

Experiences of South African Women in Agile Projects:

An Intersectional Perspective



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By

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Now that I have stated that—pursue your destinies.

Abbreviations

Abbreviation:	Description:
STEM	Science Technology Engineering and Medicine
IS	Information Systems
IT	Information Technology
SE	Software Engineering
SD	Software Development

Table 1: Abbreviations

Abstract

Gender diversity remains a significant challenge in the Information Technology (IT) industry, particularly in South Africa, where the workforce composition does not reflect the nation's demographic diversity. This disparity results in the underrepresentation of women despite policies aimed at fostering inclusion. Existing research highlights a decline in women's participation in the IT sector but often overlooks the perceptions and treatment of women within IT workplaces.

This study investigates women's experiences working in Agile project environments in South African IT companies. Agile is a popular software development methodology emphasizing collaboration, communication, and collective decision-making. Using intersectionality theory, this cross-sectional study examines how gender and background factors affect women's work performance. Data were collected through semi-structured interviews with twenty-five women IT professionals recruited via snowball sampling.

Key findings indicate that gender discrimination persists in Agile environments. The study revealed that South African women in Agile project environments exist within a male dominated, Gendered Organisational Culture, which privileges behaviours and actions that benefit men. Women in these environments often experience feelings of inadequacy due to their minority status in predominantly male teams. Other specific persistent issues emerged such as gendered recognition bias, gender pay gap, job insecurity, lack of support for motherhood, work-life balance, and scarcity of women mentors. The study further reveals that the high attrition rate of women in IT is not due to the technical demands of the roles but rather the negative impact of organisational culture and gender bias on their professional development.

The study's limitations include its reliance on a small, non-random sample, which may not fully represent the broader population. Additionally, the focus on Agile environments may limit the generalizability of the findings to other IT settings. Future research should explore the intersection of gender with other factors, such as socioeconomic status and motherhood, providing a more comprehensive understanding of the barriers women face in IT. It should also investigate strategies to create more inclusive and supportive workplace cultures.

Keywords: Agile teams, Gender, Gender bias, Intersectionality, Organisational culture

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1 Introduction

Women's experiences in Agile projects have been the subject of considerable research. However, there is a lack of consistency in studies illustrating how women are perceived in their teams. This chapter explains the context of the investigation about the experiences of female Agile project employees. Along with the research topic, the chapter also discusses a few essential questions and objectives of this study. The significance of the study and essential topics related to the study have been reviewed. Lastly, an outline of the paper is included.

1.1 Problem Statement

This research work aims at comprehending the experiences of female Agile project employees. There is a paucity of research on how women perceive to be treated at their workplaces in the field of IT, which makes this study significant. This research explores women's experiences in Agile project teams, addressing the lack of studies on how they perceive workplace treatment in IT. It highlights the pressures of Agile work, global team collaboration, and the lower support women receive in STEM fields than men. The study also examines the additional hurdles women face in STEM-focused industries. Further, women also encounter more hurdles than men in STEM-focused industries (Kong et al., 2020).

Although the COVID-19 pandemic has affected women worse than men in workplace environments (Thomas *et al.*, 2020; Musetsho, Nicoleta and Dobrin, 2021), Field et al. (2023) indicated that the promotion opportunities for women have increased to 80 percent compared to before Covid. They also mention that one out of five women find it easier to cope with work-life balance and professional career with flexible working hours. For every 100 men getting promoted from entry-level to managers, only 87 women get promotions to the next level. It is even worse for women of colour where only 73 women get promoted compared to 100 men.

In addition, the research also indicates the emergence of a mindset that demands that employees are accessible for work 24 hours a day and seven days a week. This working arrangement tends to heavily impact women versus men because women are the primary carers in most houses. The industry frequently views work-life balance as a solution without considering how the hero mindset culture is promoted in the sector (Holtzblatt and Marsden,

2018). Against this background, it is crucial to explore the experiences of women working in Agile teams and projects in IT companies based at South Africa.

1.2 Research Context

The researcher conducted the study so that the past research findings could be integrated and used to compare, contrast, validate, and reject the proposed arguments. In order to accomplish the objectives, a two-step methodology was followed. To offer a background for the study, a review of the literature was conducted on the topic undertaken. The review highlights gender inequality, biases, pay gaps, job insecurity, and work-life balance struggles for women in South African Agile teams. It stresses the need for inclusive environments to support their participation in IT. Secondly, the context of the reviewed literature was investigated by studying academic literature of South African professional women who worked on Agile projects.

The study was conducted among professional women working in Agile and IT projects from Cape and Johannesburg. For this study, female professionals working in various domains of IT companies were considered. The participants were recruited using the snowball referral sampling method. The participants included both seasoned professionals as well as fresh graduates. A total of 25 participants were interviewed to understand their perspectives and personal experiences gained while working on Agile projects in IT environments. The interviews were conducted in English, and participant discretion was maintained. Intersectionality was used as a guiding framework for the experiences of the participants while working on Agile projects. The interviews were analysed using NVivo software. Based on the analytical outcomes, the findings were developed.

1.3 Primary research aim

The current study aims to explore and understand the experiences of women working in Agile project systems development teams in South Africa.

1.4 Primary Research Questions

Therefore, the primary research question is: What are women's experiences working in Agile project systems development teams in South Africa.

The secondary question is: Does a gendered organisational culture contribute to the experience of gender discrimination in the workplace?

1.5 Primary assumptions of the study

The main assumptions of this research study are given below.

- Women are under-represented in IT environments.
- Gender discrimination family and social pressure deter women from working in male-dominated careers.
- The competitive career market hinders the employment opportunities available for women.
- There is a strong gender-based preference for women who want a people-oriented career, unlike men who prefer a career that involves things.
- Women are not interested in STEM fields, so the IT and other such STEM-oriented fields are dominated by men.
- In male-dominated industries, there is an unconscious bias in the talent pipeline. This phenomenon causes employers to hire people who possess similar characteristics to them, in terms of education and background.

1.6 Key Terms

Some of the key terms used in this study are tabulated in Table 2 with respective explanations for the terms.

Table 2: Terms and their Definitions

S. No	Term	Definition
1.	Gender-roles	Gender-roles refer to behavioural and social norms deemed to be appropriate for a particular gender in a particular community and culture. It is frequently employed to decide the tasks and the obligations allotted to men and women (UNICEF, 2017).

S. No	Term	Definition
2.	Gender Discrimination	Gender discrimination is described as an exclusionary tactic arising from gender with a purpose to remove the recognition of women, irrespective of their marital status and against the equal human rights hold by both male as well female to enjoy the fundamental freedoms such as social, economic, and political freedom (UNICEF, 2017).
3.	Gender Bias	Gender bias is the tendency to favour a specific gender over another, when making decisions. This phenomenon can involve scenarios in which men are favoured over women or children (UNICEF, 2017),
4.	Gender Equality	Gender equality is a notion in which girls, boys, women, and men receive equal treatment and are provided with equal opportunity to realise their full potential in terms of human rights, economic, political, social, and cultural development. However, this stance does not imply that their access to the same possibilities is independent of their gender. So, it is analogous to value men and women, according to their differences and similarities (UNICEF, 2017).
5.	Gender gap	Gender gap is characterised as an unequal disparity among girls, boys, men, and women, notably in terms of access to resources, rights to participate in all the events of the life and achieve their respective goals (UNICEF, 2017).
6.	Intersectionality	Intersectionality is the premise that several identities can intersect to produce a wholesome entity. It consists of social identities that overlap in relation to prejudice and oppression systems (Crenshaw, 2018).

1.7 Rationale and Significance of the Study

In spite of the fact that both gender issues as well as diversity in the workplace have gained importance in software engineering research (Kohl and Prikladnicki, 2018; Guzmán, Fischer and Kok, 2023), there is a dearth of studies that focus on the experiences and perceptions of women in Agile projects. In addition to this, there has been a significant emphasis on attracting and deploying women in technology occupations despite a heavy mismatch between their employment aspirations and actual experiences (do Outão *et al.*, 2024).

Further, there is a lack of relevant literature that illuminates how women in technology navigate the normal culture and day-to-day interactions within the information technology firms (do Outão *et al.*, 2024). As a result of this foregoing, this study has been conducted to expand upon the prior IS studies that examined the experiences of women working on Agile projects.

1.8 Reflexivity and Positionality

This research based on women's subjective views about how they are treated in Agile project settings. Gender inequality and discrimination in IT employment are the biggest challenges encountered by women professionals in South Africa, particularly in information technology firms. In these companies, men are favoured above their non-male counterparts due to gender bias. I am a young black IT professional woman born and raised in South Africa. I work in the IT field within Agile project environments. This study is deeply significant to me. My own subjective experiences impact my analysis of the data. I am critical of the status quo, but I also believe in striving for the emancipation of women as a personal value. I, therefore, do not claim objectivity. Nevertheless, I believe this research project's findings have been obtained through integrity and humility. I therefore provide insights about women's experiences in a scholarly process that can be relied on for knowledge creation.

1.9 Outline of the study

The study contains six chapters. The first chapter introduces the study, while the second chapter analyses the literature on gendered organisational cultures and how they affect the women who work on Agile projects and teams. The purpose of the literature review is to showcase the diverse gendered experiences that South African women may have faced in Agile projects. Chapter three focuses on the theoretical underpinnings of the thesis. Chapter

four outlines the techniques, data collection instruments, and the approach used to conduct this study. Chapter five presents the study's findings. In chapter six, the findings are compared and contrasted against the relevant literature. Chapter seven presents the conclusion of the study. The outline of the dissertation is given below.

Chapter One: Introduction

1. Chapter Two: Literature Review
2. Chapter Three: Theoretical Framework
3. Chapter Four: Research Methodology
4. Chapter Five: Findings
5. Chapter Six: Discussion and Recommendations
6. Chapter Seven: Conclusions

1.10 Summary

This chapter introduces the topic of the study, rationale and the significance of conducting research on the experiences of women working in Agile projects. This chapter includes the research objectives, research questions, and related concepts. Chapter two reviews the studies conducted earlier in this domain i.e., women working in IT industry, especially in Agile projects as this forms the basis of the study.

2 Literature Review

This chapter reviews the relevant literature about women working in Agile projects. The purpose of this literature review is to analyse the background, initiation, and evolution of the idea that women who work in Agile teams are perceived differently by their respective male counterparts.

The chapter intends to determine those factors that create the perception of women working in Agile projects and the strategies that can be implemented to break the negative perceptions of the stereotypes. Specifically, the chapter analyses the intersectional dimensions that affect women. The experiences of South African women in the workplace were also investigated, with a particular emphasis on analysing the extent to which their firms are influenced by gendered organisational cultures and gender inequality.

2.1 Women in IT

The history of inequality may be traced back to South Africa's time under apartheid. This discrepancy extends to all demographic groups, including gender-based discrimination (Musetsho, Nicoleta and Dobrin, 2021). The proportion of women's participation as labourers in South Africa is significantly lower than that of their counterparts. A similar scenario is also found in the Information Technology sector (Shava, 2021). According to Cullen, Calitz and Motaung (2022), South African women in IT profession roles face a lot of obstacles in showcasing their ability and advancing their careers. Previous research has shed valuable insights on several recurring topics and tendencies. The most prevalently found belief is that women do not belong to STEM and technology sectors (Rutkowski, 2023).

Davis-Ali (2017) mentioned that the cultural attitudes peculiar to technology businesses discriminate against women. Holtzblatt and Marsden (2018) argued that the 'hero mindset culture' is not an ideal environment for women to flourish in their STEM career since it demands people to be accessible for work around the clock. This expectation makes it challenging for women to participate or flourish in these domains. This lends credence to the notion that the jobs in STEM domains are characterised by male-dominated organisational culture (Charlesworth and Banaji, 2019; Makarova, Aeschlimann and Herzog, 2019). This stance is supported by Bastarrica and Simmonds (2019) that most women agreed that their

gender makes it difficult for them to achieve success in their workplace, when compared to men.

In addition the rate of employment insecurity among women is significantly higher than that of men (Kohl and Prikładnicki, 2018; Coupe, 2019). Various researchers (González-Pérez, Mateos de Cabo and Sáinz, 2020; Gladstone and Cimpian, 2021; Guenaga *et al.*, 2022) have claimed that women tend to abandon jobs in STEM industries owing to the lack of role models and confidence in themselves. Women in technical professions often feel isolated as the industry is dominated by their male counterparts (Davis-Ali, 2017). According to (Holtzblatt and Marsden, 2018), Women frequently express doubt about their capabilities, readiness, talents, and value, which is the basis for this study (Holtzblatt and Marsden, 2018).

Further, in literature a few researchers (Adams, 2022; Verdugo-Castro, García-Holgado and Sánchez-Gómez, 2022) have considered the impact of socio-economic background through the adverse effects of disability or sexuality on women's careers are seldom discussed. This is attributed to the socio-economic background being one of the most common factors investigated in literature (Moncaster and Morris, 2019). So, this study is an attempt to fill this research gap identified by the researcher.

This overview functions as a response to the research questions mentioned earlier, as it demonstrates that intersectionality affects how women are perceived and treated in IT related occupations.

2.2 Gendered Organisational Culture

In general, women are underrepresented in software development companies (do Outão, da Costa, dos Santos & Serebrenik). This might be because their behaviour is evaluated based on their minority status (Bastarrica and Simmonds, 2019). Minority status in IT firms may result in other problems, such as the emergence of a gendered organisational culture. Employees create and normalise the fundamental assumptions through time, which in turn contribute to the formation of organisational cultures (Long, 2020). When the number of male employees outnumber the female employees in an organisation, the organisational culture is likely to foster a gendered culture favouring only men and not their counterparts (Bogdan and Diaconu, 2020). Kong (2020) revealed that a male-dominated organisational culture may trend towards male bias, and it also privileges men in terms of their behavioural activities.

In addition to these, fifty percent of women in STEM occupations report that they encountered gender-based discrimination in their jobs (Funk and Parker, 2018). On the contrary, women in software development frequently feel like they are misfits (Bastarrica and Simmonds, 2019). This stance is reinforced by (Kong *et al.*, 2020), who reported that women believed that their organisational functions remain undervalued because they are not in leadership positions.

These factors may contribute to the alienation of women working in Agile projects. If an analyst has to perform their tasks, teamwork plays an important role. Analysts collaborate with pertinent stakeholders to establish the plan for the accomplishment of the project tasks (IIBA, 2015). This scenario indicates that the analysts must feel included to communicate with the stakeholders effectively. This may also increase the recognition bias in the industry, as the underrepresented gender tends to get neglected in the case of advancements. In this aspect, the gender recognition bias that is prevalent in organisations are discussed in the next section.

2.3 Gender Recognition Bias

In STEM and IT professions, there is a lack of a defined professional path for women (Williamson, A. and Tranter, 2017, Makarova *et al.*, 2019)). This creates a significant problem for them due to recognition bias (Williamson, A. and Tranter, 2017). In addition, masculinised societies contribute to gender inequity (Williamson, A. and Tranter, 2017). This means that men are more likely to be recognised and promoted in IT organisations than women (Guzmán, Fischer and Kok, 2023; do Outão *et al.*, 2024). Facebook has been exposed for gender discrimination (Simon-Lewis, 2017), which substantiates the argument made earlier. The code developed by female developers was less frequently accepted than that of their male peers (Simon-Lewis, 2017).

Women are more likely to remain in junior developer roles than men (Bastarrica and Simmonds, 2019). Further, women also experience high levels of gender bias and gender discrimination within the business. According to Foley *et al.* (2017), fifty-one percent of women in the cybersecurity industry faced prejudice in their workplace. In addition to this, the most prevalent types of discrimination include perceptions of unconscious bias, rejections and delays in professional advancement (Williamson, A. and Tranter, 2017).

Agile teams evaluate performance and capabilities based on the important success elements, which include team members with high levels of competence, expertise, and motivation (Chow and Cao, 2008). It is pertinent to conduct performance evaluations without bias (IIBA, 2015). This helps to establish and sustain the trust of the teammates which in turn contributes to the team's integrity and enables the team to achieve its fullest potential (IIBA, 2015). This section reviewed the impact of recognition bias on female employees working in Agile projects. With the lack of recognition, female employees face bias which in turn results in pay parity with their counterparts. The next section discusses the gender pay gap found in IT companies.

2.4 Gender Pay Gap

The underrepresentation of women in the IT sector limits not only their prospects of advancement, but also their chances of getting pay raise. The business analyst profession has been ranked 9th amongst the 20 highest-paying occupations in South Africa (BusinessTech, 2023). Women holding a bachelor's degree in IT and other STEM streams are however still paid less than their male counterparts. Further, men receive thirty percent higher promotions compared to women in South Africa (Fitong Ketchiwou and Dzansi, 2023), US (Rouhanizadeh and Kermanshachi, 2021) and globally (Kohler, 2023).

According to the UN Women report (Mehjabeen Alarakhia *et al.*, 2023), women are paid twenty-one percent less than men in both Eastern and Southern African region with disparities in every country in the region. On the contrary, as per the 2021 SA-TIED program outcomes (Pleace, Clance and Nicholls, 2024), women in South Africa were found to have earned 78 cents for every rand earned by men. This was actually less than the 89 cents earned by women in 2008. So, as the years progress, the pay disparity increases. There is clear evidence available about the vertical segregation in IT and STEM, as exemplified by the dearth of women in higher positions and gender pay gaps at all the levels (Williamson, A. and Tranter, 2017).

Moreover, the career of women who are under maternity leave is stalled because they are less likely to be promoted or their wages raised while they are on leave (Kong *et al.*, 2020). Unequal compensation based on gender is a concern for working women across the globe (Penner *et al.*, 2023; Ortiz-Ospina, Hasell and Roser, 2024). No change can be expected if women do not express their concerns regarding the glass-ceiling effect. However, women are

afraid that voicing their concerns may render them, jobless. Consequently, it becomes important to investigate how the gender pay gap may affect women working on Agile-related projects (Guzmán, Fischer and Kok, 2023; White, 2025). The upcoming section reviews job security for women.

2.5 Job Security

Women are more likely to be laid off than male employees whenever companies start downsizing their teams. According to (Thomas *et al.*, 2020), more women were furloughed or laid off during the pandemic when compared to men. This not only hinders the career prospects of women but also jeopardises their financial security and exacerbates the gender wage disparity (Zimmermann, 2020). Women are less likely to be called for an interview than their male counterparts despite their equal competencies in the US (Thibodeau, 2023) and South Africa (Gradín, 2021).

Coupe (2019) mentioned that there are gender differences in terms of occupational concerns. According to the researcher, 5% more men believe their jobs last longer compared to women. In addition, 13% more women are likely to work in part-time jobs in STEM fields than the comparable 3.9% with men. This discrimination not only results in total income reduction for women, but also leads to employment insecurity.

Women working in Agile projects are more likely to be contractors and less likely to be invited for a full-time job interview (Aksekili and Stettina, 2021). Therefore, the aforementioned information would be of considerable concern and needs to be researched further. As mentioned in the literature (Osei Boakye *et al.*, 2021; Mordi *et al.*, 2023), working mothers face difficulties achieving work-life balance due to multiple factors. The next section discusses the issues working mothers face in their IT profession.

2.6 Motherhood and Work life Balance

Motherhood is considered one of the primary reasons for women leaving the IT profession. While this information may be accurate, the exodus of mothers from the IT industry not only affects the domain altogether, but it also impacts other STEM fields where women hold the position of analysts or analytical-related jobs. Cech & Blair-Loy (2019) mentioned that mothers are more likely to leave their full-time STEM careers compared to fathers following the adoption or delivery of their first child.

This tendency is supported by Holtzblatt and Marsden (2018), who argue that women are no longer achieving success in business, instead, they leave the business environment altogether. Furthermore, women with children frequently feel criticised in rigid work contexts. The

During the COVID-19 pandemic, working mothers were expected to work from their homes while still caring for their children without compromising their domestic duties (Thomas *et al.*, 2020). The same author also mentioned that the line between home and work has blurred during the pandemic, and it still continues to haunt working women. This is because most of the employees work beyond their scheduled shifts and in addition, the women employees are expected to fulfil their domestic duties as well. According to Alini (2021), the burnout effect tends to affect anyone in the workplace i.e., from entry-level employees to middle management and even top leaders.

On the other hand, Holtzblatt and Marsden (2018) found that the sector frequently turns to issue of work-life balance as a recognisable solution without considering the hero mentality typically celebrated in a male dominated business environment. The hero mentality attitude has altered the work atmosphere so that employees are expected to be available 24 hours a day, seven days a week (Holtzblatt & Marsden, 2018). This workplace culture discriminates against working women with families (Holtzblatt and Marsden, 2018). In this background, it is highly advantageous for working mothers to have a senior women mentor in their work environment so that the latter can understand the employees' plight. The following section discusses the role played by women as mentors.

2.7 Women as Mentors

Implicit bias corresponds to the prejudices, subconscious feelings and stereotypes constructed around an individual due to the prior influences of the observer (Shah and Bohlen, 2023). There is an increase observed in implicit bias, which has fostered a culture in which the advancement of women is disregarded (Llorens *et al.*, 2021). Male employees are likely to be allotted management and C-level positions in firms globally as compared to female employees in the corporate ladder (Simão and Monsueto, 2008; Babic and Hansez, 2021; Ryan, 2023). Women remain underrepresented in senior cybersecurity positions despite having higher knowledge and educational background than men when they enter the field (Williamson, A. and Tranter, 2017). This scenario implies that there may be insufficient

number of women mentors available to support the women employees climbing the corporate ladder.

Various researchers have emphasized the importance of having mentors and observing individuals with similar characteristics in leadership roles (Mouganie & Canaan, 2019) Davis-Ali (2017) stated that women frequently experience isolation when working in male-dominated technical fields. Moreover, women in technical professions frequently utilise other networks to resolve the challenges encountered in organisations dominated by males (Davis-Ali, 2017).

Although women desire career advancement, their concerns may go unacknowledged due to the absence of career-supporting individuals (Faniko, Ellemers and Derks, 2022). Holtzblatt and Marsden (2018) mentioned that women require mentorship relationships in their workplace to assist them in navigating workplace challenges and the promotion process. Even though women may initially desire advancement, they often experience a shift in perspective as soon as they witness the unappealing lifestyles of their superiors. Job advancement is an ambition shared by all individuals. An examination of this matter is important for this study due to the scarcity of female mentors for women, engaged in Agile-related initiatives.

2.8 Agile Projects and Teams

Agile concepts encompass a collection of concepts and ideals that are demonstrated through various practices and the development of flexible mindsets (IIBA, 2015). Agile initiatives exhibit a perpetual state of change. Consequently, the teams engaged in agile projects must consistently assess, adjust, and alter their duties and requirements (IIBA, 2015).

Each Agile project consists of a heterogeneous Agile team that collaborates on the project's outcomes. However, upon analysing the gender distribution of IT employment and college students, it becomes evident that there is a conspicuous absence of female representation in both the fields (Kohl and Prikladnicki, 2018).

It has been mentioned in the literature (Mokhtar and Khayyat, 2022; Mishra and Alzoubi, 2023) that the agile methods are highly efficient in projects and add value within a short period when compared to conventional waterfall methodologies. Agile method has a vital role in software project management and software schedule management. , customer satisfaction, rapid development of the software and low defect rate are the advantages when following the

agile method, even though the traditional methods demand less number of features. On the other hand, agile methodologies do have some disadvantages such as the lack of flexibility and customer interaction which may affect the outcomes (Murthy, 2024). Waterfall technologies adhere to specific and specified sequences of steps, thus, once a stage is completed, the team moves on to the next stage. Further, no specific training is involved for the project managers, unlike in other methodologies (Mokhtar and Khayyat, 2022). Here, the commitment is the final objective and thus, the teams are well aware of the expected outcomes. With less flexibility, the team suffer in case of any changes. Agile and Waterfall methodologies are widely used in software industry (Thesing, Feldmann and Burchardt, 2021).

2.9 Summary

This chapter reviewed the literature regarding the problems that professional women face when working in Agile projects and teams. Specifically, the evaluation was centred on the gender gap in the workplace. The chapter also discussed the issues faced by women in Agile projects. The following chapter will focus on the theoretical framework used for the study.

3 Theoretical Perspective

This chapter presents a review of the chosen theoretical framework. The concluding segment of this chapter will comprise an argument in support of employing intersectionality as the theoretical framework for the research.

3.1 Intersectionality Origins

The term ‘intersectionality’ is used in numerous black feminist studies to describe the interconnected forms of societal oppression that arise from multiple intersections such as race, gender, class, and ethnicity (Crenshaw, 2018; Collins & Bilge, 2016)). Ever since its definition in 1981, the term ‘intersectionality’ has been employed to depict the marginalisation of black women, as a result of misogyny and racism. Crenshaw (Crenshaw, 1991) mentioned that social theory and the notion of individuals are discrete whereas the phenomena of intersectionality challenges autonomous. Critical race theory and feminist theory have been surpassed by the norms found in intersectionality (Rice, Harrison and Friedman, 2019). This exemplifies the development and modification of the theory to incorporate an extensive range of discursive domains, power struggles, and obstacles.

3.2 Theory of intersectionality

Intersectional theory has challenged privileged identities (Nash, 2008). Instead, it has focused on alleviating race and gender inequalities, especially for women. According to (Nash, 2008), intersectional literature has often challenged the privileged identities, even though all the identities are generated through the intersections of various power systems in the society.

Intersectional theory focuses on discrimination based on race and gender, especially against women, than compared to the other intersectional dimensions (Bauer *et al.*, 2021). Since its conception, intersectionality has garnered widespread interest in society; for instance in the areas where race and gender intersect. Thus, intersectionality incorporates the single-axis theories proposed by numerous anti-racist and feminist academics (Nash, 2008).

According to Crenshaw (1991), theorising the experiences of black women is a problematic domain owing to its dual nature. Thus, the intersectional theory challenges the narrative of black women as a monolithic and unified entity by emphasising the exclusionary issues within an anti-racist and feminist framework (Crenshaw,1989). The disparities suffered by

black women in terms of class and sexual orientation get obscured when they are presented as a single category that opposes both black and white males (Billups *et al.*, 2022).

The term ‘intersectionality’ refers to all the subject positions involving the interaction of race, gender, sexual orientation, and class (Ferguson, 1998). This definition indicates that intersectionality, as a whole, takes other intersections into account instead of sticking to the common concepts of race or gender. Munroe (2018) mentioned that this is not entirely accurate because intersectionality must encompass all types of marginalisation.

Intersectionality has made significant contributions as a comprehensive identity theory (Bauer *et al.*, 2021; Collins *et al.*, 2021; Grzanka, Brian and Bhatia, 2023). According to Spelman (2007), the term ‘intersectionality’ refers to several oppressions such as gender, age and physical ability that is endured by disadvantaged non-white women.

Hodgkinson *et al.* (2018) analysed women’s experiences in engineering courses, utilising the intersectional theory. Two female student focus groups were employed to collect the data for this study. The majority of the women who participated in the study believed that equal treatment had been meted out to them like their male counterparts during their degree (Hodgkinson *et al.*, 2018).

McCarthy *et al.* (2019) utilised intersectional theory to study the employees perceptions on how workplace fairness influences their opinions toward gender equality. The study’s objectives were accomplished by aggregating the survey responses from 790 contractor personnel. The data revealed a correlation between the attitudes about equality activities and the fair treatment of the hiring organisations (Mccarthy *et al.*, 2019).

Against this background, this study proposed intersectionality theory to identify how IT and STEM researchers have utilised intersectionality to examine women in IT projects.

3.3 Key Constructs

Intersectionality encompasses various constructs. Collins and Bilge (2016) identified the following constructs in intersectionality as its fundamental principles: relationality, social justice, power, and social context.

Construct	Meaning
Gender Discrimination	Any differentiation, exclusion, or limitation on the basis of gender that impairs or invalidates the acknowledgment, enjoyment, or exercise of women's fundamental freedoms, regardless of their marital status, in terms of equality between men and women, in areas such as human rights, economic, cultural, political, civil, social, or any other domain (United Nations, 1979)
Race	Race is a socially constructed concept that is applied in the categorization of individuals. The notion of race emerged as a hierarchical framework for segregation of the human beings, resulting in the establishment of racial classifications employed to distinguish, segregate, and marginalise specific groups across the globe and in every single nation or territory. Human populations are commonly categorised into subgroups based on race, which can be identified by a person's physical characteristics along with their social and cultural backgrounds (<i>Race</i> , 2025).
Class	A cohort of individuals who possesses similar economic or social status between one another is commonly delineated based on their educational or income levels. The consequences of employing these criteria for comparison can significantly differ based on the social dynamics of the region. (Easterbrook, Kuppens and Manstead, 2020)

Table 3: Key Constructs

This study focuses on the interplay of race, class, and gender within a racially- and culturally diverse country i.e., such as South Africa, to analyse how intersectionality results in multiple dimensions of disadvantage. These factors have been used to analyse the diverse gender-related matters in conjunction with intersecting dimensions.

3.4 Rationale for the Theory

Few theories have led to inter-disciplinary and global involvement that characterises the intellectual history of intersectionality. The study of the evolution of intersectionality over a

period of time, spanning disciplines, themes, and regional and national boundaries, however, has not garnered much attention. Since researchers were inattentive towards the evolution of intersectionality, their ability to recognise that the theory lacks contexts where it is being applied and to conceive further scenarios, where it may be applicable.

The majority of the studies that were reviewed, examine why there are so few women in IT yet they ignore the experiences of women that influence their decision to leave. Only limited evidence is available about the awareness of the unique difficulties faced by women IT professionals working in Agile projects. Limited published studies have examined the impact of intersectionality of women IT professionals working in Agile projects, especially in South Africa. A few studies briefly addressed the implications of socioeconomic background, disability, and sexual orientation on the professional career of women (Moncaster and Morris, 2019).

Even though various studies have been conducted earlier amongst women in IT industry, it remains unclear if the reduction of women in IT is due to individual choices or social causes. Scott et al. (2017) found that unfair treatment is the primary motive behind people leaving their jobs in the technology industry. This is especially applicable among women of diverse backgrounds, who reported highly unfair treatment as opposed to men. The reasons behind the underrepresentation of women in STEM careers appear to be complicated, diverse, and varied; therefore, it is essential to consider a few additional aspects.

This study examines the experiences of women working in IT industries in South Africa. South Africa is recognised as a country that is not only culturally rich but also diverse. Corporations are compelled to implement equity compliance as part of their corporate governance strategy. The adoption of diversity in the workplace is crucial since it improves the competitive edge in an organisation and is also considered a strategic imperative for the sustainability of any company (Mojapelo and Faku, 2024).

In addition, it has been inferred in literature that individual income disparity exists in South Africa. Furthermore, the households in the lowest half of the income distribution are excluded from the labour force, rely on government transfer incomes, possess low savings rates, and have limited access to formal credit (von Fintel and Orthofer, 2020).

Lastly, social identities can be undone by overlapping the intersectionality dimensions, altering an individual's perception of his or her individuality. Determining the experiences of

women working in Agile projects from an intersectional viewpoint would be optimal for this study, and also contribute to the theory and practise of IS.

3.5 Summary

This chapter introduced the theoretical framework employed in this research work. The researcher provided an analysis of the chosen theoretical framework. After a comprehensive analysis, the chosen theory has been defended in the discussion section. To summarise, this research has identified a few important factors that strongly impact the study context in South Africa. These factors have been identified using key concepts and the chapter also explained the rationale behind the choice of intersectionality theory for conducting this research.

4 Research Methodology

This chapter reviews the data collection methods, the research instruments used for conducting the research, the procedures followed for analysis and the rationale behind the choice of these methods. This is followed by an overview of the research's timelines and ethical considerations.

Owing to the incomplete nature of the investigation, an exploratory research approach was adopted. The study used a descriptive methodology to examine the challenges faced by female professionals, working in agile software projects, in IT firms located at South Africa. Non-probabilistic snowball sampling was used to select the participants for this study. The Literature review was used to complement the in-person interviews. In order to analyse the qualitative data, a thematic analysis was conducted.

4.1 Philosophical Considerations

The fundamental philosophical assumptions act as the basis for conducting any research, and these assumptions govern the investigation's design, supporting evidence, and the methodology followed in the study (Orlikowski and Baroudi, 1991; Neuman, 2014; Myers, 2025).

Saunders, Lewis and Thornhill (2015) define the research philosophy as a collection of assumptions and convictions that direct a quest for knowledge. Of interest, it collates the beliefs concerning the collection, analysis, interpretation, and application of the data. Beliefs regarding the relationship between knowledge and the empirical world, procedure and knowledge (methodology and epistemology), reality, being, becoming, and existence (ontology) are included.

The philosophical foundation selected for this study is interpretivism (Klein and Myers, 1999). Interpretivism allows one to take the participants' personal experiences into account. The research can effectively capture the study participants' experiences by situating them within the natural environmental contexts experienced by participants. This research is motivated to comprehend the intentions, significance, and purposes that women ascribe to their own experiences in Agile teams.

This study aims to elicit these perspectives from female professionals, including fresh graduates and seasoned experts, working in Agile software development projects in IT companies in South Africa. This approach allowed the researcher to gain insights from the participants who, by their prior experience with Agile software development projects, were already familiar with and encountered many challenges. Consistent with the interpretive methodology, this study also employed in-person interviews with female professionals with experience in this field.

4.2 Ontology

Ontology is concerned with the fundamental nature of a phenomenon in regard to reality. It aims to address the research question by utilising the existing literature as a reference (Alharahsheh and Pius, 2020). Epistemology

Epistemology focuses on the methods and strategies a researcher employs to acquire knowledge and understand the nature of reality (Gregor, 2006). . Interpretivism enables the researcher to consider the experiences of the study participants (Junjie and Yingxin, 2022). This study adopts the interpretivist philosophy that seeks to comprehend a topic through the viewpoint of women engaged in Agile software development projects. Hence, the interpretive approach seeks to uncover the significance embedded in various forms of text, including dialogue, images, and written language (Smith and Zajda, 2019).

4.3 Research Approach and Purpose

The purpose of this study is to examine a phenomenon that had not been precisely defined previously and so an exploratory methodology was employed (Singh, 2022). This methodology allows the investigator to acquire a highly comprehensive understanding of the underlying factors and reveal unexpected insights regarding the challenges faced the participants.

Deduction and induction are two prominent reasoning strategies that are employed in qualitative studies to present the data. The inductive approach helps derive every aspect of the analysis based on the participants' experiences (Azungah, 2018). The deductive approach uses a framework with coding process themes (Naeem *et al.*, 2023). Hence, the researcher used the deductive approach to collect the relevant data and answer the research questions. After the

data collection, the researcher conducted extensive analysis to identify the patterns that may be explained by the data (Bingham, 2023).

Further, the researcher also thoroughly examined the raw data to categorise it under various organisational groups and verify its alignment with that of the research questions. After understanding the data, the theory of intersectionality was used as a lens to sensitise the researcher to the data. This theory provided insights about diversity, multiple intersectionality dimensions that impact both women and the teams they collaborated with in Agile projects.

4.4 Research Strategy

A qualitative research method was followed to determine the underlying perceptions of the study participants (Collins, Onwuegbuzie, & Jiao, 2009). The researcher gained a comprehensive understanding of the experiences of women working in Agile projects in IT firms of South Africa using the qualitative research methods (Saunders, M., Lewis, P., 2016).

The decision to employ qualitative research was driven by the intention to give the study participants liberty yet remain unbiased regarding their answers and articulate their responses, as opposed to constraining them to pre-established choices such as used in a quantitative study. This methodology enabled the researcher to accurately capture the authentic emotions and perspectives of the study participants regarding their experiences working in Agile projects (Saunders, M., Lewis, P., 2016).

4.5 Timeframe

This study was conducted for a limited duration, as a result of the limitations imposed by the Masters programme. This is referred to as a cross-sectional study which involve data observations from a population at a specific point in time (Mawer et al., 2019).

4.6 Risks

Three risks were identified in this study as a result of the extensive dispersion of IT professionals. Firstly, the study was conducted during and shortly after the COVID-19 pandemic, which resulted in travel limitations for the researcher; secondly, the research participants were located in different geographical areas and; thirdly, South Africa was experiencing load-shedding during the course of the study. In order to mitigate these risks, the researcher used Microsoft Teams to record the interviews with study participants. The

researcher followed a schedule that accommodated both the researchers' and the participants' load-shedding schedules. Furthermore, other data sources, such as a demographic surveys were also used to collect data in the study.

The study focuses on women employed in the South African IT industry and have experience working on Agile projects or a combination of Agile and Waterfall methodologies. Since there is a dearth of female representation in the field of Information Technology in South Africa, the research participants were expected to possess extensive expertise in the subject matter so that the researcher could derive conclusions and formulate recommendations. Despite the researcher's attempts to reduce the potential bias and risks, the potential participants were spread across the provinces of the country and at different locations. This further complicated the data collection procedure due to different schedules for power outages. As a result, some professional women who had the potential to be a study participant were unable to take part in online interviews. In such cases, the researcher had to replace them with other potential participants.

4.7 Data Collection

Semi-structured interviews are more in-depth compared to quantitative questionnaires or structured interviews, because the former encourages conversational exchange (Husband, 2020). This section discusses the instruments that were utilised in this study, focusing on sampling techniques, size and a summary of interview participants and other sources.

4.7.1 Semi-structured Interviews

Semi-structured interviews are an optimal approach for addressing queries pertaining to 'how' and 'why' aspects (Azungah, 2018). Furthermore, the utilisation of semi-structured interviews allows the research participants to furnish an elaborate account of their thoughts, experiences, and emotions with regards to importance of a particular subject (Ahlin, 2019). The semi-structured interviews has a versatile structure that allows for cross-verification and validation of information gathered from previous interviews (Bryman and Bell, 2015).

At first, the chosen participants were contacted via WhatsApp to provide them with sufficient information about the study and to request their voluntary participation. After the participants had agreed to participate in the study, their informed consent was obtained and the interviews were conducted. The participants were provided with demographic forms, which they were

required to complete and return to the researcher. The researcher conducted interviews with the participants using Microsoft Teams. The researcher posed the interview questions to the participants, and the responses were transcribed using the Microsoft Teams transcription platform. Following the completion of each Microsoft Teams interview, the participants were asked to refer another female professionals in the field of IT with working experience in Agile projects and who may have valuable insights and potentially contribute to the research.

4.7.2 Piloting the research instruments

The research instrument was developed based on the concepts associated with the theory of intersectionality and a comprehensive analysis of existing literature. From this, the interview guide was developed. See Appendix A for the full guide.

The interview guide has three distinct sections as given below.

The initial segment, known as the introduction, encompassed the main subject matter.

- The second section encompassed both contextual information as well as the professional background of the study participants.
- Section 3 contained questions regarding workplace culture, organisations, where the participants were employed then, and their personal experiences.
- The objective of these inquiries was to uncover the distinct experiences of the women working in Agile projects.
- Upon concluding the questions, the participants were reexamined and requested to modify and elucidate the interview data with the researcher. The questions are attached in Appendix A.
- A pilot study was conducted to finalize the research instrument. The objective of the pilot study was to ascertain the suitability of the research instrument for the ensuing research. The study instrument was validated with the help of a single participant, employed in one of the IT companies in South Africa. The pilot study was also beneficial in identifying any potential problems and limitations that might affect the flow of the data collection process. The pilot study outcomes established the validity and reliability of the questions used in the study.

Following the conclusion of the pilot study, the subsequent questions were raised.

- What was the time taken by the participants to provide their consent for participation in the study interview?
- Which communication format did they find it the most convenient for participating in the interviews?
- What was the total duration of the interviews and were any subsequent interviews conducted?
- Did the participants comprehend the essence of the questions posed to them?
- Were the participants able to articulate their responses freely and without reservation when answering the questions?
- Does the discussion encompass all the aspects of their work experiences, including considering intersectionality?
- Did the participants express any additional thoughts?

After analysing the participants' responses, the research instrument was adjusted to make it suitable for the final study.

4.7.3 Data instruments

This investigation predominantly employed qualitative research methods. In general, the semi-structured interviews provide an in-depth insight about the promotion of the study participants to engage in dialogue exchange (Husband, 2020). As mentioned in the literature, this scenario differs from the comprehensive level of detail provided by fully structured interviews. During the semi-structured interviews, the participants were prompted to recall their significant early formative professional experience through purposeful questioning and discussion. The participants could go beyond the basic events' recall to critically assess their work experiences while working in Agile teams (Husband, 2020). The researcher ensured a comprehensive coverage of the major topics with the help of the semi-structured interview schedule which also facilitated the exploration of the emerging topics during the interviews (Saunders, M., Lewis, P., 2016).

4.8 Research Population and Sample

This section provides a overview of the sampling procedure, sample size, and an overall evaluation of these components.

4.8.1 Data Collection

According to Sedan (2018), data collection is a crucial stage in conducting qualitative research. The deployment of high-quality data collection procedures enhances the accuracy and validity of the study outcomes or conclusions (Sedan, 2018). The criterion for establishing the saturation point of data collection depends on whether any additional details can help answer the research questions posed in the study. This criterion was determined once the study accumulated sufficient data. The researcher categorised the findings into themes according to the responses from the study participants. The researcher conducted supplementary interviews with women presently engaged in Agile projects at South African IT firms. Upon finding that the responses obtained from the interviews did not provide any novel insights about the recurring patterns, the researcher realised that this investigation reached saturation. The researcher decided to halt the interviews after the 25th participant, as the study participants no longer provided any novel insights about the ongoing research.

4.8.2 Sampling Strategy

The study used a non-probabilistic sampling method to identify the participants. Non-probabilistic sampling is a subjective form of sampling that relies on the personal value judgements of the researcher (Seddon and Scheepers, 2012). The process of selecting the participants for the study involved the use of a technique called judgmental sampling, in which the participants were recommended by other participants.

The researcher employed a snowball sampling strategy to establish contact with an initial cohort of women who were randomly selected. After conducting interviews with the initial group, they were asked to identify other suitable participants for the study (Greener, 2001). Following these interviews, subsequent participants were identified by utilising these referrals as an information source.

4.9 Data analysis

This section details the data preparation process and explains the thematic deductive approach for data analysis.

4.9.1 Data preparation

The qualitative method is appropriate to examine the transfer of cultural differences from an insider's perspective (Azungah, 2018). This research approach is highly effective in clarifying the research concepts and questions of the current research context, i.e., South African Information Technology companies, as compared to the development of hypothesis and the analysis of the variables.

The researcher obtained the transcribed files from Microsoft Teams. The researcher listened to the audio recordings of the interviews and examined the transcripts for possible errors introduced by the software. The researcher meticulously reviewed the entire transcript to identify and correct any errors, proofread the text, and revisited unclear sections of the interview to ensure that all the pertinent information was recorded. Sections that were spoken in Xhosa or Zulu were also translated before loading the transcripts in Nvivo. Afterwards, the researcher uploaded the transcripts to NVivo software for data analysis. The study followed a thematic deductive analysis approach as explained in the following section.

4.9.2 Data analysis procedures

Themes corresponds to a specific subject when it is brought up several study participants during their interviews (Kiger and Varpio, 2020) and this concept is used when conducting the thematic analysis. This is because the majority of the responses from the study participants are taken into account to determine whether or not, a point should be considered as a theme (Kiger and Varpio, 2020). The findings of the research were detailed descriptively in line with the goals of the study, while the results section also demonstrates the themes identified using the six steps of thematic analysis by Braun & Clarke (2006).

When employing thematic analysis for research, both inductive as well as deductive approaches are viable (Kiger and Varpio, 2020). In deductive analysis, predetermined theories and/or theoretical frameworks guide in the generation of themes due to which these themes typically concentrate on a particular facet of the data set or a particular subject of interest (Braun & Clarke 2006). Below is a detailed description with figures and explanations of how the researcher conducted the thematic analysis for the study.

Step 1: Acquainting oneself with the data.

This step is about familiarising oneself with the data and immersing oneself in it in order to fully comprehend it. Braun and Clarke (2006) underlined that the audio recordings' transcription facilitates data familiarisation. In this step, the researcher familiarised themselves with the data by listening to the audio recorded interviews. The data preparation step increases the researcher's understanding of the data. Getting familiar with the entire data collection process provides a valuable direction to the raw data and serves as a prerequisite for all the subsequent processes.

Though transcription from audio recordings can be time-consuming, it is still an excellent method to get comfortable with the study-related information (Kiger&Varpio,2020). In case researchers use voice-recognition software or engage transcription services to ease this process, they can gain benefits by verifying the accuracy of the transcripts against the original audio recordings (Kiger&Varpio,2020). In order to completely grasp the insights from the data, the researcher should be comfortable with the transcripts and immerse themselves in them. For this study, the researcher used the Microsoft Teams platform to transcribe the data. Then, the transcripts were downloaded, checked for errors and validated for further analysis.

By checking the transcribed interviews, the researcher ensured the information was understood. Though the tasks involved during the data preparation processes were lengthy, it enhanced the researcher's knowledge during the process.

Additionally, the researcher ensured that no information was left out by replaying the audio recordings and cross verifying the transcripts. Throughout the data processing phase in thematic analysis, the content was developed to ensure that the data was handled appropriately.

Experiences of South African Women in Agile Projects: An Intersectional Perspective

Personal Information	
Occupation: Business Analyst 1	
Organisation Size: Big	

Researcher

Participant

Section 3 – How has a gendered organisational culture affected you?

#	Question
GDC1	Does the work culture in your organisation welcome everyone regardless of gender, race or background?
Answer	I have been given respect in every aspect, regardless of my age or otherwise. By dividing my ethnicity by gender, I have avoided discrimination in every ward. In conclusion, I have not personally encountered any any issues.
GDC2	Are women are underrepresented in the team?
Answer	That is a combination. Women are not underrepresented. Additionally, considering the risk involved, I am the only Black woman on my staff. Thus, yes. In that regard, therefore, there is indeed underrepresentation regardless of a substantial amount of work that remains to be done.
GDC3	Is everyone's contribution is valued in the team?
Answer	Occasionally, I do not believe it is because you would make a point and someone would respond, "Hey, but then someone else made the same point." They would think, "Oh, that's a fantastic idea." However, had he listened to this, that is precisely what I intended to say. Perhaps I was unable to express myself adequately, or I am uncertain. However, it's essentially the same concept. However, if the response of someone who was asked comes from them, it gains greater significance.
GDC4	Does your gender hinder your success at work?
Answer	I do not think so.

Figure 1: Transcript Example

Step 2: Creating primary codes

This phase involved the creation of initial codes instead of themes (Kiger & Varpio, 2020). First, the codes were generated manually with the help of Nvivo software. As mentioned by Braun and Clarke (2006), this process provides a list of significant and informative points from the collected interview data which can be used to generate interesting initial codes or features. From the data, the researcher identified the underlying patterns and derived the codes.

As I said that I think for me, the key success in any in an agile delivery is that you're able to realize the benefits quicker and business is kind of aligned and everyone is kind of in line. So I think and it's sort of transparency, I think the key for me is transparency. Everyone knows what's happening within the project. I think that's for me, that's the biggest success of the agile transformation.

Annotations

Item	Content
1	Agile encourages transparency and makes team work easier.

Figure 2: Manual Coding & Annotation Note and annotation notes.

The screenshot shows the NVivo interface. On the left, a 'Codes' list includes '1.Agile Teams' (16 files, 28 references), 'Challenges' (20 files, 44 references), 'Help by Tea' (20 files, 29 references), 'Team Direct' (19 files, 36 references), and 'Working wi' (23 files, 43 references). The main window displays a transcript snippet: 'Well, I think they are in the sense that v business is also part of the transformati benefits in small increments, whereas v and then only to realize this is not what the team and the business because the'. A 'CODE STRIPES' panel on the right shows a vertical bar for '1.Agile Teams' and a list of codes including 'Career Progression', 'Working Times Change', 'Project Client Distribute', 'Management Distribute', 'Team Direction', and 'Business Analyst 1 Tar'.

Figure 3: Nvivo Generation Code

The screenshot shows the NVivo 'Codes' list with additional columns: 'Created on', 'Created', 'Modified on', and 'Modifie'. The table data is as follows:

Name	Files	References	Created on	Created	Modified on	Modifie
1.Agile Teams	16	31	06/08/2022 2	SN	09/11/2023 23	SN
Challenges and	20	44	16/08/2022 1	SN	09/11/2023 23	SN
Help by Team	20	29	16/08/2022 1	SN	09/11/2023 23	SN
Team Direction	19	36	16/08/2022 1	SN	09/11/2023 23	SN
Working with Te	23	43	16/08/2022 1	SN	09/11/2023 23	SN

Figure 4: Coding

Step 3: Identifying Themes

Themes do not miraculously emerge from the data; the researcher constructs the themes by evaluating, comparing, combining, and even visually depicting the interrelationship amongst the codes (Kiger & Varpio, 2020). Using the codes identified in Step 2, the researcher began identifying the themes that recurred iteratively after each interview to answer the research question.

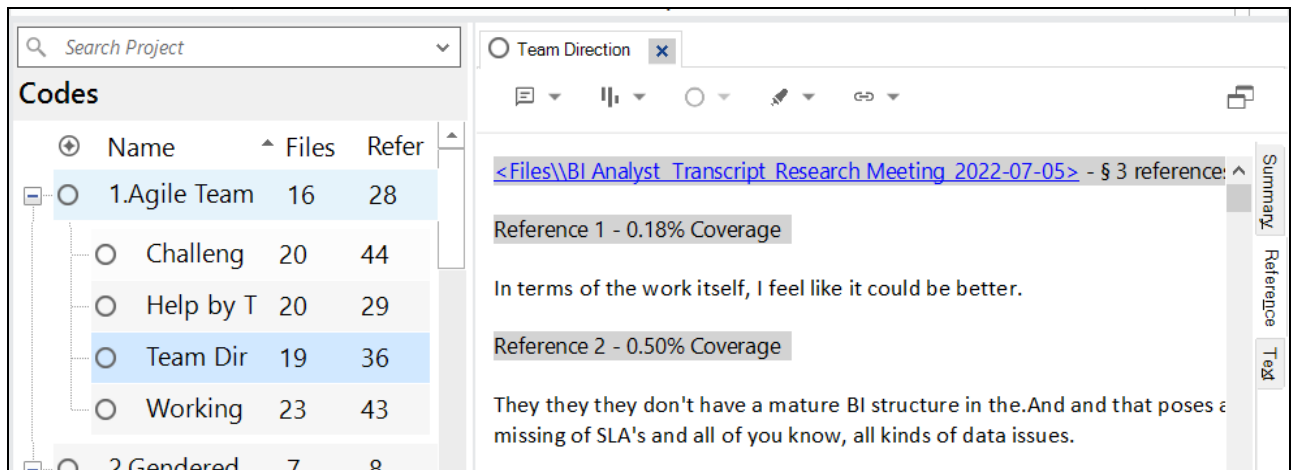


Figure 5: Identifying Themes

Step 4: Reviewing Themes

The fourth Step requires a topical review. In this stage, the concepts that initially appeared inconsequential are either merged or separated. Braun and Clarke (2006) mentioned that the revisions can be halted when the entire set of data items that seem relevant to the research question were incorporated into the coding system and when the themes become consistent, due to which no further refinements can produce any substantial changes.

Consequently, in this step, the researcher reviewed the themes to ensure that the data designated to each theme was appropriate. This step was accomplished by re-reading the extracted data from the algorithms and applying the logic to review the data at the dataset level. Then, the researcher reread the themes to ensure that none were omitted. Thereafter, the researcher scrutinised and enhanced the themes and returned to make adjustments if necessary.

Codes		Search Project	
Name	Files	Referenc	
1.Agile Teams	16	28	
2.Gendered Organisational Cultu	7	8	
○ Contribution Valued	21	41	
○ Gender Hinder Success	22	29	
○ Organisation welcomes ever	20	35	
○ Women underrepresented	17	34	
3.Recognition Bias	2	3	

Women underrepresented
on, we actually have more women than men.
<Files\Business Analyst 1 Transcript Research N Coverage]
Reference 1 - 0.29% Coverage
Underrepresented and also from a risk perspec
Reference 2 - 0.40% Coverage

Figure 6: Reviewing Themes

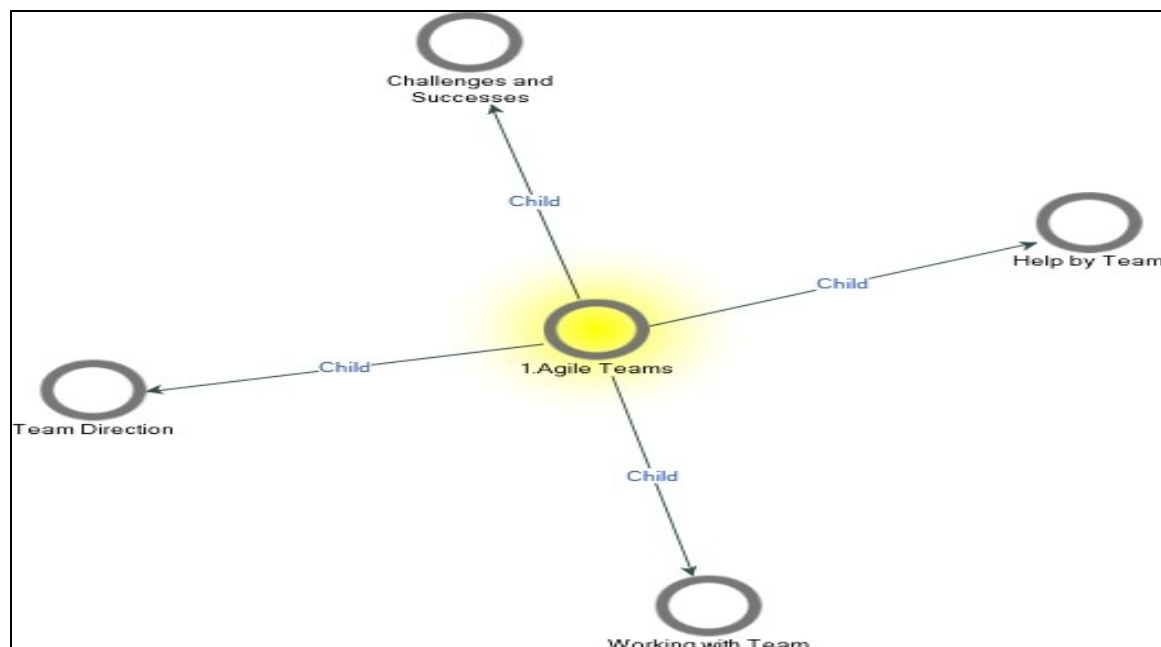


Figure 7: Parent and Child Nodes for a Theme

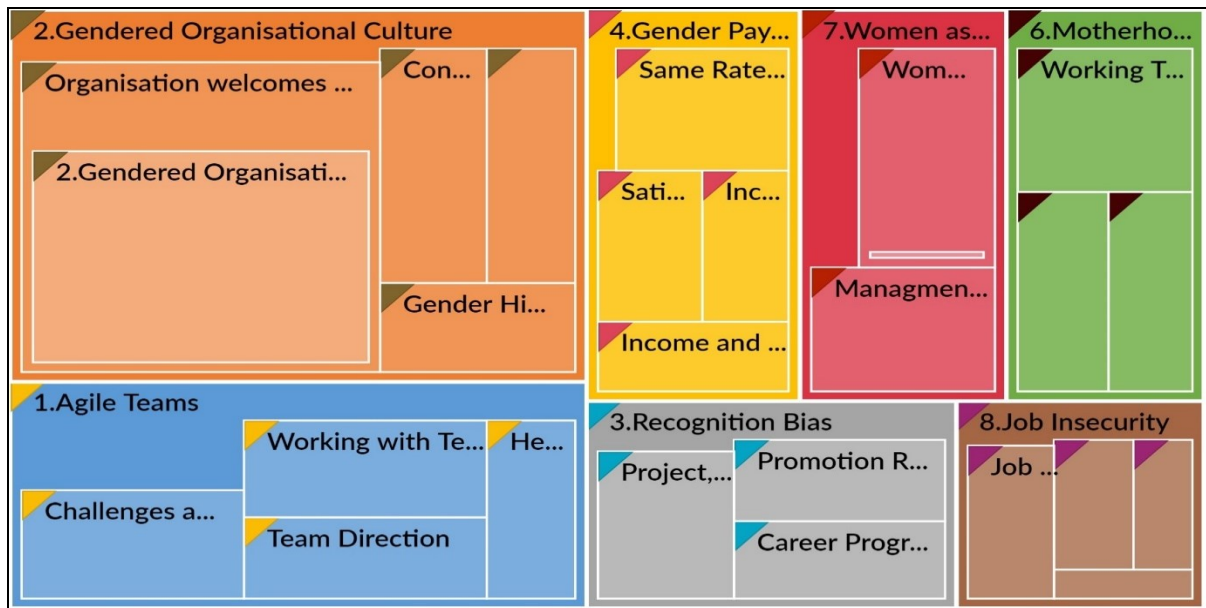


Figure 8: Parent and Children Code for all Themes.

Step 5: Defining Themes

The themes were identified and defined in this step. Certain themes may also include sub-themes (Braun & Clarke, 2006). To assess this step, Braun and Clarke (2006) recommended that the researcher characterise the scope and content of each theme in a few sentences; failure to do so necessitates further refinement. The researcher additionally renamed the subthemes using gerund coding. Additionally, the classification of the subthemes was also further refined.

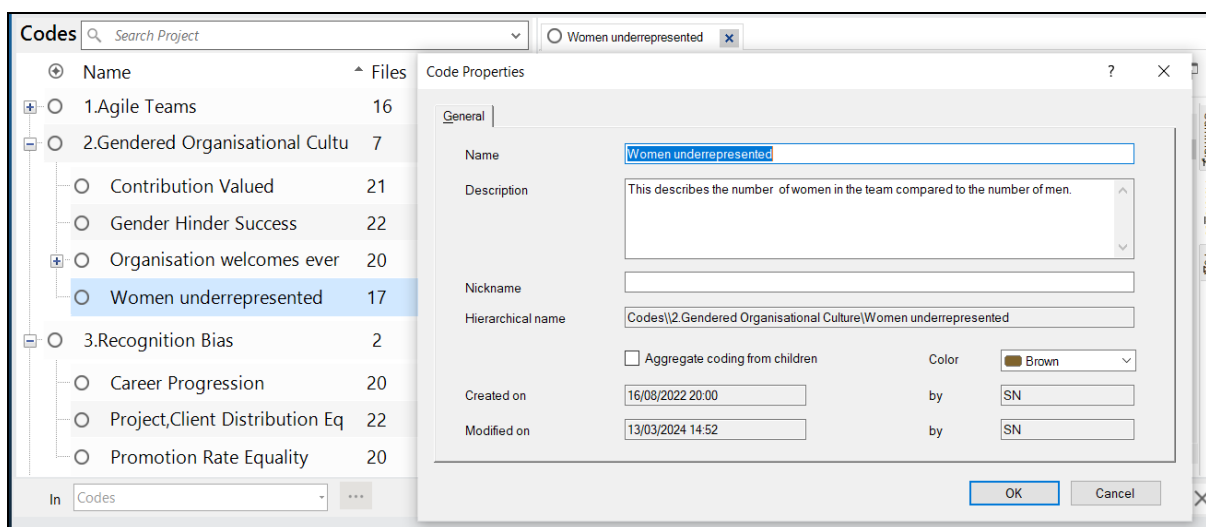


Figure 9: Naming and definition of found theme.

Step 6: Creating the Report

In this step, the research report was generated. The report is to provide the reader with an account of the investigation using data as evidence, whilst conveying the essence of the scenario under study and providing an argument for the research problem (Braun & Clarke, 2006). As a result, the researcher cited the data to support her conclusions and by comparing these to the literature in the research results.

Theme	Literature	Interview Responses	Match in Literature and responses?
Gendered Organisation Culture	A study by (Kong <i>et al.</i> , 2020) revealed that a male-dominated organisational culture may trend towards male bias, which in turn privileges the behaviours and acts commonly associated with men.	The participants indicated that they are employed in predominantly male teams, which leads to occasional feelings of inadequacy.	Match
Gender Recognition Bias	Compared to men, women are more likely to remain in a junior developer role, according to a separate study conducted by (Bastarrica and Simmonds, 2019).	Participants showed they were promoted less frequently than men.	Match
Gender Pay Gap	Careers of women who take maternity leave get stalled since they are less likely to be promoted or provided a wage raise (Kong <i>et al.</i> , 2020).	Participants perceived that they are undervalued and underpaid relative to their work quantity.	Match
Job Insecurity	Women report high level of job insecurity under uncertain working situations, such as	The participants expressed a sense of insecurity in their job due to potential changes in their	Match

Theme	Literature	Interview Responses	Match in Literature and responses?
	wage reduction, temporary labour, and contracting (Menéndez-Espina <i>et al.</i> , 2020).	employment situation.	
Motherhood and work-life balance	Working mothers are more likely than fathers to leave their full-time STEM careers following the adoption or delivery of their first child. (Cech and Blair-Loy, 2019)	Participants perceived a lack of work-life balance due to their increased working hours. No distinctions were made between working hours and home hours, as individuals were engaged in remote labour.	Match
Women as Mentors	Women in technical professions frequently utilise other networks to resolve the challenges faced by them in organisations, dominated by males (Davis-Ali, 2017)	Most participants indicated a lack of women in managerial positions, resulting in a dearth of female mentors.	Match

Table 4: Conceptual Themes Report

4.10 Research Validation

The researcher thoroughly examined the data collection tools to verify and validate whether they fulfilled the study's requirements for gathering the necessary information and addressing the research objectives. The interviews were conducted with chosen participants to understand the challenges experienced by female professionals in South African IT industry. Here, the snowball sampling approach facilitated the investigation. Testing improved the reliability of study findings. Before being utilised in the actual study, the interview guide was piloted to identify and rectify any possible flaws or discrepancies (Saunders et al., 2015). Preliminary interviews were conducted among women in the IT field to fulfil the pilot study's research objectives, though they were not part of the main study.

Participants for the initial interview were chosen depending on their closeness to the researcher. The study participants expressed their concerns about intersectionality and gender. The woman's perspectives guided the interview questions to better correspond with the study's research objectives. Before conducting the study, any issues with the data collection tools were identified and rectified, such as items that were unclear or lacked the intended significance.

4.11 Ethical Considerations

Before conducting the study, the researcher got approval from the Research and Ethics Committee of the University of Cape Town. Before conducting interviews with the study participants, they were provided complete information about the research and requested their explicit consent. The burden lies on the researcher to consider the 'other' option, such as those who have funded or participated in the research, before the researcher's desire to conduct the research (McKenna and Gray, 2018). It was vital to observe ethical values such as the right to self-determination, privacy, and the secrecy of information.

The researcher was cautious not to coerce any participants to participate in the data collection process. In addition, participants were informed that they reserve the right to withdraw from the interviews at any time for any reason. Deductive theme analysis was used to protect the confidentiality of the participants. Deductive thematic analysis provided a comprehensive study of similar themes stated by multiple interviews, thereby safeguarding the anonymity of the participants. Through referrals from professional women in the South African IT sector, the participants were identified using snowball sampling technique. The data collected from the study participants was secured using a authenticated OneDrive account and no unauthorised individuals could access the data.

4.12 Summary

This chapter described the research methods employed in this study. The study adhered to the interpretivist philosophy. According to a qualitative research framework, the exploratory study design was used in this study. The target population was determined through a non-probability sampling technique known as 'snowball sampling', which was also used to justify the sample size calculation. Interviews were the primary means of data collection. The collected data was analysed based on the deductive thematic analysis method. The subsequent

chapter focuses on the presenting, analysing, and discussing of the study's findings. The overview, conclusion, recommendations, and areas for future research are outlined in the discussion chapter.

5 Research findings

In this section, the qualitative data is analysed with the help of a thematic analysis framework as outlined in the methodology section. The focus for this analysis was on evaluating the experiences of women who work as professionals in Agile teams. Suitable themes were formed and documented in this section based on the responses received from the participants.

5.1 Demographics

The participants include Business Analysts, Business Intelligence Analysts, Systems Analysts, Test Analysts, IT Auditors, Developers, quality analysts and data scientists. Fifteen of the participants are from Cape Town with the other ten working in Johannesburg. Online interviews were used to collect qualitative data from all the 25 participants. All the participants are women that are employed in the IT (Information Technology) sector of South Africa. Semi-structured interviews were used to collect qualitative data from the participants. The key demographic attributes of the chosen participants are listed in Table 5 below.

ID	Profession	City	Team Size
A1	Business Analyst 1	Cape Town	Small
A2	Business Analyst 2	Johannesburg	Medium
A3	Business Analyst 3	Cape Town	Large
A4	Business Analyst 4	Cape Town	Large
A5	BI Analyst	Cape Town	Large
A6	Software Quality Analyst	Cape Town	Large
A7	Systems Analyst	Cape Town	Large
A8	Senior Test Analyst	Cape Town	Large
A9	Ticket Management Analyst	Cape Town	Large
A10	Graduate Data Scientist	Johannesburg	Large
A11	IT Auditor 1	Johannesburg	Large
A12	IT Auditor 2	Johannesburg	Large
A13	IT Auditor 3	Johannesburg	Large
A14	IT Auditor 4	Johannesburg	Large
A15	Quality Assurance Analyst	Johannesburg	Large
A16	Graduate IT Auditor 2	Johannesburg	Large
A17	Developer 1	Cape Town	Large
A18	Developer 2	Cape Town	Large
A19	Developer 3	Cape Town	Large
A20	Junior Developer	Cape Town	Large
A21	Graduate Software Developer	Johannesburg	Large

ID	Profession	City	Team Size
A22	Software Developer Intern	Cape Town	Large
A23	Support Administrator	Cape Town	Large
A24	Database Administrator	Johannesburg	Large
A25	Lecturer Marketing & Social Media Convener	Cape Town	Large

Table 5: Demographic details of the chosen participants

Twenty-three of the participants were assigned to large teams with more than 20 members. The other participant was assigned to medium team having 5 to 10 members. There was only one individual receiving the responsibility to manage a small team.

5.2 Thematic analysis

Seven themes were formulated from the analysis, and are outlined in this section. Themes were formed around Agile versus Waterfall, gendered organisational culture, gender recognition and bias, gender pay gap, job insecurity, maternity and work-life balance and women mentorship. The challenges and issues faced by women as they work in agile teams are portrayed through the themes.

5.2.1 Agile versus waterfall teams

The waterfall methodology used to be the method followed in IT projects. With the waterfall method, project teams complete each phase of projects in a sequential order. However, project teams started to face a key issue with using the waterfall methodology. The issue was the difficulty in identifying flaws in a project until tests were carried out. Hence, teams managing IT projects started switching to the Agile methodology, which offers flexibility to project teams in terms of finishing each task, hence the subthemes in Table 6 below.

No	Themes
AT1	Your experience of working in an agile team.
AT2	Your opinion on whether the team is moving in the right direction.
AT3	Whether members of the team are helpful.
AT4	Difficulties and successes found by your team.

Table 6: Subthemes related to agile teams.

Most participants claimed that it is difficult to understand how Agile methods work. There are several reasons given by the participants for that. A1 responded that *“I would say that, as a company, the Agile transformation journey has only recently begun, and the organisation is slowly and progressively transitioning to an agile method of working. As a result, I have only a fraction of experience in an Agile environment”*. On the other hand, A2 responded that:

“I believe that the concept of agile is somewhat vague, as various organisations have varying interpretations. At one of the companies for which I have worked, I genuinely became a digital specialist. But that was a long time ago when they were attempting to transition from the waterfall methodology to the agile methodology. Then, what my colleagues and I found peculiar was my effect on that” (A2).

As per A24, women face many difficulties in working in an Agile teams, as women have just begun to be a part of Agile teams in organisations. Furthermore, as per A3, gender and race are also considered in teams. A3 responded that it is challenging to get an appreciation for good work. Also, few people see others beyond race and gender. Hence, since the agile method is a new concept, organisations struggle to adapt to it. Employees also lack the skills to manage this method appropriately.

Other participants pointed out the challenges individuals face as they try to switch to an agile approach or method. There are different reasons given by the participants for these challenges. A5 said that *“They do not have a developed BI structure in place and that leads to a lot of missing details, project risks, missed SLAs and all kinds of data concerns”*. A6 said that time management is an issue with agile methodology. In some cases, the delivery of items are delayed. According to A25, teams face teething issues despite being on the right track. This means that they have yet to sufficiently understand the agile method to proceed smoothly.

As found in the interviews, a lack of knowledge regarding the Agile methodology by individuals and teams is a challenge for them. However, collaboration among team members and assistance from one another can help to overcome that challenge. A1 stated that:

“I work for a fortunate organisation. They encourage learning, and people aren't too proud to share their expertise. If I'm stuck and need help, I'm able to get it” (A1).

In contrast, A10 said that it is a challenging task to receive assistance from seniors, as one is expected to schedule meetings with the seniors to receive help. A10 also said that getting assistance on a project that does not require senior employees is much easier. A25, on the other hand, said that it is challenging to get assistance from others, since team members consider one another as competitors in the organisation. A1 also said that it is challenging to get help when teams are dominated by men. They only offer help when being instructed by their seniors. This highlights the challenges these women face as they work in predominantly male teams full. However, this may not be the same for women in all organisations.

According to A7, there are two key types of people. One is always ready to help, while the other does not offer help, pretending to be occupied by other responsibilities. The positions of employees in an organisation also appear to influence the likelihood of receiving assistance. Employees in a more senior position in the organisation are more likely to receive assistance than those in a junior position. A2 claimed that one needs to have a loud voice or charisma to get assistance from other team members. This means that employees should also be able to seek assistance from others in a team. However, some participants did not agree with that. A20 said that:

“I haven't encountered many obstacles; I would say that my one major accomplishment is something akin to an open-door policy. So, if I encounter something or feel uneasy, I could easily reach out to a manager and let them know”
(A20).

Thus, employees can get their issues resolved easily. On the other hand, A4 said that it is easy for employees to receive assistance when they are working in a small circle. Challenges start to emerge as the circle grows. When employees try to seek assistance in a larger circle, members start checking their level of seniority before offering help. It has also been discovered that, in some cases, a single individual needs to execute all the work. There is no team to complete a project. A6 said that *“I have a lot of work. I'm the only employee who does that work. I have to do many tasks by myself”*.

Thus, organisational culture and teamwork impact women employees receiving assistance with their work in an agile team. Collaboration and cooperation among team members can mean timely assistance to employees. On the contrary, team members prioritising their personal goals and interests may make it difficult for others to receive help with their issues.

Nonetheless, managers and seniors who are not willing to help others can find it challenging for women employees to work in an Agile team.

5.2.2 Gendered Organisational Culture

The gendered organisation stresses the representation of female professionals into the mainstream of organisational dynamics. Female technology professionals are equally capable compared to their male counterparts. Based on the interview experiences of the participants, it was found that female professionals receive equal or less work allocation than the opposite gender and female professionals are given less risk-oriented tasks compared to others due to prejudiced views regarding their competency. The majority of the participants stated that female professionals enjoy good career development as well as equal career growth when compared to men. Based on the participant responses, the division of work is prevalent within professional work experiences among males and females. This situation favours males in terms of professional experiences due to gender-related discrimination, which result in female employees to have fewer professional experiences.

No	Themes
GOC1	Having a transparent and equitable work culture welcomes everyone.
GOC2	In the team, women are underrepresented.
GOC3	An agile workplace values everyone's involvement in the team.
GOC4	Gender biases impact professional success at work

Table 7: Gender Organisational Culture

Through the interviews, many participants gave differing viewpoints regarding organisational cultural. Many organisations in this sample treat their female employees fairly and promote inclusion and acceptance within the mainstream work culture. In the agile world culture, many have reflected different views regarding women's participation in the mainstream work culture. Some of the participants stated that fair representation of both genders based on professional experiences and qualifications is essential to increase the competency of workforce efficiency.

A4 responded

“For greater organisation, I believe it improves the environment and makes it more conducive to working and sharing knowledge. However, I believe that within the department, the transformation is lacking in some departments and more advanced in others” (A4).

Organisational culture in many technological companies is managed by the HR department. These departments are primarily responsible for upholding organisational norms and values by enforcing organisational policies. Many major technology companies are enjoying great success due to little or no gender-oriented prejudices.

The CEO within the company plays an instrumental role in setting organisational values to the core and increasing workplace potentiality. Based on the interview experiences of the participants, it was found that female professionals demonstrate a better aptitude for interpersonal roles. On the other hand, male professionals are provided with more core development-related work, which directly impacts workplace productivity. According to A8 *“Indeed, there are more males than women. In the development space, there are significantly more males than women. The Business Analyst space may contain a great deal of women than men”*. This factor is responsible for the unequal representation of women within many establishments. Within female-majority workplaces, men enjoy a significant opportunity to increase competency within the workforce. Many men are positioned in a highly technical position that provides fundamental value to the work. This situation is caused by the disparity in relevant skills among the different individuals. Skill deficiency is the main factor favouring the recruitment of males over females within an agile work environment. Again, participants were asked about the female representation in leadership roles. Leadership roles require risk-taking attributes and capabilities, and female individuals have been poorly represented across leadership roles for years.

In the contemporary era, female representation across major leadership roles has grown exponentially. Despite that, there is still a stark differentiation between male and female representation in leadership roles such as CEO, CFO, COO and CIO. The main reason for the lack of female representation in leadership positions is that limited assignments during the early stages of work impact the competency that are required for further leadership qualities. Additionally, some participants perceive that female employees are more vocal than their

male counterparts which may be detrimental to further career growth. However, A5 said that *“Neither of us really had a voice. You simply accepted whatever the man said. So, I have had this experience. Even though the manager of this team is male, he is extremely dependent on us”*. For more professional development, the concept of resilience is important for professional growth of female professionals. This perception is apparent during recruitment patterns where male candidates are given selection priority. Hence, it is clear that women are marginalised in terms of recruitment and promotion in comparison with their male counterparts.

Many participants stated that risk-taking capability, flexibility and emotional factors are an important reason for the lower representation of female employees. In that sense, men enjoy more promotions and opportunities for career development. Additionally, females are more prone to express their emotions within the workplace, which can be a barrier to professional development. Some of the participants have responded that women are not professionally incapable but are devalued in their teams. *“In particular situations, because they may have something that they believe I can do. However, they will look for someone else, which is usually a man”* (A9). In many cases, women are subordinates under male supervisors, and their efforts may be claimed by others in the team, and they therefore do not receive significant recognition, which is responsible for the disregard of female employees in the first place. On the other hand, ethnicity plays a significant role in acquiring project opportunities, and many underrepresented groups suffer from a lack of opportunities which lowers professional capability building. Fair distribution of opportunities and recognition is essential to diminish gender-based biases in the first place, and it will play an instrumental role in gender-based work opportunity differences.

5.2.3 Gender Recognition Bias

Females with bachelor’s degrees in STEM or computer technology are allowed to be a part of project management-related work. In most cases, men receive a higher salary than women, despite having the same level of qualification. Many companies pay for maternity leave for women, which impacts the organisation's resources. These biological aspects of women tends companies to favour male employee recruitment in the first place. If the cost of living has increased and in order to maintain the same standard of living, a salary increase is essential for maintaining living expenses.

No	Themes
GRB1	Professional achievement is integral for promotion regardless of gender, background or race.
GRB2	Opportunities for new projects are distributed fairly within the team regardless of gender or race.
GRB3	Large projects are distributed equally among team members.
GRB4	The organisation supports the distribution of projects equally to increase the competency level among each project employee.

Table 8: Gender Recognition Bias

Many participants suggest that prejudices against certain genders are very prevalent in terms of work recognition. A few participants stated that ethnicities that are historically underrepresented are more prone to face prejudiced organisational attitudes. For instance, blacks, Hispanics and other underrepresented groups are more likely to struggle against prejudiced perceptions than Caucasian people. As A1 stated *“I believe that a non-black employee is more likely to be promoted than a black employee during this quarter”*. Hence, Caucasian people are more likely to get promotions each quarter despite similar experiences on the field. Despite racial and gender biases, favouritism seems to be one of the major factors in their workplace due to specific gender, race or other attributes. This situation leads to having biased preferences in the first place. Favouritism causes a higher distribution of opportunities as the preferred groups enjoy more access to opportunities and more chances of scope regardless of gender, ethnicity or background. Promotion is partly dependent on performance, particularly given work targets and achievements. More opportunities lead to more incentives and higher chances of promotion.

Women are being promoted into many higher positions, but less frequently so than men. It was found that race plays a greater role than gender in receiving promotions. Some participants stated that project possibilities were provided only to men due to there being more men in agile in continuing work progress. Men are also more accountable for the given responsibilities due to a higher tolerance for facing criticism. Most of the time, these organisations choose men for higher responsibility roles due to the perceived mental capability to face criticism. This factor favours men in getting more responsibilities as well as more scope for promotion. Nonetheless, A13 said that *“They are very uplifting. And one of my managers suggested I apply for a senior position despite my lack of senior experience.*

That seemed like a huge deal to me. A13". Exposure to significant projects is essential for getting further opportunities in the role and for increasing the career development scope. Hence, these conditions favour men than women in terms of getting opportunities as well as promotions. On the other hand, it is found that many believe that project allocation highly depends on the availability of resources. Many participants believe that having opportunities is the cornerstone for excellent career opportunities and further career advancement.

It appears as if women need to receive more opportunities for advancement. Having more opportunities is instrumental to increasing competency for obtaining further projects in the future. This fair distribution of opportunities is also essential for mitigating the differences in the gender pay gap. In various international companies, organisational culture is essential for mitigating gender biases. *"Men are the preferred candidates for projects. With regards to organisation's culture, it's as if they have this policy or law that requires women to be less recognised. We will not be given the opportunity"* (A17).

A proper organisational policy-related framework supports equal treatment and opportunities for people with different backgrounds, races and genders (Das & Sharma, 2024). Professional achievements need to be recognised instead of gender, race and backgrounds in order to increase organisational productivity. This allows more profit generation for the organisation and more project opportunity scope in the process (Das & Sharma, 2024). Many of the participants firmly believe that fair opportunity distribution will be essential for diminishing the gender pay gap bias. On the other hand, it helps to increase organisational competency because workforce competency is essential for driving organisational success. Large projects also need to be distributed equally among team members because it promotes the scope of inclusion as well as the personal capabilities of the team members regardless of gender and race.

5.2.4 Gender Pay Gap

This is important to evaluate the income of the participants, as it would provide insights as to the compensation of the participants. Table 9 incorporates the themes associated with gender pay gap.

No	Themes
GGP1	The pay scale has a lot to do with the satisfaction level of the female employees.
GGP2	The pay scale determines the range of market value.
GGP3	The pay scale determines the amount and kind of provided work.
GGP4	Employees with the same years of expertise and experience are provided with an equal pay scale.

Table 9: Gender Gap in Pay scale

The gender pay gap has been evident for decades, irrespective of ethnic and gender groups. In Das & Sharma (2024), this has resulted in an elevated income for conventional Asian men from the STEM occupational group. This has paved the way for compromised earnings of Hispanic and Black women from the same occupation, continuing a trend of pay scale discrimination. The above responses of the participants state the notion of several hazards such as the price hike, lesser of salaries, and additional work pressure has made female employees yearn for a fairer pay scale. A5 stated that she has been satisfied with her pay scale. However, the price hike has necessitated her to ask for a raise. A9 and A12 shared their grievances that they have been undervalued and discouraged with their respective pay scales. *“I am dissatisfied with my current income. It is barely sufficient to sustain me”* (A12).

The immense pressure faced by the women employee at work has made them feel the pay gap along with the comparatively higher pay scale of their male counterparts. A5 has been satisfied with her pay scale, but her male counterparts have made her feel a bit discouraged regarding the discriminated pay scale. However, A3 felt that *“Yes, its equivalent to market value. I'm content, but there's always room for improvement”*. The participants have less to say about the alignment of pay scale with market value, as the majority of them have been immensely frustrated with the pay gap. This also causes them compare their workload with their pay scale. These factors encourage several organisations to provide less opportunities of advancement with limited availability of training and development programs, access to managerial positions, sponsorships and others.

5.2.5 Job Insecurity

Job insecurity have become important, especially during and after the COVID-19 pandemic when there were instances of mass lay-off from several renowned organisations. This primarily happened because, at that time, the organisations were lacking the proper infrastructure to combat the pandemic and to ensure employee safety and maintain profitability. The factors related to this professional insecurity provided in the form of themes below.

No	Themes
J11	There have been a significant number of dismissals or retrenchments either during or in the aftermath of COVID-19.
J12	The reasons for the retrenchment or dismissal by management have been explained.
J13	Have the retrenchments or dismissals been fair.
J14	Do you think your job is safe.

Table 10: Job Insecurity

The above themes are developed in accordance with the participants' responses. Participants such as A1, A13, A22 and A24 stated that they have not faced any lay-offs during the pandemic. Three participants have even been grateful to their respective organisations for keeping them employed. This paves the way for another factor of job insecurity which is termination. *"I believe so but I am not unaware. However, I do not believe there were any on my team"* (A22). A9 and A12 stated that termination during the pandemic has been a kind of organisation-wide lay-off, but that they have not been affected. However, participants A5, A9 and QA10 stated that the pandemic has affected several new trainees or freshers who did not have a permanent position in their respective companies, due to the uncertainties until their last day of their contracts. Few of the participants thought that this practice is unfair as they have seen several freshers' jobs terminated as soon as their training session ended and not provided enough time to look for a new job.

These instances have made the participants think of their position in their respective organisations. A1 stated that *"I can never be secure. I can't even feel secure until my position is secure, because anything could happen if people are conspiring against you"*.

A21 gave a cold shoulder to this issue as she has accepted the unexpected at any time, making her adopt a “living on the edge” personality with extra cautiousness. While A21 is a dilemma of her skill, being a simple graduate, A4 has been in a jeopardy state. This is because A21 has seen her company recruiting employees, particularly contractors, as they are less expensive. It leaves permanent employees without meaningful work, thereby encouraging further layoffs. Whether it is related to COVID or not, the analysis indicates that the majority of the female participants are afraid of job insecurity, leading them to distrust their respective organisations.

5.2.6 Maternity and Work-Life Balance

The notion of gender-specific roles in organisations has been evident for women in the engineering and technology sectors. The perceived discrimination, isolation and social dissemination have been their primary threats. This can be understood by the experiences of the participants during their maternity period, which, to a large extent, made them struggle with their work-life balance.

No	Themes
MWB1	Your team culture encourages the preservation of work-life balance.
MWB2	You believe that you have been given ample time and space for your family.
MWB3	Your working schedule has shifted since COVID-19.

Table 11: Maternity and Work-Life Balance

The above themes are developed in a positive note. However, the participants have more to share with most of their thoughts are interrelated to each other. As A20 stated, besides feeling her team to be encouraging towards her work-life balance, she has to work excessively in several times. The A11 participant has shared her experience of exploitation by her company as she has to work for longer hours in the name of maternity benefits. It is because the company has made her stay at home with no particular clock-in and clock-out time. She thinks that it is another way of taking advantage of her. A25 stated that despite her company being considerate towards her at work, on several occasions, she has been less considered as a working mother and has had to work for extra hours at home. On the other hand, A2 said that “*The team does encourage it, but I sometimes feel like I’ve missed the balance in the sense that there are times when I work excessively instead of delegating tasks to the following day or similar*”. A4’s claim of “experiencing exhaustion” finds synergy with the previous

sentiment. However, A5 has a different notion regarding work life balance as she stated that she has made her own “me-time” by focusing on her leisure during weekends. These comments reflect a general perception that the women, despite deserving maternity facilities, are provided with an equal share of workload such as their male counterparts.

5.2.7 Women Mentorship

The women can be a role model for both girls and women when they attain the position of leadership. However, it is the rigid societal orthodox and prejudices that have deprived the female employees of holding this position. The present generation has shown a significant amount of interest in this position. However, there are several female employees with a prejudiced mentality that restricts them from holding the requisite mentorship attributes, further excluding them from consideration. The following subthemes incorporate the factors that will help to delve deeper into the participants' experiences regarding mentorship.

No	Themes
WM1	Are employees from managerial positions equally treated across race, gender or background.
WM2	Do you feel that the women mentors are concerned of your career and well-being.

Table 12: Women Mentorship

In this context, the participants provided mixed insights regarding their experiences. A24 stated that she has seen most of the mentors to be male. However, she believes that the trend is transforming as some women have been equally capable of holding managerial positions. A5 claimed that *“It is impossible for us to be mentors; the system is designed to keep us at employee level. Black women around the globe face the same issue”*. A17 said that she has few males holding managerial posts in her organisation and that they are not black. She also stated that very few women of her organisation have been employed as software developers. The A9 and A25 participants have a similar notion of their female mentors as A9 has relied immensely on the focus group of her organisation and A25’s female mentor has been preoccupied with her professional development.

5.3 Additional Themes

With a qualitative approach, the above set of themes have provided some notion of additional factors that can contribute to this study.

5.3.1 Racial Bias

The issue has been common in the participants' responses, making it a significant one for this study.

No	Themes
ADT1	The race of the employee determines your recognition in your team.

Table 13: Racial Bias

A5 stated that the majority of black women face disparity in pay scale because of their skin colour. A4 stated that *“Therefore, the black individuals who are being recognised are those who have worked twice as hard, i.e., they work more than eight hours a day, including weekends, to prove themselves”*. The A12 and A4 participants have stated that they do not find any further initiatives or transformation for the well-being of the black individuals.

5.4 Analysis Summary

The analysis is mainly based on the thematic analysis of the semi-structured interviews. The participants come from professional backgrounds such as business analysts, systems analysts, Business Intelligence analysts, ticket management analysts, senior test analysts, and auditors. The themes developed from the interview have concentrated mainly on women’s experiences in agile teams. This has been clear from their statements, stating they feel undervalued and face less promotions in their respective fields. Moreover, many of the employees do not have the assistance of their seniors or counterparts while executing a project. The gender-oriented organisational culture has made female employees face further existential crisis, making it the most general case in most sectors (Valenzuela *et al.* 2023). The female participants have indicated that they have observed more male employees than females which has led to the development of further gender recognition bias.

This lack of recognition has come with further development of gender pay gap. Most participants stated that the recent price hike of essential commodities has made them want an equal pay scale. Moreover, there are instances where black women are not satisfied with this practice of unequal pay scale (Jamil, 2020). These further paves the path for job insecurity that comes from the notion of the organisations to think of the women employees as unimportant. The amalgamation of maternity facilities with work-life balance has generated a significant amount of argument as the majority of the female participants of this study have grievances regarding this towards their respective organisations, yearning more for female mentorship. Lastly, the additional theme discussed the racial bias that affects the organisational culture.

5.5 Conclusion

The research findings chapter focussed on the factors that determined the experiences of women in South Africa in the Agile workplace. The chapter provided the demography of the participants. The chapter also focused on themes such as gender-oriented organisational culture, gender-gap on pay scale, job insecurity and other with an emphasis on racial bias as additional themes.

6 Discussion and Recommendations

The discussion section provides an overview of the study, addresses the research questions based on the study findings and analysis presented in the earlier section, highlights the research limitations, and presents recommendations and propositions.

6.1 Answering the research questions

In this chapter, the themes were grouped according to the research and interview questions that were identified during the research.

Starting with the first research question, ‘How do the participants experience working in agile teams?’, it also included interview questions about whether the participants felt that their teams were headed in the right direction, whether they received any help within their teams and whether they experienced any challenges to cope up with their team members. This interview question was posed to gauge women's interaction with their teams and the treatment meted out to them by their fellow teammates.

The data analysis found that gender stereotypes, due to intersectionality, can affect women at workplace as the widespread societal prejudices against women have existed for many years and the stereotypes tend to dissipate slowly (Zenger and Folkman, 2019).

As per the analysis, most participants found it challenging to move to Agile projects. Some of the reasons are as follows: not getting any proper recognition for their efforts; the team finds agile to be a strange platform, and since women were assigned to work in Agile only recently, there is a general feeling about being insignificant as an employee within the organisation. The abovementioned reasons may be the outcome of the teams not being inclusive, influencing the team's orientation. As a follow-on question, the researcher asked whether the participants believed that their teams were moving in the right direction.

Most of the participants mentioned that their teams can improve, though they strongly believed that their teams were headed in the right direction. They cited the necessity for good documentation, such as the SLAs, correction of data errors, timely project completion, and sufficient agile knowledge as the areas that require improvement. Since the direction of the team affects the latter's interaction pattern, it was vital to investigate whether it is easy for the participants to receive assistance from their team members.

Though a few participants reported that they were able to get the necessary assistance, a vast majority of the participants indicated that support was not readily available. According to them, there is no free help offered to women professionals in the team. Some of the reasons for this phenomenon include giving precedence to those higher up in the organisational structure, the unavailability of senior colleagues when seeking help, the promotion of individuals such as product owners without any technical skills, and so, they rely on their subordinates to perform the task, and individuals who exclusively assist certain races. Occasionally, the team's obstacles can also affect the team members' availability to help each other. This made it important to enquire about the challenges and successes faced by the teams to which the participants belonged.

Differing responses were received when the participants' teams were asked about their challenges and successes. The successes ranged from having an open-door policy, and one-on-ones to acknowledging the value of testing. On the other hand, the challenges included the need to portray the presence of charisma, underestimating the project timelines, people not being readily available and being the only person within the teams who can perform specific tasks. In light of the above, the researcher enquired about the gender-related aspects of the organisational culture.

The second research question was whether the participants experienced any gender discrimination at their workplace. The second theme, corresponds to the culture of gendered organisations. The above notion was used to determine whether or not the women experienced gender discrimination due to the ethos of the gendered organisations.

According to the analysis, the majority of the participants opined that their organisations lacked a suitable culture for them. In general, most female professionals choose careers involving interpersonal interaction, whereas most male professionals choose careers that involve working with objects. This phenomenon contributes to a gendered organisational culture (Kuhn and Wolter, 2022). Therefore, a work environment is created that is bereft of women. The participants were then asked whether they believed that women in their teams are underrepresented.

The analysis found that men dominated most of the positions in the workplaces where the study participants worked. Certain positions in Agile teams, such as the developers, were

mostly male employees. In contrast, other teams are female-dominated for which lack of skills has been cited as the primary reason.

When the participants were asked if they believed that their contributions were valued, positive responses were received from the participants. Even though the participants believed that they could contribute more and were willing to work on projects, they frequently felt that their skills were overlooked and were assigned minimal duties. A few other participants believed that their voices remain unheard and that they avoid being too outspoken within the team since it tend to create a backlash against them. This phenomenon confirms the notion that self-silencing is one of the obstacles that impede women's careers.

It became clear that a common strand of gender bias was emerging among the companies the participants belonged. A growing number of women reported that they were being passed over for promotion in lieu of men. Therefore, the researcher questioned the participants as to whether they believed that their gender impeded their professional success.

According to the responses above, the participants were not only subjected to discrimination but also devalued. For instance, one of the study participants (a business analyst), mentioned that others in the team took credit for her work. However, some participants believed that the lack of project opportunities was due to their ethnicity rather than their gender. According to the response from the business analyst, her opinion remained unheard and her inputs are valued only in the presence of a masculine counterpart. This preceding prompted the questions concerning gender bias, resulting in the development of the third theme.

The outcomes from the study findings addressed gender recognition bias and gender wage gap as the third and fourth themes, respectively. It was used to determine whether women felt gender discrimination due to gendered organisations and stereotyping.

Some of the participants claimed that the project possibilities were solely provided to men, whereas the women were denied any chance. One system administrator mentioned that if the management is fond of a team member, they get project opportunities. Such team members were given large assignments, though not the tasks they were looking for. Graduates felt that their department did not provide them with big tasks. A few other participants said that the resources determine the type of project allocation. The preceding raises the next theme i.e., how employees are expected to grow, if the organisations have a career-advancing culture.

The views of the participants regarding career progression varied from one to another. A few participants saw potential for development, while others did not. That advancements were feasible only in the course of time. The rest of the participants understood that they could only make limited progress due to understaffing. Career progression raises one's salary, which might also be a reason for this scenario.

According to the Pew Research Centre (Funk and Parker, 2018), racial, ethnic, and gender wage inequalities remain across the globe. Thus, most women felt underpaid, especially compared to their male counterparts. Those participants who were satisfied with their income mentioned that economic inflation erodes their salary. Sometimes, a recession is accompanied by unemployment and job insecurity. This scenario results in the development of next theme i.e., job insecurity.

According to the study findings, the majority of the women claimed that there were no retrenchments. In light of the preceding information, a follow-up query was also posed to determine whether any terminations were justified.

Based on the analysis presented thus far, it is clear that the company restructuring processes and the outbreak of the COVID-19 pandemic played a crucial role in bringing redundancies within the corporations. On the contrary, the majority of the participants believed they did not face any redundancies.

The study participants mentioned that the retrenchments or layoffs were unjust because the employees were not given adequate time to locate a new position in another company. In light of this, the researcher deemed it necessary to raise the question of whether or not their employment was secure.

Most of the study participants were concerned with maintaining their jobs. Some of the reasons attributed include the COVID-19 pandemic jeopardising their job security, lack of trust in management, a general perception that management was plotting against the employees and the deployment of cheap labour through outsourcing. Since the participants were women, the researcher inquired about maternity and work-life balance and the responses developed into the following theme.

Although their teams advocated work-life balance, the majority of the women responded that they lacked work-life balance and were fatigued. The possible reasons cited by the

participants are as follows: they expected to work extra hours and at some evenings, certain teams have more project work than others, and the realisation that one must take self-imposed breaks while working to maintain a healthy work-life balance. A hero culture appears to exist in many workplaces. In light of this, the researcher deemed it important to ask whether the participants had women as mentors.

The analysis revealed a lack of women mentors, especially in senior or management positions. Most of the participants sought advice from other women or their teams. With regards to mentors, the mentored individuals felt that their concerns were taken into consideration. However, a few others stated that it is impossible for women to find mentors in an industry that is indifferent to women career advancement, especially for the women of colour.

The final theme was related to racial bias and is related to all the themes discussed earlier. It was observed that race affected the research participants in some way or the other. Their reasons include that race impacts their earning potential regardless of their educational background. Further, it also hinders their career advancement as they are only limited opportunities exist in the IT industry. Some black women stated that their salaries were negotiated based on their race and gender, which in turn indicates that the remuneration for black women differs from other races. Despite the transformation in the workplace, no change has occurred in the workplace culture to accommodate individuals from different races. Some participants believed that black people are only acknowledged for their efforts if they exert twice as much effort.

6.2 Research propositions

In light of the discussions made above, the researcher would like to propose the following points for this research:

- **P1:** Gender and race have a significant impact on pay parity.
- **P2:** Employment security should be a priority for women.
- **P3:** Women who were devalued in the past felt discouraged and despondent with regarding their professional career.
- **P4:** Gender stereotypes are the cause of gender discrimination

- **P5:** The majority of the women believed there were no boundaries between working hours and family time, as they frequently worked overtime from home.
- **P6:** The IT industry should encourage women to close the career disparity between themselves and their male counterparts. Men and women should be given equal respect and opportunities.

6.3 Research Limitations

The main objectives of this research were achieved, and the research questions were answered. However, the study could have been conducted in a wide manner, provided there was more time, resources and financial support available. A primary limiting factor of this study was language difference since most of the participants interviewed spoke Xhosa or Zulu and the researcher had to translate some sentences into English. It is easier to express specific scenarios in one's mother tongue, due to which some of the participants may have failed to articulate their perspectives as a result of the language barrier.

In future studies, a translator should be used to ensure that language is not a barrier for collecting the data. The study was conducted during the COVID-19 pandemic and the participants were interviewed based on the referral from a previous participant i.e., the research time was affected.

Since the participants were interviewed during and after the COVID-19 pandemic, regulations had to be adhered to, and social distancing had to be practised; thus, the interviews were conducted online using Microsoft Teams software. This method made it challenging to read the participants body language and facial expressions. It is important to read the facial expressions in this study so that the researcher can understand if the questions are uncomfortable for the respondent especially those related to discrimination.

With more time, the researcher could have interviewed women from different backgrounds. Most participants were from similar backgrounds because there was limited time to consider potential participants from other backgrounds and race groups.

6.4 Recommendations

Future recommendations for this research would be to conduct interviews with women from other races, as this study included only women from two ethnicities. This will ensure that the

findings are more diverse and that comparisons can be made between the participants' experiences working in agile teams.

The IT industry should respect women, provide them with appropriate guidance with career expectations and ensure that they are not only paid equally but are also treated fairly. This will result in more efficient work from the participants as they get to know that their contributions are valued and respected.

In addition to the compensation, women should be assigned with tasks that correspond to their skills. This will reduce the level of job insecurity as majority of them were afraid of being laid off, because their skills were perceived to be subpar and readily replaceable.

The IT industry should respect the boundaries of work-life balance, as majority of the participants reported being contacted outside of the working hours and were expected to continue the work outside their working hours during remote work too.

7 Conclusion

This study investigated the experiences of women working in Agile project environments within South African IT companies, using intersectionality theory as a lens to examine how gender and background factors affect their work performance. The research was conducted through semi-structured interviews with twenty-five women IT professionals, providing an insight into the intersectional dynamics in these settings. The key findings highlight persistent discrimination, manifested through several interconnected themes as summarised below.

- **Gendered Organisational Culture:** The study revealed that male-dominated organisational cultures privilege behaviours and actions commonly associated with men. The women in these environments experience feelings of inadequacy due to their minority status in predominantly male teams.
- **Gender Recognition Bias:** Women are less frequently promoted compared to their male counterparts, aligning with existing literature that indicates a higher likelihood for women to remain in junior roles.
- **Gender Pay Gap:** Participants reported being undervalued and underpaid relative to the quantity and quality of their work. This echoes findings that careers of women, particularly those who take maternity leave, are prone to stalling.

- **Job Insecurity:** High levels of job insecurity were noted among participants, who expressed concerns about wage reductions, temporary labour, and contracting factors exacerbating their vulnerability in uncertain working conditions.
- **Motherhood and Work-Life Balance:** Working mothers face significant challenges in balancing professional responsibilities with personal life, especially with the blurred boundaries between work and home due to remote labour practices. This lack of balance often pushes women to leave their full-time STEM careers.
- **Women as Mentors:** There is a notable scarcity of women in managerial and leadership positions, resulting in a lack of female mentors. This scarcity hinders the support network necessary for women to navigate challenges in male-dominated fields.

The findings of this research highlight the need for more inclusive organisational practices and policies that address gender biases, promote equal opportunities for advancement, and support work-life balance. IT companies in general, and those in South Africa in particular, specifically those in Agile project environments can better harness the diverse talents and perspectives of their women employees by creating a more equitable work environment.

8 References

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9 Appendices

9.1 Appendix A: Interview Guide



Department of Information Systems

Leslie Commerce Building
 Engineering Mall, Upper Campus
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<http://www.commerce.uct.ac.za/informationssystemsf/>

Interview Questionnaire

Section 1 - Introduction

Thank you for taking part in this study. The main objective of this study is to:

- Determine which dimensions of intersectionality have women experienced in Agile projects?
- To explore the dimensions of intersectionality that women experienced in Agile projects.

Section 2 – Participant Demographics

Participant	
Age:	
Education:	
Previous agile experience (non-education)	
Full Name:	
Position:	
Organisation:	
Business Unit:	
Career	
Number of Years of Experience:	
Number of Years working in the	

company:	
Previous Position:	
Organisation	
Industry	
No of employees in Team:	
Total team Turnover:	
Location	
Interview Data	
Date:	
Place:	
Duration:	

Section 3 – Interview Guide

No	<ul style="list-style-type: none"> Agile Teams Themes
AT1	<ul style="list-style-type: none"> How do you find working with an agile team.
AT2	Do you think the headed in the right direction as a team.
AT3	<ul style="list-style-type: none"> Help from the team is easily accessible.
AT4	There are challenges and successes within your team.

No	Gendered Organisational Culture Themes
GOC1	Work culture in your organisation welcomes everyone.
GOC2	Women are underrepresented in the team.
GOC2	Everyone's contribution is valued in the team.
GOC3	Your gender hinders your success at work.

No	Gender Recognition Bias Themes
GRB1	People at work promoted at the same rate regardless of gender, race, or background.
GRB2	Opportunities of new projects or clients are distributed equally within the team regardless of gender or race.
GRB3	Important clients (big projects) work is distributed equally within the team.
GGRB	The organisation encourages career progressions and give everyone an equal opportunity to progress.

No	Job Insecurity Themes
J11	There were retrenchments or dismissals during or prior COVID.
J12	It was explained why people were dismissed or retrenched.
J13	There were dismissal or retrenchments that were fair.
J14	You feel your job is safe.

No	Motherhood and Work=life Balance Themes
MWB1	Work life balance is encouraged in your team culture.
MWB2	You feel you have enough time for your family.
MWB3	Your working times changed since COVID.

No	Women as Mentors Themes
WM1	People in management equally distributed across gender, race, or background.
WM2	There are women mentors, and you feel that they care about your career and concerns.

No	Additional Themes
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ADT1	Race plays an important role as to how you are recognized in the team.
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	Thank you for sharing your knowledge with me. Are there any additional comments?
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9.2 Appendix B: Consent Letter (Individual Participant)



Department of Information Systems

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Private Bag X3 - Rondebosch - 7701

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To: Request to conduct research and interview participation consent form

Dear Sir/Madam,

I am Sinethemba Ngwadla, a student that is currently enrolled for a research Master of Commerce in Information Systems degree at the University of Cape Town. To meet the requirements of the course, I am required to submit a Technical Report. The objective of this research study is to explore and understand the dimensions of intersectionality that women experienced in Agile Software Development projects.

Please be informed that the research ensures preservation of identity for all the participants, collected data will be used only for academic purposes. All personal information will be treated as highly confidential. Kindly note that participation in this research is voluntary and participants can choose to withdraw at any time. The Ethics in Research Committee in the Commerce Faculty has approved this research.

One-on-one interviews will be used for the data collection method. Interviews will be held with women who work on Agile Software Development projects in various companies. The interviews will be conducted at their premises or through Teams or Zoom Video calls and will last 30 to 60 minutes.

If you agree to volunteer and participate in this study. Kindly please sign the form and return to me at your earliest convenience.

Should you have any questions regarding this study of research, please feel free to contact me on 0607718132 or email me at ngwsin004@myuct.ac.za

Your participation in this study would be greatly appreciated.

Sincerely,

Sinethemba
Ngwadla

Sinethemba Ngwadla
Masters Researcher, (UCT)
Department of Information Systems
University of Cape Town
[Email: ngwsin004@myuct.ac.za](mailto:ngwsin004@myuct.ac.za)

Dr. Walter Uys
Research Supervisor
Department of Information Systems
University of Cape Town
[Email: walter.uys@uct.ac.za](mailto:walter.uys@uct.ac.za)

Signature: _____

Signature:

Mr. Pitso Tsibolane
Research Supervisor
Department of Information Systems
University of Cape Town
[Email: pitso.tsibolane@uct.ac.za](mailto:pitso.tsibolane@uct.ac.za)

Signature:

Consent Form

I,, consent to participate in this study. I am aware that participation is voluntary. I am aware that at any time of the study, I may choose to withdraw.

Signature _____

Date _____

9.3 Appendix C: Ethics Approval Form



Faculty of Commerce

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UCT Commerce Faculty Office

21 01 2022

Sinethemba Ngwadla

Department of Information Systems

University of Cape Town

REF: REC 2022/01/013

**Experiences of Women Businesses Analysts in Agile Software Development Projects:
An Intersectional Perspective.**

We are pleased to inform you that your ethics application has been approved. Unless otherwise specified this ethical clearance is valid until 31-Dec-2023 .

Your clearance may be renewed upon application.

Please be aware that you need to notify the Ethics Committee immediately should any aspect of your study regarding the engagement with participants as approved in this application, change. This may include aspects such as changes to the research design, questionnaires, or choice of participants.

The ongoing ethical conduct throughout the duration of the study remains the responsibility of the principal investigator.

We wish you well for your research.

2022.01.21

16:09:51 +02'00'

Jacques Rousseau

Commerce Research Ethics Chair

University of Cape Town

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