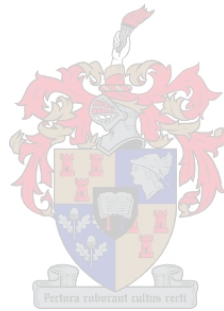


Self-Complexity and Stress in an Opposite-Sex Dominated Workplace

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Thesis presented in partial fulfilment of the requirements for the degree of Master of
Commerce (Industrial Psychology) in the Faculty of Economic and Management
Sciences at Stellenbosch University



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December 2021

DECLARATION

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ABSTRACT

The epidemic of equal gender representation in the workplace remains a current and evasive issue in the modern workplace and society at large. Female workers have long since fought the labour battle for equal pay, representation, opportunities and benefits, and it is an ongoing battle with no major strides made in recent years. This leaves the female minority gender group in the prolonged position of being “token” representatives for their gender group. Accordingly, more investigations, research and interventions are required to shine the spotlight on this modern and ongoing labour issue. This study therefore set out to investigate a particular element of the gender minority experience and looks at whether greater self-complexity could act as a protective factor for women working in male-dominated workplaces who are under unique stress and at risk for potential burnout as a result of the token stressors and role conflicts that manifest through daily events and are therefore present in their daily lives.

The sample group that was used was female engineers across the engineering industry and field. Measuring and analysing the correlations between their Role Conflict, Token Stressors, Self-Complexity and Burnout levels. The hypothesis set out to prove that; (a) Self-Complexity can buffer against Burnout for those experiencing high levels of Token Stressors, and (b) Self-Complexity can buffer against Burnout for those experiencing high levels of Role Conflict. The theoretical foundation of Self-Complexity drew heavily from the research work of Patricia Linville on this area. The results of this study indicated that Token Stressors, Role Conflict and Self-Complexity have statistically significant relationships with Burnout and contribute jointly towards the explanation of it. Moreover, Self-Complexity was found to have a buffering effect on Burnout for those experiencing high Token Stressors. This study was however not able to statistically prove that Self-Complexity moderates the relationship between Burnout and Role Conflict. Furthermore, results also indicate a somewhat unexpected positive correlation between Self-Complexity and Burnout, in that Self-Complexity in and of itself without the presence of Token Stressors or Role conflict. In other words, that higher Self-Complexity may be associated with higher Burnout. Through this analysis and observation of the potential moderating effect that Self-Complexity may have on Burnout in the presence of factors such as Token Stressors and Role conflict, the importance of the conceptualisation and measurement of such a complicated concept as Self-Complexity is highlighted. Furthermore, the potential interventions that could be implemented to improve the well-being of gender token employees in opposite-sex dominated workplaces is significant and worthy further investigation. **Keywords:** Token Stressors, Role Conflict, Self-Complexity, Burnout

ACKNOWLEDGMENTS

This journey and ultimate completion of my thesis has not always been an easy one. But it is one that has taught me more about myself and about this amazing field of Industrial Psychology that I am so privileged and blessed to be a part of. It has been a journey that I did not and could not walk by myself, and I am so very grateful to the following people who supported, cheered, pushed and often times carried me through.

Firstly, I would like to dedicate this thesis to my grandparents Johannes and Angeline van Eeden, who are not here to celebrate with me at the finish line, but whose memory and legacy of dedication, love and faith I wish to honour with this. Your support and love carried me through even when you were no longer here, and I will carry you with me wherever I go.

Then to my parents, my number one supporters, who supported and encouraged me to chase my dreams and who always believed in me and my capabilities even when I did not always believe in it myself. To my mother, who picked me up when I fell and dusted me off and put me on my feet again. Your love and support mean the world to me. To my father, whose example of hard-work and perseverance, encouraged me to never give up. Thank you for being a rock and someone I could always go to for advice and comfort.

To my little sister Jeanné, thank you for putting up with me and my moaning, and always helping me to see the positive and to laugh off the bad days. Your steadfastness and presence during this time is something I am so grateful for. To Ouma Lenie, who always opened her home to me as a welcome haven where I could rest, recuperate and work on my thesis in peace. To my best friends Anne and Maché, for being soundboards, prayer warriors and shoulders to cry on along this journey. To the rest of my family and dearest friends, thank you for being my cheerleaders.

To Prof. De Bruin, the one who pushed me to shoot for the stars and whose enthusiasm for research and this topic inspired me to go the distance and from whom I learnt so much from. Thank you for your guidance, your dedication and the countless hours you yourself spent on this thesis.

Lastly, but most importantly, all glory to God, without whom none of this would even be possible. Every breakthrough and victory during the course of this journey was because of Him, He made it all possible and all honour and praise go to Him. Soli Deo Gloria.

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CHAPTER 1: INTRODUCTION

1.1. INTRODUCTION

Stress is a distinctive facet of the human condition, while not tangible, nor easily definable, but with its infinitely changing nature and fluidity, it is definitively and progressively plaguing and seeping into the different facets of modern society. The presence of stress in the personal lives of both men and women has repeatedly been proven to have a profound effect on overall wellbeing and workplace behaviour. Yet the differences in how individuals experience stress are almost as significant as the impact of the stress itself, and one of the most prominent factors that determine differences in stress experienced is gender (Rubino, Volpone, & Avery, 2013).

Stress is not only triggered by stressors that cross over from the individual's personal life but can equally, or more so, arise from demands experienced in the workplace (Torkelson, Muhonen, & Peiró, 2007). A “workplace” has been described to represent a microcosm of the broader society (Dennis & Thomas, 2007), and one of the focal issues on the societal agenda today is gender equality (Razavi, 2016). Although the pressure on industries and organisations has increased for more gender equal practices and fair treatment, for example having a more equal representation of both genders, individuals still find themselves in the minority-sex group of workplaces (Razavi, 2016). Often these individuals are regarded or perceive themselves as “tokens”, representing or symbolising their specific gender, rather than being regarded and treated as individuals and are therefore generally not seen as equal to other/the opposite gender employees (Kanter, 1977).

Unique and significant stress factors have been linked to this token status or perception, in both men and women (Taylor, 2016). These stressors can greatly increase the amount of performance pressure placed on and felt by these individuals (Gardiner & Tiggemann, 1999; Whitfield & Cachia, 2018). These stressors experienced on the job can be of both an emotional or interpersonal nature and significant exposure to it could potentially lead to burnout, defined as a prolonged negative response to chronic stressors (Maslach, Schaufeli, & Leiter, 2001). A key construct of burnout is “emotional exhaustion”, which refers to a stress reaction of feeling depleted of one's resources and feelings of overextension (Rubino *et al.*, 2013).

As a result of tokenism, some token individuals may be more susceptible to experiencing this aspect of emotional exhaustion, whereas others in the same circumstances remain seemingly unaffected (Linville, 1987; Whitfield & Cachia, 2018). Reasons for these individual differences in vulnerability to token stress and burnout could in part be due to differences in

cognitive representations or perceptions of the self and more specifically, differences in self-representation complexity (Linville, 1987; Shilling & Ph, 2015). How the individual perceives their own gender self-aspect in terms of traits or characteristics, in relation to their position and token status and how they will accordingly respond to certain performance pressures they may be experiencing, can influence their feelings of emotional exhaustion (Galy-badenas & Croucher, 2015).

For instance, as a result of a very traditional perception of gender and of its characteristics that stays fixed in every situation (i.e., low self-complexity), the effort it will take for the individual to adapt their behaviour to perform certain tasks or to “fit in” may be more challenging. The theory of self-complexity therefore, provides a greater understanding of how individuals are able to have a differentiated view of the self (Dixon, 1991; (Rafaeli-Mor & Steinberg, 2002). The representation of the self, involving traits and behaviour, can be differentiated between contexts, roles and time frames without causing significant strain (Dixon, 1991; Settles, Sellers, & Damas, 2002).

Greater self-complexity could potentially serve as a buffer against the negative impact of token stress and possible burnout, enabling individuals to cope, perform and develop better under the performance pressure they may experience in an opposite-sex dominated workplace (Linville, 1987; Razavi, 2016). Thus, the underlying hypothesis of this research proposal is that greater self-complexity can moderate the adverse consequences of stress in that greater self-complexity can act as a protective factor for men or women against the performance pressure of working in an opposite-sex dominated workplace. However, underlying or contributing to this simplified hypothesis are a number of factors that require further understanding.

1.2. GENDER AND INDUSTRIES

Prior to the 1980's the workplace was almost entirely dominated by men, with the exception of one or two industries, such as education and health services (Ko, Kotrba, & Roebuck, 2015). As more and more women started entering the workplace the overall gender composition of industries started shifting (Ko *et al.*, 2015). By 2010, the number of female-dominated industries had doubled and many others also become gender-equal, yet a large amount still remained male-dominated (Ko *et al.*, 2015). Studies have shown that the gender composition of an industry can have an important impact on the work environment, because gender becomes more salient and potentially increases gender bias and stereotyping (Cabrera, Sauer, & Thomas-Hunt, 2009).

Therefore, when an industry becomes dominated by a gender, it will most likely become associated with that particular gender and can result in industry gender typing in workplaces (Cabrera *et al.*, 2009). Thus, with the workplace minority gender becoming more salient, the information about this minority may be processed based on stereotypical representations (Davison & Burke, 2000). For example, as nursing consists predominantly of female nurses it has become associated with “motherly” or “caring” feminine characteristics, consequently male nurses are regarded as odd or unique and commonly have their masculinity questioned when working in this traditionally female dominated industry. These constructs of masculinity and femininity are very much impacted by the times we live in and how this plays out in workplaces is very relevant.

1.2.1. Traditional versus modern perspective

Workplaces are becoming increasingly important arenas for defining masculinity and femininity, as well as for the characterisation of masculine and feminine work-related tasks (Simpson, 2004). Employee roles are in flux because of the broader changes in society and industries, in that norms and expectations are changing (Ko *et al.*, 2015). Traditional characteristics associated with men such as aggression, ambition and competitiveness, as well as traditional female characteristics such as nurturing, softness and emotionality, are progressively developing (Eagly & Wood, 1988; Garnets & Pleck, 2016).

Many new industries that are not constrained negatively by traditional gender norms are emerging, encouraging men and women to feel more comfortable in their own femininity or masculinity, and not be discriminated against for it (Ko *et al.*, 2015). For example, in a more modern gender-perspective workplace women leaders are not penalised for their success because they violate the gender stereotype that women should not be ambitious or competitive (Ko *et al.*, 2015).

Unfortunately, studies have shown that when women adopt or participate in more “masculine” leadership behaviour, they experience greater discrimination than if they had adopted a more traditionally feminine leadership approach (Gardiner & Tiggemann, 1999; Razavi, 2016). On the other hand, if female leaders were to adopt a leadership style that is relational and motivational, being more in line with traditional feminine characteristics, they should also not be seen as weaker leaders just because they do not adopt traditional masculine leadership traits.

Therefore, a modern industry or workplace culture could be conceptualised as being two-fold; firstly, it should not discriminate against either men or women if they were to adopt behaviour

that was outside of their traditional gender stereotype. Secondly, they should not discriminate against the individual that chooses to perform a traditionally more masculine or feminine task in a different or opposite-sex orientated manner.

1.2.2. Organisational culture and readiness for change

The ability of organisations to adopt this modern perspective is, however, significantly influenced by “organisational readiness for change” (Galy-badenas & Croucher, 2015). Organisational readiness refers to an individual’s perception of how ready their organisation or workplace is to possible changes (Galy-badenas & Croucher, 2015). If the employee perceives their organisation as a workplace that does not welcome change, for example remains fixed in its gender role stereotypes and traditional culture, they will generally perceive and experience higher performance pressure and discrimination.

For example, women in a male-dominated traditional work environment may feel a greater need to prove their competence and that they must work much harder than their male counterparts just to be seen to be on equal standing with them (Galy-badenas & Croucher, 2015). The workplace culture and how the individual perceives the organisations readiness for change may influence the ability of self-complexity to develop and potentially act as a buffer against stress and may be a topic worthy of further investigation.

1.2.3. Self-concepts

If the employee experiences their organisation to have an openness and readiness to change, they themselves may feel more encouraged to grow and develop their own “self-concepts” of gender. Self-concept refers to an idea of the self that individuals construct from personal and individual beliefs about themselves and other’s responses (Eagly & Wood, 2012; Linville, 1987). Therefore, gender roles may be perceived separately and differently from one context to the next (Linville, 1987; Settles *et al.*, 2002). Feminist theorists have suggested that gender relations can be multidimensional and thus experienced differentially within specific organisational and personal contexts (Simpson, 2004), thus implying that an individual’s role at home as a mother or a father is different and separate from their role as a female or male employee at work. An individual can be a nurturing “mother figure” at home but still be an ambitious employee at work without suffering additional strain in the discrimination and differentiation between these different perceptions and contexts.

Therefore, organisational culture and not just its gender composition can play an important role in the level of gender related stressors that individuals may experience. The individual’s

perception of gender roles can be influenced by the organisational culture and its perceived readiness for change. This may make it potentially harder or easier for the individual to have higher self-complexity and thus play an influential role in the level of stress the employee might ultimately experience in differentiating their behaviour and perception of self from one context and role to the next.

1.3. GENDER ROLES AND SELF-COMPLEXITY

1.3.1. Role accumulation hypothesis and self-aspects

According to the “role accumulation hypothesis”, there is a strong link between having numerous roles and improved mental health (Gove & Tudor, 1973; Thoits, 2012). One of the proposed explanations for this is that multiple roles or self-aspects provide multiple sources of gratification (Gove & Tudor, 1973; Thoits, 2012). Furthermore, for individuals who have numerous and various self-aspects, the impact of stressors or negative circumstances in one role is more likely to be positively overbalanced by the positive feelings experienced in other roles (Eagly & Wood, 2012; Linville, 1987). A “self-aspect” can be considered either a self-relevant cognitive category, a concept, or a schema (Linville, 1985). Thus, an individual with greater self-complexity reflects that they have a greater number of self-aspects that they use in thinking about the self (Linville, 1985). The number of self-aspects in turn partly reflect the number of roles the individual actually has in their lives (e.g. parent, engineer, sister, athlete) (Linville, 1985).

1.3.2. Role conflict

However, there is also contrasting research that indicates that the effects of having multiple roles could also be potentially harmful (Thoits, 2012). Further comparison between men and women who hold similar roles suggested that certain combinations of roles, specifically family and work roles, could be differential in its protective nature for men and women (Galy-badenas & Croucher, 2015; Simon, 1995). Factors rooted in traditional gender expectations and norms, such as household or family role division and labour inequality, are cited as possible reasons for why multiple roles could be either harmful or beneficial (Gove & Tudor, 1973; Simon, 1995; Thoits, 2012).

For example, in the cases of employed spouses, research has indicated that women are more likely to experience role conflict between their role as a mother and a wife with their role as a female employee and career women (Simon, 1995; Thoits, 2012). This is linked to the

traditional gender expectation or reality that a women's family role involves a much larger emotional capacity, versus that of the father, and that mothers are the primary source of emotional support and care (Hochschild, 1989; Razavi, 2016). This expectation makes it more probable that women will experience feelings of overextension and depletion of resources, which are common symptoms of emotional exhaustion associated with burnout, specifically if they are not able to differentiate between these roles (Linville, 1987; Rubino *et al.*, 2013).

This could give an indication that men appear more able to achieve a neutral interdependent and distinctive differentiation between their work and family roles given that they are traditionally under far less emotional pressure in their family role. Yet, their roles, work and family, could also be very dependent on one another as research has shown that the majority of men believe that providing economic support is their key family role contribution and that being a good father and husband, lies in being able to provide for their family (Simon, 1995; Thoits, 2012). Studies have also shown that job promotions, job status and other work-related advancements have a greater positive effect on men than women in similar work situations (Galy-badenas & Croucher, 2015). Consequently this emphasizes the potential negative consequences that a job loss or failure to make a financial contribution, could have on a man and is a prominent leading factor for depression amongst men (Simon, 1995; Thoits, 2012).

Overall, this shows that role conflict can cause significant stress in the lives of individuals and that both men and women could potentially experience role conflict, but for different reasons and to different degrees. Consequently, the importance is not necessarily on the quantity of roles the individual possesses but rather the quality, in other words the distinction and interdependence the individual makes between these roles that could potentially lead to improved mental health (Linville, 1987). Having less roles may make it more difficult for the individual to perceptively differentiate, but if the individual were to have several roles then there is a higher likelihood of a positive effect, as well as if they were to have greater self-complexity (Linville, 1987). Role conflict may result in stress, but greater self-complexity reflects a greater ability to differentiate or separate roles, making them independent from each other, thus greatly decreasing role conflict and the stress which it would have generated.

1.3.3. Self-complexity

Greater self-complexity consists of more or numerous self-aspects, each with its own associative sets of features, affects, evaluations and propositions (Linville, 1987). Specific self-aspects are activated in specific contexts, depending on the related thoughts involved,

recentness or frequency of their activation, ease of chronic accessibility and motivation (Garnets & Pleck, 2016; Higsins, King, & Mavin, 1982). Furthermore, studies have shown that different characteristics or features of the self can be more salient in different contexts (Brown, Bailey, Stoll, & McConnell, 2016; McGuire & Padawer-Singer, 1976). Individuals, therefore, tend to focus on the most distinctive features of their self in different specific environments (Brown *et al.*, 2016; McGuire & Padawer-Singer, 1976). Thus, how individuals think or feel about themselves can be dependent on which of their self-aspects are salient and activated in different contexts (Linville, 1987).

In the context of an opposite-sex dominated workplace, an individual's gender becomes salient as it is a primary differentiating feature of their position as a minority gender-group member of the workplace. An individual's gender does not change from one context to the next but stays the same; however, certain characteristics or aspects of it could become more or less salient in different contexts. Different characteristics could also be present in only certain contexts as gender traits and characteristics are not necessarily fixed and automatically replicable in every context (Simpson, 2004).

Optimally an individual should be able to change and adapt their behaviour to a certain degree according to different contexts and be able to separate and categorise their behaviour according to each specific context without this switch causing additional strain (Thoits, 1983; Thoits, 2012). Individuals in the minority sex-group are already potentially faced with unique stressors related to their token status and their ability to differentiate their concept of their own gender characteristics should not further add to this stress. Instead, their ability to differentiate between self-aspects and roles, thus their degree of self-complexity, could ultimately play a positive role in moderating and buffering the effect of token stressors (Linville, 1987).

1.4. TOKEN STRESSORS AND GENDER

As previously mentioned individuals who find themselves in the minority-sex group of an organisation are labelled or perceive themselves as tokens given that they will predominantly be seen as a symbol or representative of their specific gender and not firstly as individuals (Kanter, 1977; (King, Hebl, George, & Matusik, 2010). There are unique stressors associated with this token status that need to be discussed.

1.4.1. Token stressors

Firstly, token individuals experience increased visibility in the organisation and feel as if they are constantly under observation. Consequently, they may feel as if they are under more

pressure and must perform better than their opposite-sex colleagues to prove themselves (Bogg & Cooper, 1994; Davison & Burke, 2000). Secondly, an exaggeration of differences can leave token individuals feeling isolated and lacking formal or informal support, resulting in higher levels of stress (Gardiner & Tiggemann, 1999; Taylor, 2016). For example, venting is a common coping mechanism individuals use to discuss and share their feelings with friends or colleagues they trust and when they are isolated this form of support will not be easily accessible (Torkelson *et al.*, 2007). Thirdly, another token stressor experienced by employees is stereotyping that could result in numerous negative implications, discrimination and workplace bullying, which in turn could have a profound effect on employee wellbeing (Gardiner & Tiggemann, 1999; Taylor, 2016). Lastly, a significant stressor that token men or women experience is exclusion. This entails the ignoring or rejection of an individual by others, which hinders the individuals ability to establish interpersonal relationships, form a favourable workplace reputation and it also hinders work-related success (Hitlan, Clifton, & Desoto, 2006). Exclusion has been linked with significant social anxiety and decreased psychological health (Hitlan *et al.*, 2006).

Tokenism theory indicates that individuals will attempt to alter their behaviour and relationship style in an attempt to reduce their visibility in the organisation, to lessen the perceived differences between them and the majority and to try avoid being stereotyped (Kanter, 1977; Gardiner & Tiggemann, 1999; Taylor 2016). The employee may work a lot harder and work more overtime, in an attempt to earn their position as a part of “the group” (Torkelson *et al.*, 2007). Over an extended period of time this may lead to the employees feeling overextended and depleted of resources, which as mentioned previously are factors of emotional exhaustion a construct of burnout (Rubino *et al.*, 2013).

1.4.2. Gender stress differences

Therefore, it is apparent that token employees could face significant and unique stressors related to their minority status. It is, however, important to note that not all these token stressors are as negative for both men and women and in some cases, they might even be beneficial. However, it is also important to note that men and women differ in their experiences of these stressors in opposite-sex workplaces. For example, as men more commonly tend to define themselves and their self-esteem in terms of their work performance, research indicates that exclusion will manifest as a stronger threat to their self-concept and self-esteem (Hitlan *et al.*, 2006). The perceived inability to define themselves successfully in their gender role as a result of exclusion could result in increased and greater stress amongst men in a female-dominated workplace (Hitlan *et al.*, 2006).

Predominantly and historically it has been women that have been exposed to more token stressors (Kanter, 1977; King *et al.*, 2010). They have had to enter male-orientated environments, where they have faced significant stressful factors, such as discrimination, sexism, stereotyping, unfair treatment, lower wages, work-life role conflict, etc. It has also been previously indicated that women tend to show a greater willingness to report if they are feeling stressed and discuss their issues, compared to male employees who do not as eagerly or regularly report stress or talk about their problems (Galy-badenas & Croucher, 2015; Gardiner & Tiggemann, 1999). This can be attributed to the traditional gender perspective that men should always be strong and in control, rarely showing emotion or admitting to weakness. Since many individuals view stress as a weakness, it could make generating an accurate measure of the real stress token men are experiencing challenging.

However, despite that it has previously been somewhat difficult to accurately measure stress or differentiate the impact of it between genders, no individual, whether male or female, is completely invulnerable from exposure to certain stressors. Therefore, for the purpose of this study, the focus will not be whether or not men and women differ in the level or amount of token stress they experience. Rather, based on the overwhelming amount of research and overall evidence that points to women being in this vulnerable position more often than not, the focus will thus be placed on their particular experience alone. The emphasis of this study will therefore be about gaining a greater understanding, as well as empirically investigating, how greater self-complexity can potentially act as a buffer against burnout for this particular gender. Having greater self-complexity does not necessarily eliminate stressors in these given organisational workplaces, but it could significantly decrease the overall negative impact thereof.

1.5. OBJECTIVES OF RESEARCH PROPOSAL

The objective of this research proposal will be to, firstly, determine how greater self-complexity can act as a moderator or buffer against the adverse consequences of stress women experience working in a male-dominated workplace (Token Stressors), thus preventing potential burnout. Secondly, determining whether greater self-complexity will reduce the strain women may experience in adapting their gender behaviours or characteristics from one context or role to the next (Role Conflict). How this will be effective specifically when women must adapt to a male-sex dominated workplace will be investigated.

1.6. RESEARCH PROPOSAL STATEMENT

The underlying hypothesis of this research proposal is that greater self-complexity can moderate the adverse consequences of token stress and that greater self-complexity can also act as a protective factor for women against the performance pressure of working in an opposite-sex dominated workplace and the strain of adapting behaviour between different contexts or roles, i.e., role conflict.

CHAPTER 2: A LITERATURE REVIEW

In this chapter a thorough research-based analysis on the particular theoretical subcomponents of self-complexity and the effects and outcomes of an opposite-sex dominated workplace on an individual will be conducted. This will be achieved through diving into further definition of the relevant constructs introduced in the previous section, particularly that of Token Stressors, Burnout, Role Conflict and Self-Complexity.

Furthermore, through the in-depth reviewing of previous research studies conducted on these topics it will also ultimately be the objective to theoretically conceptualise how these different constructs could perhaps be linked and correlated with one another. From this point onwards, the aim will be to specifically provide a theoretical umbrella that will cover any further statistical and investigative research to be undertaken in later chapters.

2.1. OPPOSITE-SEX DOMINATED WORKPLACES

2.1.1. Defining concepts

Occupational segregation indicates that the distribution of individuals across occupations and sectors is based upon and driven by differential demographic characteristics (Barón & Cobb-Clark, 2010; Borrowman & Klasen, 2020). Occupational segregation levels will differ within a society resulting in either perfect segregation or perfect integration (Barón & Cobb-Clark, 2010; Borrowman & Klasen, 2020). Perfect segregation is where, in any particular occupation, there is only one group employed, whereas perfect integration is when each group is represented in the same proportion of positions in any particular occupation as to what it holds in the overall general labour force (Barón & Cobb-Clark, 2010; Borrowman & Klasen, 2020).

The particular concentration of either women or men in different occupations that are predominantly occupied by a single gender has been labelled as gender or sex segregation (Reskin & Hartmann, 1986; Taylor, 2016). Many scholars have argued that occupational segregation, and particularly gender segregation, has likely been caused by gender-based discrimination. This discrimination often occurs in patterns, either horizontal patterns across occupations and sectors, or otherwise vertical patterns within specific occupational hierarchies (Barón & Cobb-Clark, 2010; Borrowman & Klasen, 2020).

Both patterns have been indicated as contributing factors towards the gender pay gap and has resulted in inefficient economic outcomes, preventing individuals, particularly women, from moving into occupations that are more suited to them and where they could potentially perform better and be more satisfied (Barón & Cobb-Clark, 2010; Borrowman & Klasen, 2020;

Hegewish, Liepmann, Hayes, & Hartmann, 2010). These patterns, in an extreme sense, have also been shown to reflect barriers to entry to occupations, whether it be from lack of information concerning job options or even active discouragement and harassment (Hegewish *et al.*, 2010; Hideg & Krstic, 2021).

Therefore, a central theme of global and various studies, is that to effectively address the pay gap will between the genders will involve equal gender representation throughout the labour force across all sectors, occupations and roles, and not just ensuring that the distribution of entitlements is equal (Australian Human Rights Commission, 2015). The segregation of men and woman in the workplace may be due to the particular industry, for example, one's that are more dominated by men may include construction, mining and financial services, whereas one's that are more dominated by women may include social services, education and health care. (Australian Human Rights Commission, 2015; Razavi, 2016). Gender segregation can also occur by occupation; for example, men dominate the occupations of machinery operators, transport drivers and trade workers, while occupations dominated by women include clerical and administrative workers, nurses, social workers and teachers (Australian Human Rights Commission, 2015; Razavi 2016). Lastly, gender segregation can also occur by role within organisations, such as the trend of men predominantly holding the majority of authoritative and leadership roles in most industries, whereas women tend to dominate part time work (Australian Human Rights Commission, 2015; Ko *et al.*, 2015).

For the purpose of this study, the particular effects on a women employed in an organisation/workplace, as related to occupational type, dominated by the opposite-sex will be focused on, while considering that this is mostly likely representative of the broader industry within which it falls e.g., a female engineer in a male-dominated workplace is representative of most female engineers in the engineering industry.

2.1.2. Workplace statistics

As men and women have increasingly moved into a-typical gender areas, the world of work on face value has over the past 50 years transformed. (Hakim, 2000). However, just under the surface industries and occupations have still remained mostly gender segregated, as most men work in jobs that are predominantly filled by other men and most women work in jobs that are predominantly filled by other women (Ridgeway, 2011). By 2010 the amount of female-dominated industries had doubled and many had become gender-neutral, yet a large amount still remains male-dominated today (Ko *et al.*, 2015). Thus, while the movement of women into previously male-dominated industries and occupations has had some significant effect on gender segregation, the incidence and growth rate of female-dominated workplaces has vastly slowed down since the 1990's (Ridgeway, 2011). Furthermore, studies of occupational data in particular has indicated a steady trend in the 1970s and 1980s towards a more equal gender distribution across occupations, which has since slowed

down and there has been very little further progress since the 1990s, thus signifying more than twenty years of stalled progress (Hegewish *et al.*, 2010; Hideg & Krstic, 2021).

In the United States the elimination of gender segregation in occupations would require at least 40% of the female labour force to change their current occupations (Ridgeway, 2011). South African statistics are not far off from these figures and show that employed women tend to cluster into only a few industries compared to men (StatsSA, 2013). These industries include the community and social services sector, trade sector and private household employment as being the most common occupations among women (StatsSA, 2013). The most common employment sectors for men in South Africa is trade, manufacturing and financial services (StatsSA, 2013). The top three industries for women accounts for more than two-thirds of overall women employment, whereas the top three industries for men account only for roughly half of the male employment total (StatsSA, 2013). Again, this indicates that the male workforce population, i.e., those who are economically active in the labour market, is more spread out over several industries and occupations, whereas the female employment population tends to cluster only in very few selected industries.

Furthermore, a much larger proportion of men, more than triple, compared to women, are business owners and employers (StatsSA, 2013). Internationally, after reaching a record breaking high of 32 in 2017, the number of female CEOs in the Fortune 500 dropped to only 24 in 2018 (Zarya, 2018). This one-year decline of 25%, left women representing only 5% of the Fortune 500 CEOs (Zarya, 2018), compared to 2008 when they represented 15% (Ridgeway, 2011).

Therefore, despite the social and economic advancements and changes over the past decades in the world of work and the labour market, gender segregation in industries remains a current and constant employment issue. These changes include the turnover of obsolete occupations and the emergence of new occupations, the reduction in educational differentials between genders, technological advancements replacing employees and increasing similarity concerning work patterns of both men and women over their lifespans (Ko *et al.*, 2015; Reskin & Hartmann, 1986). Changes in these modern times of pro-workplace diversity initiatives and anti-unfair discrimination policies; individuals, particularly women but also including men, can still find themselves in opposite-sex dominated workplaces and thus could potentially be vulnerable to negative effects. Therefore, in order to determine what these negative outcomes may be for women, an understanding of what drives and causes industries to be thus inclined to consist predominantly of a specific gender, must also be thoroughly investigated.

2.1.3. Gender segregation causes

The gender segregation that occurs in workplaces is not necessarily, nor predominantly, driven by formal rules or policies that explicitly require the hiring of only a particular gender group for a particular job (Ridgeway, 2011). This type of explicit and obvious gender practice is illegal in most countries and is labelled as unfair discrimination, which in the South African context is blatantly illegal, as well as clearly prohibited and explicitly covered by the Labour Relations Act and the Employment Equity Act (Ridgeway, 2011). Nevertheless, this does not mean that discrimination and stereotyping does not still remain significantly linked to gender segregation, as there are various possible and various roots of segregation that have been particularly presented by researchers over the years.

The debate over the sources or roots of segregation dates back more than forty years to the 1970s and has remained a point of reference despite, and perhaps even because, of the fact that so much has changed in the world of work (Bettio & Verashchagina, 2009). Consequently, after many years of research it has been concluded that there is and can be no single-factor cause for gender segregation (Bettio & Verashchagina, 2009).

The gender segregation of jobs is an emergent structure that can come about through various factors, however, priority will be given to four particular sets of factors including (but not limited to); stereotypes, hours of work, study field choice in education, and organisational practices that include covert biases or barriers, including collective bargaining procedures (Bettio & Verashchagina, 2009; Ridgeway, 2011). The main research findings on these roots of segregation are summarised below.

Firstly, stereotypes tend to be ubiquitous and unconsciously present, thus effectively and continually influencing behaviour (Bettio & Verashchagina, 2009). However, stereotypes are notoriously difficult to pin point in the extent to which they represent actual preferences, as in how far they actually express social norms or are used to surrogate information (Bettio & Verashchagina, 2009). The actual effect they may have on gender segregation in the workplace may be overestimated or overused, as they are often used to classify certain choices that were made on the basis of other grounds (Bettio & Verashchagina, 2009).

Secondly, in terms of work hours, women in particular face what some may call an “uphill battle” when it comes to fulfilling their various role and time commitments. This is as a result of the unequal family care burden placed on their shoulders that is still prevalent in society today, which often results in the consequent inability to successfully prioritise and balance income commitment with family responsibilities, thus driving more and more women to occupations consisting of shorter and more flexible work hours (Bettio & Verashchagina, 2009). Occupations with high and irregular work hours tend to be, therefore, generally avoided

by female workers and may result in their re-segregation into hour-friendly professional niches (Bettio & Verashchagina, 2009). Part-time work occupations becomes particularly dominated by women because of this, which further presents with a restrictions on choice of occupation in comparison to full-time occupation options (Australian Human Rights Commission, 2015).

Furthermore, the choice of level and particular field of study and education may also give a good indication for the continued prevalence of occupational segregation. Statistics have shown that women are outperforming their male counterparts in levels of education up to the first level of tertiary education, thus choice of field of study could be a primary channel through which de-segregation can be influenced (Bettio & Verashchagina, 2009). Furthermore, despite the statistical and qualitative evidence that the individual's choice of field of study is still somewhat aligned with the eventual type of occupation that the individual will eventually enter, this correspondence between occupations and field of study is actually considerably low. This is especially prevalent in licensed professions, i.e. low job demand for an individual's particular skill set and qualification will result in the individual accepting a job in a completely different area (Bettio & Verashchagina, 2009; StatsSA, 2013).

Lastly and as previously mentioned, legal barriers to entry and any restrictive gender practices have completely been outlawed and is prohibited through legislation (Bettio & Verashchagina, 2009). However, covert biases and various forms of impediments continue to exist in the modern labour market, thus restricting career options, paths and prospects within various occupations (Bettio & Verashchagina, 2009). One of the root causes of gender segregation has been attributed to gender-discrimination which occurs on vertical (hierarchical) and horizontal (occupational) levels (Barón & Cobb-Clark, 2010). Examples of vertical segregation includes closer rungs on female job career track ladders and practices such as hiring, selection, promotions, networking and mechanisms of co-optation that fall under management's discretion (Bettio & Verashchagina, 2009). All of these examples are interrelated with different payment structures, as well as the type of employer (i.e. public or private) and thus can be shaped into different patterns of segregation (Bettio & Verashchagina, 2009). There is however evidence that these factors of segregation are starting to diminish, particularly amongst younger women; however, this is not the case for low-wage occupations, which takes up a large proportion of the South African workforce (Bettio & Verashchagina, 2009; StatsSA, 2013).

All these factors (stereotyping, field of study choice, etc.) are played out on international and national labour market levels. Consequently, through these factors that make up this emergent structure of gender segregation, the job-matching structures and processes by which applicants seek work and employers ultimately place men or women into different jobs or

positions within the employment organisation, are affected (Ridgeway, 2011). Hiring and promoting practices and decisions are seen as critical junctures in the successful and effective matching of people to jobs, but these junctures are heavily supplemented and influenced by the organisational social dynamics of the workplace in which they are found (Ridgeway, 2011). The organisational social dynamics influence not only who is preferred to actually apply for the job or position, but also whether men and women will persist in that particular job once hired, including the tasks that are assigned to them, how they will ultimately perform and be evaluated and, finally, the promotions and potential job changes they will pursue or receive (Ridgeway, 2011).

Thus, it is not just the gender composition of a workplace that will have an effect on the individuals, but the associating organisational culture and readiness for change that will also play a role. In summary, it is important to note that gender segregation is still very prominent today, and that there are various causes, as well as serious possible effects on individuals and potential outcomes for the individual, organisation and society. A gender-skewed workplace therefore becomes a framework within which gender inequality in wages and authority will most likely occur (Ridgeway, 2011). But is it an individual's minority status that causes stress responses? Or rather, does minority status in an opposite-sex dominated have to be coupled with specific stressors to cause the stress response? How women in these opposite-sex dominated workplaces come face to face with these potential unique and particular stressors, must therefore be thoroughly investigated.

2.2. TOKENISM IN THE WORKPLACE

2.2.1. Defining tokenism

Kanter (1977) originally brought forth the theory of how the relative labour numbers of which organisations are composed of, will have a large impact on its members, in terms of how they interact and behave (Kanter, 1977; Gardiner & Tiggemann, 1999). It was argued that the majority members of these skewed environments, i.e. a majority to minority of 85:15, have sufficient control over the group and are, therefore, labelled the “dominants” (Gardiner & Tiggemann, 1999). The minority members of these skewed workplaces that are excluded from this dominant group, can be theoretically labelled as the “tokens” as they are primarily seen as symbols or representatives of their specific gender and not firstly seen as individuals (Kanter, 1977).

There are a few unique stressors that have been identified to be related to this token status and which pose as postulated consequences for those in the minority group of a workplace who are susceptible to a potential increase in their stress levels (Gardiner & Tiggemann, 1999). These include; increased visibility, exaggeration of differences and stereotyping (Hitlan *et al.*, 2006). In essence, visibility generates performance pressures, exaggeration of differences leads dominants to heighten their group boundaries and stereotypes lead to tokens' role entrapment (Kanter, 1977).

2.2.2. Token Stressors

2.2.2.1. Increased visibility

Increased visibility may, consequently, place increased performance pressures on token workers (Kanter, 1977). This is due to the occurrence of tokens, one by one, having higher visibility than what a member from the dominant group would have when looked at in isolation, thus token members tend to capture a larger awareness share (Kanter, 1977). An individual's awareness share is averaged over the awareness shares of other individuals of the same social type (Kanter, 1977). Thus, token awareness will decrease as the proportion of total membership occupied by the token group increases, in that particular category or workplace, as a result of each additional individual employee becoming less and less unique or noteworthy as by definition (Kanter, 1977). By definition they will no longer be a token because their minority group will no longer be the minority. Furthermore, according to Gestalt terms, these additional employees more easily become "ground" (part of the background) rather than being seen as "figure" (standing out) (Kanter, 1977). So, for token employees the "law of increasing returns" applies; as individuals of this particular minority gender group come to represent a smaller numerical workplace percentage, they will consequently capture a larger share of awareness in that particular organisational environment (Kanter, 1977).

Therefore, when there is increased awareness focused on a particular group as a result of their low numerical representation, members of this group will most likely feel that they have to perform better than their dominant group colleagues (Gardiner & Tiggemann, 1999). As this disproportionate share of attention makes individuals feel as if they are constantly under observation and may lead to a loss of privacy (Gardiner & Tiggemann, 1999). Heightened visibility in an organisation may also result in token individuals experiencing higher levels of critique versus what their dominant-group colleagues may experience (Taylor, 2016). Thus, all these factors related to increased awareness may lead to the token individual experiencing increased stress.

2.2.2.2. Exaggeration of differences

Exaggeration of differences of the minority group, or otherwise known as polarisation, may also occur in a gender segregated workplace (Gardiner & Tiggemann, 1999; (King *et al.*, 2010). This comes about because of the presence of an individual who has a different set of social characteristics from the dominant group, resulting in the dominant group becoming more aware of both what they have in common as well as their differences with the token individual (Kanter, 1977).

The extent of these differences tends to be exaggerated, particularly because tokens are too few in number, by definition, to effectively avoid the application of stereotypes or familiar generalisations from being applied (Kanter, 1977; King *et al.*, 2010). Commonalities found in opposite-sex dominated workplaces between dominant members are more easily defined in comparison to token members, than what it would be in a more heterogeneous and numerically equal workplace (Kanter, 1977; King *et al.*, 2010).

Token members are both the audience and the occasion drivers of the highlighting and dramatisation of common and differential themes between the two groups, that will ultimately establish the token as an outsider and not an insider (Kanter, 1977; King *et al.*, 2010). Therefore, token members are ironically instrumental in the underlining of the majority culture versus undermining it, unlike if they had been represented in greater proportions (Kanter, 1977; King *et al.*, 2010).

In fact, it is often only in these moments when the dominant-group members perceive their collectivity being threatened with change, i.e. token employees entering the workplace, that the dominant culture and its bonds become more evident and important to its members (Kanter, 1977; King *et al.*, 2010). In other words, it is only when an obvious or distinctively dissimilar outsider joins the organisation that dominant-group members really start to realise their commonality and bond as insiders (Kanter, 1977; King *et al.*, 2010).

The dominant-group members will then attempt to assert and reclaim their group solidarity and re-establish their shared in-group understandings (Kanter, 1977). Thus, the asserting and reclaiming of their group solidarity is primarily accomplished through the dominant-group members emphasising and exaggerating those distinctive cultural elements which only they share apart and in contrast to token members (Kanter, 1977). Dominants will tend to exaggerate both their in-group commonality and the differences of the token member, establishing heightened boundaries of which they previously might not even have been aware of (Kanter, 1977).

Furthermore, an individual or a few employees, i.e. tokens can also be perceptually isolated and “cut off” from the in-group more easily (Kanter, 1977; King *et al.*, 2010). This leads to the token employee experiencing feelings of separation and isolation, which are factors of “exclusion” (Simpson, 2004). Exclusion has been defined as workplace ostracism that involves rejecting or ignoring an individual by another, which may hinder the individual’s ability to effectively establish or maintain positive interpersonal workplace relationships as well as work-related success and achieving a favourable reputation within the workplace (Hitlan *et al.*, 2006).

Research has shown that token individuals, particularly female tokens, are often left out from office conversations and not taken seriously or included when they do try and attempt to join the conversation, i.e. they are ignored (Taylor, 2016). One particular research study showed that 50% of women in a research sample of managers cited exclusion from male organisational networks as a reason for resigning (Gardiner & Tiggemann, 1999).

These excluded token employees will attempt to establish themselves as part of the group by conforming to the dominant-group judgements as far as possible, as well as working harder and putting extreme effort into any group task (Zadro, Boland, & Richardson, 2006). The strain that may result from this concentrated effort, including the psychological impact, has indicated that perceived exclusion is strongly related to increased social anxiety, loneliness, anger and lower psychological health (Hitlan *et al.*, 2006).

2.2.2.3. Stereotyping

Stereotyping is a result of an assimilation process that may take place in an opposite-sex dominated workplace (Kanter, 1977; King *et al.*, 2010). In this process token member’s attributes and characteristics are distorted in order to fit pre-existing generalisations about their particular social type i.e. in this case their gender type (Kanter, 1977; King *et al.*, 2010). However, if there are enough individuals of the token’s type coming into the workplace, this will result in more and more discrepancies to the stereotype that will eventually result in generalisations changing in order to accommodate the accumulated discrepancy cases (Kanter, 1977; King *et al.*, 2010). But the smaller the minority or proportion of token employees there is in a given workplace, than the easier it will be to retain generalisations and stereotypes, thus continuously endorsing a distorted perception of token members (Kanter, 1977; King *et al.*, 2010).

It has also been suggested by theorists that the stereotyping process consists of two primary stages (Arvey, 1979). The first stage is where impressions of the traits associated with

particular social categories, i.e. gender, are formed (Davison & Burke, 2000). Then, in the second stage, an individual will be assigned these traits once their gender category has been identified (Davison & Burke, 2000). Categorisation based on a gender stereotype is particularly more likely to be used when the attributes of the token member are consistent with the gender category label, the actual gender category and its associated attributes are informative or the gender stereotype label is the only available information about the token group (Davison & Burke, 2000). Gender as a stimuli is almost immediately recognisable as a category label and, therefore, gender's respective stereotypes are cued more rapidly (Davison & Burke, 2000).

Once a target or token member has been categorised then the responses and behaviour towards them will often be based on stereotypes and thus may be behaviourally expressed through discrimination (Fiske, Neuberg, Beattie, & Milberg, 1987; Garnets & Pleck, 2016). However, it is important to note that stereotyping does not always necessarily manifest into discrimination as the attitude and behaviour linkage is influenced by various factors (Davison & Burke, 2000). These factors include other attitudes, intellectual abilities, motives, behavioural intentions and social context (Davison & Burke, 2000).

In one study that was conducted concerning the application process, four particular factors were identified and hypothesised to affect the relationship between stereotyping and discrimination, specifically in a gender-employment context (Oakes, Haslam, & Turner, 1994). These factors include salience of the token applicant's gender, the gender-stereotype of the particular job under consideration, the gender of the application rater and how much job-relevant information is available about the applicant (Oakes *et al.*, 1994).

Several researchers have also noted that the salience of a social category can affect whether stereotyping and discrimination is likely to occur, i.e. when intergroup differences (e.g. gender) are over-emphasised in contrast to intragroup differences (King *et al.*, 2010; Oakes *et al.*, 1994). This is related to the token stressor mentioned previously - the exaggeration of differences.

Therefore, stereotypical assumptions, unfair discrimination and mistaken attributions are often made about token members in gender-skewed workplaces, forcing them into playing more limited and even caricatured roles in the organisational system (Kanter, 1977; King *et al.*, 2010). Furthermore, it is not just the pure negativity of gender stereotypes but their ultimate mismatch with relevant work roles, that underlie biased workplace practices (Heilman & Eagly, 2008). A better understanding of how these work and social roles function in relationship with each other is also needed.

2.3. GENDER AND ROLES

2.3.1. Defining gender roles

Roles or a role can be described in its most simplified form as being prescribed or expected behaviour that is associated with a particular status or position (BusinessDictionary.com, 2018). According to social role theory, it is argued that sex and gender differences, as well as similarities, in behaviour reflects gender role beliefs (Eagly & Wood, 2012). These gender role beliefs represent people's perceptions of the social roles that men and women occupy within society (Eagly & Wood, 2012). Gender roles are the shared beliefs that apply to individuals based on their socially identified gender or sex (Eagly & Wood, 2012).

2.3.2. Gender role beliefs

Gender role beliefs are both descriptive and prescriptive as they indicate what men and women typically do, as well as what they should do (Eagly, 2009). The descriptive part that gender roles play tells individuals what is the typical behaviour of their particular sex (Eagly, 2009). For example, when a situation is particularly confusing and ambiguous, individuals will then tend to enact these gender-typical behaviours (Eagly, 2009).

On the other hand, the prescriptive part of gender roles directs individuals in what is generally considered admirable, for their gender, in any particular cultural context (Eagly, 2009). For example, in an organisational context, when female leaders adopt a gender-typical interpersonal style in a male-dominated workplace they are seen as less competent, but if they adopt a male gender-typical leadership style they are more disliked (Gardiner & Tiggemann, 1999; Razavi, 2016). Although they are seen as less competent when adopting a female gender-typical style, they are still more generally liked or admired, thus a lose-lose outcome either way. Individuals or employees in a workplace may enact these gender-typical desirable behaviours in order to gain social approval or to bolster their own self-esteem (Eagly, 2009).

Furthermore, it can be inferred that gender role beliefs are embedded partly in other's and society's expectations, i.e. social norms, as well as being embedded in men and women's individual and internalised gender identities or personal dispositions (Eagly & Wood, 1988). Thus, gender roles are culturally shared beliefs that provide a general and broad framework for understanding and dictating male and female behaviour and also why, depending on the behaviour and it's circumstances, it is different or similar (Eagly, 2009).

For example, in post-industrial societies men are more likely to be employed in authority positions and women are more likely to be employed in caretaking positions and roles, both at home and in employment settings (Eagly & Wood, 2012). The reason why men and women are distributed into differential social and employment roles has been attributed, by theorists over the years, to be largely due to physical sex differences found between men and women (Eagly & Wood, 2012). Men are generally larger, faster and stronger, whereas women are gestate and care for children (Eagly & Wood, 2012). Thus, given these biological and physical differences, certain activities, depending on societal circumstances and culture, are seen as more efficiently accomplished by either men or women (Eagly & Wood, 2012). This translates into the workplace when men are given the more physically demanding job tasks, for example building and construction work versus women are given the more interpersonal job tasks such as a receptionist position.

Gender role beliefs arise and are sustained partly because people observe gender behaviour from several individual cases and infer that each gender therefore possesses general corresponding dispositions (Eagly & Wood, 2012). Men and women are assumed and thought to possess particular attributes as a result of their observed sex category, which seemingly then equip them for gender-typical roles (Eagly & Wood, 2012). These perceived attributes manifest in expressed gender stereotypes or in consensually-shared beliefs (Eagly & Wood, 2012).

In everyday life, individuals will then carry out these particular gender roles within specific social roles, for example as a parent, employee and friend (Eagly & Wood, 2012). These gender roles reflect appropriate gender-typical attributes, thus making this behaviour appear natural and inevitable (Eagly & Wood, 2012). In other words, gender role beliefs cause individuals to actively construct corresponding gender roles and attributes that are appropriately responsive to environmental and cultural conditions. Yet at the same time these gender roles and attributes appear to individuals within the society to be stable, inherent and not actively constructed properties of both men and women (Eagly & Wood, 2012).

2.3.3. Defining self-concepts

Various biological and psychological processes have been shown to have an impact on gender roles and consequently can influence behaviour. (Eagly & Wood, 2012). Chemical signals, such as hormonal changes, can regulate role behaviour and is an example of a biological processes. (Eagly & Wood, 2012). Psychological processes involve individuals internalising their gender roles as self-standards, which they use to regulate their behaviour and their experience of other's expectations, thus providing social regulatory mechanisms

(Eagly & Wood, 2012). Biology and psychology work together to facilitate gender role performance as related to different self-concepts (Eagly & Wood, 2012).

A self-concept is basically how people think of themselves and how they should think, act and behave in and through their life roles (Garnets & Pleck, 2016; McGuire & Padawer-Singer, 1976). Self-standards are also known as self-concepts (Garnets & Pleck, 2016; McGuire & Padawer-Singer, 1976). Self-concepts, or how one sees oneself, is to a large degree a reflection of the reactions of others towards the self. What individuals think about themselves is one of the most central concepts of the individual's conscious life (Garnets & Pleck, 2016; McGuire & Padawer-Singer, 1976).

Mead (1934) described self-conception as developing from the process of interaction. The individual will acquire a view of themselves, as a meaningful and objective social entity, through the "role of specific" and then the role of the "generalised other" (Thoits, 1983; Thoits 2012). The role of the generalised other has two important implications; the first implication is that the individual will develop an awareness, as well as an acceptance, of the specific social positions he or she might occupy in their community, for example the workplace, and the larger society (Thoits, 1983; Thoits, 2012). Secondly, it implies that individual consists of a developed self which is a complex, organised and semi-permanent structure (Thoits, 1983; Thoits, 2012).

When the individual takes on the role of the generalised other, it is perceived by them that they have been placed into those social categories or positions that are meaningful and recognised, by others (Merton, 1957; Thoits, 2012). Furthermore, attached to these positions or categories are sets of behavioural expectations, otherwise known as roles (Thoits, 2012). These social positions or roles are usually interrelated with an array of role relationships, which is termed the role-set (Merton, 1957; Thoits, 2012). Thus, when the individual assigns themselves similar positional designations and behaves accordingly in these role relationships, it can be said that they have taken on a particular set of identities (Thoits, 1983). The self is therefore conceptualised as a set of discrete self-defined identities related to occupied social positions (Thoits, 1983). For example, when a women's role-set consists of being a mother, employee and friend and she assigns herself gender-typical characteristics, these designations and behaviours are usually then applied to some degree in each role.

2.3.4. Role accumulation theory

The question now is; how is an individual's psychological health related to this concept of multiple self and role-set? Theorists have suggested that the answer to this lies in the theory of identity enactment (Thoits, 2012). So as previously mentioned, identities and roles are

claimed and further sustained in reciprocal role-sets, these role-sets are then governed by perceived and actual behavioural expectations, i.e., the “rights” and “duties” of each role are thus normatively prescribed (Thoits, 2012).

Accordingly, when an individual has an understanding of who they are, in a social sense, then they will have an idea of how to behave as well, as role requirements are sources of purpose, direction, meaning and guidance (Thoits, 2012). Consequently, it is assumed that the greater number of roles an individual is engaged in, the more meaningful and guided their existence will be (Thoits, 2012). Theorists thus conclude, that the more roles a person has the higher their existential security will be (Thoits, 2012).

Furthermore, numerous studies have also linked a meaningful and purposeful existence, along with ordered behaviour, as being crucial to psychological well-being (Hitlan *et al.*, 2006; Sieber, 1974). Subsequently, the benefits of having or being engaged in numerous roles, known as role accumulation, include benefits of having status, and that these various roles also provide general status security (Sieber, 1974). Having multiple roles can also increase the individuals ego-gratification, which is the sense of being appreciated and needed by relevant role partners (Hitlan *et al.*, 2006; Sieber, 1974).

However, this view is from a positive psychology perspective, whereas on the reverse side if an individual does not know who they are in a social sense or loses a valued identity, this could be indicated or lead to a depreciated or mutilated self which may be a major factor in the development of neurosis (Rose, 1962). This may lead to a profound sense of depression and anxiety being experienced by the individual, as well as a general sense of disorganised behaviour (Thoits, 2012).

An individual's ability to take on and accept strongly held values associated with most roles and to behave accordingly to effectively achieve these values, is a function of self-conception (Rose, 1962). Thus, role or identity accumulation should improve psychological health, whereas lack of identity or identity loss will impair it (Thoits, 2012). This relationship between role accumulation and psychological wellbeing is termed as the “role accumulation theory” (Thoits, 2012).

In terms of gender roles in particular, sex functions as a master status, thus channelling an individual into particular gender roles and also determining the quality of interaction the individual will have with others (Gove & Tudor, 1973; Taylor, 2016). For example, it is widely assumed, based on some research, that women are more likely to experience emotional problems compared to men (Gove & Tudor, 1973; Razavi, 2016). Furthermore, women are

traditionally restricted to only one major societal role, i.e. housewife, compared to men who occupy at least two roles, employee and household head or father, men then have two gratification sources (family and job), versus a woman who only has one (family role) (Gove & Tudor, 1973; Settles *et al.*, 2002). If or when a man finds one of his roles as being unsatisfactory, he has another role that he can focus his interest on that may lead to more satisfaction; however, if a woman finds her singular family role as being unsatisfactory, then she typically has no other role source for gratification (Gove & Tudor, 1973; Razavi, 2016).

The role accumulation theory provides insight into how conceptualised meaning is related to the salience of roles as part of an individual's self-conceptions (Thoits, 2012). However, this theory and perspective remains somewhat insufficient in explaining gender differences in well-being, because although certain roles may be highly salient for both men and women, it does not provide explanation for the possible different meanings between the genders.

To better account for these gender differences in the psychological wellbeing consequences of having multiple roles and expanding on the role accumulation theory, theorists have focused on the conception of meaning in gender differences in role-sets (Simon, 1995; Thoits, 2012). Thus, they investigated the sociocultural beliefs associated with gender roles which ultimately play a role in dictating behaviour in society, family life and the workplace and more specifically investigating whether individuals view their roles as independent or interdependent (Simon, 1995; Thoits, 2012). This investigation of the perceived relationships between roles and the conception of meaning forms the basis of the self-complexity theory of Linville (1987), which will be discussed further on in this study.

2.3.5. Role conflict

2.3.5.1. General role-conflict

The potential benefits of individuals having numerous roles has been discussed; however, the possibility of role conflict should also be further unpacked and analysed. Role conflict occurs when there are conflicting demands between various roles (Maslach *et al.*, 2001). The most common role conflict that generally occurs, with both men and women but especially for women, is conflict between work and family which stems from the individual having insufficient time and energy to perform well in either or both roles due to the excessive demands of these roles (Rubino *et al.*, 2013).

Based on the assumption, and despite equal education and anti-discriminatory policies, that society and the workplace is to some extent still being affected by traditional gender role

beliefs, thus it is common that women will place a greater emphasis on their family role and as a result more likely feel as if they have insufficient time and energy to give adequate focus on their home role due to their work role (Rubino *et al.*, 2013). Therefore, in this struggle to maintain family and work roles effectively and simultaneously, women may be more vulnerable to experiencing role conflict (Rubino *et al.*, 2013).

However, role conflict is not necessarily an automatic consequence of having multiple role identities, which is a common assumption made by theorists (Thoits, 2012). Often times theorists have disregarded the possibility that the potential rewards from multiple roles could perhaps far outweigh role tensions that are due to role strain and conflict. Types of potential rewards include privileges, resources for status enhancement, general status security, ego-gratification, and feelings of personal worth (Thoits, 2012). Privileges and resources, in particular, can be used to help free an individual from constraining and overwhelming role demands, as well as to increase prestige (Thoits, 2012). As previously mentioned, the individuals sheer occupancy of multiple roles can also enhance general security feelings and personal worth, thereby potentially buffering against the effects of a particular role-identity loss (Thoits, 2012).

It is possible that the relationship between the individual's psychological wellbeing and multiple roles may not be simply additive, but rather curvilinear (Thoits, 2012). In other words, there is an optimal number of roles an individual should have, beyond that point the risk of role conflict and strains demands becomes greater and may cause a sense of orderly and purposeful existence, and thus psychological wellbeing, to decrease (Thoits, 2012). Multiple roles and role conflict is complex and multifacted, there are various sources and types of role conflicts that can occur in peoples lives, particular that of gender-role conflict.

2.3.5.2. Gender-role conflict

Gender-role conflict can be described as a psychological state where the individuals relevant gender roles have particularly negative consequences and impact on the individual themselves or others (O'Neil, Helms, Gable, David, & Wrightsman, 1986). The ultimate negative outcome of gender-role conflict is the restriction of the individual's ability to effectively actualise their potential or restricting, negatively impacting, their potential (O'Neil *et al.*, 1986; Rubino *et al.*, 2013). This gender-role conflict, and its consequent strain, has also been described as being an intrapsychic process, leading to poor psychological adjustment and particularly low self-esteem (Garnets & Pleck, 2016).

In a paradigm developed by Pleck (1981), he illustrates, firstly, that their violation of gender roles may possibly lead to the individual experiencing negative psychological consequences, secondly, that certain gender-role characteristics may be psychologically dysfunctional and, thirdly, that both men and women may experience strain and conflict because of their gender roles (Garnets & Pleck, 2016). These assumptions are partly based on the self-role discrepancy theory which suggests that individuals may suffer negative consequences when they fail to live up to their particular gender roles (O'Neil *et al.*, 1986).

Thus, both role conflict and more specifically gender role conflict can cause significant strain in the lives of individuals, especially for individuals working in an opposite-sex dominated workplace because their gender is particularly salient in this type of environment. However, through this analysis on roles (including role conflict and role accumulations), it could be inferred that the importance, for the individual, does not necessarily lie in the overwhelming quantity of the roles the individual possesses but rather the distinction and interdependency the individual makes between these roles that could potentially lead to improved psychological wellbeing.

2.3.6. Role conflict experienced by women

As previously discussed, women may be more vulnerable to experiencing role conflict, based on the assumption that society is still to some extent affected by traditional gender roles (Rubino *et al.*, 2013). This is because women place greater emphasis on their family roles, versus men, they more often feel as if they have insufficient time and energy in their struggle to maintain their roles (Rubino *et al.*, 2013). The transformation and progression that has taken place in society, particularly in terms of sociocultural beliefs concerning gender roles, has progressed to allow women to also have work roles, yet they are still seen as the primary family caregiver (Razavi, 2016). Consequently, women are expected to maintain and balance family and work life while facing high demands from both roles, whereas men generally only face high demands from their work role (Razavi, 2016).

This often leads to feelings of emotional exhaustion, related to depletion of resources, because women may start to feel overextended. Studies specifically exploring the role conflict dimensions of gender role ideology, overload and perceived social support have also revealed that for women both the “work interferes with family” and “family interferes with work” type of role conflict are both correlated negatively with well-being for women (Kulik, Shilo-Levin, & Liberman, 2016).

This work-family conflict can also result in specific emotional responses (Livingston & Judge, 2008). One of the most prominent emotional responses of role conflict, for women in particular, has been noted to be that of guilt (Livingston & Judge, 2008). The gender role orientation of an individual has also been shown to play a moderating effect on emotional responses, such as guilt, for both family interfering with work and work interfering with family types of conflict (Kulik et al., 2016; Livingston & Judge, 2008). Overall, it appears that women with a traditional gender role orientation experience higher levels of guilt from family interfering with work conflict, whereas women with an egalitarian gender role view experience more guilt from work interfering with family conflict (Livingston & Judge, 2008).

Individuals with an egalitarian gender role orientation believe that both men and women identify equally with their joint contributions to the family/home and work, whereas individuals with more traditional gender role orientations believe men should identify more with work and women should focus more on the home sphere (Livingston & Judge, 2008). Female employees with both of these gender role orientations will be found in a workplace, thus it is important to note that both types may experience emotional responses, such as guilt, to some degree albeit from different role conflict interactions.

2.4. BURNOUT AS AN OUTCOME

After investigating the effects and impact of both token stressors and gender roles, i.e. role conflict and how these factors may result in stress and increased strain, particularly in an opposite-sex dominated workplace where gender is a salient factor, it is therefore important to consider the potential negative outcome of these effects. These negative outcomes accumulate or result in the psychological construct known as burnout.

2.4.1. Defining burnout

Burnout is a global problem that negatively affects individuals in a range of various professions and industries, in both personal and profound ways (Maslach *et al.*, 2001; (Rubino *et al.*, 2013). Long before burnout became a focus of research studies, it had already been identified as a significant social problem, and the burnout term itself has the evocative power to effectively capture the realities of individuals' workplace and life experiences (Maslach *et al.*, 2001). Consequently, after numerous systematic and theoretical studies, the general conceptualisation of job burnout eventually emerged, thus defining it as a psychological syndrome which is a response to the chronic interpersonal stressors experienced by individuals on the job (Maslach *et al.*, 2001).

Burnout has three key dimensions, which include overwhelming exhaustion, feelings of cynicism and job detachment or withdrawal, as well as a sense of ineffectiveness and lack of accomplishment (Maslach *et al.*, 2001). Firstly, the exhaustion dimension represents the basic individual stress experience component of burnout and involves feelings of overextension and resource depletion, both emotional and physical (Maslach *et al.*, 2001). Whereas the feelings of cynicism or depersonalisation dimension, involves the interpersonal context component of burnout, which refers to the individual's callous, excessively detached and negative responses to various job aspects (Maslach *et al.*, 2001). Lastly, the dimension of reduced efficacy and accomplishment represents the burnout component of individual self-evaluation component, referring to feelings of incompetency, as well as a lack of achievement and productivity in terms of work performance (Maslach *et al.*, 2001).

These three dimensions of burnout are strongly linked to psychological, physiological and behavioural forms of diseases and strain (Rubino *et al.*, 2013). This includes depression, cardiovascular diseases, headaches, hypertension, withdrawal and so on (Rubino *et al.*, 2013). Token stressors and role conflict have also been proven, with relative confidence, to lead to burnout.

2.4.2. Token Stressors

As previously discussed, there are three unique stressors found in a token environment, i.e. an opposite sex-dominated workplace. These include increased visibility, exaggeration of differences, and lastly, stereotyping (Kanter, 1977).

Increased visibility or increased awareness of a particular group in a workplace, may lead to members of this group feeling that they have to perform better than their dominant-group colleagues (Gardiner & Tiggemann, 1999; King *et al.*, 2010). Therefore, not only do token individuals experience increased stress as a result of constant observation and lack of privacy issues, but the added stress of increased performance pressure may negatively impact their wellbeing as well. Individuals who experience "under performance pressure" often use active strategies to work harder, working overtime, trying to solve problems, trying to influence the managers, etc. (Torkelson *et al.*, 2007). The prolonged cognitive and physical effort, including mental effort, time and energy, usually employed by individuals experiencing job demands, i.e. performance pressure, has been particularly proven to be related to the emotional exhaustion dimension of burnout (Bakker, Demerouti, & Verbeke, 2004).

Secondly, exaggeration of differences, as previously mentioned, is when token individuals are cut off and isolated from other workers, thus leaving them to feel excluded and with a lack of

social support (Gardiner & Tiggemann, 1999; King *et al.*, 2010). Exclusion has been directly and indirectly tied to increased social anxiety, loneliness, anger and a general lowering of psychological health, which are all risk factors or symptoms of potential burnout (Hitlan *et al.*, 2006).

Furthermore, heightened boundaries between token members and the dominant group may leave the token members lacking social support; and there is now more and more evidence that shows that lacking social support may be linked to burnout (Maslach *et al.*, 2001; Maslach & Schaufeli, 2017). When an individual is lacking in support from their managers and supervisors, this may be particularly significant and may even be more important than support from colleagues (Maslach *et al.*, 2001). There is even empirical support that suggests that social support can moderate and buffer the relationship between stressors and burnout, thus the relationship between the two variables will be strong when social support is low but weak when social support is high (Maslach *et al.*, 2001). Seeking social support, both emotional support, advice and venting, involving one's co-workers, is also an important coping strategy to help individuals deal with stress and to perform effectively at work (Torkelson *et al.*, 2007). Workplace ostracism will hinder the individuals ability to establish or maintain positive interpersonal relationships in the workplace and will consequently have a negative effect on their wellbeing, thus the individual will be more vulnerable to burnout (Hitlan *et al.*, 2006).

Lastly, stereotyping has, as previously mentioned, been strongly linked to discrimination, and this in turn has been particularly linked to the withdrawal dimension of burnout, which includes increased lateness, intention to quit and absenteeism (Volpone & Avery, 2013). Consequently, discrimination can be categorised as a form of victimisation that generally eventually manifests in psychological and physical stress (Volpone & Avery, 2013). Furthermore, discrimination is unique because it is based on an individual's core identity and in the case of gender, it is something that they cannot necessarily readily change (Volpone & Avery, 2013). Therefore, because of this, the ultimate effects of gender discrimination can be very intense because they are much more personal than other general forms of victimisation (Volpone & Avery, 2013). The Jobs-Demand Resources model in particular suggests that when an employee experiences a job demand like perceived discrimination, employees will react by withdrawing (Volpone & Avery, 2013). In other words, if female employee finds herself in a male-dominated workplace where she is a token member based on her gender type and she experiences stereotyping and possibly discrimination, she may react by distancing themselves from the environment, i.e. the workplace that is associated with this particular stressor (Volpone & Avery, 2013).

2.4.3. Role conflict

Qualitative studies of job demands in the workplace have focused extensively on role conflict and role ambiguity and have strongly indicated that the relationship between role conflicts and burnout is highly and positively correlated (Maslach *et al.*, 2001). This signifies that individuals who have higher mental health, are better able to cope with particular role stressors and will be less likely to experience burnout as a result (Maslach *et al.*, 2001).

Research that has examined the stressor-strain relationship, has proposed that role conflict is a stressor and may help in explaining the relationship between gender and the emotional exhaustion dimension of burnout (Rubino *et al.*, 2013). This may be because employees who are experiencing role conflicts, related to their gender, are more likely to experience emotional exhaustion (Rubino *et al.*, 2013).

Emotional exhaustion involves the individual feeling a depletion of their emotional and physical resources. Stressor-strain research has proposed that when workplace stressors are not accompanied by sufficient resources, that are needed to deal with job stressors, it will result in strain and thus burnout (Maslach *et al.*, 2001; Rubino *et al.*, 2013). Therefore, role conflict which is a significant job stressor, will likely result in greater strain and emotional exhaustion, which has also been linked to job and family dissatisfaction, turnover and physical symptoms (Rubino *et al.*, 2013).

2.4.4. Women and burnout

The demographic variable of gender is not necessarily a strong predictor of burnout (Maslach *et al.*, 2001). Women may be more likely to report stress or burnout due to societal norm pressures that suggest that men who report that they are feeling emotionally unstable are weak and unmanly (Rubino *et al.*, 2013). However, there are presently still a lot more evidence that shows a higher burnout prevalence amongst women (Maslach *et al.*, 2001). Thus, it does, at least on a theoretical basis, appear that the occurrence of burnout, specifically from work, is greater amongst women than men.

One particular gender difference when it comes to burnout is the tendency of women to score particularly higher on the exhaustion dimension of burnout (Maslach *et al.*, 2001). Studies have also suggested that these gender differences are related to gender role stereotypes, as reflected by the dominating gender group of an occupation (Maslach *et al.*, 2001). In other words, the working conditions faced by women in their job positions, particular those in male-

dominated workplaces, may be an extremely contributing factor towards them reaching this state of burnout.

Furthermore, and as previously mentioned, women may also be more prone to experience higher levels of work-family role conflict. From a traditionalist perspective, women are considered the primary care-giver in the home and family context, thus when they get off work they still have a “second shift” at home (Rubino *et al.*, 2013). Therefore, their family responsibilities (role conflict, etc.), as well as their workload and working conditions (token stressors, etc.) play major roles in inducing burnout amongst women. While the focus of this study is not to determine whether women experience more burnout than men, it is important to establish that burnout is indeed a serious concern for female employees, especially those in male-dominated workplaces.

2.5. SELF-COMPLEXITY

It has been established that workplace gender segregation is still a prominent factor in the labour market today. In these gender-skewed environments individuals who are not part of the dominant group, i.e. token members, come face to face with unique token stressors related to their minority status. These individuals may also face role conflicts, particularly conflicts associated with their gender and their position in an opposite-sex dominated workplace.

Thus, both token stressors and role conflicts experienced by the token employees in opposite-sex dominated workplaces may lead to the employees experiencing potential burnout. In line with the role accumulation theory, a moderating or buffering factor, presented by Linville (1985) to possibly reduce the potential of burnout, is self-complexity.

Linville’s theory found that greater self-complexity acts as a protective factor for individuals experiencing stressful life events, for example token stressors and role conflicts, as negative experiences or self-appraisals associated with a particular negative event in one role context will not affect the individual’s feelings about other aspects of their self (Simon, 1995).

2.5.1. Defining self-complexity

To better understand the intricate concept that is self-complexity, it must first be broken up into digestible and understandable parts. Firstly, the construct of the “self”, when it was first academically conceptualised, held an uneasy position as a topic in the psychological research field, mostly because it was considered too elusive and intangible to be accurately measured and studied (Rafaeli-Mor & Steinberg, 2002).

Nevertheless, over time, psychologists and social researchers started acknowledging the central role that an individual's self plays in their behaviour, affect and cognition (James, 1890). The notion of the "knower self", involving the procedural knowledge of one's actions, feelings and thoughts was also brought forward, as well as the notion of the "known self", which is the declarative knowledge individuals have about themselves (Linville & Carlston, 1994).

This view of the self has thus developed into a multifaceted view, composed of various perspectives, roles, and aspects (Mead, 1934). The self consists of various "selves" and each of these in turn correspond to the particular knowledge an individual has about themselves as they are engaged and involved with each of their roles, perspectives and different contexts (Rafaeli-Mor & Steinberg, 2002).

From a personal constructs psychology perspective, the question of self-complexity is approached through the indication of complexity or simplicity, which reflects the number of constructs individuals use to construe their own and others behaviour (Bieri, 1995). The more complex an individual's self is, the more constructs they will use in order to describe and understand themselves and others (Rafaeli-Mor & Steinberg, 2002).

Empirical studies have also highlighted the potential fallacy of assuming that complete cross-situational consistency exists in cognitive complexity. Thereby, demonstrating the need to assess the domain-specific properties of individual's cognition (Rafaeli-Mor & Steinberg, 2002). This resulted in the discussion of compartmentalisation and the degree to which individuals partition differently valued self-knowledge into distinct and various categories (Showers, 1992).

After years of research and developing the concept that is the self, as well as the issues of complexity and having multiple self-aspects, Linville (1985, 1987) officially coined the term self-complexity, which is positioned as the dimensionality that ultimately underlies the self-concept.

Linville proposes that individual differences in vulnerability to stress, for example token stressors and role conflict, could partly be due to the individuals' differences in their cognitive representations of their self and more specifically their differences in the complexity of their self-representations (Linville, 1987). This differentiation between self-aspects refers to the degree to which an individual's cognitive domain will contain multiple distinct elements, versus integration of self-aspects which refers to the degree of coherence, interrelatedness and unity between self-aspects in the individual's cognitive domain (Rafaeli-Mor & Steinberg, 2002).

The basic hypothesis of the self-complexity theory states that the greater an individual's self-complexity is the higher the moderating or buffering impact will be against the negative impact of stressful events on an individual's wellbeing (Linville, 1987; (Rafaeli-Mor & Steinberg, 2002).

Accordingly, greater self-complexity could act as a protective factor for individuals in opposite-sex dominated workplaces who are under stress and at risk for potential burnout as a result of unique token stressors and role conflicts that manifest through daily events and therefore are present in their daily lives.

The less complex an individual's cognitive self-representation is the more extreme their affect and self-appraisal will potentially be (Linville, 1985). So, in other words, when an individual's representation is simple, with less self-aspects or less distinctiveness between them, then affect and self-appraisal will be relatively extreme, compared to when the representation is more complex, then affect and self-representation will be less extreme and more moderate (Linville, 1985).

This is because with a more complex self-representation, other areas are not closely linked cognitively to, for example, an individual's professional self and are therefore not as affected (Linville, 1985). By establishing distinctions between various aspects of the individual's self, the individual is more likely to maintain positive feelings about some of their aspects, which will then act as a buffer against negative experiences or thoughts occurring in other particular aspects (Linville, 1985). Higher self-complexity can thereby act as buffer against these negative experiences and thoughts that would most probably lead to depression and burnout (Linville, 1985).

When an individual's self-aspects are few, as well as undifferentiated, then stressful experiences in one of their aspects are more likely to result in a negative spill over effect, consequently colouring thoughts and feelings in the individual's other aspects (Linville, 1985). On the other hand, when individuals maintain more self-aspects and also maintain greater distinctiveness between these self-aspects, then the impacts of negative experiences will most likely be confined to a smaller proportion of their self-representation (Linville, 1985). These individuals are therefore also more likely to experience positive thoughts and feelings particularly associated to some self-aspects despite the particular negative impact of stress in another area (Linville, 1985).

The crux of the self-complexity theory comes down to the assumption that the positive thoughts and feelings that individuals experience and are able to maintain in other self-aspects, will act as buffers against the negative thoughts and feelings that result from stressful

experiences in certain self-aspects, given that the individuals complete or whole self-representation is not negatively overbalanced by experiences of just one self-aspect (Linville, 1985). The greater the proportion of distinct and unaffected self-aspects an individual has, the greater is the potential buffering effect against certain stress factors, including token stressors (Linville, 1985).

2.5.2. Token stressors

Circumstances found in certain environments that negatively and adversely affect some individuals, leave others seemingly unaffected (Linville, 1987). The question is therefore why do some female token employees in a male-dominated workplace express stress and burnout as a result of the unique stressors tied to their token status, versus others in the same situation that remain seemingly unaffected?

In order to answer this question, one must first look at the specific token stressors faced by these minority members. So, as previously mentioned, these stressors include; increased visibility, exaggeration of differences and stereotyping (Hitlan *et al.*, 2006). Visibility generates performance pressures, exaggeration of differences leads dominants to heighten their group boundaries and stereotypes that lead to the tokens' role entrapment (Kanter, 1977).

The assumption of this investigation is to show how individual differences in reactions to these token stressors that are found in opposite-sex dominated workplaces can be, at least partly, attributed to the degree of self-complexity an individual has, which in turn can play a moderating role in the relationship between token stressors and their potential adverse outcomes (Linville, 1987).

So firstly, as discussed earlier, increased visibility may generate negative consequences through the individual experiencing increased performance pressures. Higher self-complexity can buffer this effect if the individual has other distinct self-aspects that also serve as sources of fulfilment (Linville, 1987). Therefore, if the individual is experiencing stress in their role as an employee, this stress does not have to overwhelm them because the positive thoughts and feelings experienced in their role as a friend or parent, where they do not experience this same performance pressure, can be focused on and help "carry" the individual through.

Secondly, exaggeration of differences involves the dominant-group members of the workplace, heightening their boundaries which may result in increased exclusion and lack of social support. The moderator most cited by researchers, as a buffer against the unhealthy consequences of stress is social support (Thoits, 2012). If token employees do not have social

support, other moderating variables such as self-complexity may be used as a buffer between stress and burnout. For example, experiencing social exclusion and lack of social support in the workplace may leave an individual feeling lonely; however, another one of their roles may be that of friendship, i.e. they have a friend outside the workplace that they are able to meet with after work and vent their feelings to. With higher self-complexity, experiencing exclusion and lack of social support in one area does not spill-over and colour thoughts and feelings experienced in other areas where the individual experiences inclusion and social support (Luo, Watkins, & Lam, 2009). So, while there is no spill-over between the different aspects, they both contribute to the individual's whole self. The negative effects of an individual's token role to their whole self are thus counteracted by the positive affects experienced in multiple other roles.

Lastly, as previously discussed, stereotypical assumptions, unfair discrimination and mistaken attributions are often made about token members in gender-skewed workplaces, forcing them into playing more limited and even caricatured roles in the organisational system (Kanter, 1977). Discrimination in particular has been found to have a significant effect on an individual's well-being, and in particular their self-esteem (Panchanadeswaran & Dawson, 2011). Therefore, the self-complexity theory states that the affect will be less extreme and more moderate when one is able to "compartmentalise" stereotyping and discrimination through isolating and restricting these experiences to specific self-concepts (Amiot, Louis, Bourdeau, & Maalouf, 2017). An individual's level of self-esteem and how they see themselves or evaluate their worth, may be affected when faced with others' discriminatory behaviour. Hence, if the individual can cognitively dissociate this negative experience from their subjectively experienced true self, they will thus be able to protect their overall self (Amiot *et al.*, 2017).

2.5.3. Role conflict

Women in male-dominated workplaces often experience token stressors, but they also face role conflict issues. Most employees, including token members and dominant members, both deal with role conflict issues, however the particular role conflict experienced by gender token employees is more unique (O'Neil *et al.*, 1986). They are especially confronted by gender role conflicts, above and beyond other role conflicts, because their gender is a salient characteristic associated with their token status in an opposite-sex dominated workplace.

Their behaviour in the workplace, whether it be in line with traditional gender beliefs or divorced from it, as well as the dominant groups reaction to their behaviour (e.g. disliked, seen as incompetent, discrimination), will have an effect on their wellbeing, i.e. burnout vulnerability

(Simon, 1995). In terms of gender role conflict, individuals may also struggle to switch from one gender role context to another. For example, a female employee is a mother at home and this gender role requires her to be gentle, caring and soft, whereas her job at an almost all male engineering company, which has a very masculine culture, requires her to be more aggressive and competitive. Thus, the switch from one role to the next may result in emotional, physical and cognitive strain (Eagly & Wood, 2012). Research has shown that when token employees in an opposite-sex dominated workplace decide to behave according to traditional gender role expectations or diverge from it, there may be negative reactions associated with either sets of behaviour (Gardiner & Tiggemann, 1999). Thus, increased self-complexity could help to not only reduce the strain, i.e. the gender role conflict, experienced by individuals who have to adapt their behaviour to an opposite-sex dominated workplace, but may also help buffer against the potential negative backlash related to the individual's gender role representation.

So, as previously mentioned, research has suggested that the way individuals compartmentalise the self, will have possible implications on their psychological wellbeing (Amiot *et al.*, 2017; Settles *et al.*, 2002). This further indicates that when positive aspects of the self are rated more important compared to negative aspects, and therefore separate their self-knowledge (i.e. each self-aspect tends to contain mostly positive characteristics), it will result in higher self-esteem and lower depression, or burnout, compared to those whose self-aspects were defined by a combination of both negative and positive characteristics. This implies that individuals should attempt to retain the positive characteristics of their gender that do not have a negative impact on their wellbeing or behaviour and compartmentalise these characteristics into their self-aspects, which may be applied to different role contexts (Showers, 1992).

Those with higher self-complexity, who define themselves through a greater number of independent self-aspects, also tend to be less variable in terms of their day-to-day affect (Linville, 1985). This is because positive and negative experiences in one particular self-aspect is less likely to contaminate and affect other self-aspects of an individual whose self-knowledge is more complex i.e. cognitive independence of self-knowledge (Settles *et al.*, 2002). Higher self-complexity can serve as a buffer through containing the negative experiences, and its effects, to the particular self-aspect in which it occurs (Settles *et al.*, 2002).

The extent to which various roles and gender roles are considered important and separated cognitively, as well as the extent to which positive aspects of gender are incorporated broadly in the self, may reflect an increase in wellbeing, thus potentially diminishing burnout potential

(Settles *et al.*, 2002). Self-complexity also acts as a buffer because the employees perception of the distinctiveness of their multiple roles will prevent negative effects of one role polluting another (Settles *et al.*, 2002), as it could reduce the strain experienced between two roles because they are distinct and separate.

Determining whether an individual separates or integrates their roles psychologically, may have significant implications for the relationship between role conflict and wellbeing (Settles *et al.*, 2002). When an employee is able to cognitively separate their roles, this may allow for them to better focus on the demands and tasks related to each role, one at a time, which may in turn lead to them performing better in each role, as well as minimising role conflict (Settles *et al.*, 2002).

It allows the individual to use all their available cognitive resources to effectively perform the requirements of that particular role which they are engaged in at that time, undergoing a more effortless cognitive shift when switching their resources to their other roles (Garnets & Pleck, 2016; Settles *et al.*, 2002). Thus, higher self-complexity may allow for better management of individuals' resources, which could reduce the risk of emotional exhaustion, i.e. feeling depleted of one's resources, a dimension of burnout (Maslach *et al.*, 2001).

Compared to when roles are not separated or distinct from one another, there will be a much less clear boundary between them that would have helped the individual to otherwise negotiate the relative role tasks (Settles *et al.*, 2002). For example, an employee, who is also a mother, must constantly multitask work and family demands, given that when she is at work she is always worrying about her children and when she is at home, she stresses about her work tasks that still need to be completed. This type of processing may prohibit the employee from fully focusing on the, very different, tasks at hand that are related to each of their different roles, hence making it more difficult for them to effectively meet their goals and may ultimately lead to a drop in their wellbeing, increasing their vulnerability for burnout (Rubino *et al.*, 2013; Settles *et al.*, 2002).

On the other hand, role separation and distinction, which is a core aspect of self-complexity, may in itself be a more sophisticated ability which will require more cognitive and affective resources, compared to that of role integration and combination (Settles *et al.*, 2002). This compartmentalisation may also entail a fragmentation of the self-concept to occur, as different parts of the individual's self may feel very different. This differentiation of self-concepts is at the core of self-complexity that will attempt to serve as a protective buffer to prevent negative experiences of one compartmentalised self-aspect spreading to another part of the self (Amiot *et al.*, 2017).

In other words, the differentiation of self-concepts can occur when the individual behaves in such a way that fits with the social norms and social identity that is especially salient in a specific social context, i.e. an opposite-sex dominated workplace environment, but without linking these behaviours back to other life contexts and social identities, or to the more abstract and global parts of the self, such as the individuals more general values or personality (Amiot *et al.*, 2017).

2.5.4. Women and self-complexity

Men and women have been shown to experience and be affected differently by token stressors and role conflicts. Yet the potential for women to experience stress as a token employee in a male-dominated workplace and be at risk for burnout because of this, remains a matter of greater concern. This is considering the fact that the situation of a female token employee in a male-dominated workplace is more common place and of higher prevalence than that of male employees in female-dominated workplaces. To further understand how self-complexity may play a buffering role for women, how women differ from men in their development thereof must also be investigated. Therefore, firstly, the focus of studies concerning gender differences in psychology has shifted from merely documenting the existence and extent of these differences, to actually exploring the origin of these gender differences in-depth (Eagly & Wood, 1988). Various studies have been conducted and theories advanced to explicitly explain the documented gender differences in cognition and social behaviour (Gabriel & Gardner, 1999).

Some theories in psychology concerning gender differences propose that these differences may arise from and consequently reflect status differences between men and women (Geis, 1993). Others say that gender differences arise because of different social roles traditionally assumed by men and women and exist primarily in the social interaction context (Eagly & Wood, 1988). Most notably, Cross and Madson (1997) put forward a theory that many gender differences in cognition, social experience and behaviour may be better understood through the consideration of the gender differences in independence and interdependence, particularly in roles and context.

More recent studies have shown that there are no significant differences in the degree to which self-complexity is developed in either men or women (Shilling & Ph, 2015). Changes in social roles, status differences, social interactions and the independence and interdependence between roles, to varying degrees over the last twenty years, may have resulted in a more similar construction of the self by the different genders.

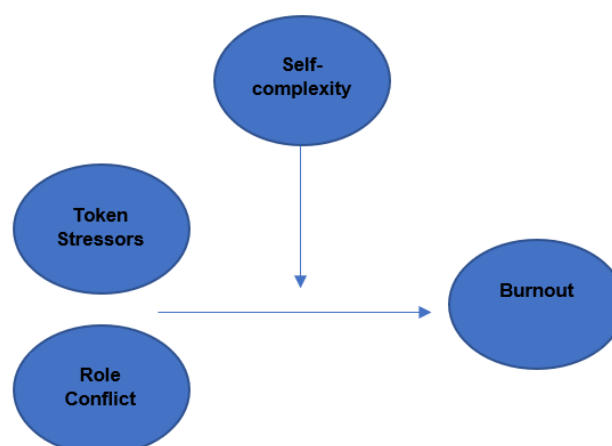
To reiterate, self-complexity is defined for both men and women as a joint junction of various self-aspects and the relative degree of independence between these self-aspects, how and why men and women either differ or are similar in their self-complexity, is dependent on how self-complexity is developed in the first place. How self-complexity is developed will not however be the focus of this study, but rather how higher self-complexity present may ultimately serve as buffer against the negative consequences of token stressors and role conflict for female employees in a male-dominated workplace.

2.6. CONCLUSION

Through this literature review the significance of gender inequality in industry representation, as well as how it is still prevalent today and the potential negative consequences of such an environment, has presented the need for a protective buffer against such an environment. Against this background the present study will attempt to statistically link and further investigate token stressors, burnout and self-complexity, determining whether or not token stressors experienced in a male-dominated workplace will lead to burnout for female employees and if this can in fact be moderated by higher self-complexity.

2.7. BASIC SCHEMATIC MODEL REPRESENTATION

Figure 1: Basic schematic model representing the relationship between role conflict and token stressors with burnout, as well as the potential moderating effect self-complexity may have on this relationship.



CHAPTER 3: METHODOLOGY

3.1. PARTICIPANTS

Participants are female engineers' representative of various engineering occupations (e.g., chemical engineers, industrial engineers, etc.). In order to get a reliable measure of the buffering effect of self-complexity for female token employees in opposite-sex dominated workplaces, and for it to accurately measure, to the extent of what is possible, what is representative of the population, the sample size and number of participants was 100 women. Thus, a total sample of 100 participants ($n = 100$) was used in this research study. The female target profession sampling was selected from women who were currently in the engineering occupation. This sample is reflective of holding a gender minority status in the given occupation and industry.

3.1.1. Inclusion criteria

The participants needed to be a minimum of 24 years of age and there was no maximum age limit although the participant should have been currently employed in that specific industry or occupation, i.e., not retired or currently unemployed. Their minimum tenure requirement in this industry was 2 years. Their current employment status will therefore be an important aspect that needs to be verified before completion of any surveys. Their specific job positions must also have been aligned with the occupations identified, in other words the female participants must be engineers, and not, for example, a personal assistant in an engineering firm. In terms of education and qualifications, participants have a matric qualification and either a university degree qualification or a technical college diploma qualification appropriate for their respective occupational fields.

3.2. INSTRUMENTS USED IN STUDY

The following four variables were measured and focused on first individually; token stressors, role conflict, self-complexity and burnout, and then they were investigated as to how they are in relation or correlated with one another.

3.2.1. Token stressors

When an individual is in the minority gender group of an organisation, there is a high probability that they will face unique stressors related to this position. However, this is not solely determined by their numerical representation but also because they are likely to have heightened visibility, as well as being isolated socially and have their gender role be exaggerated. This is all linked with token status, resulting in to the individual's perceptions of

a workplace climate that is not equal. It is thus hypothesised that it is the individual's personal experience that is associated with their numerical representation, which ultimately leads to individuals to feel like tokens and to then experience their workplaces as not equitable. Hence, for the purpose of this study the participants completed a measurement tool pertaining to their subjective experience of tokenism in their workplace. This measurement tool, that was conducted in a more current study (King *et al.*, 2010), was adapted from Yoder (1994).

3.2.1.1. Format

The female participants' feeling of heightened visibility, feeling isolated and expectations associated with tokenism and their gender role was measured using a survey with a seven-item scale which has a seven-point scale ranging between (1) "strongly disagree" and (7) "strongly agree" allowing the participants to respond to and rate. The statement items include: "People in my company look at me as a representative of all people of my gender"; "I feel that I am a "token" representative of my gender in my current position"; "I feel I have to represent the perspective of my gender in my company"; "I have to explain the perspective of my gender to others in my company"; "I often feel accepted as a person by my male colleagues"; "I often spend social and leisure time together with my male colleagues"; and "I often discuss general topics such as politics with my male colleagues" (King *et al.*, 2010).

3.2.1.2. Reliability and validity

For the study conducted by King (2010), the reliability for internal consistency for the measurement was indicated to be ($\alpha = .70$). The items in the measurement were also subjected to a confirmatory factor analysis, which further indicated a good fit for the one-factor solution data: $\chi^2 (54) = 291.69$, $p < .01$; CFI = .76, RMSEA = .17.

The study also showed a significant and strongly correlated correlation between the personal experience of feeling like a token and the actual numerical minority status of the individuals in their workplaces ($\beta = .16$, $p < .01$ and $\beta = .29$, $p < .01$).

3.2.2. Burnout

Burnout was assessed using the Copenhagen Burnout Inventory (CBI) measurement tool (Kristensen, Borritz, Villadsen & Christensen, 2005). The CBI theorises fatigue and exhaustion at being at the centre of burnout and is a questionnaire consisting out of three distinct parts, including personal burnout, work-related burnout and client-related burnout (Kristensen,

Borritz, Villadsen & Christensen, 2005). These three distinct parts of the CBI are relevant in different areas of work and personal life (Kristensen, Borritz, Villadsen & Christensen, 2005).

The personal burnout sub-dimension is a more generic scale that has been formulated in such a way to allow all human beings to be able to answer its questions. The work-related burnout sub-dimension, on the other hand, is designed according to the assumption that the respondent is involved in some form of paid work (Kristensen, Borritz, Villadsen & Christensen, 2005). Lastly, the client-related burnout questions specifically include the term “client” and designed accordingly to address this aspect (Kristensen, Borritz, Villadsen & Christensen, 2005). For the purpose of this study only work-related burnout was deemed to be applicable and appropriate in the testing and measurement of burnout in the sample participants of engineering women.

3.2.2.1. Format

The CBI consists of three sub-dimensions (one of which was used in this study). The work-related burnout subscale consists of seven items rated on a 4-point scale ranging from 0 (never) to 4 (always/to a high degree). The CBI takes about 5 to 10 minutes to complete and is self-administered. Scoring the CBI involved calculating the average rating on the 0 to 4 frequency rating for the work-related burnout sub-dimension.

3.2.2.2. Reliability and validity

The study performed by Kristensen, Borritz, Villadsen and Christensen (2005), used the PUMA study (project on Burnout, Motivation and Job Satisfaction) to demonstrate the reliability and validity of the CBI. All three sub-dimensions were indicated with high reliability (alphas fell between .85 and .87). The study also proved that the scales varied fairly well between different work groups and that the expected pattern of correlations between other fatigue and psychological well-being patterns were also found. The three sub-dimensions also show predictive validity in predicting future sickness absence, sleep problems, intention to quit and use of pain medications. Further analyses indicated that changes over time shows that significant proportions of participants changed regarding their burnout levels.

3.2.3. Role conflict

When there is an inconsistency between others' expectations of the individual's behaviour and the individuals' own expectations, then this may result in role conflict. A particular instance where this conflict may arise is when there are different expectations based on gender, i.e., gender role conflict. Gender role conflict is acknowledged by behavioural scientists as having the same sources as role conflict (intrapersonal, intrarole or interrole incongruities) and may also manifest in the same outcome (i.e. burnout) (Chusmir & Koberg, 1986). The instrument that was used in this study to measure gender role conflict defined or measured it as the degree of conflict between, firstly, the individual's treatment based on their gender versus their desired treatment as an individual. Secondly, the degree of conflict expressed between the individual's private self-concept of their gender role versus the self-concept defined by their society and work organisation. A measure developed by Chusmir and Koberg (1986) known as the Sex Role Conflict Scale (SRCS) was used.

3.2.3.1. Format

The instrument consists of 17-items and is likert-type scaled, ranging from 1 (absolutely no conflict) to 5 (a great deal of conflict). The respondents were asked to rate to what degree they experience conflict in the different scenarios (i.e. items) listed. An example of an item or statement is; "If you have to perform work that does not suit your values as a woman". The items for this instrument were developed to particularly measure the degree of conflict that results from intrapersonal incongruity and intrarole or interrole incongruity. The questionnaire takes more or less seven to eight minutes to complete, and an overall mean sex/gender role conflict score is calculated for each participant by summing and then averaging the responses of all the 17 items.

3.2.3.2. Reliability and validity

To determine reliability Chusmir and Koberg (1986) compared the SRCS with four other scales (role conflict, job satisfaction, job involvement, and propensity to leave). Coefficients of alpha between .73 and .94 were obtained for the SRCS and compared favourably to the other scales. Split-half reliability coefficients of .73 and .82 were also obtained as the instrument was applied to an initial and then follow-up groups. Furthermore, temporal stability of the SRCS was also examined by testing a subsample two weeks after they had initially completed the SRCS, thus obtaining a retest reliability coefficient of .96. Overall, the scores for the SRCS appeared to be stable responses.

In terms of validity, this particular study also performed a factor analysis which suggested that the 17 items addressing gender role conflict could be further differentiated into two factors that correspond with the conflict sources, i.e., intrarole/interrole and intrapersonal incongruity. Furthermore, in terms of construct validity, the SRCS was compared to previous scales measuring role conflict. To some degree these scales do measure approximately the same behaviour construct, however it would be pointless duplication if the SRCS is too highly correlated with an already available instrument. Thus, despite superficial similarity of correlation of .22, it is suggested that the SRCS measures aspects of role conflict that is not covered by the earlier measure.

3.2.4. Self-complexity

To operationalise self-complexity, Linville (1985) adopted the H dimensionality statistic (Scott, 1969), which is an index borrowed from the information theory. The H statistic is a variance measure of information that is on a nominal-scale because a measure of unpredictability of data that is normally non-quantitative is provided (Brody, 1971). To measure or generate the H statistic, an online trait-sorting test, adapted from Linville's trait-sorting test, was used.

3.2.4.1. Format

Individuals who participate in this assessment are usually given a list of different words that describe self-aspects and are then tasked with the sorting of these word into groups that describe their life roles currently. Participants receive a randomly organised list of 33 various traits (for example, "outgoing," "rebellious," "lazy"). The traits that were used are formulated on the basis of findings of current literature employing Linville's self-complexity measure (Linville, 1985; Linville, 1987). These traits represent a wide range of dimensions that individuals use to think about themselves, including positive and negative traits, and are also aligned with the Big 5 personality trait theory. It was explained that the participant's task is to use these traits to describe themselves. They did this through sorting the traits that they find descriptive of themselves into groups according to which traits they think belong together. Each grouping represents a different aspect of the self and participants could form as few or many groups as what they want and were also encouraged to form as many groups as they feel are important to them. The individual could allocate the same trait into various of their groupings and they also did not have to allocate every trait to a group. Participants were also asked to create their own title names for their groupings.

A self-complexity score was assigned to each participant, and in order to calculate this the H statistic is used. This score indicates the number of self-aspects that are independent in a particular grouping. It is defined and formulated as follows:

$$SC = \log_2 n - (\sum_i n_i \log_2 n_i) / n$$

The n is the total of traits that a participant could choose from, 33, and n_i is the number of traits present in a participant's group combination. The participant's overall Self-Complexity score is represented by SC and indicates the minimal number of independent self-aspects that underly a person's trait sorting and grouping based on the self. The SC score is likely to be greater when there the participant has made many groupings and when there is less redundancy between the traits chosen for these groupings. Thus, a higher self-complexity score will result when there is a larger number of self-aspects, that are not redundant, in terms of the traits the individual selected to describe them. A lower self-complexity score will result if the participant has selected fewer self-aspects or if regardless of how many, the participant has many self-aspects but has described them by using many of the same traits, therefore highly redundant.

3.2.4.2. Reliability and validity

One of the most common ways to assess internal consistency is through using the Cronbach coefficient alpha (α). However, because the trait-sorting assessment does not have an aggregate of items and is therefore not conventional, it is therefore not possible to calculate reliability through alpha reliability.

Nevertheless, through internal consistency analyses consisting of split-half reliability estimates; reliability can be measured. In one particular study, where this was conducted, the split-half correlation of self-complexity was $r = 0.74$ to 0.78 , $p < 0.001$ which is considered acceptable (Rafaeli & Revelle, 1999).

Several other research attempts have also indicated test-retest reliability for self-complexity (e.g., $r = .72$) (Linville, 1987), which is adequate. Self-complexity showed to be mostly stable (also $r = .7$, $p < .001$) and moreover a regression analysis by Linville indicated that changes in self-complexity overtime were not a function of life events ($p = .9$) (Linville, 1987).

3.3. PROCEDURE

The participants were asked to participate online. All four assessment tools will come in a computerised survey version. They received an electronic communication containing a link that led them to a survey containing the four different assessments. For each section there was an introductory and explanatory paragraph that explained each assessment that they were about to complete. All assessments were conducted using the English language. All four assessments together should not have taken longer than 30 to 40 minutes to complete and were only completed once. There was no time limit for completion of the assessment.

3.4. ETHICAL CONSIDERATIONS

The participants were informed that the assessment is for research purposes only and would be collected anonymously (i.e., nowhere on the assessment was it asked for them to provide their name or other personal identification details). The participants were ensured of the confidentiality of the assessment and the assessment was only conducted after their informed consent had been given. The consent form was on the first page of the survey where they had to select an option (tick a box) that indicated that they had read and agreed to participate, this consent form also detailed their rights as research participants. The participants were also notified of their right to withdraw from the study at any time during the completion of the survey (before final submission) and had the right to feedback if they requested it. All responses to the assessments were kept on a password locked computer and in a password locked folder. Any printed assessment responses were stored in a locked file cabinet.

CHAPTER 4: RESULTS

4.1. INTRODUCTION

Four measures of the structural properties of Token Stressors, Role Conflict, Burnout and Self-Complexity were computed for each participant using the results of the instruments as noted in Chapter 3. A total score was computed for each participant under each measure, the higher they scored on the measure the more prevalent that particular aspect would be in their lives. For example, if a participant scored highly for Burnout, they likely suffer from or experience the symptoms of Burnout. Likewise, for the Self-Complexity measure, the higher the score the higher the participant's Self-Complexity is.

All these scores and results were therefore investigated and put through various tests in order to observe correlations, reliabilities, data distribution, relationships and other statistical areas of interest and concern. The results of this will now be discussed in the chapter below, considering the different sections including; descriptive statistics, histograms, scatterplots of relations between variables, and regression statistics.

4.2. DESCRIPTIVE STATISTICS

Table 4.1 contains the correlations, means, standard deviations, skewness, kurtosis, and reliability coefficients (Cronbach's coefficient alpha) of the measures of Burnout, Token Stressors, Role Conflict and Self-Complexity. The reliabilities of the Burnout and Role Conflict measures were very satisfactory (Cronbach's $\alpha = .90$ and $.93$, respectively), whereas the reliability of the Token Stressors measure (Cronbach's $\alpha = .72$) was marginally acceptable for research purposes.

Table 4.1

Intercorrelations and Descriptive statistics of Burnout, Tokenism, Role Conflict and Self-Complexity.

	BW	TS	RC	SC
BW	1.00	.58	.40	.35
TS	.47	1.00	.46	.21
RC	.36	.38	1.00	.28
SC	.33	.18	.27	1.00
Mean	28.67	28.58	55.53	1.47
SD	8.04	7.90	14.80	.38
Skewness	.07	.01	-.78	-.29
Kurtosis	-.086	-0.17	.19	-.57
Cronbach's α	.90	.72	.93	--

Note. BW = Burnout-Work, TS = Token Stressors, RC = Role Conflict, and SC = Self-Complexity. Correlations below the diagonal are the zero-order correlations. Correlations above the diagonal are corrected for attenuation. All values are rounded to two decimal places.

All the zero-order correlations in Table 4.1 were positive and statistically significant ($p < .05$). The zero-order correlations ranged from .18 to .47, whereas the corrected correlations ranged from .21 to .58. As a whole, these correlations were moderate in strength and there did not appear to be any excessive multicollinearity.

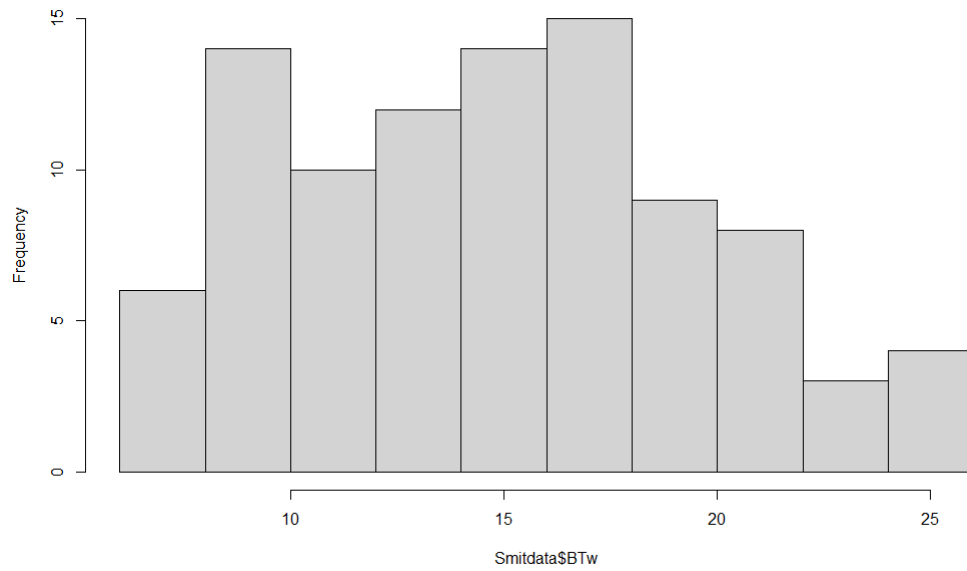
Note that Self-Complexity correlated positively with Burnout, Token Stressors and Role Conflict. At first glance this appears to be contrary to theoretical expectation (refer to paragraph 5.3 in Chapter 5). However, this will be investigated further and then discussed later on.

4.3. UNIVARIATE DISTRIBUTIONS OF THE VARIABLES

Figures 4.1 to 4.4 give an “at a glance” picture of the frequency distributions of the Burnout, Token Stressors, Role Conflict and Self-Complexity variables.

Figure 4.1

Histogram of scores on the Burnout-Work Scale

**Figure 4.2**

Histogram of Scores on the Token Stressors Scale

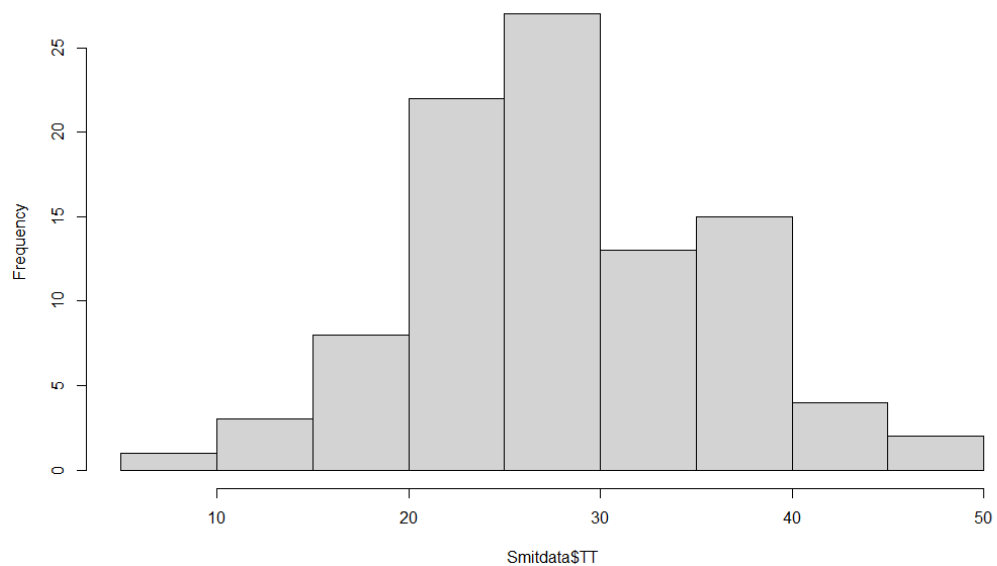
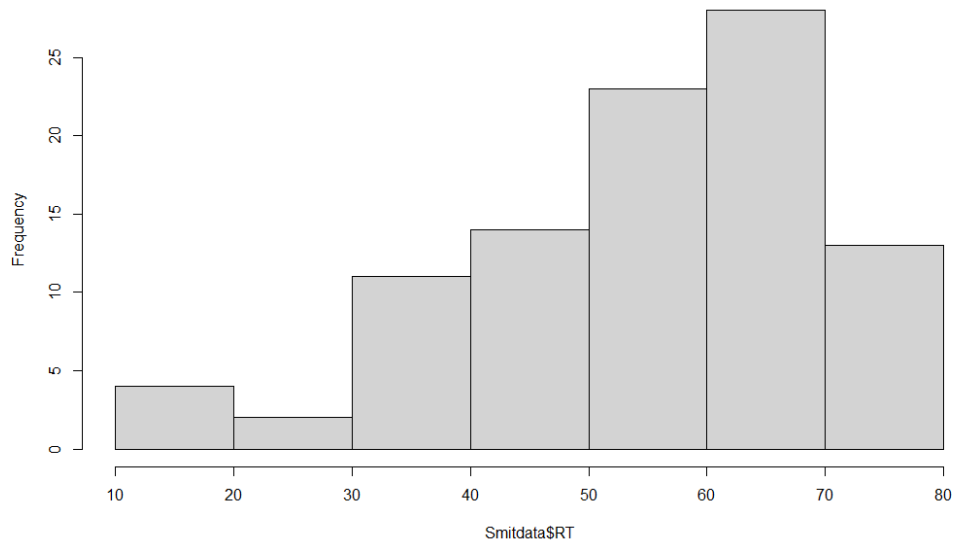
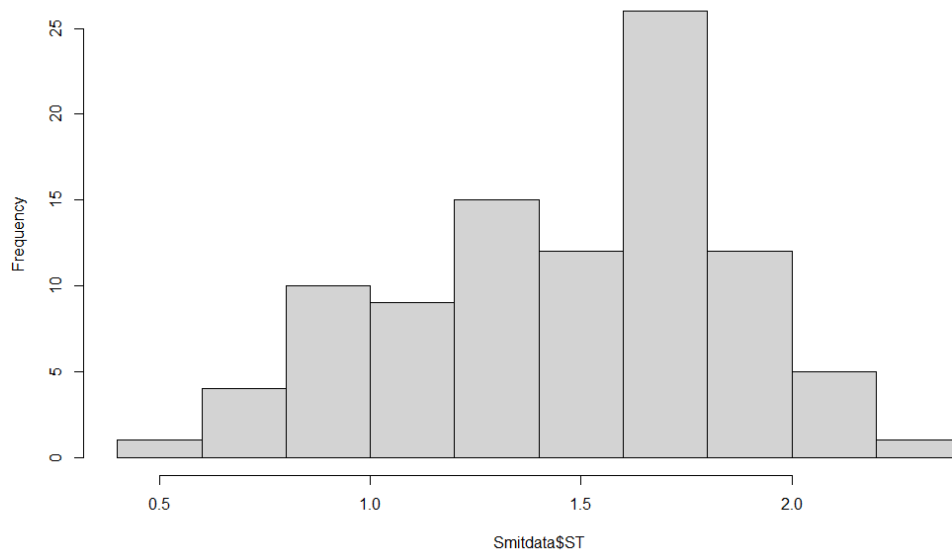


Figure 4.3

Histogram of Scores on the Role Conflict Scale

**Figure 4.4**

Histogram of Scores on the Self-Complexity Measure



Inspection of the histograms indicate several things. First, the Burnout-Work measure yielded a wide distribution of scores distribution) that was somewhat positively-skewed (see Figure 4.1). Second the Token Stressors measure yielded approximately normally distributed scores that were somewhat leptokurtic (see Figure 4.2). Third, the Role Conflict measure yielded scores that were clearly negatively skewed and somewhat platykurtic). Fourth, the Self-Complexity measure yielded negatively skewed scores that were somewhat leptokurtic.

4.4. BIVARIATE DISTRIBUTIONS OF THE VARIABLES

Figures 4.5 to 4.7 contain bivariate scatterplots of Burnout (the focal independent variable of the study) with Token Stressors, Role Conflict, and Self-Complexity, respectively.

Figure 4.5

Scatterplot of the Burnout-Work and Token Stressors Measures.

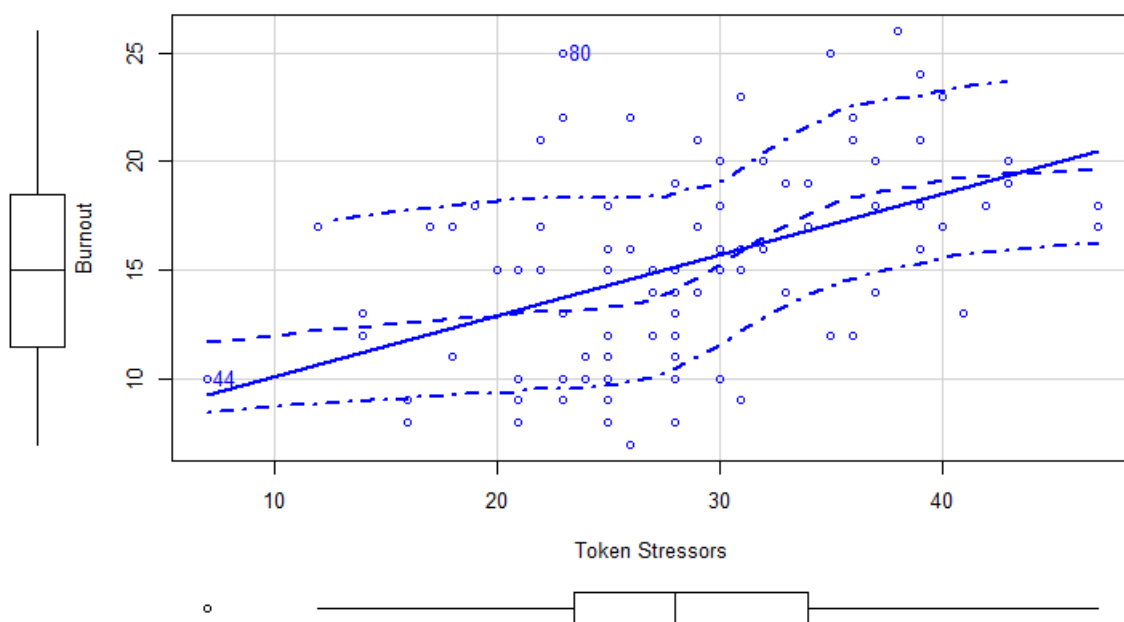
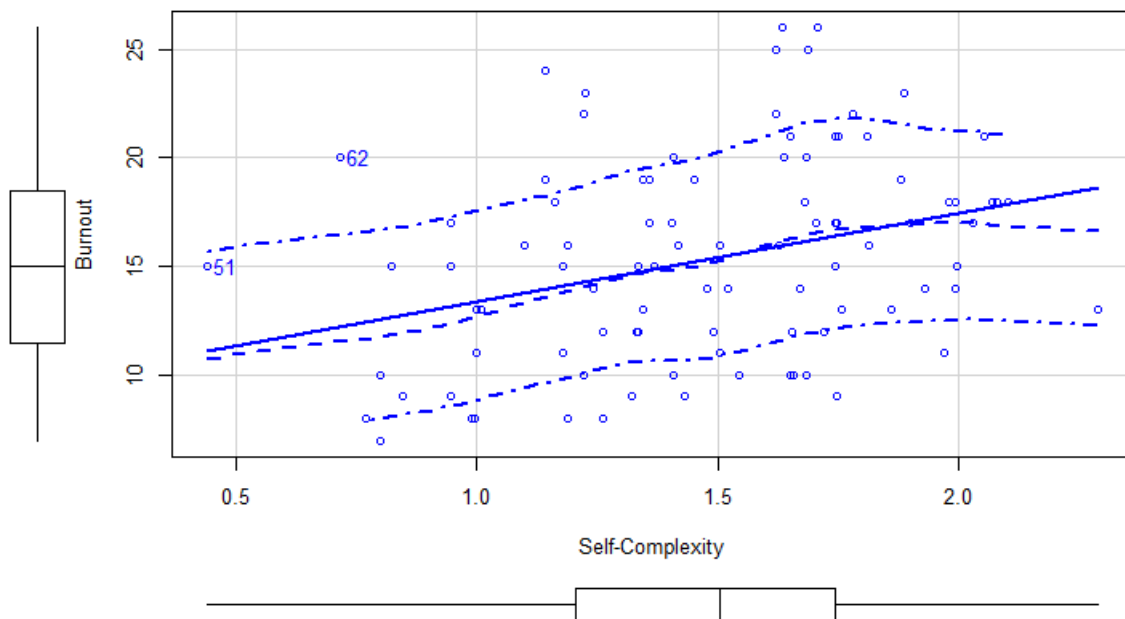
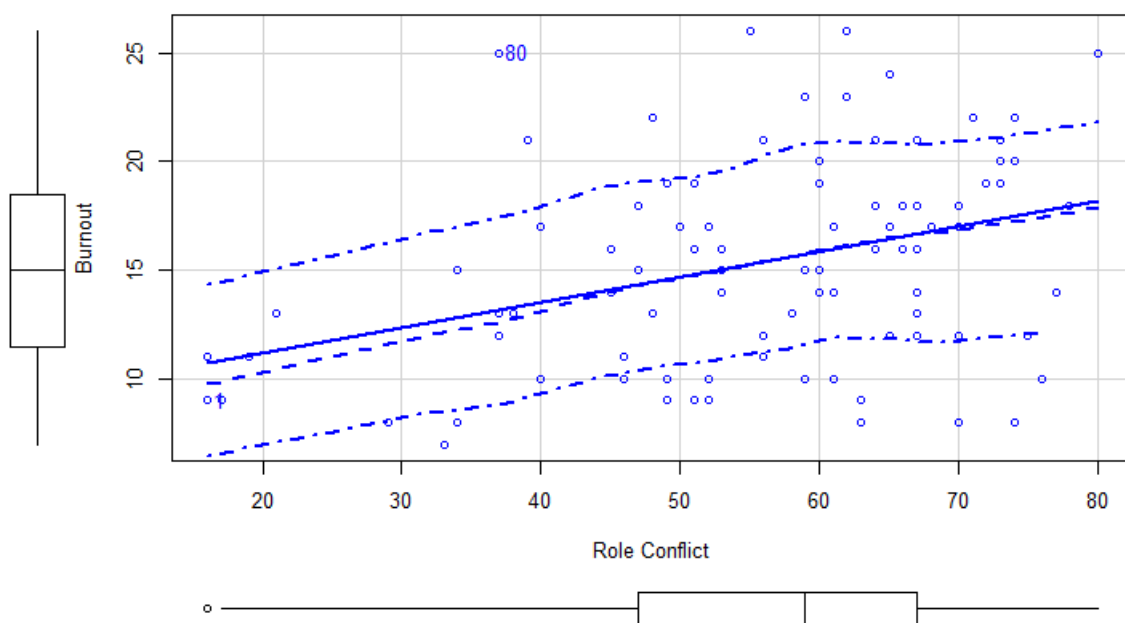


Figure 4.6

Scatterplot of the Burnout-Work and Self-Complexity Measures.

**Figure 4.7**

Scatterplot of the Burnout-Work and Role Conflict Measures.



Each scatterplot contains an ordinary least squares line of best fit (the solid blue line) and a non-parametric Loess line of best fit (the broken blue line). The 90% confidence interval of the Loess line is depicted by the blue shaded area. The Loess lines suggest the presence of non-linear relations and this is especially noticeable for Burnout and Token Stressors, and Burnout and Self-Complexity, respectively. However, in each of the three plots the Loess line does not deviate excessively from the least squares line. More formal testing of the linearity assumption that underlies regression is undertaken in section 4.5.

The scatterplots also revealed some potential outliers and/or influential cases (e.g., participants 44 and 80 in Figure 4.5, as well as participants 1 and 80 in Figure 4.7; and participants 51 and 62 in Figure 4.6). In section 4.5 a more formal investigation of the presence of these potential influential cases is reported.

4.5. REGRESSION OF BURNOUT ON TOKEN STRESSORS AND SELF-COMPLEXITY

Inspection of several diagnostics with respect to (a) normal distribution of the residuals, (b) linearity, (c) homoscedasticity (i.e., constant error variances), and (d) the presence of influential cases suggested some violations of the assumptions of ordinary least squares regression. In particular, the assumptions of homoscedasticity were not met, the residuals were not normally distributed, and there appeared to be a slight non-linear trend in the relation of Burnout with Token Stressors and Self-Complexity. The results of these diagnostic tests are reported in detail in Appendix A.

Against the background of the violations of the assumptions of homoscedasticity and normally distributed residuals we estimated the parameters of the regression models using (a) ordinary least squares, (b) ordinary least squares with robust standard errors (White & McKinnon, 1985), (c) median quantile regression with bootstrapped ($N = 10,000$) standard errors (Koenker, 2005), and (d) iteratively weighted least squares (robust regression) (Wilcox, 2012). As a whole, the different techniques yielded very similar results and led to substantively similar conclusions. Against this background, we report the results of the ordinary least squares regression with robust standard errors obtained via White's HC3 estimator (Long & Ervin, 2000; White, 1980; White & McKinnon, 1985). For completeness and comparison, the results of the ordinary least squares regression, median quantile regression, and robust regression analyses are presented in Appendix B.

To account for the potential non-linear relation of Burnout with Token Stressors and Self-Complexity the quadratic effects of Token Stressors and Self-Complexity were separately added to the regression equation. For both Token Stressors and Self-Complexity, the quadratic effects were non-significant and small, indicating that the relations should be treated as linear¹. The results of these analyses are reported in Appendix C.

Cook's D statistic (Cook & Weisberg, 1982) was used to identify potentially influential cases that could distort the results of the regression analyses. Although some cases appeared more influential than others, no cases had unexpectedly large influences [i.e., Cook's D > 1; see Cohen et al. (2003) and Judd et al. (2017)]. Against this background all cases were retained for analysis. Appendix D contains a plot of Cook's D for all the participants.

We estimated the statistical power of detecting an interaction with the Power package in R. The parameters of the power analysis were: $df = 1$ and 91 , $f^2 = .02$ (a small effect), and $\alpha = .05$. The estimated power was .27, which is low. This can be ascribed to the choice of specifying a small effect and the relatively small sample size. We specified a small effect, because previous research has shown that interactive effects are typically small (Aguinis et al., 2005).

Table 4.2 contains the results of the ordinary least squares regression with robust standard errors. The partial regression coefficients of Burnout on both Tokenism ($b = .25$) and Self-complexity ($b = 3.11$) were positive and statistically significant ($p < .05$). The standardized regression coefficient suggests that Token Stressors had a somewhat stronger effect. Jointly, Token Stressors and Self-Complexity accounted for about 28% of the variance (when adjusted for potential overfit to the sample data this shrank to about 26%).

Table 4.2

Multiple Regression of Burnout-Work on Token Stressors and Self-Complexity with Robust Standard Errors

	<i>b</i>	se	Beta	<i>t</i>	<i>p</i>
Intercept	15.32				
Token Stressors	.25	.05	.42	4.82	< .001
Self-complexity	3.11	1.08	.25	2.90	.008
R^2	.28				
$F(2, 92)$	17.71				

¹ With larger sample sizes it is possible that the non-linear trend might be statistically significant.

p	< .001
Adjusted R^2	.26

Note. Values are rounded to two decimal places, except for p -values which are rounded to three decimal places. Token Stressors and Self-complexity are mean centred. Robust standard errors were found with White's HC3 estimator.

Next, we examined whether Self-Complexity moderates the effect of Token Stressors on Burnout by including the product term of the mean-centred Token Stressors and Self-complexity variables in the regression equation. These results are summarised in Table 4.3. The partial regression coefficient of the product term of Token Stressors and Self-complexity ($b = -.30$) was statistically significant ($p = .008$), indicating the presence of a moderating effect. Jointly, Token Stressors, Self-complexity, and their product accounted for about 31% of the variance (when adjusted about 29%), which indicates that the moderating effect accounted for about 3% of the variance in burnout, above and beyond the joint effect of Token Stressors and Self-complexity (compare the results in Table 4.2).

Table 4.3

Multiple Regression of Burnout-Work on Token Stressors and Self-Complexity and their Product Term with Robust Standard Errors

	b	se	Beta	t	P
Intercept	15.48				
Token Stressors	.27	.05	.45	5.62	< .001
Self-complexity	3.00	1.10	.24	2.77	.007
T \times S	-.30	.14	-.19	-2.71	.008
R^2	.31				
$F(3, 91)$	13.80				
p	< .001				
Adjusted R^2	.29				

Note. Values are rounded to two decimal places, except for p -values which are rounded to three decimal places. T \times S = the product term of Token Stressors and Self-complexity. Token Stressors and Self-complexity are mean centred. Robust standard errors were found with White's HC3 estimator.

To probe the interaction or moderating effect we plotted the regression of Burnout on Token Stressors at three levels of Self-Complexity, namely (a) one standard deviation above the mean, (b) the mean, and (c) one standard deviation below the mean (see Figure 4.8). We also obtained the simple slopes of Burnout on Token Stressors at these three levels of Self-Complexity (see Table 4.4)

Figure 4.8

The relationship between Burnout-Work and Token Stressors Conditional on Different Levels of Self-Complexity.

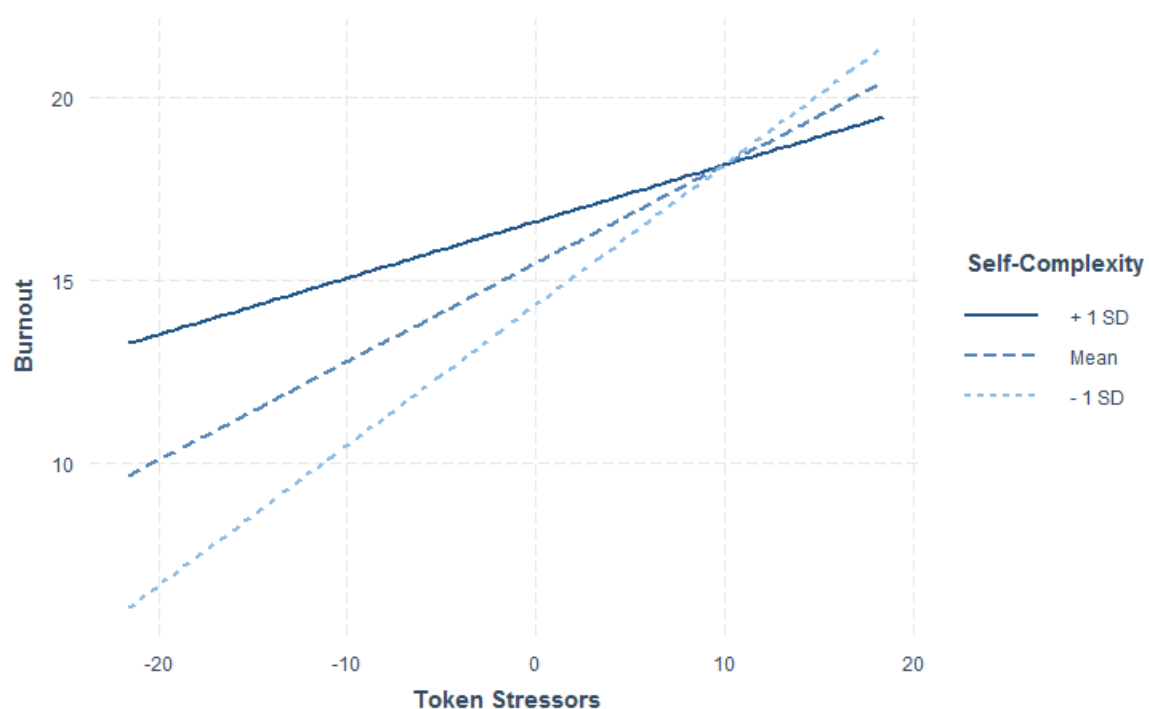


Table 4.4

Simple Slopes Analysis of the Regression of Burnout-Work on Tokenism Stressors at Different Levels of Self-Complexity

	Low SC (-1 SD)	Medium SC (Mean)	High SC (+ 1 SD)
Slope of TS	.38	.27	.15
se	.07	.05	.06
<i>T</i>	5.59	5.62	2.64
<i>p</i>	< .01	< .01	.01

Note. TS = Tokenism Stressors, Low SC = Low Self-Complexity (one standard deviation below the mean), Medium SC = Mean Self-Complexity, and High SC = High Self-Complexity (one standard deviation above the mean). All values rounded to two decimal places. Robust standard errors were found with White's HC3 estimator.

Jointly Figure 4.8 and Table 4.4 shows that the slope of Burnout on Token Stressors is the steepest for persons low on Self-Complexity ($b = .38$), and shallowest for persons high on Self-Complexity ($b = .15$). This indicates that the negative effect of Token Stressors on Burnout is weaker for those who are high on Self-Complexity and stronger for those who are low on Self-Complexity. Among the persons with low Self-Complexity, Figure 4.8 indicates pronounced differences in the Burnout measures of persons scoring low on Token Stressors as opposed to those who scored high on Token Stressors (i.e., for these persons the presence of Token Stressors appears to play a significant role in their levels of Burnout). By contrast, for persons scoring high on Self-Complexity, Token Stressors appear to play a less pronounced role in their levels of Burnout.

Note that Figure 4.8 also shows that persons who scored high on Self-Complexity generally scored higher on burnout throughout the range of Token Stressors (except in the extreme upper region of Token Stressors). Importantly, for high scorers on Self-complexity, their levels of Burnout do not appear to depend very much on their levels of Token Stressors, whereas for low scorers on Self-complexity, their levels of Burnout appear to depend very much on their levels of Token Stressors.

4.6. REGRESSION OF BURNOUT ON ROLE CONFLICT AND SELF-COMPLEXITY

As was the case with for the regression of Burnout on Token Stressors and Self-complexity, inspection of several diagnostics suggested some violations of the assumptions of ordinary least squares regression. Again, the assumption of homoscedasticity was not met, the residuals were not normally distributed, and there appeared to be a slight non-linear trend in the relation of Burnout with Role Conflict and Self-Complexity. The results of these diagnostic tests are reported in detail in Appendix A.

We again estimated the parameters of the regression models using (a) ordinary least squares, (b) ordinary least squares with robust standard errors, (c) median quantile regression with bootstrapped ($N = 10,000$) standard errors, and (d) iteratively weighted least squares (robust regression). The different techniques again yielded very similar results and led to substantively similar conclusions. Against this background, we report the results of the ordinary least squares regression with robust standard errors obtained via White's HC3 estimator (Long & Ervin, 2000; White, 1980; White & McKinnon, 1985). For completeness and comparison, the results of the ordinary least squares regression, median quantile regression, and robust regression analyses are presented in Appendix B.

To account for the potential non-linear relation of Burnout with Role Conflict and Self-Complexity the quadratic effects of Role Conflict and Self-Complexity were separately added to the regression equation. For both Role Conflict and Self-Complexity, the quadratic effects were non-significant and small, indicating that the relations should be treated as linear². The results of these analyses are reported in Appendix C.

As before Cook's D statistic was used to identify potentially influential cases that could distort the results of the regression analyses. Overall, the Cook's D values were very small (although some cases appeared more influential than others) and far below the cut-off value of 1. Against this background all cases were retained for analysis.

Table 4.5 contains the results of the ordinary least squares regression with robust standard errors. The partial regression coefficients of Burnout on both Role Conflict ($b = .10$) and Self-complexity ($b = 3.09$) were positive and statistically significant ($p < .05$). The standardized regression coefficient suggests that Token Stressors had a somewhat stronger effect. Jointly, Token Stressors and Self-Complexity accounted for about 28% of the variance (when adjusted this shrank to about 26%).

² With larger sample sizes it is possible that the non-linear trend might be statistically significant.

Table 4.5

Multiple Regression of Burnout-Work on Role Conflict and Self-Complexity with Robust Standard Errors

	<i>b</i>	se	Beta	<i>t</i>	<i>p</i>
Intercept	15.32				
Role Conflict	.10	.03	.30	3.02	.003
Self-complexity	3.09	1.21	.25	2.55	.013
R^2	.19				
$F(2, 92)$	10.60				
<i>p</i>	< .001				
Adjusted R^2	.17				

Note. Values are rounded to two decimal places, except for *p*-values which are rounded to three decimal places. Both Role Conflict and Self-complexity are mean centred. Robust standard errors were found with White's HC3 estimator.

Next, we examined whether Self-Complexity moderates the effect of Role Conflict on Burnout by including the product term of the mean-centred Role Conflict and Self-complexity variables in the regression equation. These results are summarised in Table 4.6. The partial regression coefficient of the product term of Role Conflict and Self-complexity ($b = -.08$) was statistically non-significant ($p = .311$), indicating the absence of a moderating effect. Jointly, Role Conflict, Self-complexity, and their product accounted for about 20% of the variance (when adjusted about 17%), which indicates that the moderating effect accounted for about 1% of the variance in burnout, above and beyond the joint effect of Role Conflict and Self-complexity (compare the results in Table 4.5). Against this background the results in Table 4.6 are interpreted, which shows that Role Conflict and Self-complexity each contribute uniquely, but additively, to the explanation of Burnout. The standardized regression coefficients of the two variables were similar in size.

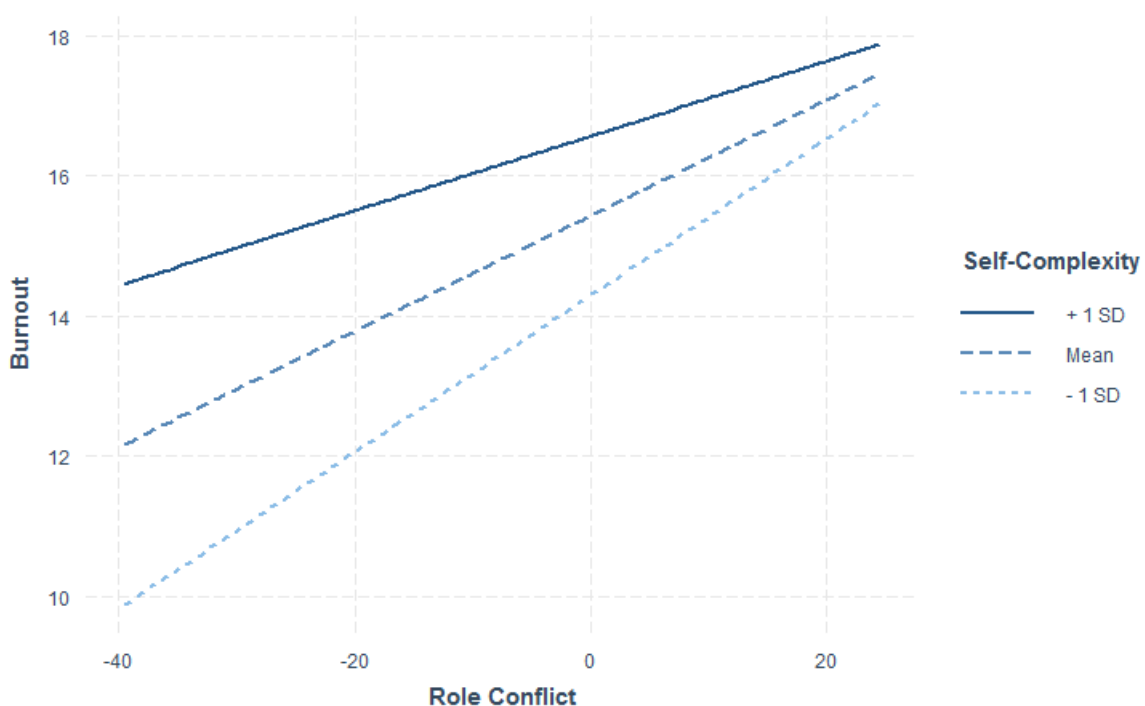
However, because of the relatively low statistical power (the a priori power to detect a small effect was estimated at .27), we provide the interaction plot of the regression of Burnout on Role Conflict at different levels of Self-Complexity. We emphasise that the plot is presented as an exploratory and descriptive device rather than as reflecting a statistically significant moderating effect.

Table 4.6

Multiple Regression of Burnout-Work on Role Conflict and Self-Complexity and their Product Term with Robust Standard Errors

	<i>B</i>	<i>se</i>	<i>Beta</i>	<i>t</i>	<i>p</i>
Intercept	15.43				
Role Conflict	.08	.04	.45	2.31	.023
Self-complexity	2.98	1.23	.24	2.42	.017
$R \times S$	-.08	.08	-.19	-1.02	.311
R^2	.20				
$F(3, 91)$	7.35				
P	< .001				
Adjusted R^2	.17				

Note. Values are rounded to two decimal places, except for p -values which are rounded to three decimal places. $R \times S$ = the product term of Role Conflict and Self-complexity. Role Conflict and Self-complexity are mean centred. Robust standard errors were found with White's HC3 estimator.



CHAPTER 5: DISCUSSION

5.1. INTRODUCTION

This study aimed to investigate the various constructions and interactions of stress and self-complexity. In this chapter a discussion of the data analysis and consequent findings obtained from the four measures of the structural properties of Token Stressors, Role Conflict, Burnout and Self-Complexity will take place. These four measures were specifically used in this study in order to measure the self-complexity and burnout experienced by female engineers working in a male-dominated industry and workplaces and was based on a sample size of 95 ($n = 95$).

The research results obtained from this sample group were interpreted based on various statistical tests in the previous chapter and included descriptive statistics, correlations, multiple and moderated multiple regression analysis. These statistical findings contribute towards a greater understanding of the interplay between stress and self-complexity amongst women faced with gender-minority status and gender role conflict.

The aim of this study was therefore to firstly, establish whether greater self-complexity can moderate the adverse consequences of token stress (i.e., act as a buffer between token stress and burnout). Secondly, if greater self-complexity can also act as a protective factor for women against the performance pressure of working in an opposite-sex dominated workplace and the strain of adapting behaviour between different contexts or roles (i.e., act as a buffer between role conflict and burnout).

Therefore, the findings discussed in this chapter indicate support for the assertion that women who work in a male-dominated workplace and experience high levels of token stress but also have greater self-complexity, experience less burnout than those with lower self-complexity. It will be discussed how the findings for Self-Complexity maintain the premises posited by Linville for Token-Stressors and Burnout, as well as shed light on how Self-Complexity is further interacted with Role Conflict and Burnout.

These confirmatory and exploratory findings will be discussed in relation to the existing literature pertaining to these theorised areas and in relation to the aforementioned hypothesis outlined in a previous chapter of this study. This study's ultimate objective was to further contribute to the existing body of research and shed light on the stress experienced by working women in environments that cause them specific stress related to their gender, by examining the buffering role of the psychological construct of Self-Complexity. In theory the ability to "not put all one's eggs in one basket" but have different and differentiated roles from which to pull

joy, gratification, distraction and fulfilment from to lead a more balanced life, makes some sense but now through this study it also gains empirical and statistical support.

This evidence will be discussed in this chapter by providing a high-level overview of the results, followed by a discussion of the descriptive statistics obtained. The various relationships and interactions will then be discussed, between Self-Complexity, Burnout, Token Stressors and Role Conflict. The buffering effect of Self-Complexity will be discussed and the overall robustness of the results. Lastly, limitations and recommendations for further research will also be discussed.

5.2. OVERVIEW OF THE RESULTS

This study set out to understand the relationship between Self-Complexity and Burnout, including the potentially moderating effect that it could play on Token Stressors and Role Conflict. The following questions, as mentioned previously, were posed; do the results show that (greater) Self-Complexity acts as a buffer between Token Stressors and Burnout. Do the results also show that (greater) Self-Complexity can act as a buffer between Role Conflict and Burnout.

The results indicate the following, that both Token Stressors and Self-Complexity jointly contribute towards Burnout, and that where specifically Token Stressors is very high, those who have greater Self-Complexity have much lower Burnout than those who score low on Self-Complexity. Somewhat unexpectedly, in an environment where there are less or low Token Stressors experienced, then someone who has higher Self-Complexity reports more Burnout than those with low Self-Complexity. Furthermore, Self-Complexity on its own (without the presence of either Token Stressors or Role Conflict), appears to have an unexpectedly positive correlation with Burnout, i.e., greater Self-Complexity is related or linked to greater Burnout by itself.

In the paragraphs that follow each of the research questions, as well as the relevant results mentioned above will be discussed in greater detail against the background of theory and previous research results.

5.3. DESCRIPTIVE STATISTICS

Results from previous studies and research undertakings on these topics give a theoretical, as well as statistical, framework for which the results of this study can be compared to. Below

is a comparison of each of the four measures including Burnout, Token Stressors, Self-Complexity and Role Conflict in relation to previous research.

Firstly, Burnout was measured using the Copenhagen Burnout Inventory (CBI) measurement tool. The CBI theorises that the aspects of fatigue and exhaustion are at the core of burnout and the inventory consists out of three distinct sub-dimensions, including the personal burnout, work-related burnout and client-related burnout dimensions. For the purposes of this study, only the work-related subdimension of the CBI scale was measured and considered because this study focuses specifically on the workplace and feelings and experiences directly related to that of the workplace. In this study the Cronbach Reliability Coefficient was .90 ($\alpha=.90$). Previous research conducted reflects a similar reliability coefficient of $\alpha=.87$ (Kristensen, Borritz, Villadsen & Christensen, 2005).

For this study there was widely varying levels of Burnout across the results of the participants. Furthermore, the results show that higher Token Stressors and Role Conflict contribute as expected towards higher Burnout. Thus, the assumptions made for these relationships were proven true and substantive. Also, as mentioned previously, the results also somewhat unexpectedly show that higher Self-Complexity in and of itself (without the presence of Token Stressors and Role Conflict) also leads to higher Burnout.

Secondly, in terms of the measurement of Token Stressors, a measurement tool was used that was conducted in a more current study (King *et al.*, 2010), and was adapted from Yoder (1994). This tool measured the participants' subjective experience of increased visibility, social isolation and gender role expectations associated with their gender minority status' in their organisations and workplaces. In this study the Cronbach Reliability Coefficient obtained for the Token Stressor measure was .72 ($\alpha=.72$). Previous research conducted reflects a reliability coefficient of $\alpha=.70$ (King *et al.*, 2010). Also as mentioned, this study showed a relationship between Token Stressors and Burnout. As predicted, higher Token Stressors led to higher Burnout.

Thirdly, the instrument that was used in this study to measure gender role conflict, defines or measures it as the degree of conflict between the individual's treatment based on their gender versus their desired treatment as an individual. It also measures the degree of conflict expressed between the individual's private self-concept of their gender role versus the self-concept defined by their society and work organisation. A measure developed by Chusmir and Koberg (1986) known as the Sex Role Conflict Scale (SRCS) was adapted and used. In this study the descriptive statistics obtained for the Role Conflict measure was as following; a

Mean of 55.53 ($M=55.53$), a Standard Deviation of 14.80 ($SD=14.80$), and a Cronbach Reliability Coefficient of .93 ($\alpha=.93$). Previous research conducted reflects a similar reliability of .94 ($\alpha=.94$), however, because this measure was adapted for the purposes of this present study, the Mean and Standard Deviation statistics presented in the Chusmir and Koberg (1986) study is not really appropriate for comparison. Also as mentioned, this study showed a relationship between Role Conflict and Burnout. As predicted, higher Role Conflict led to higher Burnout.

Then lastly, Linville (1985) operationalised Self-Complexity by using the H dimensionality statistic (Scott, 1969), developed from the information theory. The H statistic is a measure of the variance of information, on a nominal-scale, as it provides some measure of unpredictability of normally non-quantitative data (Brody, 1971). To measure or generate the H statistic for participants in this study, a trait-sorting test, adapted from Linville's trait-sorting test, was used. In this study the descriptive statistics obtained for the Self-Complexity measure was as following; a Mean of 1.47 ($M=1.47$) and a Standard Deviation of .38 ($SD=0.38$). Previous research conducted reflects somewhat similar descriptive statistic results of $M=2.80$ and $SD=.58$ (Rafaelie & Revelle, 1999). Unfortunately, due to the nature and the unconventional sense of the scale of this measurement tool (the trait-sorting task) it does not allow for an aggregate of items. Therefore, it is not possible to derive a reliability of Cronbach's Coefficient Alpha for this measurement tool.

5.4. HOW DOES SELF-COMPLEXITY RELATE TO BURNOUT?

The results indicate that there is a statistically significant correlation between Self-Complexity and Burnout. However, the direction of the relationship is contrary to theoretical expectation. On the basis of Linville's (1985) theorising it was expected that Self-Complexity and Burnout would be negatively correlated, yet the results revealed a positive correlation of .33.

Self-Complexity consists of two parts: firstly, it is the ability to have more than one role in one's life from which to draw satisfaction and so forth ~~from~~; and secondly it is the ability to differentiate between these numerous roles so as to prevent negative spill-over occurring should there be negative experiences in one or more of these roles. Simply put, by Linville (1987), Self-Complexity is akin to putting one's eggs in more than one basket, so should one basket happen to drop, there is more than one basket to pull eggs from.

While there have been studies that showed that persons with higher Self-Complexity fare better in their responses to stress than those with lower Self-Complexity (Linville, 1985, 1987), there has also been research to indicate the opposite (Gara *et al.*, 1993). These differing and contradictory results, have led researchers to theorise that the very complexity of both the definition and the measurement of Self-Complexity, may be the cause of the inconsistency in results obtained (Koch & Shepperd, 2004; Rafaelie & Revelle, 1999).

However, what this present study does significantly show, as well as gives strong evidence that higher Self-Complexity can be helpful for those individuals who do suffer from specific stressors related to their work role, in this case Token Stressors. This will be discussed in more detail in the next section.

5.5. DOES SELF-COMPLEXITY SERVE AS A BUFFER AGAINST BURNOUT IN THE PRESENCE OF HIGH TOKEN STRESSORS?

The multiple regression analyses showed that both Token Stressors and Self-Complexity jointly contribute towards Burnout. Comparison of the standardized regression coefficients suggested that Token Stressors had a somewhat stronger effect on Burnout.

The moderator analysis showed that there is an interaction between Self-Complexity and Token Stressors, such that Self-Complexity serves as a buffer against Burnout in the presence of high Token Stressors. Where Token Stressors is experienced on a very high level by an individual, those who also have very high levels of Self-Complexity have lower Burnout levels than those that have low Self-Complexity. This holds with the theory of Linville (1987), that carrying one's eggs in more than one basket may help to mitigate the effects of Burnout.

5.6. DOES SELF-COMPLEXITY SERVE AS A BUFFER AGAINST BURNOUT IN THE PRESENCE OF HIGH ROLE CONFLICT?

The other part of our assumptions, which is that greater Self-Complexity may serve as a buffer against Burnout for those experiencing high Role Conflict, unfortunately cannot be indicated at this point. The results of this study indicate that Self-Complexity does not appear to have a statistically significant moderating effect on Role Conflict and Burnout. However, in exploratory analysis there may be somewhat of a trend. The data obtained from this study shows a possible trend where Self-Complexity could be acting as buffer between Role Conflict and

Burnout, but at the same time we cannot totally discount that this maybe just be due to a sampling error or chance. It is therefore necessary to dig a little deeper into theory again for an explanation.

Looking at the precept of Self-Complexity, it is assumed that the greater number of roles an individual is engaged in, the more meaningful and guided their existence will be (Thoits, 2012). Furthermore, numerous studies have also linked a meaningful and purposeful existence, along with ordered behaviour, as being crucial to psychological well-being (Hitlan *et al.*, 2006; Sieber, 1974). Subsequently, the benefits of having or being engaged in numerous roles, known as role accumulation, include benefits of having status, and that these various roles also provide general status security (Sieber, 1974). Having multiple roles can also increase the individuals ego-gratification, which is the sense of being appreciated and needed by relevant role partners (Hitlan *et al.*, 2006; Sieber, 1974).

It is possible that the relationship between the individual's psychological wellbeing and multiple roles may not be simply additive, but rather curvilinear (Thoits, 2012). In other words, there is an optimal number of roles an individual should have, beyond that point the risk of role conflict and strains demands becomes greater and may cause a sense of orderly and purposeful existence, and thus psychological wellbeing, to decrease (Thoits, 2012).

Multiple roles and role conflict is clearly very complex and multifacted and in conclusion, taking into account the results of this study and that Self-Complexity and Token Stressors does appear to have a significant relationship, perhaps having more data subjects in this study may have shown more evidence for the potential buffering role of Self-Complexity on Role Conflict. This is a consideration for possible limitations of this study and may be a recommended for future research.

5.7. LIMITATIONS AND SUGGESTIONS FOR FURTHER RESEARCH

Every study and research attempt comes with its own set of limitations, which are often only realised after the fact as they tend to come up in the process. This study is no exception, and although it made great strides in indication the buffering role of Self-Complexity on Token Stressors and Burnout, there are still areas that can be improved and that should be considered for future studies in this area.

Firstly, as mentioned in the previous section, a greater number of data participants would have been beneficial to shed greater light not only on the potential buffering effect of Self-Complexity on Role Conflict and Burnout. Although, results indicate that the relationship is not statistically significant, there is still a lot of theoretical indication that this buffering role could still be relevant and proven. Therefore, a recommendation for further research would be to really focus on this potential relationship and to have a larger sample group to help investigate it more fully.

Furthermore, what may have been both a strength and a limitation of this study is the specific sample group of female engineers. On the one hand it may have shed a very direct light on the working experience of the engineering women in this very specific area of work. However, it may also have been limiting in one sense to solely focus on this industry as it gave very singular feedback of just the female engineering experience. It may be useful in future and further research involving women working in male-dominated workplaces to potentially branch out to include other industries known to be particularly male-dominated, such as the IT industry, Mining, Construction and so forth. Doing this may give a richer sample of the experience of minority female employees across a broad range of fields. It may also give an opportunity for analysis and comparison of different minority females working in various industries.

Lastly, as this study highlighted through an unexpected positive correlation, the relationship between Self-Complexity, on its own, and that of Burnout may be far more complex than initially theorised. As such, and in line with results found by other studies, further analysis of the concept and measurement of Self-Complexity is recommended to better understand and explain its relationship with stress and well-being.

Particularly for measurement, the study conducted by Rafaelie and Revelle (1999) suggested that the traditional measurement of Self-Complexity may be lacking in several respects. They then also go on to provide a solution for the potential measurement problems of Self-Complexity. Their study suggests an adjustment to the using of a single measurement, such as Linville's (1985) use of the *H* statistic measurement tool, to measure Self-Complexity as a whole. Instead, it proposes the use of two alternative measures to measure the two different components of Self-Complexity, the number of self-aspects and then the degree of overlap. The study was able to provide psychometric support for the use of doing so and was able to maintain the Linville's premises, whilst improving the reliability and validity of the theory. The Self-Complexity measurement tool used in this study may therefore have been a limitation of

and may therefore be of significance for studies going forward to rather make use of the two alternative measures suggested by Rafaelie and Revelle (1999).

5.8. CONCLUSION

This study set out to investigate and understand the relationships between the factors of Role Conflict, Token Stressors, Self-Complexity and Burnout for participants and employees working in opposite sex-dominated workplaces. In this process and as a result it was shown that multiple relationships exist between these factors, particularly, that Role Conflict, Token Stressors and Self-Complexity in part contribute towards the explanation of Burnout.

Furthermore, that Self-Complexity does indeed, as hypothesised, play a buffering role against Burnout for those experiencing high Token Stressors. However, the buffering role, or lack thereof, that Self-Complexity may play on Burnout for where there is high Role Conflict is still unproven. The relationship between Self-Complexity in and of itself with Burnout appears to be even further complicated and more multifaceted than previously theorised. Lastly, Self-Complexity, the measurement and conceptualisation, may even be the most complex aspect of this study yet to be fully understood.

Ultimately, this study does shed light on the experiences and challenges faced by women in the engineering profession, and points toward the direction that although Burnout is not easily understood or defined, it is however prevalent. While it cannot just simply be put that woman with higher Self-Complexity may be less vulnerable to stress, there is some evidence on which to build upon that may in future lead to even greater intervention and prevention.

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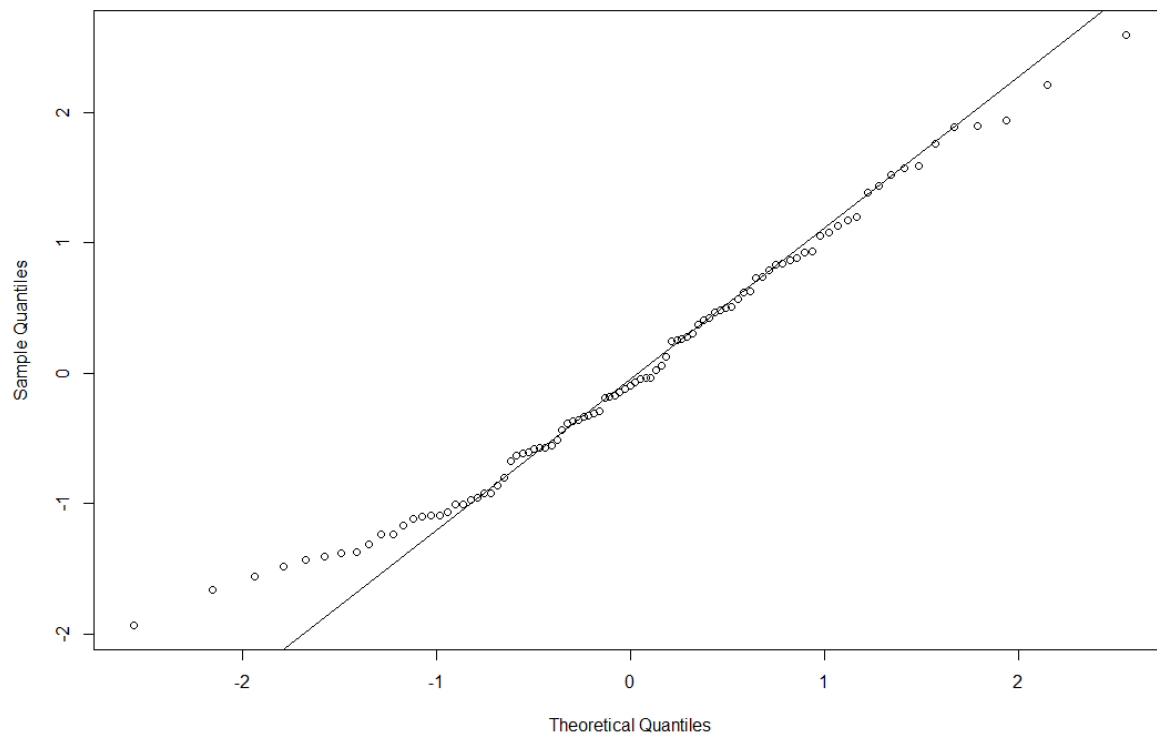
Appendix A

Pena and Slate (2006) describe a global test of regression assumptions (distributed as a chi-square) that take into account violations of the assumptions of normally distributed residuals with homogenous variance across the range of the predicted attribute. We tested the null hypothesis of no violations the statistic using the gvlma package in R, which indicated that the null hypothesis had to be rejected ($\chi^2 = 10.62$, $p = .03$).

In the figures below the following observations were made. Firstly, that the residuals do not follow a normal distribution pattern, therefore in this case the regression model cannot be said to fully explain all the trends in the dataset of this study. Furthermore, the figures also indicate a lack of homoscedasticity in that the variance of the residuals in this regression model are not constant and which may further suggest the possible inclusion of additional predictor variables in this regression model to explain for the performance of the dependent variable.

Figure A1

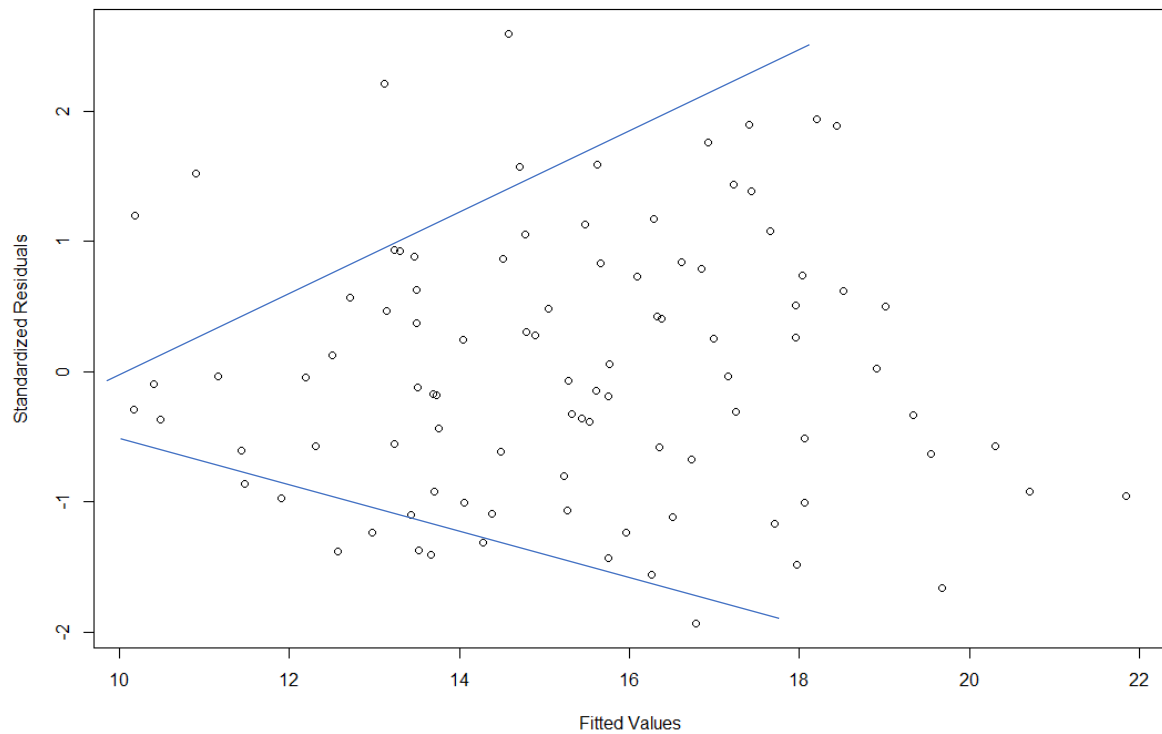
The Normal Probability Plot of the Standardised Residuals.



The QQ-plot above is a tool that assists us to graphically assess our set of data and the plausibility of normal theoretical distribution. A normal distribution would be indicated by the residual points falling on the straight line. However, as we can see from the lower ends there is a clear deviation and that the distribution has more of “heavy tails” effect with the points falling along the middle of the line on the graph but curving off by the extremities. This indicates that the sample quantiles of the residuals, measured against the theoretical quantiles of this study, show the residuals as not being normally distributed and that the data has more extreme values than that what is expected from a normal distribution.

Figure A2

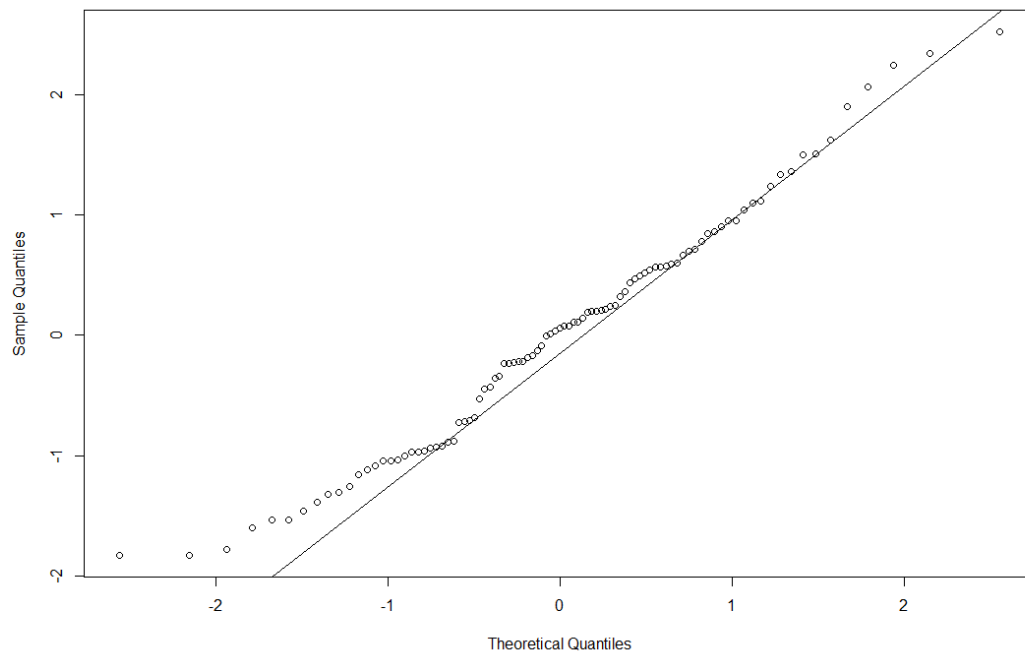
Plot of the Standardised Residuals versus the Fitted Values



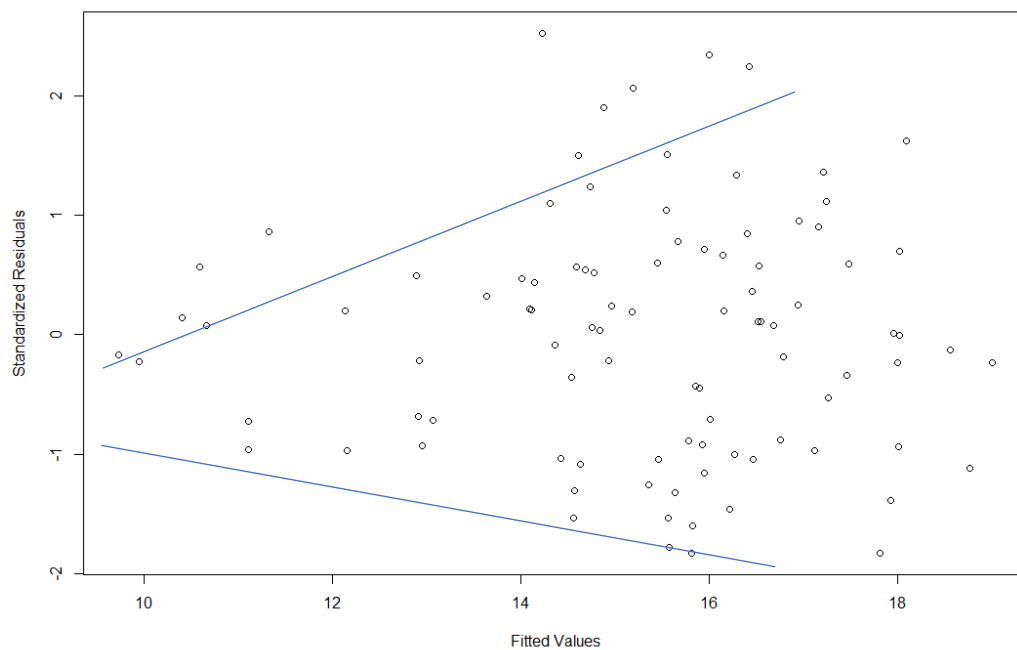
The plot of the standardised residuals against the fitted or predicted Burnout measures indicate that the prediction was better at the lower end of Burnout than at the upper end, which indicates a violation of the assumption of homoscedasticity which refers to the condition that the variance of the residual in the regression model needs to be constant.

Figure A3

Normal Probability Plot of the Standardised Residuals

**Figure A4**

Plot of the Standardised Residuals versus the Fitted Values



Despite the failure to reject the null hypothesis inspection of the plot of the standardised residuals against the predicted Burnout measures, it suggests a violation of the assumption of

homoscedasticity (homogenous variance of residuals across the range of the predicted variable).

Appendix B

We estimated the parameters of the regression of Burnout on Token Stressors, Self-Complexity, and their product term via four techniques: (a) ordinary least squares regression, (b) ordinary least squares regression with robust standard errors, (c) quantile regression, and (d) iterated re-weighted least squares regression (robust regression). The table below contains the partial regression coefficients and their associated standard errors across the four techniques. Both the regression coefficients and the standard errors were similar in size and led to the same statistical and substantive conclusions regarding the interaction of Token Stressors and Self-complexity.

Table B1

The Regression of Burnout estimated against different Parameters

Regression technique	Token Stressors		Self-Complexity		Token Stressors × Self-Complexity	
	b	se	b	se	b	se
OLS	.27	.05	3.00	1.11	-.30	.14
Robust OLS	.27	.05	3.00	1.08	-.30	.11
Quantile	.29	.06	3.25	1.22	-.34	.13
WLS	.28	.06	3.05	1.18	-.32	.15

Note. OLS = Ordinary least squares regression, Robust OLS = Ordinary least squares regression with robust standard errors, Quantile = Quantile regression, WLS = robust regression with iterated re-weighted least squares.

Appendix C

We tested for non-linear relations of Burnout with Token Stressors and Self-Complexity by including their quadratic terms in the regression equation. The partial regression coefficients of both quadratic terms were non-significant, which indicated that the relations should best be treated as linear.

Table C1

Multiple Regression of Burnout-Work on Token Stressors, Self-Complexity and their Quadratic Terms with Robust Standard Errors

	<i>b</i>	<i>se</i>	Beta	<i>t</i>	<i>p</i>
Intercept	15.32				
Token Stressors	.25	.06	.42	4.55	< .001
Self-complexity	2.85	1.11	.60	2.56	.012
Token Stressors ²	.00	.01	.05	.55	.580
Self-Complexity ²	-1.78	3.39	-.07	-.52	.602
<i>R</i> ²	.28				
<i>F</i> (4, 90)	8.93				
<i>p</i>	< .001				
Adjusted <i>R</i> ²	.25				

Note. Values are rounded to two decimal places, except for *p*-values which are rounded to three decimal places. Token Stressors and Self-complexity are mean centred.