (2002). Explaining gender segregation. *British Journal of Sociology, 53*(4), 513-536. doi: 10.1080/0007131022000021461

Blaikie, P., Cannon, T., Davis, I., & Wisner, B. (2014). *At risk: Natural hazards, people's vulnerability and disasters*. Abingdon, UK: Routledge.

Blau, P. (2017). *Exchange and power in social life*. London, UK: Routledge.

Boeije, H. (2002). A purposeful approach to the constant comparative method in the analysis of qualitative interviews. *Quality and Quantity, 36*(4), 391-409. doi: 10.1023/A:1020909529486

Brannon, L., Feist, J., & Updegraff, J. A. (2013). *Health psychology: An introduction to behavior and health*. Belmont, CA: Cengage Learning.

Braun, V., & Clarke, V. (2013). *Successful qualitative research: A practical guide for beginners*. Thousand Oaks, CA: Sage.

Breckenridge, J., & Jones, D. (2009). Demystifying theoretical sampling in grounded theory research. *Grounded Theory Review, 8*(2), 113-126.

Bredin, K. (2008). People capability of project-based organisations: A conceptual framework. *International Journal of Project Management, 26*(5), 566-576. doi: 10.1016/j.ijproman.2008.05.002

Broadbridge, A., & Simpson, R. (2011). 25 years on: Reflecting on the past and looking to the future in gender and management research. *British Journal of Management, 22*(3), 470-483. doi: 10.1111/j.1467-8551.2011.00758.x

Brotheridge, C. M., & Lee, R. T. (2003). Development and validation of the emotional labour scale. *Journal of Occupational and Organizational Psychology, 76*(3), 365-379. doi: 10.1348/096317903769647229

Bryant, A. (2006). *Thinking informatically: A new understanding of information, communication, and technology*. Lewiston, ME: Edwin Mellen Press.

Bryant, A., & Charmaz, K. (2007). *The Sage handbook of grounded theory*. Thousand Oaks, CA: Sage.

Bryman, A., Liao, T. F., & Lewis-Beck, M. S. (2004). *The Sage encyclopedia of social science research methods*. Thousand Oaks, CA: Sage.

Byanyima, W. (1994). The role of women engineers in developing countries. *RSA Journal, 142*(5454), 57-66. doi: /41376605?seq=9#metadata_info_tab_contents

Byrd, B. (1999). Women in carpentry apprenticeship: A case study. *Labor Studies Journal, 24*(3), 3-22. doi: 10.1177/0160449X9902400301

Byrd, M., & Scott, C. (2018). *Diversity in the workforce: Current issues and emerging trends* (2nd ed.). New York, NY: Routledge.

Byrne, J., Clarke, L., & Van Der Meer, M. (2005). Gender and ethnic minority exclusion from skilled occupations in construction: Western European comparison. *Construction Management and Economics, 23*(10), 1025-1034. doi: 10.1177/0160449X9902400301

Campbell, R., & Wasco, S. M. (2000). Feminist approaches to social science: Epistemological and methodological tenets. *American Journal of Community Psychology, 28*(6), 773-791.

CARE Cambodia. (2016). *Launch of CARE's latest research puts spotlight on women in Cambodia's construction sector.* Retrieved from http://www.care-cambodia.org/single-post/2016/09/09/Launch-of-CARE%E2%80%99s-latest-research-puts-spotlight-on-women-in-Cambodia%E2%80%99s-construction-sector

Carpenter, C., & Suto, M. (2008). *Qualitative research for occupational and physical therapists: A practical guide*. Ames, IA: Wiley-Blackwell.

Carter, S. M., & Little, M. (2007). Justifying knowledge, justifying method, taking action: Epistemologies, methodologies, and methods in qualitative research. *Qualitative Health Research, 17*(10), 1316-1328. doi: 10.1023/A:1020909529486

Carver, C. S., & Connor-Smith, J. (2010). Personality and coping. *Annual Review of Psychology, 61(1)*, 679-704. doi: 10.1146/annurev.psych.093008.100352

Catalyst. (2015). *Women in male-dominated industries.* Retrieved from http://www.catalyst.org/knowledge/women-male-dominated-industries-and-occupations

Caven, V. (2006). Career building: Women and non-standard employment in architecture. *Construction Management & Economics, 24*(5), 457-464. doi: 10.1080/01446190600601354

Charmaz, K. (1990). Discovering chronic illness: Using grounded theory. *Social Science & Medicine, 30*(11), 1161-1172. doi: 10.1016/0277-9536(90)90256-R

Charmaz, K. (2006). *Constructing grounded theory: A practical guide through qualitative analysis*. Thousand Oaks, CA: Sage.

Charmaz, K. (2014). *Constructing grounded theory*. Thousand Oaks, CA: Sage.

Charmaz, K., & Belgrave, L. (2012). Qualitative interviewing and grounded theory analysis. In J. F. Gulbrium, J. A. Holstein, A. B. Marvasti & K. D. McKinney (Eds.), *The Sage handbook of interview research: The complexity of the craft* (2nd ed., Vol. 2, pp. 347-365). Thousand Oaks, CA: Sage.

Chen, M. A. (2001). Women and informality: A global picture, the global movement. *Sais Review, 21*(1), 71-82.

Chilisa, B. (2012). *Indigenous research methodologies*. Thousand Oaks, CA: Sage.

Choudhury, T. (2013). Experiences of women as workers: A study of construction workers in Bangladesh. *Construction Management and Economics, 31*(8), 883-898. doi: 10.1080/01446193.2012.756143

Chun, B. L., Arditi, D., & Balci, G. (2009). Women in construction management. *CMAA eJournal*, 1-15. Retrieved from https://www.cmaanet.org/sites/default/files/resource/Women%20in%20Construction%20Management.pdf

Clark, R., Anderson, N., Clark, V., & Williams, D. (1999). Racism as a stressor for African Americans: A biopsychosocial model. *American Psychologist, 54*(10), 805-816. doi: 10.1037/0003-066X.54.10.805

Clarke, A. (2005). *Situational analysis: Grounded theory after the postmodern turn*. Thousand Oaks, CA: Sage.

Clarke, L., Michielsens, E., & Snijders, S. (2017). Misplaced gender diversity policies and practices in the British construction industry: Developing an inclusive and transforming strategy. In F. Emuze & J. Smallwood (Eds.), *Valuing people in construction* (pp. 130-150). London, UK: Routledge.

Clarke, L., Michielsens, E., Snijders, S., & Wall, C. (2017). No more softly, softly: Women in the construction workforce. In F. Emuze & J. Smallwood (Eds.), *Valuing people in construction* (pp. 130-149). London, UK: Routledge.

Clarke, L., Pedersen, E., Michielsens, E., & Susman, B. (2005). The European construction social partners: Gender equality in theory and practice. *European Journal of Industrial Relations, 11*(2), 151-177. doi: 10.1177/0959680105053961

Clarke, L., & Wall, C. (2006). *Omitted from history: Women in the building trades*. Paper presented at the Proceedings of the Second International Congress on Construction History: Construction History Society, Cambridge. Paper retrieved from http://www.arct.cam.ac.uk/Downloads/ichs/vol-1-35-60-clarke.pdf

Clarke, L., & Wall, C. (2010). *Skilled versus qualified labour: The exclusion of women from the construction industry*. University of Westminster, UK: Merlin Press.

Construction Sector Leaders Group. (2013). *Construction sector workforce plan: For greater Christchurch.* Retrieved from http://www.constructionstrategygroup.org.nz/downloads/Construction_Sector_Plan_-_FINAL.pdf

Corbin, J., & Strauss, A. (2008). *Basics of qualitative research: Techniques and procedures for developing grounded theory* (3rd ed.). Los Angeles, CA: Sage.

Cornelius, N., & Skinner, D. (2005). An alternative view through the glass ceiling: Using capabilities theory to reflect on the career journey of senior women. *Women in Management Review, 20*(8), 595-609.

Creswell, J. W. (1998). *Qualitative inquiry and research design: Choosing among five traditions*. Thousand Oaks, CA: Sage.

Creswell, J. W. (2012). *Qualitative inquiry and research design: Choosing among five approaches* (3rd ed.). Thousand Oaks, CA: Sage.

Creswell, J. W. (2014). *Research design: Qualitative, quantitative, and mixed methods approaches* (4th ed.). Thousand Oaks, CA: Sage.

Crotty, M. (1998). *The foundations of social research: Meaning and perspective in the research process*. Thousand Oaks, CA: Sage.

Dabke, S., Salem, O., Genaidy, A., & Daraiseh, N. (2008). Job satisfaction of women in construction trades. *Journal of Construction Engineering and Management, 134*(3), 205-216. doi: 10.1061/(ASCE)0733-9364(2008)134:3(205)

Dainty, A., & Bagilhole, B. (2006). Women's and men's careers in the UK construction industry: A comparative analysis. In A. W. Gale & M. J. Davidson (Eds.), *Managing diversity and equality in construction: Initiatives and practice*. Abingdon, UK: Routledge.

Dainty, A., Bagilhole, B., Ansari, K., & Jackson, J. (2004). Creating equality in the construction industry: An agenda for change for women and ethnic minorities. *Journal of Construction Research, 5*(01), 75-86. doi: 10.1142/S1609945104000061

Dainty, A., Bagilhole, B., & Neale, R. (2000). A grounded theory of women's career under-achievement in large UK construction companies. *Construction Management & Economics, 18*(2), 239-250. doi: 10.1080/014461900370861

Dainty, A., Green, S., & Bagilhole, B. (Eds.). (2007). *People and culture in construction: A reader*. Abingdon, UK: Taylor & Francis.

Dainty, A., & Lingard, H. (2006). Indirect discrimination in construction organizations and the impact on women's careers. *Journal of Management in Engineering, 22*(3), 108-118.

Dainty, A., & Loosemore, M. (2013). *Human resource management in construction projects* (2nd ed.). London, UK: Routledge.

Daley, K. (2007). *Qualitative methods for family studies and human development*. Thousand Oaks, CA: Sage.

Davidson, M. N., & James, E. H. (2007). The engines of positive relationships across difference: Conflict and learning. In J. E. Dutton & B. R. Ragins (Eds.), *Exploring positive relationships at work: Building a theoretical and reseach foundation* (pp. 137-158). London, UK: Lawrence Erlbaum Associates.

Davies, D., & Dodd, J. (2002). Qualitative research and the question of rigor. *Qualitative Health Research, 12*(2), 279-289. doi: 10.1177/104973230201200211

Denissen, A. (2010a). Crossing the line: How women in the building trades interpret and respond to sexual conduct at work. *Journal of Contemporary Ethnography, 39*(3), 297-327. doi: 10.1177/0891241609341827

Denissen, A. (2010b). The right tools for the job: Constructing gender meanings and identities in the male-dominated building trades. *Human Relations, 63*(7), 1051-1069. doi: 10.1177/0018726709349922

Denissen, A., & Saguy, A. (2014). Gendered homophobia and the contradictions of workplace discrimination for women in the building trades. *Gender & Society, 28*(3), 381-403. doi: 10.1177/0891243213510781

Denzin, N., K, & Lincoln, Y., S. (2011). *The Sage handbook of qualitative research*. Thousand Oaks, CA: Sage.

DeVault, M. L. (1996). Talking back to sociology: Distinctive contributions of feminist methodology. *Annual Review of Sociology, 22*(1), 29-50.

Dey, I. (2007). The development of categories: different approaches in grounded theory. In A. Bryant & K. Charmaz (Eds.), *The Sage handbook of grounded theory*. London, UK: Sage.

Diefendorff, J. M., Erickson, R. J., Grandey, A. A., & Dahling, J. J. (2011). Emotional display rules as work unit norms: A multilevel analysis of emotional labor among nurses. *Journal of Occupational Health Psychology, 16*(2), 170-186. doi: 10.1037/a0021725

Donnelly, N., Parker, J., Douglas, J., Ravenswood, K., & Weatherall, R. (2018). *The role of middle managers in progressing gender equity in the public service.* Retrieved from http://orapp.aut.ac.nz/bitstream/handle/10292/11858/2018%20The-Role-of-Middle-Managers-in-Progessing-Gender-Equity-Report.pdf?sequence=2&isAllowed=y

Drolet, J., Dominelli, L., Alston, M., Ersing, R., Mathbor, G., & Wu, H. (2015). Women rebuilding lives post-disaster: Innovative community practices for building resilience and promoting sustainable development. *Gender & Development, 23*(3), 433-448. doi: 10.1080/13552074.2015.1096040

Dutton, J. E., & Ragins, B. R. (2017). *Exploring positive relationships at work: Building a theoretical and research foundation*. London, UK: Lawrence Erlbaum Associates.

Dwyer, S. C., & Buckle, J. L. (2009). The space between: On being an insider-outsider in qualitative research. *International Journal of Qualitative Methods, 8*(1), 54-63. doi: /10.1177/160940690900800105

Eccles, R. G. (1981). The quasifirm in the construction industry. *Journal of Economic Behavior & Organization, 2*(4), 335-357. doi: 10.1016/0167-2681(81)90013-5

Eisenberg, S. (1999). *We'll call you if we need you: Experiences of women working construction*. Albany, NY: Cornell University Press.

Enarson, E. (2006). Women and girls last? Averting the second post-Katrina disaster. *Social Science Research Council.* Retrieved from http:// understandingkatrina.ssrc.org/Enarson/

Enarson, E. (2012). *Women confronting natural disaster: From vulnerability to resilience*. Boulder, CO: Lynne Rienner Publishers.

Enarson, E., Fothergill, A., & Peek, L. (2007). Gender and disaster: Foundations and directions. In H. Rodriguez & E. L. Quarantelli (Eds.), *Handbook of disaster research* (pp. 130-146). New York, NY: Springer.

Engineering New Zealand. (2017). *Gender diversity for engineering professional services: Workshop summary report.* Retrieved from

https://infrastructure.org.nz/resources/Documents/Gender%20Diversity%20Workshop%20Summary%20Report_Final.pdf

English, J., Haupt, T., & Smallwood, J. (2006). Women, construction and health and safety (H&S): South African and Tanzanian perspectives. *Journal of Engineering Design and Technology, 4*(1), 18-28. doi: 10.1108/17260530610818624

English, J., & Hay, P. (2015). Black South African women in construction: Cues for success. *Journal of Engineering, Design and Technology, 13*(1), 144-164. doi: 10.1108/JEDT-06-2013-0043

English, J., & Le Jeune, K. (2011). Do professional women and tradeswomen in the South African construction industry share common employment barriers despite progressive government legislation? *Journal of Professional Issues in Engineering Education and Practice, 138*(2), 145-152. doi: 10.1061/(ASCE)EI.1943-5541.0000095

Ericksen, J. A., & Schultheiss, D. E. P. (2009). Women pursuing careers in trades and construction. *Journal of Career Development, 36*(1), 68-89. doi: 10.1177/0894845309340797

Eriksson, P., & Kovalainen, A. (2015). *Qualitative methods in business research: A practical guide to social research*. London, UK: Sage.

Etzkowitz, H., Kemelgor, C., & Uzzi, B. (2000). *Athena unbound: The advancement of women in science and technology*. Cambridge, UK: Cambridge University Press.

Evetts, J. (1998). Managing the technology but not the organization: Women and career in engineering. *Women in Management Review, 13*(8), 283-290.

Fernandez, R. M., & Campero, S. (2017). Gender sorting and the glass ceiling in high-tech firms. *ILR Review, 70*(1), 73-104. doi: 10.1177/0019793916668875

Fernando, N. G., Amaratunga, D., & Haigh, R. (2014). The career advancement of the professional women in the UK construction industry: The career success factors. Journal of engineering, Design and Technology, *12*(1), 53-70. doi: 10.1108/JEDT-04-2012-0018

FIEC. (2015). *European Construction Industry Federation: Annual report.* Retrieved from http://www.fiec.eu/en/library-619/annual-report-english.aspx

Fielden, S. L., Davidson, M. J., Gale, A. W., & Davey, C. L. (2000). Women in construction: The untapped resource. *Construction Management & Economics, 18*(1), 113-121. doi: 10.1080/014461900371004

Fink, A. (2014). *Conducting research literature reviews: From the internet to paper* (4th ed.). Thousand Oaks, CA: Sage.

Fiori, C., & Kovaka, M. (2005). *Defining megaprojects: Learning from construction at the edge of experience*. Paper presented at the Construction Research Congress 2005: Broadening Perspectives. Paper retrieved from https://ascelibrary.org/doi/pdf/10.1061/40754%28183%2970

Fleischman, R. B., Restrepo, J. I., Pampanin, S., Maffei, J. R., Seeber, K., & Zahn, F. A. (2014). Damage evaluations of precast concrete structures in the 2010–2011 Canterbury earthquake sequence. *Earthquake Spectra, 30*(1), 277-306. doi: 10.1193/031213EQS068M

Folkman, S., & Lazarus, R., S. (1984). *Stress, appraisal, and coping*. New York, NY: Springer Publishing Company.

Folkman, S., & Moskowitz, J., T. (2004). Coping: Pitfalls and promise. *Annual Review of Psychology, 55*, 745-774. doi: 10.1146/annurev.psych.55.090902.141456

Fordham, M. H. (1998). Making women visible in disasters: Problematising the private domain. *Disasters, 22*(2), 126-143. doi: 10.1111/1467-7717.00081

Fothergill, A. (2012). *Heads above water: Gender, class, and family in the grand forks flood*. Albany, NY: State University Press.

Franzway, S., Sharp, R., Mills, J. E., & Gill, J. (2009). Engineering ignorance: The problem of gender equity in engineering. *Frontiers: A Journal of Women Studies, 30*(1), 89-106. doi: https://doi.org/10.1353/fro.0.0039

Gale, A. W. (1994). Women in non-traditional occupations: The construction industry. *Women in Management Review, 9*(2), 3-14. doi: 10.1108/EUM0000000003989

Galea, N., Powell, A., Loosemore, M., & Chappell, L. (2015). Designing robust and revisable policies for gender equality: lessons from the Australian construction industry. *Construction Management and Economics, 33*(5-6), 375-389. doi: 10.1080/01446193.2015.1042887

Garwood, A. (2015). *Broadcasting student tracks down women on the job.* Retrieved from http://strongerchristchurch.govt.nz/article/broadcasting-student-tracks-down

Geertz, C. (1973). *The interpretation of cultures: Selected essays*. Albany, NY: Basic Books.

Gherardi, S., & Poggio, B. (2007). *Gendertelling in organizations: Narratives from male-dominated environments*. Copenhagen, Denmark: Business School Press.

Gill, L., & Delahaye, B. (2004). Building organisational capability: Your future, your business. *People First-Serving our Stakeholders*, 1-12. Retrieved from https://eprints.qut.edu.au/1738/1/1738_2.pdf

Ginige, K. N., Amaratunga, D., & Haigh, R. (2014). Tackling women's vulnerabilities through integrating a gender perspective into disaster risk reduction in the built environment. *Procedia Economics and Finance, 18*, 327-335. doi: 10.1016/S2212-5671(14)00947-2

Ginige, K. N., Amaratunga, R. D. G., & Haigh, R. (2007). Improving construction industry image to enhance women representation in the industry workforce. *Journal of Health Organisation and Management, 34(4)*, 377-385.

Glaesser, J. (2019). Competence in educational theory and practice: a critical discussion. *Oxford Review of Education, 45*(1), 70-85. doi: 10.1080/03054985.2018.1493987

Glaser, B. (1978). *Theoretical sensitivity: Advances in the methodology of grounded theory*. Mill Valley,CA: Sociology Press.

Glaser, B. (1992). *Basics of grounded theory analysis: Emergence vs forcing*. Mill Valley, CA: Sociology Press.

Glaser, B., & Strauss, A. (1967). *The discovery of grounded theory*. Chicago, CA: Aldine.

Glaser, B., & Strauss, A. (1968). *The discovery of grounded theory: Strategies for qualitative research*. London, England: Weidenfeld and Nicolson.

Goldenhar, L. M., & Sweeney, M. H. (1996). Tradeswomen's perspectives on occupational health and safety: A qualitative investigation. *American Journal of Industrial Medicine, 29*(5), 516-520. doi: 10.1002/(SICI)1097-0274(199605)29:5

Goldfrank, J. (1995). *Making ourselves at home: Women builders and designers*. Watsonville, CA: Papier-Mache.

Gordon, L. (2013). Preserving family and community: Women's voices from the Christchurch earthquakes. *Disaster Prevention and Management, 22*(5), 415-424. doi: 10.1108/DPM-10-2013-0175

Gordon, L., Sutherland, J., Du Plessis, R., & Gibson, H. M. (2014). *Movers and shakers: Women's stories from the Christchurch earthquakes*. Christchurch: National Council of Women of New Zealand, Christchurch Branch. Retrieved from http://www.communityresearch.org.nz/wp-content/uploads/formidable/MOVERS-AND-SHAKERS

Grant, B., M, & Giddings, L., S. (2002). Making sense of methodologies: A paradigm framework for the novice researcher. *Contemporary Nurse, 13*(1), 10-28. doi: 10.5172/conu.13.1.10

Grbich, C. (2007). *Qualitative data analysis: An introduction*. Thousand Oaks, CA: Sage.

Greed, C. (2000). Women in the construction professions: Achieving critical mass. *Gender, Work & Organization, 7*(3), 181-196. doi: 10.1111/1468-0432.00106

Greed, C. (2006). Social exclusion: Women in construction. In A. W. Gale & M. J. Davidson (Eds.), *Managing diversity and equality in construction: Initiatives and practice* (pp. 71-97). Abingdon, UK: Routledge.

Greenwood, M. (1997). *Discovering an individual's risk profile.* Paper presented at the Proceedings of the 13th Annual ARCOM Conference, Kings College Cambridge, England.

Guba, E., G, & Lincoln, Y., S. (1989). *Fourth generation evaluation*. London, UK: Sage.

Guba, E. G., & Lincoln, Y. S. (1994). Competing paradigms in qualitative research. In N. Denzin, K & Y. Lincoln, S (Eds.), *Handbook of qualitative research* (Vol. 2, pp. 163-194). Thousand Oaks, CA: Sage.

Gubrium, J. F. (2012). *The Sage handbook of interview research: The complexity of the craft* (2nd ed.). Thousand Oaks, CA: Sage.

Guenther, K. M. (2009). The politics of names: Rethinking the methodological and ethical significance of naming people, organizations, and places. *Qualitative Research, 9*(4), 411-421. doi: 10.1177/1468794109337872

Haigh, R., & Amaratunga, D. (2010). An integrative review of the built environment discipline's role in the development of society's resilience to disasters. *International Journal of Disaster Resilience in the Built Environment, 1*(1), 11-24. doi: 10.1108/17595901011026454

Halberstam, J. (2018). *Female masculinity*. Durham, NC: Duke University Press.

Hall, C. M., Malinen, S., Vosslamber, R., & Wordsworth, R. (Eds.). (2016). *Business and post-disaster management: Business, organisational and consumer resilience and the Christchurch earthquakes*. Abingdon, UK: Routledge.

Hallberg, L. R. (2006). The "core category" of grounded theory: Making constant comparisons. *International Journal of Qualitative Studies on Health and Well-being, 1*(3), 141-148. doi: 10.1080/17482620600858399

Harris, C., Ravenswood, K., & Myers, B. (2013). Glass slippers, Holy Grails and Ivory Towers: gender and advancement in academia. *Labour & Industry: A Journal of the Social and Economic Relations of Work, 23*(3), 231-244. doi: 10.1080/10301763.2013.839084

Hase, S. (2000). *Measuring organisational capability: Beyond competence.* Retrieved from www.researchgate.net/publication/37358846_Measuring_organisational_capability_beyond_competence

Haupt, T. C., & Ndimande, J. (2019). A review on why women-owned construction firms fail in KwaZulu-Natal? *Journal of Physics, 1378*(2), 1-20. doi: 10.1088/1742-6596/1378/2/022070

Hegewisch, A., & O'Farrell, B. (2015). *Women in the construction trades.* Retrieved from http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.696.3665&rep=rep1&type=pdf

Henwood, K., & Pidgeon, N. (2003). Grounded theory in psychological research. In P. M. Camic, J. E. Rhodes & L. Yardley (Eds.), *Qualitative research in psychology: Expanding perspectives in methodology and design.* (pp. 131-155). Washington, DC: American Psychological Association.

Hesse-Biber, S. N., & Leavy, P. (2011). *The practice of qualitative research* (2nd ed.). Los Angeles, CA: Sage.

Hewson, C., Yule, P., Laurent, D., & Vogel, C. (2002). *Internet research methods: A practical guide for the social and behavioural sciences*. Thousand Oaks, CA: Sage.

Hillebrandt, P. (1985). *Economic theory and the construction industry*. London, UK: Palgrave MacMillan.

Hinton, M. (2013). *Convenient immortality: A substantive theory of competitive procurement in the New Zealand construction industry (Doctoral dissertation).* Retrieved from https://ir.canterbury.ac.nz/bitstream/handle/10092/8714/thesis_fulltext.pdf?sequence=1

Hinton, M. A., & Hamilton, R. T. (2015). Competitive tendering and individual behaviour in the construction industry: Convenient immorality at work. *Construction Management and Economics, 33*(11-12), 880-889. doi: 10.1080/01446193.2016.1170865

Hinze, S. W. (2004). 'Am I being over-sensitive?'Women's experience of sexual harassment during medical training. *Health, 8*(1), 101-127. doi: 10.1177/1363459304038799

Hochschild, A. (1983). *The managed heart: Commercialization of human feeling*. Los Angeles, CA: University of California Press.

Hodgkinson, E. (2006). *Women in construction: The untapped resource: An analysis of women in the New Zealand building and construction industry (Master's thesis)* University of Canterbury. Retrieved from http://ipac.canterbury.ac.nz/ipac.jsp?index=BIB&term=1013431

Holloway, I., & Wheeler, S. (2010). *Qualitative research in nursing and healthcare* (3rd ed.). Chichester, UK: Wiley-Blackwell.

Hood, J. C. (2007). Orthodoxy vs. power: The defining traits of grounded theory. In A. Bryant & K. Charmaz (Eds.), *The Sage handbook of grounded theory* (pp. 151-164). Thousand Oaks, CA: Sage.

Hopman, H. A., & Lord, B. R. (2009). *The glass ceiling and women in accounting: New Zealand experiences and perceptions.* Retrieved from https://ir.canterbury.ac.nz/handle/10092/2750

Hossain, J. B., & Kusakabe, K. (2005). Sex segregation in construction organizations in Bangladesh and Thailand. *Construction Management and Economics, 23*(6), 609-619. doi: 10.1080/01446190500127062

Houghton, R., & Cornforth-Camden, B. (2017). *Rebuilding Canterbury, healthy and safe: Evaluation of Worksafe's Canterbury rebuild programme.* Retrieved from file://file/Userst$/the53/Home/Downloads/2821WKS-17-media-release-rebuilding-canterbury%20(2).pdf

Howell, D. (2014). *PPE for women and employer's handbook - Successful launch in Christchurch.* Retrieved from http://www.nawic.org.nz/news-construction

Hudson, L. A., & Ozanne, J. L. (1988). Alternative ways of seeking knowledge in consumer research. *Journal of Consumer Research, 14*(4), 508-521. doi: 10.1086/209132

Hultman, K., & Gellerman, B. (2002). *Balancing individual and organisational values: Walking the tightrope to success*. San Francisco, CA: Jossey-Bass.

Ibáñez, M., & Narocki, C. (2011). Occupational risk and masculinity: The case of the construction industry in Spain. *Journal of Workplace Rights, 16*(2), 195-217. doi: 10.2190/WR.16.2.e

Ikiao, A. K., & Wanyonyi, L. (2019). Determinants of women participation in building and construction industry in central division, Isiolo County, Kenya. *International Academic Journal of Information Sciences and Project Management, 3*(3), 131-163.

Ito, J. K., & Brotheridge, C. M. (2003). Resources, coping strategies, and emotional exhaustion: A conservation of resources perspective. *Journal of Vocational Behavior, 63*(3), 490-509. doi: 10.1016/S0001-8791(02)00033-7

Jaafar, M., Othman, R., & Jalali, A. (2014). Main determinations of female entrepreneurs in the construction industry in Malaysia. *Project Management Journal, 45*(1), 76-86. doi: 10.1002/pmj.21391

Jamenya, L. (2018). Determinants of women participation in construction projects in Kenya: A case study of the Judicial Performance Improvement Project, Nairobi County. *Strategic Journal of Business & Change Management, 5*(2), 525-552.

Jamieson, K. H., & Hall, K. (1995). *Beyond the double bind: Women and leadership*. Oxford, UK: Oxford University Press.

Jimoh, R. A., Oyewobi, L. O., Adamu, A. N., & Bajere, P. A. (2016). Women professionals' participation in the Nigerian construction industry: Finding voice for the voiceless.

Organization, Technology and Management in Construction: An International Journal, 8, 1429-1436. doi: 10.1515/otmcj-2016-0005

Johns, G. (2006). The essential impact of context on organizational behavior. *Academy of Management Review, 31*(2), 386-408. doi: 10.5465/amr.2006.20208687

Johnson, R., & Waterfield, J. (2004). Making words count: The value of qualitative research. *Physiotherapy Research International, 9*(3), 121-131. doi: 10.1002/pri.312

Jones, N. (2005). Construction: No place for women! *Building, 270*(23), 28-31.

Kaewsri, N., & Tongthong, T. (2011). An investigation of women engineers in non-traditional occupations in the Thai construction industry. *Australasian Journal of Construction Economics and Building, 11*(2), 1-21. doi: 10.5130/AJCEB.v11i2.1996

Kakad, K. (2002). Gender discrimination in the construction industry: The case of two cities in India. *Gender, Technology and Development, 6*(3), 355-372. doi: 10.1080/09718524.2002.11910051

Kang, D. (2016, December 13). Women migrant numbers high in Thai construction, *The Seattle Times*. Retrieved from https://www.seattletimes.com/business/women-migrant-numbers-high-in-thai-construction/

Kanter, R. M. (1993). *Men and women of the corporation* (2nd ed.). New York, NY: Basic Books.

Kardes, I., Ozturk, A., Cavusgil, S. T., & Cavusgil, E. (2013). Managing global megaprojects: Complexity and risk management. *International Business Review, 22*(6), 905-917. doi: 10.1080/09585192.2016.1277366

Kehinde, J., & Okoli, O. (2004). Professional women and career impediments in the construction industry in Nigeria. *Journal of Professional Issues in Engineering Education and Practice, 130*(2), 115-119. doi: 10.1061/(ASCE)1052-3928(2004)130:2(115)

Kolade, O. J., & Kehinde, O. (2013). Glass ceiling and women career advancement: Evidence from Nigerian construction industry. *Iranian Journal of Management Studies, 6*(1), 79-99.

Kolb, S., M. (2012). Grounded theory and the constant comparative method: Valid research strategies for educators. *Journal of Emerging Trends in Educational Research and Policy Studies, 3*(1), 83-86.

Kuhn, T., S. (1962). *The structure of scientific revolutions*. Chicago, IL: The University of Chicago Press.

Langford, D., Hancock, M., Fellows, R., & Gale, A. (2014). *Human resources management in construction*. New York, NY: Routledge.

Latack, J. C., & Havlovic, S. J. (1992). Coping with job stress: A conceptual evaluation framework for coping measures. *Journal of Organizational Behavior, 13*(5), 479-508. doi: 10.1002/job.4030130505

Latour, J. (2001). Live! from New York: Women construction workers in their own words. *Labor History, 42*(2), 179-189. doi: 10.1080/00236560120047752

Lazarus, R. S., & Folkman, S. (1987). Transactional theory and research on emotions and coping. *European Journal of Personality, 1*(3), 141-169. doi: 10.1002/per.2410010304

Leavy, P. (2014). *The Oxford handbook of qualitative research*. New York, NY: Oxford University Press.

Leedy, P., & Ormond, J. (2001). *Practical research: Planning and design* (7th ed.). Upper Saddle River, NJ: Sage.

Lekchiri, S., & Kamm, J. D. (2020). Navigating barriers faced by women in leadership positions in the US construction industry: A retrospective on women's continued struggle in a male-dominated industry. *European Journal of Training and Development*, Advance online publications. doi: 10.1108/EJTD-11-2019-0186

Lempert, L. B. (2007). Asking questions of the data: Memo writing in the grounded theory tradition. In A. Bryant & K. Charmaz (Eds.), *The Sage handbook of grounded theory* (pp. 245-264). Thousand Oaks, CA: Sage.

Levers, M.-J. D. (2013). Philosophical paradigms, grounded theory, and perspectives on emergence. *Sage Open, 3*(4), 1-6. doi: https://doi.org/10.1177/2158244013517243

Levesque-Lopman, L. (1988). *Claiming reality: Phenomenology and women's experience*. Totowa, NJ: Rowman & Littlefield.

Li, H., & Guo, H. (2011). Complexities in managing mega construction projects. *International Journal of Project Management, 29*(7), 795-796. doi: 10.1016/j.ijproman.2011.05.001

Liamputtong, P. (2013). *Qualitative research methods* (4th ed.). New York, NY: Oxford University Press.

Lincoln, Y. S., & Guba, E. G. (2003). Ethics: The failure of positivist science. In Y. S. Lincoln & E. G. Guba (Eds.), *Turning points in qualitative research: Tying knots in a handkerchief* (pp. 219-238). Walnut Creek, CA: AltaMira Press.

Lincoln, Y. S., Lynham, S. A., & Guba, E. G. (2011). Paradigmatic controversies, contradictions, and emerging confluences, revisited. In N. Denizen & Y. Lincoln, S. (Eds.), *The Sage handbook of qualitative research* (Vol. 4, pp. 97-128). Thousand Oaks, CA: Sage.

Lingard, H., & Francis, V. (2004). The work-life experiences of office and site-based employees in the Australian construction industry. *Construction Management and Economics, 22*(9), 991-1002. doi: 10.1080/0144619042000241444

Lingard, H. C., Francis, V., & Turner, M. (2010). The rhythms of project life: A longitudinal analysis of work hours and work–life experiences in construction. *Construction Management and Economics, 28*(10), 1085-1098. doi: 10.1080/01446193.2010.480977

Locke, K. D. (2000). *Grounded theory in management research*. London, UK: Sage.

Loosemore, M., Dainty, A., & Lingard, H. (2003). *Managing people in construction projects: Strategic and operational approaches*. London, UK: Taylor and Francis.

Loosemore, M., & Galea, N. (2008). Genderlect and conflict in the Australian construction industry. *Construction Management and Economics, 26*(2), 125-135. doi: 10.1080/01446190701798810

Loosemore, M., Phua, F., Dunn, K., & Ozguc, U. (2010). Operatives' experiences of cultural diversity on Australian construction sites. *Construction Management and Economics, 28*(2), 177-188. doi: 10.1080/01446190903450087

Loosemore, M., & Waters, T. (2004). Gender differences in occupational stress among professionals in the construction industry. *Journal of Management in Engineering, 20*(3), 126-132. doi: 10.1061/(ASCE)0742-597X(2004)20:3(126)

Love, P. E., Edwards, D. J., & Irani, Z. (2010). Work stress, support, and mental health in construction. *Journal of Construction Engineering and Management, 136*(6), 650-658. doi: 10.1061/(ASCE)CO.1943-7862.0000165

Macabodbod, G., Cerna, P., & Abas, M. C. (2017). Assessment and effectiveness analysis of the women workers in construction projects in Debre Berhan and Addis Ababa, Ethiopia. *International Journal of Engineering Management, 1*(2), 54-62. doi: 10.11648/j.ijem.20170102.13

MacIsaac, K. M., & Domene, J. F. (2014). Learning the tricks of the trades: Women's experiences. *Canadian Journal of Counselling and Psychotherapy, 48*(1), 1-21.

Madikizela, K., & Haupt, T. (2010). Influences on women's choices of careers in construction: A South African study. *Australasian Journal of Construction Economics and Building, 10*(1/2), 1-15. doi: 10.5130/AJCEB.v10i1-2.1582

Malone, E. K., & Issa, R. R. (2012). Work-life balance and organizational commitment of women in the US construction industry. *Journal of Professional Issues in Engineering Education and Practice, 139*(2), 87-98. doi: 10.1061/(ASCE)EI.1943-5541.0000140

Marshall, M. (1996). Sampling for qualitative research. *Family Practice, 13*(6), 522-525. doi: 10.1093/fampra/13.6.522

Martin, M. (1988). *Hard-hatted women*. Washington, DC: Seal Press.

Martin, P., & Barnard, A. (2013). The experience of women in male-dominated occupations: A constructivist grounded theory inquiry. *SA Journal of Industrial Psychology, 39*(2), 1-12. doi: 10.4102/sajip.v39i2.1099

Maxwell, A., & Riley, P. (2017). Emotional demands, emotional labour and occupational outcomes in school principals: Modelling the relationships. *Educational Management Administration & Leadership, 45*(3), 484-502. doi: 10.1177/1741143215607878

Maykut, P., & Morehouse, R. (1994). *Beginning qualitative research: A philosophical and practical guide*. London, UK: The Farmer Press.

Menches, C. L., & Abraham, D. M. (2007). Women in construction: Tapping the untapped resource to meet future demands. *Journal of Construction Engineering and Management, 133*(9), 701-707. doi: 10.1061/(ASCE)0733-9364(2007)133:9(701)

Merghani, A. (2016). Women in Sudanese construction industry. *Journal of Building and Road Research, 15*(1), 33-53.

Mertens, D. (2014). *Research and evaluation in education and psychology: Integrating diversity with quantitative, qualitative, and mixed methods*. Thousand Oaks CA: Sage.

Miller, L. (1997). Not just weapons of the weak: Gender harassment as a form of protest for army men. *Social Psychology Quarterly, 60*(1), 32-51. doi: 10.2307/2787010

Mills, J., Bonner, A., & Francis, K. (2006). The development of constructivist grounded theory. *International Journal of Qualitative Methods, 5*(1), 25-35. doi: 10.1177/160940690600500103

Ministry for Women. (2015). *Getting it done: Utilising women's skills in the workforce.* Retrieved from http://women.govt.nz/sites/public_files/2315-MFW_Canterbury%20research%20report-v10.pdf

Ministry of Business Innovation & Employment. (2013). *The New Zealand Sectors Report: Construction.* Retrieved from http://www.mbie.govt.nz/info-services/business/business-growth-agenda/sectors-reports-series/pdf-image-library/construction-report/construction-report.pdf

Ministry of Women's Affairs. (2013). *Building back better: Utilising women's labour in the Canterbury recovery.* Retrieved from http://women.govt.nz/sites/public_files/MWA_Canterbury%20research%20report-online2.pdf

Mohammadi, A., Mohaamadi, A., & Karji, A. (2019). Qualitative case study of women leaders and administrators in construction education programs. *International Journal of Innovative Research in Technology, 6*(5), 160-167.

Moir, S., Thomson, M., & Kelleher, C. (2011). *Unfinished business: Building equality for women in the construction trades* Retrieved from https://scholarworks.umb.edu/cgi/viewcontent.cgi?article=1004&context=lrc_pubs

Montgomerie, D. (2001). *The women's war: New Zealand women 1939-45*. Auckland, NZ: Auckland University Press.

Moore, J. D. (2006). *Women in construction management: Creating a theory of career choice and development. (Doctoral dissertation).* Retrieved from ProQuest Dissertations and Thesis database. (UMI No. 3226145)

Morehouse, R., & Maykut, P. (2002). *Beginning qualitative research: A philosophical and practical guide*. London, UK: Routledge.

Morrison, A. M., & Von Glinow, M. A. (1990). Women and minorities in management. *American Psychologist, 45*(2), 200-208. doi: 10.1037/0003-066X.45.2200

Murphy, S. (2015). *Women in trades rocket in Canterbury.* Retrieved from http://www.radionz.co.nz/news/regional/283652/women-in-trades-rockets-in-canterbury

Naismith, N., Price, A. D., Dainty, A. R., Bryman, A., Greasley, K., & Soetanto, R. (2005). Engendering trust in the construction supply chain. *Journal of Construction Procurement, 11*(2), 1-29.

Naismith, N., Robertson, S., & Tookey, J. (2017). Identifying barriers to retaining female professionals in engineering and construction organisations. *EPiC Series in Education Science, 1*, 227-234.

Naoum, S. G., Harris, J., Rizzuto, J., & Egbu, C. (2020). Gender in the construction industry: Literature review and comparative survey of men's and women's perceptions in UK construction consultancies. *Journal of Management in Engineering, 36*(2), 1-12. doi: 10.1061/(ASCE)ME.1943-5479.0000731

Napier, A. (2013). *Construction industry 12 percent female.* Retrieved from http://www.stuff.co.nz/the-press/news/9043424/Construction-industry-12-per-cent-female

NAWIC. (2016). *NAWIC builds leaders.* Retrieved from https://www.nawic.org/nawic/statistics.asp

NAWIC. (2017). *The leading voice of women in the construction industry.* Retrieved from http://www.nawic.org.nz/

Ness, K. (2012). Constructing masculinity in the building trades: Most jobs in the construction industry can be done by women. *Gender, Work & Organization, 19*(6), 654-676. doi: 10.1111/j.1468-0432.2010.00551.x

Neuman, W. L. (2006). *Social research methods: Qualitative and quantitative approaches* (6th ed.). Boston, MA: Pearson.

New Zealand Construction News. (2016). *Celebrating the success of women in construction*. Retrieved from http://www.constructionnews.co.nz/top-stories/celebrating-the-success-of-women-in-construction

New Zealand Human Rights Commission Te Kahui Tika Tangata. (2012). *New Zealand consensus of women's participation.* Retrieved from https://www.hrc.co.nz/files/2314/2360/5171/web-census.pdf

Nicholls, D. (2009). Qualitative research: Part one–philosophies. *International Journal of Therapy and Rehabilitation, 16*(10), 526-533. doi: 10.12968/ijtr.2009.16.10.44562

Nilakant, V., Walker, B., Rochford, K., & Van Heugten, K. (2013). Leading in a post-disaster setting: Guidance for human resource practitioners. *New Zealand Journal of Employment, 38*(1), 1-13. Retrieved from http://www.nzjournal.org.ezproxy.canterbury.ac.nz/past_issues.htm

O'Neil, D. A., Hopkins, M. M., & Bilimoria, D. (2008). Women's careers at the start of the 21st century: Patterns and paradoxes. *Journal of Business Ethics, 80*(4), 727-743. doi: 10.1007/s10551-007-9465-6

Paap, K. (2006). *Working construction: Why white working-class men put themselves and the labor movement in harm's way*. Ithaca, NY: Cornell University Press.

Patel, R., & Pitroda, J. (2016). The role of women in construction industry: An Indian perspective. *Indian Journal of Technical Information Special Issue for ICWSTCSC*, 17-23.

Patton, M. (2002). *Qualitative research and evaluation methods* (3rd ed.). Thousand Oaks, CA: Sage.

Peacock, W. G., Morrow, B. H., & Gladwin, H. (1997). *Hurricane Andrew: Ethnicity, gender, and the sociology of disasters*. Abingdon, UK: Routledge.

Peterson, H. (2010). The gendered construction of technical self-confidence: Women's negotiated positions in male-dominated, technical work settings. *International Journal of Gender, Science and Technology, 2*(1), 65-88.

Pilcher, K. (2007). A gendered "managed heart"? An exploration of the gendering of emotional labour, aesthetic labour, and body work in service sector employment. *Reinvention: A Journal of Undergraduate Research, 1*(1), 1-13.

Plummer, M., & Young, L. (2010). Grounded theory and feminist inquiry: Revitalising links to the past. *Western Journal of Nursing Research*, 32(3), 305-321. doi:10.1177/0193945909351298

Polit, D., & Beck, C. (2010). *Essentials of nursing research: Appraising evidence for nursing practice* (7th ed.). Philadelphia, PA: Lippincott-Raven.

Powell, A., Bagilhole, B., & Dainty, A. (2009). How women engineers do and undo gender: Consequences for gender equality. *Gender, Work & Organization, 16*(4), 411-428. doi: 10.1111/j.1468-0432.2008.00406.x

Powell, A., Dainty, A., Bagilhole, B., & Neale, R. (2005). *Coping in construction: Female students' perspectives*. Paper presented at the ARCOM Conference, SOAS, University of London. http://www.arcom.ac.uk/-docs/proceedings/ar2005-0033-0042_Powell_et_al.pdf

Powell, A., Hassan, T. M., Dainty, A., & Carter, C. (2009). Note: Exploring gender differences in construction research: A European perspective. *Construction Management and Economics, 27*(9), 803-807. doi: 10.1080/01446190903179736

Powell, G. N., & Graves, L. (2003). *Women and men in management* (3rd ed.). Thousand Oaks, CA: Sage.

Powels, M. (2015). *On women in the building industry.* Retrieved from http://www.stuff.co.nz/life-style/home-property/70003697/on-women-in-the-building-industry

Pumroy, K. H. (2016). *Adding her voice to the narrative: Career development experiences of women in engineering. (Doctoral dissertation).* Retrieved from ProQuest Dissertations and Thesis database. (UMI No. 10076137)

Ragins, B. R., & Verbos, A. K. (2007). Positive relationships in action: Relational mentoring and mentoring schemas in the workplace. In J. E. Dutton & B. R. Ragins (Eds.), *Exploring positive relationships at work: Building a theoretical and research foundation* (pp. 91-116). London, UK: Lawrence Erlbaum Associates.

Rameezdeen, R. (2007). Image of the construction industry. In M. Sexton, K. Kahkohen, S. Lu (Eds.), *CIB priority theme: Revaluing construction, A WO65 organization and management of construction perspective (pp.* 76-87). (CIB Report: Publication 313). Retrieved from https://www.irbnet.de/daten/iconda/CIB6086.pdf

Rebuild Christchurch. (2012). *Damage to Christchurch infrastructure examined in presentation.* Retrieved from http://www.rebuildchristchurch.co.nz/blog/2012/9/damage-to-christchurch-infrastructure-examined-in-presentation

Remenyi, D. (2014). *Grounded theory: A reader for researchers, students, faculty and others* (2nd ed.). Reading, UK: Academic Conferences Publishing International.

Richman, L. S., Vandellen, M., & Wood, W. (2011). How women cope: Being a numerical minority in a male-dominated profession. *Journal of Social Issues, 67*(3), 492-509. doi: 10.1111/j.1540-4560.2011.01711.x

Robeyns, I. (2005). The capability approach: A theoretical survey. *Journal of Human Development, 6*(1), 93-117. doi: 10.1080/146498805200034266

Robinson, J. G., & McIlwee, J. S. (1991). Men, women and the culture of engineering. *The Sociology Quarterly, 32*(3), 403-421. doi: 10.1111/j.1533-8525.1991.tb00166.x

Rosa, J. E., Hon, C. K., Xia, B., & Lamari, F. (2017). Challenges, success factors and strategies for women's career development in the Australian construction industry. *Construction Economics and Building, 17*(3), 27-46.

Rose, W. (2019). A quiet, burning rage: Women in male-dominated industries speak out. Retrieved from https://www.theguardian.pe.ca/news/now-atlantic/a-quiet-burning-rage-women-in-male-dominated-industries-speak-out-288952/

Rusbult, C. E., & Buunk, B. P. (1993). Commitment processes in close relationships: An interdependence analysis. *Journal of Social and Personal Relationships, 10*(2), 175-204. doi: 10.1177/026540759301000202

Ryan, W. (1976). *Blaming the victim*. Visalia, CA: Vintage.

Sabattini, L. (2007). *The double-bind dilemma for women in leadership: Damned if you do, doomed if you don't*. Minneapolis, MN: Catalyst.

Saldaña, J. (2015). *The coding manual for qualitative researchers*. Thousand Oaks, CA: Sage.

Saldaña, J. (2011). *Fundamentals of qualitative research*. New York, NY: Oxford University Press.

Saunders, M., Lewis, P., & Thornhill, A. (2015). *Research methods for business students*. Harlow, UK: Pearson Education.

Schippers, M. (2002). *Rockin'out of the box: Gender maneuvering in alternative hard rock*. London, UK: Rutgers University Press.

Schouten, C. (2017). *Construction news.* Retrieved from https://www.constructionnews.co.uk/data/industry-barometer/women-in-construction-what-do-the-numbers-say/10017870.article

SCIRT. (2014a). *Call to action employers, women: Re:START Mall celebration Thursday afternoon.* Retrieved from http://strongerchristchurch.govt.nz/article/call-to-action-employers-women-restart-mall-celebration-thursday-afternoon

SCIRT. (2014b). *Great turnout SCIRT women in construction: It's a good fit.* Retrieved from http://strongerchristchurch.govt.nz/article/great-turnout-scirt-women-in-construction-it%E2%80%99s-a-good-fit

SCIRT. (2014c). *Profiles: Women rebuilding Christchurch.* Retrieved from http://strongerchristchurch.govt.nz/article/profiles-women-rebuilding-christchurch

SCIRT. (2014d). *Who me? Traffic manager bowled over by Hays women in construction excellence award.* Retrieved from http://strongerchristchurch.govt.nz/article/who-me-traffic-manager-bowled-over-by-hays-women-in-construction-excellence-award

SCIRT. (2014e). *Young women engineering central Christchurch infrastructure rebuild.* Retrieved from http://strongerchristchurch.govt.nz/article/young-women-engineering-central-christchurch-infrastructure-rebuild

SCIRT. (2015). *Women challenging the male norm in construction sector.* Retrieved from http://strongerchristchurch.govt.nz/article/women-challenging-the-male-norm-in-construction-sector

Scott, J. W. (1986). Gender: A useful category of historical analysis. *The American Historical Overview, 91*(5), 1053-1075.

Sen, A. (2001). *Development as freedom*. Oxford, UK: Oxford University Press.

Sewalk, S., & Nietfeld, K. (2013). Barriers preventing women from enrolling in construction management programs. *International Journal of Construction Education and Research, 9*(4), 239-255. doi: 10.1080/15578771.2013.764362

Shanmugam, M., Amaratunga, D., & Haigh, R. (2006). *A study of the role of leadership qualities of women in construction.* Retrieved from https://www.researchgate.net/profile/Dilanthi_Amaratunga2/publication/304927770_A_Study_of_the_role_of_leadership_qualities_of_women_in_construction/links/577d26a308aeaee3b27e3099.pdf

Sias, P. M. (2008). *Organizing relationships: Traditional and emerging perspectives on workplace relationships*. London, UK: Sage.

Smith, A. (2003). Community relations: How an entire industry can change its image through proactive local communications. *Journal of Communication Management, 7*(3), 254-264. doi: 10.1108/13632540310807403

Smith, L. (2013). Working hard with gender: Gendered labour for women in male dominated occupations of manual trades and information technology (IT). *Equality, Diversity and Inclusion: An International Journal, 32*(6), 592-603. doi: 10.1108/EDI-12-2012-0116

Sommerville, J., Kennedy, P., & Orr, L. (1993). Women in the UK construction industry. *Construction Management and Economics, 11*(4), 285-291. doi: 10.1080/01446199300000028

Sospeter, N. G., Rwelamila, P. D., Nchimbi, M., & Masoud, M. (2014). Review of theory and practice literature on women entrepreneurship in the Tanzanian construction industry: Establishing the missing link. *Journal of Construction in Developing Countries, 19*(2), 75-85.

Stake, R. E. (2008). Qualitative case studies. In N. Denzin & Y. S. Lincoln (Eds.), *Strategies of qualitative inquiry*. Thousand Oaks, CA: Sage.

Statistics New Zealand. (2016). *Filled jobs by ANZSIC group,sex, and employment.* Retrieved from http://nzdotstat.stats.govt.nz/wbos/Index.aspx#

Strauss, A. L., & Corbin, J. M. (1990). *Basics of qualitative research: Grounded theory procedures and techniques*. Newbury Park, CA: Sage.

Suddaby, R. (2006). From the editors: What grounded theory is not. *Academy of Management Journal, 49*(4), 633-642. doi: 10.5465/amj.2006.22083020

Sue, D. W., Capodilupo, C. M., Torino, G. C., Bucceri, J. M., Holder, A., Nadal, K. L., & Esquilin, M. (2007). Racial microaggressions in everyday life: Implications for clinical practice. *American Psychologist, 62*(4), 271. doi: 10.1037/0003-066X.62.4.271

Sutherland, V., & Davidson, M. J. (1993). Using a stress audit: The construction site manager experience in the UK. *Work & Stress, 7*(3), 273-286. doi: 10.1080/02678379308257067

Thomas, E., & Magilvy, J. K. (2011). Qualitative rigor or research validity in qualitative research. *Journal for Specialists in Pediatric Nursing, 16*(2), 151-155. doi: https://doi.org/10.1111/j.1744-6155.2011.00283.x

Thousands of Christchurch women turning to trades. (2016, 12 February). *The Press*. Retrieved from http://www.stuff.co.nz/the-press/news/76821894/thousands-of-christchurch-women-turning-to-the-trades

Todres, L. (2005). Clarifying the life-world: Descriptive phenomenology. In I. Holloway (Ed.), *Qualitative Research in Health Care* (pp. 104-124). Oxford, UK: Open University Press.

Toma, J. D. (2000). How getting close to your subjects makes qualitative data better. *Theory Into Practice, 39*(3), 177-184. doi: 10.1207/s15430421tip3903_9

Toor, R., Suresh, S., & Renukappa, S. (2017). *Factors affecting the equality and diversity of ethnic minority women in the UK construction industry: An empirical study*. Paper presented at the International Conference on Sustainable Futures ICSF 2017, Bahrain. Paper retrieved from http://www.wlv.ac.uk/media/departments/research/documents/Shub-etal_paper.pdf

Tracey, C. (2016). *Women in the construction industry.* Retrieved from http://www.newstalkzb.co.nz/on-air/larry-williams-drive-with-anz/audio/cathy-tracey-women-in-the-construction-industry/

Tracy, S. J. (2012). *Qualitative research methods: Collecting evidence, crafting analysis, communicating impact*. West Sussex, UK: Wiley & Blackwell.

Urquhart, C. (2012). *Grounded theory for qualitative research: A practical guide*. Thousand Oaks, CA: Sage.

Vainikolo, K. (2017). *Women's career paths in the construction industry in New Zealand (Master's thesis)* Auckland University of Technology. Retrieved from http://hdl.handle.net/10292/10995

Van Heugten, K. (2014). *Human service organizations in the disaster context*. New York, NY: Palgrave Macmillan.

Van Maanen, J. (1998). *Qualitative studies of organizations*. Thousand Oaks, CA: Sage.

Van Manen, M. (1990). *Researching lived experience: Human science for an action sensitive pedagogy*. Albany, NY: State University of New York Press.

Vaughan, K., Kear, A., & MacKenzie, H. (2014). Mate, you should know this! Re-negotiating practice after a critical incident in the assessment of on-job learning. *Vocations and Learning, 7*(3), 331-344. doi: 10.1007/s12186-014-9118-8

Vijayaragunathan, S., & Rasanthi, T. (2019). An insight to women in construction for fostering female careers in Sri Lankan construction industry. *Journal of International Women's Studies, 20*(3), 168-173.

Wahyuni, D. (2012). The research design maze: Understanding paradigms, cases, methods and methodologies. *Journal of Applied Management Accounting Research, 10*(1), 69-80.

Wall, C., & Clarke, L. (2014). *Are women 'not up to' working in construction-at all times and everywhere?* London, UK: The Smith Institute.

Wangle, A. M. (2009). *Perceptions of traits of women in construction (Masters Thesis)*. University of Florida, USA.

Watts, J. (2006). The outsider within: Dilemmas of qualitative feminist research within a culture of resistance. *Qualitative Research, 6*(3), 385-402. doi: 10.1177/1468794106065009

Watts, J. (2007). Porn, pride and pessimism: Experiences of women working in professional construction roles. *Work, Employment & Society, 21*(2), 299-316. doi: 10.1177/0950017007076641

Watts, J. (2009a). Allowed into a man's world meanings of work–life balance: Perspectives of women civil engineers as minority workers in construction. *Gender, Work & Organization, 16*(1), 37-57. doi: 10.1111/j.1468-0432.2007.00352.x

Watts, J. (2009b). Leaders of men: Women managing in construction. *Work, Employment & Society, 23*(3), 512-530. doi: 10.1177/0950017009337074

Watts, J. (2012). Women working in construction management roles: Is it worth it? *Global Journal of Management Science and Technology, 1*(3), 38-44.

Wertz, F. J. (2011). *Five ways of doing qualitative analysis: Phenomenological psychology, grounded theory, discourse analysis, narrative research, and intuitive inquiry*. New York, NY: Guilford Publications.

West, C., & Zimmerman, D. (1987). Doing gender. *Gender & Society, 1*(2), 125-151. https://doi.org/10.1177/0891243287001002002

West, D. M., & Orr, M. (2007). Race, gender, and communications in natural disasters. *Policy Studies Journal, 35*(4), 569-586. doi: 10.1111/j.1541-0072.2007.00237.x

Whittemore, R., Chase, S. K., & Mandle, C. L. (2001). Validity in qualitative research. *Qualitative Health Research, 11*(4), 522-537. doi: 10.1177/104973201129119299

Whittock, M. (2002). Women's experiences of non-traditional employment: Is gender equality in this area a possibility? *Construction Management & Economics, 20*(5), 449-456. doi:10.1080/01446190210140197

WIEGO. (2016). *Women in India's construction industry.* Retrieved from http://wiego.org/informal-economy/women-india%E2%80%99s-construction-industry

Wilkinson, S., Chang-Richards, A. Y., & Sapeciay, Z. (2014). *Investment in the construction sector to reduce disaster risk management* Retrieved from http://www.resorgs.org.nz/Publications/journal-papers.html

Williams, C. (2007). Research methods. *Journal of Business & Economics Research (JBER), 5*(3), 65-71. doi:10.19030/jber.v5i3.2532

Wilson, W., & Barn, H. (2012). Constructive grounded theory in the search for meaning on global mindedness: A novice researcher's guide. *International Journal of Evidence Based Coaching and Mentoring, 6*, 1-14.

Women quitting the office to join the Canterbury rebuild. (2015) Retrieved from https://www.tvnz.co.nz/one-news/new-zealand/women-quitting-the-office-to-join-canterbury-rebuild-q14037

Wood, A., Noy, I., & Parker, N. (2016). The Canterbury rebuild five years on from the Christchurch earthquake. *Reserve Bank Bulletin, 79*(3), 2-16. Retrieved from http://www.rbnz.govt.nz/-/media/ReserveBank/Files/Publications/Bulletins/2016/2016feb79-3.pdf

Wordsworth, R. (2017). *When the shaking stops, the thinking starts: A grounded theory of turnover decision making in the context of a significant extra-organisational shock.* (Doctoral thesis). Retrieved from https://ir.canterbury.ac.nz/handle/10092/13465

World Population Review (2019). *Christchurch population.* Retrieved from http://worldpopulationreview.com/world-cities/christchurch-population/

Worrall, L. (2012). Organizational cultures: Obstacles to women in the UK construction industry. *Journal of Psychological Issues in Organizational Culture, 2*(4), 6-21. doi: 10.1002/jpoc.20088

Worrall, L., Harris, K., Stewart, R., Thomas, A., & McDermott, P. (2010). Barriers to women in the UK construction industry. *Engineering, Construction and Architectural Management, 17*(3), 268-281. doi: 10.1108/09699981011038060

Worrall, L., Harris, K., Thomas, A., Stewart, R., Jessop, S., McDermott, P., & Platten, A. (2008). Organisational cultures: Progression and retention barriers to women in the UK construction industry. *International Journal of Diversity in Organisations, Communities & Nations, 8*(3), 31-39. doi: 10.18848/1447-9532/CGP/v08i03/39580

Wright, T. (2013). Uncovering sexuality and gender: An intersectional examination of women's experience in UK construction. *Construction Management and Economics, 31*(8), 832-844. doi: 10.1080/01446193.2013.794297

Wright, T. (2014). Gender, sexuality and male-dominated work: The intersection of long-hours working and domestic life. *Work, Employment and Society, 28*(6), 985-1002. doi: 10.1177/0950017013512713

Wright, T. (2015). New development: Can 'social value'requirements on public authorities be used in procurement to increase women's participation in the UK construction industry? *Public Money & Management, 35*(2), 135-140. doi: 10.1080/09540962.2015.1007708

Wright, T. (2016). Women's experience of workplace interactions in male-dominated work: The intersections of gender, sexuality and occupational group. *Gender, Work & Organization, 23*(3), 348-362. doi: 10.1111/gwao.12074

Wuest, J. (1995). Feminist grounded theory: An exploration of the congruency and tensions between two traditions in knowledge discovery. *Qualitative Health Research, 5*(1), 125-137. doi: 10.1177/104973239500500109

Wuest, J., & Merritt-Gray, M. (2001). Feminist grounded theory revisited: Practical issues and new understandings. In R. S. Schreiber & P.N. Stern (Eds.), *Using grounded theory in nursing* (pp. 159-175). New York, NY: Springer.

Yates, J. K. (2001). Retention of nontraditional engineering and construction professionals. *Journal of Management in Engineering, 17*(1), 41-48. doi: 10.1061/(ASCE)0742-597X(2001)17:1(41)

Yilmaz, K. (2013). Comparison of quantitative and qualitative research traditions: Epistemological, theoretical, and methodological differences. *European Journal of Education, 48*(2), 311-325. doi: 10.1111/ejed.12014

Yin, R. (2013). *Case study research: Design and methods*. Thousand Oaks, CA: Sage.

Yonder, A., Akcar, S., & Gopalan, P. (2005). *Women's participation in disaster relief and recovery*. New York; NY: Population Council New York.

Zalta, E., Nodelman, U., Allen, C., & Perry, J. (1995). *Stanford encyclopedia of philosophy*. The Metaphysics Research Lab, Stanford University, Stanford, CA. Retrieved from http://ruccs.rutgers.edu/images/personal-zenon-pylyshyn/class-info/Consciousness_2014/StanfordEncyclopedia/consciousness-temporal_sc.pdf

Zech-Artis, D. A. (2015). *Women as leaders in construction in a northwestern U.S. city: A multiple-case study of the effectiveness of motivation practices and success strategies (Doctoral dissertation).* Retrieved from ProQuest Dissertations and Thesis Database (UMI No. 3688506)

Zhai, L., Xin, Y., & Cheng, C. (2009). Understanding the value of project management from a stakeholder's perspective: Case study of mega-project management. *Project Management Journal, 40*(1), 99-109. doi: 10.1002/pmj.20099

APPENDICES

APPENDIX A WOMEN IN CONSTRUCTION ELECTRONIC SEARCH SUMMARY

Database sites	First level key words	Second level key words	Key authors
UC Library	Construction	Socialisation	Agapiou, A (UK)
Google Scholar	Women	Gender	Amaratunga, R (UK)
Emerald Management	Industry	Culture	Bagilhole, B. (UK)
E-journals	Post-disaster	Industry image	Dainty, A. (UK)
Engineering village 2	Disaster	Masculinity	Dabke S. (USA)
ENGnetBase	Built	Femininity	Denissen (USA)
ERIC	Environment	Imbalance	Fielden, S (UK)
EThOS	Trades	Constraints	Gale, A (UK)
Pro Quest/ Dissertations and Theses	Engineering	Recruitment	Greed, C (UK)
Science Direct	Architecture	Retention	Haig, R (UK)
Sage Journals	Management	Discrimination	Loosemore (Australia)
Scopus	Support roles	Family work life	Menches, C (USA)
	Infrastructure	Harassment	Naismith (NZ)
	Diversity	Resilience	Ness, K (UK)
			Watts, J (UK)
			Worrall, L (UK)

APPENDIX B LOCAL REPORTS CHRISTCHURCH

Website document title	Open code
Construction industry 12 percent female (Napier, 2013).	▪ *Barriers* ▪ *Mixed experiences*
PPE for women and employer's handbook - Successful launch in Christchurch (Howell, 2014), also on the NAWIC website.	▪ *Demographic shift* ▪ *Recruitment initiatives* ▪ *Safety*
Call to action employers, women: Re: START Mall celebration Thursday afternoon (SCIRT, 2014a).	▪ *Celebration* ▪ *Safety* ▪ *Recruitment initiatives*
Great turnout SCIRT women in construction: It's a good fit (SCIRT, 2014b), also on the NAWIC website.	▪ *Demographic shift* ▪ *Roles*
Profiles - Women rebuilding Christchurch (SCIRT, 2014c).	▪ *Positive experiences*
Who me? Traffic manager bowled over by Hays women in construction excellence award (SCIRT, 2014d).	▪ *Celebration* ▪ *Positive experiences*
Young women engineering central Christchurch infrastructure rebuild (SCIRT, 2014e).	▪ *Positive experiences*
On women in the building industry (Powels, 2015).	▪ *Mixed experiences*
Women in trades rocket in Canterbury (Murphy, 2015).	▪ *Demographic shift* ▪ *Positive experiences*
Women quitting the office to join the Canterbury rebuild (Women quitting the office to join the Canterbury rebuild, 2015).	▪ *Demographic shift* ▪ *Barriers* ▪ *Mixed experiences*
Women challenging the male norm in construction sector (SCIRT, 2015).	▪ *Demographic shift* ▪ *Celebrating achievement*

Broadcasting student tracks down women on the job (Garwood, 2015).	▪ *Demographic shift* ▪ *Positive experiences*
Women in the construction industry (Tracey, 2016).	▪ *Barriers*
Thousands of Christchurch women turning to trades (Thousands of Christchurch women turning to trades, 2016).	▪ *Demographic shift* ▪ *Positive Experiences*
Celebrating the success of women in construction (New Zealand Construction News, 2016).	▪ *Celebration*

APPENDIX C INFORMATION SHEET

Information sheet for participation in research

Department of Management, Marketing, and Entrepreneurship
Telephone: XXXX
Email: XXXX
Date:

Women in construction responding to industry conditions

Researcher:

Terrelle Hegarty, PhD Researcher

Supervisory Team:

XXXX

You are invited to participate as a subject in the research: Women in construction responding to industry conditions.

The aims of this research are to: Explore the experiences of women in construction working in a post-disaster environment. This information can contribute to a better understanding of recruitment, retention and the situation of women in this industry in a post-disaster context. Material generated from this research will also contribute towards building a body of knowledge that is limited in this field and which requires further academic exploration and development. The information you provide may also be used in future research.

If you choose to take part in this research your involvement may involve your participation in 1-3 interviews to be arranged at a time and location of your convenience. Completion of each interview is expected to take between 30 and 60 minutes. Each interview will be recorded, and soon after transcribed by a professional transcription company. Participation is voluntary and you have the right to withdraw from the project at any time. You may ask for your raw data to be returned to you or destroyed at any point. If you withdraw, I will remove information relating to you. Further to this you have the right to withdraw any information you have provided without penalty at any time prior to publication of the resulting thesis or journal publications. However, once analysis of raw data starts after your interview it will become increasingly difficult to remove the influence of your data on the results. Following on from the interviews you will be given the opportunity to review a transcript of each interview. You will also be offered the opportunity to receive copies of a written report summarising the overall findings of the

research.
The results of the research may be published, but you may be assured of the complete confidentiality of data gathered in this investigation: your identity will not be made public without your prior consent. To ensure anonymity and confidentiality: The results of the research may be published, but you can be assured of the complete respect and confidentiality of data gathered in this investigation. Identification of participants will not be made public without their consent. To ensure anonymity and confidentiality, participants will be assigned a code and only the researcher and members of the supervisory team will know which code relates to which individual. Care will be taken to ensure no information is provided in published reports that would enable identification. All data collected for this study will be kept in locked, secure facilities at the University of Canterbury and then will be destroyed within ten years.

A thesis is a public document and will be available through the University of Canterbury Library.

Please indicate to the researcher on the consent form if you would like to receive a copy of the summary of results of the research.

The research is being carried out as a requirement for a Doctorate in Philosophy by Terrelle Hegarty under the supervision of XXXX, XXXX and XXXX who can be contacted by email or telephone as listed above. They will be happy to discuss any concerns you may have about participation in the research.

This research has been reviewed and approved by the University of Canterbury Human Ethics Committee, and participants should address any complaints to The Chair, Human Ethics Committee, University of Canterbury, Private Bag 4800, Christchurch (human-ethics@canterbury.ac.nz).

If you agree to participate in the research, you are asked to complete the consent form and return this to the researcher Terrelle Hegarty.

APPENDIX D CONSENT FORM

Consent form for participation in research

Department of Management, Marketing, and Entrepreneurship
Telephone: XXXX
Email: XXXX
Date:

Women in construction responding to industry conditions

- ☐ I have been given a full explanation of this research and have had the opportunity to ask questions.
- ☐ I understand what is required of me if I agree to take part in the research.
- ☐ I understand that participation is voluntary and I may withdraw at any time without penalty. Withdrawal of participation will also include the withdrawal of any information I have provided should this remain practically achievable.
- ☐ I understand that any information or opinions I provide will be kept confidential to the researcher Terrelle Hegarty and the research supervisory team, and that any published or reported results will not identify the participants. I understand that a thesis is a public document and will be available through the University of Canterbury Library.
- ☐ I understand that all data collected for the research will be kept in locked and secure facilities and/or in password protected electronic form and will be destroyed after ten years.
- ☐ I understand that I am able to receive a report on the findings of the research by contacting the researcher at the conclusion of the research.
- ☐ I understand the risks associated with taking part and how they will be managed.
- ☐ I give consent to the researcher to use a voice recorder to record the interview.

I understand that I can contact the researcher Terrelle Hegarty

Phone: XXXX or supervisor XXXX for further information. If I have any complaints, I can contact the Chair of the University of Canterbury Human Ethics Committee, Private Bag 4800, Christchurch (human-ethics@canterbury.ac.nz).

- ☐ I would like a summary of the results of the research.
- ☐ By signing below, I agree to participate in this research.

Name:_____

Signed:_____

Date:_____

APPENDIX E INTERVIEW GUIDE

Women in construction responding to industry conditions

Thank you very much for taking the time to participate in this research.

Prior to writing or recording any information:

- Confirm with the interviewee permission to carry on with the interview.
- Ensure that the participant has been provided with information regarding the research process, ethical considerations and the rights to withdraw at any stage.

Location of Interview:

Date of Interview:

Start:

Finish:

Interviewer:

Interviewee:

Participant Code:

Industry Occupation:

Interview questions:

Original questions

1. What area of the construction industry are you involved in, and could you please tell me a little bit about what this role involves?

2. Can you tell me, what attracted you to work in the Christchurch construction industry after the 2010 Canterbury earthquake?

3. Drawing on your own experiences, what has it been like working in this sector in this environment?

4. Are there any significant events, activities or incidents that you can think of, that have occurred during this period which have effected or influenced you or your work? (Positive or negative examples).

5. Working in the industry during this period, what have you observed, that has shaped your views about women working in this industry?

6. How do you see women contribute to this industry in such an environment?

Interview questions for interview 21

1. What area of the construction industry are you involved in, and could you please tell me a little bit about what this role involves?

2. Can you tell me, how you got into the industry? Have you experienced any new opportunities in your area since the earthquake?

3. Drawing on your own experiences, can you describe what it has been like working in for this sector in this environment?

4. How have you managed the integration of Family and work life during this time?

5. As you look back over your time in the industry are there any significant events, activities or incidents that stand out in your mind, which have effected or influenced you or the work of other women? Could you please describe the development of SWIC/PPE Gear project?

6. Can you tell me if you have experienced/or witnessed examples of a shared work purpose in this environment?

7. Have you encountered any significant challenges/or barriers while working in this sector, if so, can you please describe examples of this.

8. Have you found certain things that you need to tolerate? If so how do you manage this?

9. Women often comment about having to be strong, to work in this industry, do you think that is the case for women in this setting, in what way?

10. Have you ever felt excluded? Can you explain?

11. From your experiences what have you found most rewarding about working in this environment?

12. Did you find you were well supported in this environment, at work and at home? In what way, can you provide examples?

13. Is there anything that you may not have thought about before that occurred to you during the interview, that you would like to add?

14. Is there anything you would like to ask me?

APPENDIX F CONFIDENTIALITY AGREEMENT

Confidentiality agreement for interview transcription

Department of Management, Marketing, and Entrepreneurship
Telephone: XXXX
Email: XXXX
Date:

Women in construction responding to industry conditions

 I have been given a full explanation of my limited involvement in this research as a transcriber.
 I understand what is required of me if I agree to take part in the transcribing of research interview data.
 I understand that any information or opinions I hear or view will be kept confidential, and that I will not discuss information relating to this research with others outside of the research team.
 I do not believe my involvement presents a conflict of interest.
 By signing below, I agree to the confidentiality surrounding this project and my involvement.

Name:

Signed:

Date:

Thank you for your assistance.

APPENDIX G BE STRONG CHARACTERISTICS

Coded characteristic	Supporting comments	Memo/Links
Being realistic	*I guess it's just about coming back and identifying what your strengths are and what are your weaknesses. (Mia)*	The participants hold an awareness of where they are at in the industry and how the industry conditions can influence their situational status. **Linked to**: to the challenge of not wanting to be judge by their gender.
Patience	*As suggested by the participants the duration period to build up a mental strength for this industry can for some be a lengthy process, hence patience is an essential requirement. Patience is also essential for responding to negative interactions.*	How long does it take to build up that mental strength? **Linked to:** developing interpersonal relationships and the long-term response of 'proving yourself'.
Token tolerance	*A partial acceptance towards social challenges.* *Woman in this industry need to be quite tough because at times you do have to put up with things and just keep going, even if you don't accept how it is. (Arianna)*	This is about learning to disengaging from the social interactions that are not acceptable. What are those hidden things that women endure in this post-disaster environment? How do women respond to the subtle stuff? **Linked to:** the impact of social norms and how women maintain a sense of emotional stability.
Adaptive	*I think women are very good at multitasking in the post-earthquake environment, because you're dealing with home, the post-earthquake stress and work. Women show how they can juggle work and clients.*	3 participants refer to this as the different layers of female resilience? **Linked to**: changing to the conditions, displaying a resilience which is centred

Coded characteristic	Supporting comments	Memo/Links
	You've got a big work load, so you've just got to manage it. (Amelia)	on moving their personal boundaries.
Determination	*It is about push, push, push yourself and being determined. That's really important because I know in my journey there has been some days where it has been really tough. (Shelly).*	Displaying personal determination to get somewhere or get past something socially difficult is a common denominator here for all participants. **Linked to:** intrapersonal such as confidence, feeling the challenges, identifying the constraints, and pushing through the barriers.
Motivation	*They watched me do the hard yards. I'm pleased that I have endured the motivation to keep going. (Ryleigh)*	Women know they need to rely heavily on themselves to find forward momentum in the job. **Linked to:** intrapersonal qualities, progression, and proving competency.
Confidence	*It is challenging for women in this industry, it depends on the woman herself but you need to be quite confident. (Teagan)*	Many participants spoke of the importance of building their confidence, this is required to face social challenges or communicate your ability. Age of participant and entry to the industry made a difference here. **Linked to:** intrapersonal qualities, establishing confidence through practice proving. To demonstrate worth in the industry.
Self-efficacy	*Women need to have a greater level of self-belief. I don't think we often believe in ourselves enough in our ability and it often takes people*	For the participant's discrimination, gender segregation or sexual harassment are seen as

Coded characteristic	Supporting comments	Memo/Links
	around us to point out these qualities. (Amy)	impacting on women's self-belief. **Linked to:** intrapersonal qualities, protecting yourself against the conditions. Proving competency and having support.
Cautious	*As women we go about things in a different way we tend to be ultra-cautious. (Brooklyn)*	Preferring to take a thoughtful, calm, quiet approach towards social interactions. **Linked to:** protecting self and others against adversity. Feeling the need to prove yourself. Want to establish and maintain positive relationships.
Communication skills	*Communication is very important, it is key for everything you have got to let them know where you stand and what you're not prepared to tolerate, because people don't know until you tell them. (Teagan)*	Communication is a key tool in all response situations. **Linked to:** interpersonal qualities, establishing rapport, maintaining relationships and gaining a sense of belonging.
Courage	*This is about identifying the barriers and not being afraid to challenge them. (Arianna)* *Being bold and standing up against what you feel is not right is important. (Mia)*	It appears that many of the participants are prepared to meet and address their challenges, but in their own way. **Linked to**: interpersonal abilities, challenging the industry norms.
Values centred	*When organisational values align with your personal values, it makes it easier to do your work. (Hannah).* *My values determine whether I stay in the industry (Jade)*	Being prepared to stay close to your personal values is important to the participants in their response actions.

Coded characteristic	Supporting comments	Memo/Links
		Linked to: earning and establishing respect, acceptance and achievement.

APPENDIX H TYPOLOGY OF RESPONSE TYPES

Focused code	Properties	Memo note
Brush off Short-term response.	Gauging the scene, choosing to ignore or dismiss addressing inappropriate behaviours that test their tolerance. Disengaging from the tone of the disruption. Holds an understanding of the reason/s for the disruption. **Shared meaning held:** for the participants this is only a partial acceptance towards industry norms and a way to cope.	*This response is reactive and submissive in nature. Here the participants are attempting to maintain emotional and relationship stability.* *Aligns to previous research documenting coping strategies such as ignore and avoidance strategies, as detailed in the literature review.*
Stand-up Short to medium term response.	Gauging the scene, weighing up their options, considering the right time, place, and how they can get their message across without harming their personal welfare or status or upsetting the other party. Working through formal lines of communication, or informal lines of communication to convince the concerning party that their action is unacceptable without losing personal or workplace status. Always engaging a positive respectful tone in the response action. **Shared meaning held:** many participants felt it is important to address industry norms when prepared.	*A stronger more direct approach. Many commanding contextual components need to overlap for women to deliver the stand-up response.* *This response can often be interpreted as assertive as women are making themselves heard or noticed directly through clear communication directed to an offending person or party.* *Once again, a composed positive approach prevails in this action.*
Seizing the moment	Gauging and sensing variations in the economic and social climate.	*Proactive in nature this response is linked to contextual and inter-*

Focused code	Properties	Memo note
Short to medium term response.	A spontaneous interest to act, moving quickly to capitalise on contextual potential. Taking the initiative to intervene. Being prepared to deal with adversity. Intentional interest to learn and develop personally or develop professional relationships. **Shared meaning held:** for the participants of this study they thought it is essential for women to see, seek and secure potential opportunities as they are often rare in this industry.	*personal awareness. Responding quickly to changing conditions.* *Primarily focussed on the person establishing a professional rapport with a given person, or a group of people, attempting to achieve personal career gain or attempting to establish a sense of belonging.*
Practice Proving Long-term response	Focussed on demonstrating ability, earning respect, securing reliable relationships, personal development, and finding a sense of inclusivity. This requires patience, and women need to rely heavily on their own personal perseverance to expand their workplace knowledge, and personal skillset to demonstrate their worth and ability. *In this industry as a woman you have to be very good because you are scrutinised. You have to work harder. You have to prove yourself. What you're doing is scrutinised much more closely and that's not fair because while we all want to feel like we've achieved something by being here and that we're good at what we do, at the same time we're excluding women who are probably just as good at the job that don't have the mental resilience to deal with. (Adrianna).* *I think it would be good just to be accepted and not feel as though I have*	*Here women feel an extra pressure to work harder than their male colleagues to prove themselves and demonstrate that they are capable and worthy of their place in the industry.* *Can be seen as a consequence of not feeling welcomed in the industry.* *Proving yourself is touched on in the literature: (Agapiou, 2002; Goldenhar & Sweeney, 1996; Ibáñez & Narocki, 2011; MacIsaac & Domene, 2014) though not explored extensively. This would be a worthwhile study for the future.*

Focused code	Properties	Memo note
	to prove myself, or feel I have to go that extra mile. (Linda) **Shared meaning held:** the participants see it as a common routine for minority group members to have to face the challenges presented by the dominant group. Also most felt that it is a necessary part of building relationships with male colleagues.	

APPENDIX I CRAFTING COMMUNICATION

Crafting communication strategies	Purpose
Provide no verbal response	A safety measure to reduce discomfort, embarrassment, loss of status, or to avoid further resistance, intimidation and conflict. To establish emotional stability. To make a statement without using words.
Attaching a positive tone to communication	Reduces resistance, intimidation and conflict. Creates emotional stability. Helps to maintain good work relations. Demonstrates how women prefer to interact.
Express people's value	Demonstrates that people are important and worth valuing. Explains to, or convinces others that diversity is a good thing for the industry. Enhances workplace relationships.
Use the industry language/jargon	Essential for gaining acceptance. Provides ease of access into daily conversations. Allows time for a person to gain confidence in their work area. A way to display technical and practical competencies. A quick fix "fit in" solution.
Talk men's talk (learning the language of masculinity)	Facilitates access into daily conversations. Get familiar with banter. Allows time for a person to gain confidence and to build rapport. A way to display competencies. A quick fix "fit in" solution.
Selectively incorporate male language	Can be selected so as not to compromise personal values.

	Allows time for a person to gain confidence and to build rapport. Quick fix “fit in” solution.
Well-rehearsed or pre-planned replies	Provides a safe option during interactions. Reduces the chance of conflict. Allows time for a person to gain confidence and to build rapport, or establish emotional stability.
Open ended questioning	Reduces the chance of conflict. Builds rapport and maintains relationships.
Calling for help	Temporarily assuming a submissive role allows others time to get on board by coming to the rescue. Provides rapport.
Storytelling	Convinces others of the worthiness of people or ideas. Explains to, or convinces others that difference is good for the industry.
Subtly persuasive	Casually or quietly going about convincing others of an idea or standard. Providing support examples in your explanation. Avoids bulldozing through ideas and experiencing resistance.
Respectfully asserting opinion	Being prepared to stand up for yourself or for others against injustice. Appropriate time and place are crucial considerations.
Modifying physical appearance	Temporarily reducing gender/desexualising self. Quick fix “fit in” solution.