Career Break Perceptions and Experiences: Women in STEM

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ABSTRACT

Career breaks are a growing career phenomenon. This study explores the career breaks of women in Science, Technology, Engineering and Mathematics (STEM) as transitional experiences, reflecting the changes that occur to their lifestyles, relationships, routines, and roles and how they respond to these changes. It provides a deeper understanding of how these changes influence an individual's work, life and career engagement throughout their career break trajectory, as they move into, through and out of a career break. The transition framework derived from Schlossberg's Transition Model (1981, 2011; Leibowitz & Schlossberg 1982) and McQuaid and Lindsey's employability framework (2005) are the two frameworks used to explore and explain the transition of a career break and how this transition shapes the employability of women in STEM. Guided by this integrated theoretical lens, this study provides a fresh perspective of the career break experience, reflecting a contemporary work and life context, one that accommodates continuous change and facilitates individual career progression. This fresh perspective has led to the development of a Career Break Model integrating emerging knowledge of career breaks, employability and transition based on the collective work, life and career experiences drawn from a group of women in STEM who have taken at least one career break. Using the theoretical lens of Schlossberg's transition framework (1981, 2011) and McQuaid and Lindsey's employability framework (2005) incorporated in the Career Break Model, this conceptualisation informs on an individual's simultaneous management of changes that emerge throughout the transition of a career break and the maintenance of their employability. This study identifies individuals' changing needs and wants, assessing their self-management capabilities relative to the resources available to support these needs and wants and relative to their circumstances to nourish their workforce return. A narrative research approach is used to collect and

thematically analyse the data. Eighteen women in STEM were interviewed who had taken one or more career breaks and returned to the STEM workforce after each career break. The research findings provided a full picture of those women's perceptions and experiences. They also revealed the challenges that women in STEM face to manage and balance their personal and professional lives, while remaining employable. Also highlighted, is the managerial support that is required to enhance women in STEM's ability to navigate the transition of moving into, through and out of a career break. This study uncovers and records the significant challenges participants encountered while away from the workforce and when returning to employment, often while dealing with other simultaneous stressors. The research findings of this study are particularly relevant for women in STEM themselves, who may seek to improve the management of their own career break experiences. They are also relevant for STEM organisations, to facilitate more positive career break experiences for their female employees, by adjusting their workplace policies and practices. This study provides insight for various STEM industry bodies and for those undertaking further research in this area.

DECLARATION OF AUTHENTICITY

I, Josephine Simone, declare that the Doctor of Business Administration (DBA) thesis entitled *Career Break Perceptions and Experiences: Women in STEM* is no more than 65,000 words including quotes and exclusive of tables, figures, appendices, bibliography, references and footnotes. This thesis contains no material that has been submitted previously, in whole or in part, for the award of any other academic degree or diploma. Except where otherwise indicated, this thesis is my own work. I have conducted my research in alignment with the Australian Code for the Responsible Conduct of Research and Victoria University's Higher Degree by Research Policy and Procedures.

Signature Date: 28 August 2024

ETHICS DECLARATION

All research procedures reported in the thesis were approved by the Victoria University Human Research Ethics Committee, Ethics approval (ID: HRE 20-007).

Signature: Date: 28 August 2024

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RESEARCHER'S MOTIVATION AND REFLECTION

The initial idea of researching the career break experience came about from my (the researcher's) own personal career break experience in having stepped away from the workforce for many years to raise my children. My experience involved a full disconnect from both work and career. During this time, I met many other individuals who had taken career breaks, many of whom shared with me their own career break experiences and associated pressures and challenges with their work and life.

Once my youngest twin children were of Primary School age, I realised the significant challenge of not only returning to the workforce, but also finding an employment role that was suitable to my career and personal needs. This was largely due to a combination of having out-of-date skills and knowledge, an extended resume gap, as well as the priority need for job flexibility that would permit a suitable work-life balance that would allow me to continue to raise four young children. Instead of returning to the workforce, I decided to study the Doctor of Business Administration (DBA) course at Victoria University (VU), with the intention of researching career break experiences of women. I felt career break experiences were in some respects misunderstood. I also felt that my own personal experiences meant that career break literature would resonate well with me. I trust that my study will make a valuable contribution of both theoretical and practical knowledge towards women's contemporary career break experiences. Furthermore, I believe the inspiring stories of the 18 women in STEM, whom I had the privilege of listening to and learning from as part of my research, can foster a more empathetic perception of career break experiences. This reflection is important for me to share, because I was conscious of my own career break experience and therefore wanted to ensure that this doctoral study was conducted in a manner that would not be informed by any unconscious bias.

COMMUNICATION OF MY RESEARCH

Academic publications

- Simone, J & Kannan S (2023) 'A career break questionnaire for employees and human resource practitioners', *Strategic HR Review*, vol. 22, no. 1, pp. 32–33.

Creative and professional publications

- Simone, J & Kannan S 2024, *'Career break mentoring',* Career Development Association of Australia, Career Panorama Blog publication and LinkedIn publication, July 2024. https://www.cdaa.org.au/Web/Blog/Posts/Career-Break-Mentoring.aspx
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- Simone, J & Kannan S 2022, *'The great resignation: What it means to work, life and career',* FlexCareers, January 2022. https://blog.flexcareers.com.au/2022/01/25/the-great-resignation-what-it-means-to-work-life-and-career/
- Simone, J & Kannan S 2021, *'Work, life and online learning engagement considerations',* Career Development Association of Australia. national newsletter, September 2021. https://www.cdaa.org.au/CDAAWebsite/Web/National-Newsletters/Read-More/-Work--Life-and-Online-Learning-Engagement-Considerations.aspx
- Simone, J & Kannan S 2020, *'The Pandemic career break',* Career Development Association of Australia, Career Panorama Blog publication and LinkedIn

publication, October 2020. https://www.cdaa.org.au/Web/Blog/Posts/The-Pandemic-Career-Break.aspx

Presentations

- Simone, J. (2024) *'Women in STEM's Career Break Perceptions and Experiences: Research Findings',* Presentation, STEMpreneurship Unleashed: Fusing Science, Creativity and Business, LCI Melbourne – Institute of Higher Education, 10 May 2024.
- Simone, J. (2023) *'Women in STEM's Career Break Perceptions and Experiences',* Conference Presentation, ISILC HDR Symposium, Being, Belonging and Becoming, Victoria University, 31 October 2023. Stream presentation winner.
- Simone, J. (2021) *'A conceptualisation of women in STEM's employability during career breaks',* Online Poster Presentation, ISILC HDR Student Conference, Translation and Planetary Wellbeing: A Way Forward, Conference, Victoria University, 25-26 November 2021.
- Simone, J. (2021) *'A conceptualisation of women in STEM's employability during career break transitions',* Online Poster Presentation, Network Gender and STEM, STEM Education for the New World Order: Policy, Practice and Partnerships, Biennial Conference, The University of Sydney, 29-30 July, 2021.
- Simone, J. (2019) *'Supporting Australian women in STEM wanting to return to the workforce after a career break: An Australian Corporate Perspective',* Conference Presentation, Beyond Mothering Myths? Motherhood in an Age of Neoliberalism and Individualisation, Conference, The Australian Motherhood Initiative for Research and Community Involvement, The University of Sydney, 10-12 July 2019.

Accepted abstracts (declined to proceed due to COVID)

- Simone, J. (2020) Acceptance of abstract to present at International Conference of Gender Research, The University of Reading, UK.

Competitions

- Simone, J (2023) – *'3 Minute Thesis Competition',* Winner, Institute for Sustainable Industries & Liveable Cities (ISILC), Victoria University, August 2023.
- Simone, J (2023) – *'3 Minute Thesis Competition',* Finalist, Victoria University, September 2023.

TERMINOLOGIES DEFINED FOR THE PURPOSE OF THIS THESIS

Career break: A temporary period of time in which an individual spends away from the workforce with the intention of returning to the workforce.

Career break model: A model that integrates career break, employability and transition knowledge to understand how the career break as a transitional experience shapes the employability of an individual.

Career break trajectory: The career break journey whereby an individual moves into, through and out of a career break.

Employability: The ability for an individual to gain, maintain and re-obtain employment.

Lived experiences: An individual's direct involvement and firsthand participation in an event throughout their life.

Narrative: The construction of a story based on the narrative data collected.

Restorying: Retelling a narrative in a clear and logical format that is understandable to the reader.

STEM: Fields of Science, Technology, Engineering and Mathematics.

STEM competencies: An expansive range of STEM knowledge, skillsets and abilities.

STEM knowledge: Form part of STEM competencies and relate to knowledge within the fields of STEM that is understood by an individual.

STEM organisation: An organisation whose core business activities are focused on, or significantly relate to the fields of STEM.

STEM skills: Form part of STEM competencies and relate to the practical skills that enable individuals to apply their STEM knowledge.

Transitional experience: An experience that is characterised by significant change.

Women in STEM: Women who are both qualified and work in the fields of STEM.

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CHAPTER 1: INTRODUCTION

1.1 Introduction

This Introduction Chapter establishes the context, rationale and significance of this study, as well as introducing the key research question and guiding questions. This study explored the experiences of women in STEM (Science, Technology, Engineering, and Mathematics) who had taken career breaks, focusing on how these interruptions impacted their employability. Taking a career break is a time when individuals are likely to encounter significant changes to their work and life situations as they move out of the workforce, spend time away from the workforce and then move back into the workforce. This requires them to have a high level of adaptability and resilience to respond to these changes.

Existing career development literature has overlooked the challenges associated with how women in STEM respond to changing lifestyles, whilst maintaining their employability as they move into, through and out of a career break. Given the underrepresentation of women in the STEM workforce and the fast-paced nature of STEM industries, unique to STEM are the additional gendered contextual and systemic barriers that exist for women in STEM who take a career break. This study draws attention to how women in STEM navigate these complexities when taking a career break, offering insight into how the intersection of work, life, and career engagement shapes women in STEM's employability. By broadly examining the implications of career breaks, this study sought to inform women in STEM on the self-management of career breaks and STEM organisations on workplace policies and practices in relation to career breaks that support women, employability and career progression. For this study, women in STEM are women who are qualified and work in the fields of STEM and STEM organisation is an organisation whose core business activities are focused on, or significantly relate to the fields of STEM. The ability to inform on these two levels is an

attempt to further normalise the expectation that women in STEM will take career breaks throughout their working life and that STEM organisations will build this into their workplace policies and practices.

Recognition of the career break as a common career experience has been driven by changing patterns of work, life, careers and organisational contexts. These changes have resulted in an evident shift in responsibility from organisations to individuals, requiring individuals to manage these domains. This responsibility is salient in relation to one's experiences of work (Hall 2004), their career (Hall 2004; Fugate 2006; Nauta et al. 2009; Sullivan & Baruch 2009) and their employability (Sin & Neave 2014; Vanhercke et al. 2014; Veld et al. 2015). This implies that there are multiple facets of an individual's role when self-managing and engaging in their work, life and career, including periods when they take a career break. Furthermore, the ability for an individual to deal successfully with continual changes to their work, life and career has become an essential competency for those navigating through changing circumstances and contexts throughout their working lives. This study draws attention to the salient, complex and multifaceted role of an individual to self-manage their work, life and career.

In addition to this complex management function, individuals are increasingly preferring to choose work environments that align more closely with their lifestyle preferences, even as organisations contend with evolving organisational landscapes and endeavour to meet the demands of fast-paced, digitalised workplaces. However, navigating this choice presents complexities and uncertainties for individuals who opt to take a career break, as they seek to harmonise their work environment with their lifestyle preferences. They must constantly assess and update their skill sets in dynamic, competitive and technologically driven workplaces. As well, reintegrating into the workforce post-career break often entails

reconsidering one's time commitments while adjusting to a potentially altered lifestyle. A September 2021 study by McKinsey titled ‘Great Attrition or Great Attraction: The Choice is Yours’ highlights the trend of employees re-evaluating their views of work and life. Flexibility emerges as a pivotal consideration alongside, or even surpassing, monetary compensation as a measure of job satisfaction.

To better understand the broad implications that arise when one interrupts their career, this study provides a new perspective of career break experiences from the viewpoint of women in STEM, that integrates knowledge of career break, transition and employability. This integration of knowledge provides a robust framework to understanding the career break experiences of women in STEM and make a significant theoretical and practical contribution. Schlossberg’s transition framework (1981, 2011) and McQuaid and Lindsey’s employability framework (2005) were applied to explain the impact of coping with changing work, life and career patterns on an individual’s employability when they take a career break. This combined theoretical lens explored the career break as a transitional experience using Schlossberg’s transition framework (1981, 2011) and the holistic employability of women in STEM using McQuaid and Lindsey’s employability framework (2005).

This study employed a qualitative research design, carrying out narrative interviews with women in STEM who had experienced career breaks. Thematic analysis was applied to the data to identify key themes. The theme of reliance became prominent through the broad dynamic support system that was required for an individual to maintain professional and personal wellbeing when taking a career break. The study found that women in STEM face distinct challenges during career breaks, exacerbated by the rapid advancement of STEM fields, persistent gender barriers and complex career trajectories. The research findings underscored the need for policies and practices that address the specific needs of women in

STEM to enhance their ability to collectively manage their work, life and careers, whilst maintaining their employability when taking a career break.

1.2 Context

In recent years, multiple contextual factors have significantly reshaped the world of work, altering the nature of employment and the way individuals engage with their work and careers across various life stages. Advancement in technology, globalisation, demographic shifts, and evolving gender norms have all contributed to changing expectations and experiences by organisations as well as individuals within the workforce. This 'rapidly changing external environment and the burgeoning new workplace' (Bian 2022, p. 10) is central to the focus of this research. These contextual factors have impacted women in the male-dominated field of STEM when taking a career break as they continue to navigate their career trajectory alongside their changing professional and personal responsibilities. Understanding these broader factors is important to address the specific challenges faced by women in STEM when they experience a career interruption.

When women in STEM take a career break, their intention is to return to employment. This presents challenges in relation to the preservation and further development of skillsets. Technological developments and globalisation are driving occupational change, which is in turn driving the change in skills that are sought by employers (Chui et al. 2018). Djankov and Saliolas (2019) discuss the changing nature of work referred to in the *World Development Report 2019: The changing nature of work*, highlighting technology as a key driver in shaping the nature of the skillsets demanded by employers. This is transforming the architecture of the workplace and the occupations and skillsets that are in demand.

This digital transformation of industries (Brewer 2018) is leading to transformed working and career patterns. According to Dangar (2021), the very nature of work, in a global and

knowledge-based economy that is supported by technological development is changing. In this context, the fields of STEM are now seen as a vital industry, as well as a legitimate career pathway. Women in STEM however encounter challenges with this legitimate career pathway when they take a career break, despite possessing transferable knowledge within a vital and increasingly important industry. The Office of the Chief Scientist (2014) draw attention to how STEM knowledge can be linked to 75 per cent of the fastest growing occupations. The transferability of STEM knowledge plays a fundamental role in supporting future occupations and individuals with STEM expertise are required to meet the increasing reliance on this knowledge by mature economies.

In Australia, jobs in these fields are anticipated to grow two times as fast compared to non-STEM jobs (National Skills Commission 2021). Chapman and Vivian (2017) raise concerns about whether Australia will have enough skilled workers to meet the demands of technology and innovation, which governments link with national economic growth and prosperity. They emphasise the need for support from the Australian Government, relevant industries, and educational institutions that are implementing more programs. These initiatives aim to raise the profile and interest in STEM courses and careers. Bentley et al. (2022) similarly assert that the Australian Government must collaborate and invest in suitable resources to ensure Australia is equipped with a future-ready workforce in these fields. Programs have been implemented nationally that are focused on goals such as achieving gender equity in STEM (Devis et al. 2023; Kingsley 2020) or supporting the careers of women in STEM (Devis et al. 2023). In 2023, grant funding by the Australian Government allocated $15.9 million dollars towards the funding of 17 projects that focused on supporting women's education as well as their careers (Husic 2023). The focus of these initiatives is towards increasing and retaining women within the STEM workforce. These initiatives must include women who take a career break as according to Rajesh et al. (2013), this group of women is largely overlooked and

underutilised. To establish suitable programs that specifically target career break issues and support the retention and continued workforce participation of women in STEM however, further understanding is required of career break experiences.

The 2023–2024 Women's Budget Statement reported that in Australia, despite the significant increase in women's workforce participation over the past 40 years, due to societal and structural shifts, a gender employment gap and gender pay gap still exists. This gender pay gap relates to hourly wages, full-time wages and total annual taxable income (Australian Bureau of Statistics 2023). The underrepresentation of women in STEM within the Australian workforce, presents unique challenges for women when they take a career break as gender-related employment challenges are exacerbated due to the gender imbalance that exists.

1.3 Rationale

When women take a career break, they confront a multitude of barriers (Cabrera 2007; Herman 2015; Lovejoy & Stone 2012). However, for women in STEM fields, these challenges are compounded, particularly concerning their re-entry into the workforce, which according to Sharma (2022) can result in women in STEM encountering a major career setback. This is due to several challenges in which they face including inflexible work options and gender bias (Australian Academy of Science 2019) as well as poor work-life balance and lack of training opportunities (Professionals Australia 2015). Such barriers relate to women in STEM's career development (Hansen 2020; Swafford & Anderson 2020); barriers in relation to their knowledge and under-representation in STEM occupations (Blackburn 2017; McCullough 2011) as well as systemic barriers (Australian Academy of Science 2019; Greider et al. 2019; Hardcastle et al. 2019). These barriers exist despite women in STEM holding valuable qualifications, specialist knowledge and employment experience in an industry vital to Australia's economic future (Bentley et al. 2022). This implies that

‘women in STEM with mid-career break form an important technical resource for any country’ (Sharma 2020, p. 1). Facing institutional barriers can be discouraging for women in STEM who would like to return to work after a career break (Australian Academy of Science 2019). Some disincentives may include less favourable employment options (Arora & Sharma 2018; Lovejoy & Stone 2012; PricewaterhouseCoopers 2016;), leading to longer term financial ramifications (Bravo & Herce 2022; Feng et al. 2019; Rest 2018). Women may find themselves working below their skill level when returning to the workforce (Arora & Sharma 2018; PricewaterhouseCoopers 2016; Saleena & Mavoothu 2013) or even deciding on a career change on failing to find appropriate employment (Kaushiva & Joshi 2020; Lovejoy & Stone 2012).

Australia’s interest in women in STEM and their concerns that they remain heavily underrepresented in the STEM workforce (Dangar 2021; Devis et al. 2023) further justifies the need to explore women’s experiences within the STEM workforce, including when they interrupt their career. This justification is implied by the suggestion of Kingsley (2020) that a more diverse STEM workforce could be achieved through a program to encourage employers to recruit qualified STEM professionals who would like to return to the workforce after a career break. This program could improve gender representation within STEM organisations through identifying opportunities to support and retain women who already possess STEM qualifications, knowledge, skillsets, abilities and experiences, which they take with them when they temporarily withdraw from the STEM workforce. Recent statistics within the STEM equity monitor report (2023) point out key statistics that convey the widespread problem of STEM gender equity across Australia, not only within schools, but also universities as well as within the academic and non-academic workforce. Further compounding this issue of STEM gender equity and women in STEM who take a career break is the need for a cultural shift raised by the Australian Academy of Science (2019)

within their ‘Women in STEM Decadal Plan’. The Australian Academy of Science (2019) assert that increasing women’s participation in the STEM workforce is reliant on a cultural shift by STEM organisations towards recognising and accommodating women’s career interruptions, which the research findings of this study can contribute to.

Women who are employed within the fields of STEM possess the types of skills that will form a core part of the future workforce (Australian Academy of Science 2019; Leigh et al. 2020). Women in STEM possess a broad range of valuable knowledge, skills and abilities. According to Carnevale et al. (2011), there are 10 different types of knowledge, 17 different skills and seven different abilities that span across the main four STEM disciplines. This is indicative of the multitude of STEM occupations and careers across a number of industries that may employ women and from which those women may, at some point, wish to take a career break.

Dangar (2021) emphasises how improving the utilisation of the existing pool of valuable talent is crucial to increasing women’s workforce participation, as well as retaining women in the STEM workforce. This study aims to contribute towards improving STEM organisations’ policies and practices towards supporting women in STEM who interrupt their careers. For economic reasons, opportunities must be identified to support and retain women in STEM who take a career break as ‘Australia’s future wellbeing and advancement will be built upon a STEM-literate workforce: to succeed, this workforce must fully engage women’ (Prinsley et al. 2016, p. 4). This means that STEM qualifications, knowledge, skills and abilities, as well as employment experience, are becoming increasingly valuable and sought after by employers, particularly as Carnevale et al. (2011) point out that STEM knowledge is transferable to other occupations and industries. The STEM equity monitor report (2023) draws attention to how ‘understanding women’s participation in STEM-qualified

occupations, and how STEM-qualified industries are taking action to support women's participation, can highlight industries that are driving change and industries where more effort is needed' (p. 16). As occupations continue to change and emerge, STEM skills and knowledge are competencies that must form part of an individual's employability (Camille et al. 2022). It makes sense to identify opportunities such as those identified within this study to support and retain individuals who have already been educated, trained and employed in STEM industries, wherever possible.

1.4 Problem

This study explores the career break experience at a deeper level to determine how changes in women in STEM's work, life and career engagement may impact on their experiences of employability. Existing career development literature is focused on the challenges associated with returning to work after a career break, or the gender and knowledge barriers faced by women in STEM when returning to the workforce. The career development literature however is lacking in determining how the career break experience is meaningfully harmonised with women in STEM's collective work, life and career engagement and experiences of employability, that accords with contemporary trends and trajectories.

As a researcher who has taken a career break, I saw this as an opportunity to investigate contemporary thinking on this subject, which posits the career break as more than just a temporary hiatus from work: rather, it includes all the individual's collective, subjective set of work, life and career experiences. Gaining momentum within recent career development scholarship are the issues of balancing work, life and career experiences. Akkermans and Kubasch (2017) point out that the interaction of the domains of work and life has become a trending topic. Managing these domains to meet the lifestyle needs of women is now a prevalent issue in the contemporary labour force (Mainiero & Sullivan 2005; Phipps & Prieto

2016). Individuals cannot be dependent on employers when managing their employability (De Vos et al. 2011), nor can they depend on organisations to balance their work, life and career experiences when taking a career break. This suggests that navigating a career break is largely an independent process for an individual. This study explores this challenging truth of career breaks as complex transitions to understand women in STEM's self-management capabilities in simultaneously managing changes to work, life and careers, whilst managing and maintaining their employability.

When women in STEM take a career break, they experience challenges that are distinct from those faced by women in other fields. The fast-paced and evolving nature of STEM industries means that career breaks can lead to skill obsolescence more quickly than in other professions, creating a steeper challenge for women to maintain their employability. Furthermore, deeply embedded gendered contextual and systemic barriers and the significant underrepresentation of women in STEM present additional hurdles, exacerbating the impact of career breaks on their career trajectories. Thus, when women in STEM take a career break, they need to proactively plan and prepare themselves and think carefully before, during, and when returning to the workforce. This raises the question: 'How do women in STEM navigate the changes that emerge when taking a career break, whilst managing and maintaining their employability?' This study aims to investigate this issue and contribute to the existing limited guidance within the career development literature of how women in STEM can better manage their career interruptions and their employability.

1.5 Research question

The research design is framed by the seminal work of Creswell (2009), whose qualitative research methodology serves as a guiding framework for the investigation. Thus, a central research question followed by guiding questions were developed from analysing the existing

research deficit, combined with the personal experiences and positioning of the researcher. The key research question broadly focuses on women in STEM's career break perceptions and experiences. The guiding questions were more specific and focused on obtaining a deeper understanding of women's perceptions and experiences in terms of the work and life changes that emerged and the impact of these work and life changes on employment and job experiences.

Key research question:

What are women in STEM's perceptions and experiences when they move into, through and out of a career break?

Guiding questions:

The key research question was guided by the following guiding questions, to obtain a deeper understanding of women in STEM's perceptions and experiences when they move into, through and out of a career break:

1. What work and life changes emerged during women in STEM's career breaks?
2. How did these work and life changes impact on the employment experiences and job readiness of women in STEM when taking a career break?

1.6 Research approach

A narrative approach is used to explore and understand the research topic. As the research questions were exploratory in nature, an interpretive research paradigm guided this study. There was no reliance on statistics or generalisations that is often associated with a positivist paradigm (Alharahsheh & Pius 2020). Through this narrative approach, the aim was to gather a rich body of data that represented each interviewed participant's career break perspective

and experience. The interpretivist paradigm seeks to derive meaning from a richness of reflections and lived experiences of individuals (Schwandt 2000). Alharahsheh and Pius (2020) contend that an interpretivist paradigm allows for a depth of knowledge of perceptions and experiences of a specific social context.

Stories were captured from 18 women in STEM who had taken at least one career break for varying reasons, durations and at different career stages. Storytelling allowed the voices of the women to be heard directly through their personal reflections about their thoughts, feelings, emotions and behavioural responses. Issues and themes emerged from these candid reflections, whilst capturing the uniqueness of each participant's experiences. Riessman (2008) affirms that the unstructured nature of narrative interviews gives participants the opportunity to take some control over the direction of their own interview. The narrative approach also encourages a collaborative relationship between the researcher and participants (Creswell 2013). This can enhance the recounting of career break experiences.

A narrative approach has previously been used by several scholars to understand women's careers (Chinyamurindi 2016; Heikkinen et al. 2014; Xian & Woodhams 2008) and career transitions (Vahidi et al. 2022; Li & Lai 2022). This study builds on that previous research to encapsulate and articulate firsthand accounts of how women in STEM navigate their way into, through and out of a career break, with the intent of making a significant contribution to understand women's career breaks in the STEM fields from the individual perspective. Accordingly, the findings of this study provide an appreciation of the entire career break trajectory of moving into, through and out of a career break, as well as an appreciation of experiences at specific points of the career break trajectory. Using a narrative approach enabled the collection of a complex set of data on career break perceptions and experiences.

1.7 Contributions

Theoretical contribution:

This study makes the following contributions to existing career break, employability and transition literature by:

1 Building on Schlossberg's transition framework (1981, 2011), as well as the career break literature through exploring the career break experience as a transitional experience to understand how individual's cope with and respond to the changes that emerge when they take a career break.

2 Building on McQuaid and Lindsey's employability framework (2005), as well as the career break literature through exploring how an individual's employability is shaped by a transitional experience, a period that is characterised by significant change.

3 Constructing a theoretically informed conceptualisation of the career break guided by Schlossberg's transition framework (1981, 2011) and McQuaid and Lindsey's employability framework (2005). An integration of these two frameworks informs of a simultaneous understanding towards an individual's self-management capabilities towards the changes that emerged throughout the transition of a career break and maintenance of their employability.

Methodological contribution: The development of career break narratives will make the following contribution to existing narrative literature by:

1. Contributing to the use of narrative inquiry, through exploring and recounting the lived experiences of women in STEM relating to their career breaks.

Practical contribution: The research findings provided a rich and deep understanding of women in STEM career break perceptions and experiences that will have practical value in two ways:

1. Identify opportunities for women working in STEM to improve their ability to cope, navigate and manage their future career break experiences independently including strategies to facilitate their return to the STEM workforce.
2. Identify opportunities for STEM organisations to develop and adjust workplace policies and practices in relation to the management of career breaks for their employees.

1.8 Significance

The significance of this study lies in its contribution to the career development literature, narrative research methodology and practical implications for both women in STEM who take a career break and STEM organisations.

Theoretical Implications: The Career Break Model advances existing knowledge of career breaks, through understanding how women in STEM manage the complex transitional experience of a career break with their employability. This renewed perspective is theoretically informed using the novel conceptual approach of Schlossberg's Transition Framework (1981, 2011) and McQuaid and Lindsey's Employability Framework (2005). This new perspective fills a gap in the career development literature, by considering the challenges women in STEM face in relation to their employability during a period that is characterised by significant change. This study provides a broader perspective of adaptability through new understandings of how employability is impacted by this period of significant transition for an individual, whereby they must navigate and adapt accordingly. The developed Career Break Model suits the contemporary disruptive working environment in

that it accommodates continual change, facilitates progression and allows individuals to systemise their career breaks by encouraging effective decision making when taking career breaks. This study applies qualitative research methods to capture in-depth, personal narratives of women in STEM to hear their voices through their candid reflections about their career break experiences. The development of career break narratives addresses a gap in prior research that provides an alternative perspective compared to other types of qualitative and quantitative methods. By using these methods, the study provides rich insights into the lived career break experiences of these women, which are critical for developing tailored career interventions to deal with career interruptions. The research findings of this study may also contribute towards future research recommendations made by several scholars. These recommendations include a stronger understanding of strategies that can support women when returning to the workforce (Zimmerman & Clark 2016), better understanding adaptability of women in the workplace (Chen et al. 2020), understanding significant components of employability in different career phases and contexts (Römgens et al. 2020) and qualitatively exploring women's lived experiences and perspectives of their career breaks (Bian & Wang 2019).

Practical Implications: The practical implications of this study are important for women in STEM and STEM organisations. According to a recent study by the Department of Industry, Science and Resources (2023), women make up 15% of the STEM workforce in Australia, a relatively small percentage compared to other sectors. Given the growing importance of STEM, the increasing frequency of career interruptions and the significant underrepresentation of women in the STEM workforce, further understanding is required about how women experience career breaks and their re-entry into the workforce. The research findings of this study can contribute towards designing career development support that help women in STEM maintain their employability as they move in and out of

the workforce throughout their careers. They can further guide women in STEM and STEM organisations towards the development of practical and tailored career interventions that cater to the unique needs of women in STEM, ensuring their successful re-engagement with the workforce after career interruptions. The Career Break Model could serve as a practical self-management capability tool to inform women in STEM who take a career break. It could also inform STEM organisations to better understand career break experiences and contribute towards the development and adjustment of workplace policies, practices and strategies in relation to career breaks.

1.9 Thesis Structure

This thesis is comprised of seven chapters:

Chapter 1 Introduction – This chapter establishes the context, rationale and significance of this study, and introduces the key research question and guiding questions. It also notes theoretical and practical contributions. It draws attention to the salient, complex and multifaceted role of an individual to self-manage their work, life and career, which is further complicated for women working in the fields of STEM when they take a career break.

Chapter 2 Literature review – This chapter presents the literature to articulate the research gap and address the key research question and guiding questions. It discusses the literature in relation to career breaks, employability and women in STEM as well as the connections between work, life and career engagement. The significance of the key theoretical frameworks that were used to guide this study is explained. These are Schlossberg's transition framework (henceforth TF) (1981, 2011) and McQuaid and Lindsey's employability framework (henceforth EF) (2005).

Chapter 3 Methodology – This chapter explains the methodology and methods that were selected and used for this study. It details the rationale for choosing a qualitative study, using

a narrative research approach, to collect and thematically analyse the data and capture the stories of women in STEM's career break perceptions and experiences. The sampling and coding process is explained in this chapter, which also outlines ethical considerations associated with carrying out narrative interviews for this study, including the impact of the COVID-19 pandemic on the conducting of interviews.

Chapter 4 Analysis and findings – This chapter interprets the interview data, and the research findings are discussed according to the common patterns that emerged when thematically analysing the data across all 18 interviews. Commencing with a summary of participant profiles and their career breaks, it goes on to identify the themes that emerged from a thematic analysis of the data. These themes included self-reliance, reliance on others, reliance on the workplace, changes in patterns of work motivation and engagement, work and life stressors and return to employment challenges. Quotes were drawn directly from the narratives to support the research findings and emerging themes of this study.

Chapter 5 Restorying – This chapter presents a sample of narratives that were carefully selected and restoried according to the emerging themes from the research findings. These narratives ultimately produced data to address the research question in a meaningful way because they were true and authentic reflections of participants' relived career break experiences. The restoried narratives convey the voices of participants in their own words as drawn directly from the interview transcripts.

Chapter 6 Discussion towards a reconceptualisation – This chapter interprets and explains the research findings in the context of the key theoretical lenses that were chosen for this study and previous research on career breaks, employability and transition, leading ultimately towards a reconceptualisation of career breaks.

Chapter 7 Implications, recommendations, limitations and conclusions – This final chapter summarises the theoretical and practical implications, recommendations and limitations of this study. A reconceptualisation of the career break experience is recommended and presented in the form of a Career Break Model that integrates knowledge of career break, transition and employability. The key constructs of this model are explained in detail. The recommendations that follow are drawn directly from the research findings and offer two main benefits. Firstly, they can benefit women in STEM in alleviating the challenges they experience when taking a career break. Secondly, they can benefit STEM organisations by assisting them to develop and deliver workplace policies and practices that can improve career break experiences for their employees.

1.10 Chapter Summary

This chapter provides a foundation for this doctoral study. It establishes the context of the study and justifies the imperative need for carrying it out. In doing so the chapter draws attention to the perceptions and experiences of women in STEM as they move into, through and out of their career break and explains why this topic warrants further attention. Chapter 2: Literature Review sets the boundaries of this doctoral study, discussing the scholarship on career breaks and women in STEM and introducing the key theoretical frameworks that were used to guide this study and answer the key research question.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

This Literature Review Chapter reviews the central literature on career breaks, employability and transition within a STEM context, with an emphasis on women employed in STEM. It consists of five main sections that discuss the theories and concepts, which form the boundaries of this study in order to answer the key research question 'What are women in STEM's perceptions and experiences when they move into, through and out of a career break?' The first section examines the evolution of the career break concept. The second section explores the various employability challenges that women are faced with when taking career breaks. The third section provides a discussion on STEM industries, women in STEM and the Australian context. The fourth section draws attention to the connection between work, life and career engagement from the individual perspective: it describes a shift in these collective experiences of work, life and career for individuals and suggests that this represents a gap within existing career development literature. The fifth section explains the significance of the key theoretical frameworks that were used to guide this study.

Reviewing career break literature shows robust discussion in relation to changing experiences of work and career development within the contemporary landscape, yet the career break itself, as a transitional experience for an individual that has broad professional and personal implications has been overlooked. Despite the break from the workforce being temporary, many women experience a lack of confidence in their ability to return to the workforce after a career break, due to concerns about their employability (Lovejoy & Stone 2012). Such concerns held by women when they take a career break are amongst many others that are discussed throughout this chapter.

The acknowledgment of the career break experience as an integral component of an individual's professional career trajectory has been underscored by scholars (Elley-Brown et al. 2018; Mainiero & Gibson 2018; Mainiero & Sullivan 2006; Reitman & Schneer 2008). In light of this recognition, there is certainly a scholarly imperative to investigate the diverse array of challenges confronted by women during periods of career hiatus. Focusing specifically on women in STEM fields, this chapter endeavours to scrutinise the intricacies associated with career breaks in this demographic. Despite the increasing prevalence of career breaks, the literature on the topic as an experience marked by substantial transition is thin. This study thus addresses this research gap with a thorough examination of how career breaks shape individuals' employability and decision making. It aims to make a significant contribution in women's career breaks in the STEM fields, informing on how they simultaneously manage and cope with their career breaks whilst maintaining their employability.

To explore women in STEM's perceptions and experiences of the career break, this study selected two long existing scholarly frameworks, to understand and explain changes to work and life and the impact of these changes on an individual's employment and job experiences. The scholarly work of Schlossberg (1981, 2011) has been used to explore transitional experiences that pose significant change for an individual, while the scholarly work of McQuaid and Lindsey (2005) has been used to holistically explore the interrelated factors that influence an individual's ability to retain and obtain employment. This choice of a theoretical base supports the adoption of a multidisciplinary approach to understanding careers, as recommended by scholars in the field (Patton 2013; Vondracek et al. 2019) and women's career breaks (Bian & Wang 2019).

Whilst career development is the core discipline of this research, this chapter demonstrates how the multidisciplinary breadth of careers and employability research can be integrated, in alignment with calls by Healy (2023), Akkermans et al. (2024) and Clarke (2018). The employability literature provides comprehensive and nuanced accounts of employability capitals (Donald et al. 2024) and processes (Healy 2023) and employability models often accord within the context of specific disciplines (Römgens et al. 2020). This has resulted in a lack of cohesion and clarity within the field of employability. Furthermore, employability research has overlooked the processual dynamism of employability (Akkermans et al. 2024). This study takes a broad perspective towards the concept of transition that forms part of a developmental and transition framework to explore a career transition.

The structure of the remainder of this chapter is summarised below in Table 1: Intersection between career break, transitions and employability and illustrates how each section directly aligns with research question to warrant the exploration of women in STEM's career break perceptions and experiences.

Table 1: Intersection between career break, transitions and employability

Section in Literature Review	Argument to warrant exploration	Relevance to the research question
2.2: Career break	Changing concept of career break and motivations	Explains what contemporary career break experiences are
2.3: Employability challenges for women on career breaks	Specific individual, personal and external employability challenges faced by women in STEM	Provides evidence of employability challenges for women when taking career breaks
2.4: STEM Women, Industry and Context in Australia	Examine the issues specific to STEM	Adds context on how industry specific factors shape career breaks
2.5: Intersection of work, life and career engagement	Conflict of balancing and exploring work, life and career	Discusses work, life and career, considering contemporary employment trends and career trajectories
2.6: Key theoretical frameworks (Integration of Schlossberg (TF) and McQuaid and Lindsey's (EF)	View the career break as a transitional experience with a holistic approach to employability	Establishes a theoretical lens to understand the broad professional and personal impact of career breaks

2.2 Career break

A career break can be defined as a period in which an individual spends time away from the workforce, while having the intention of returning (Bian & Wang 2019; Cabrera 2007; Weisshaar 2018). However, scholars have described the career break in many different ways. Definitions include a career interruption (Bian & Wang 2019; Zhou 2015), opting out (Cabrera 2007; Kossek et al. 2017; Lovejoy & Stone 2012; Stone & Hernandez 2012; Zimmerman & Clark 2016) and off-ramping (Hewlett & Luce 2005; Hewlett et al. 2010). Similarly, the term 'return to work' is also referred to variously in the literature as opting-in (Cabrera 2007; Zimmerman & Clark 2016) on-ramping (Hewlett & Luce 2005; Hewlett et al. 2010) and as a second career (Rajesh et al. 2013). These definitions have emerged from existing research which all refer to women temporarily withdrawing from the workforce. The topic of women taking career breaks has appeared in literature spanning over the past two decades (Bian & Wang 2019). This perspective, together with Cabrera (2007) and Weisshaar's (2018) definition of a career break has been used to navigate the direction of this

study. Many women who leave the workforce to take a career break are professional, highly educated and qualified (Hewlett et al. 2010; Rajesh et al. 2013). Their departure from the workforce has been described by some scholars as a talent drain (Belkin 2003), female brain drain (Gwal 2016; Hewlett & Luce 2005) and as a 'leaking female talent pipeline' (Marmenouta & Lirio 2014).

Perhaps the most significant development in the literature is the attempt to view the career break as a common and positive experience, moving away from the widely acknowledged stigma that has been associated with the traditional view of women taking a career break. There is growing acknowledgment within the career break literature that males, individuals and people generally, not just women, take career breaks at some stage. The 2022 global survey conducted by LinkedIn found that 62% of people globally had taken a career break. This led to LinkedIn introducing a feature section 'Career break experiences' on members' profile pages (Shappley 2022). Similarly, research commissioned by the Serco Institute (2022) explored attitudes of men and women towards career breaks across four countries and found that 56% of participants from Australia, the US, the UK and the United Arab Emirates had taken a career break. Changing attitudes of working generations towards work and life are driving career break motivations (Hobart and Sendek 2014). As people around the world are living longer, they are more likely to take breaks during their working life and there is thus increasing awareness of the benefits of career breaks and managing the ensuing resume gaps. As one scholar has said: 'The rapidly changing external environment and the burgeoning new workplace have led to diverse career values, attitudes, and trajectories. In this context, career interruptions are becoming more prevalent' (Bian 2022, p. 10).

2.2.1 Career break motivations

Moving into a career break: There are various reasons (Sharma 2020) and specific reasons (Gwal 2016) why an individual may take time taken away from the workforce. The decision can be motivated by a workplace-initiated push or by personal pull reasons (Cabrera 2007; Hewlett & Luce 2005; Stone & Hernandez 2012; Stone & Lovejoy 2004). Cabrera (2007) found that though many women take a career break for family reasons, such as having children, there were many other reasons given, such as pursuing additional education, relocation, or being laid off. The sabbatical experience is also considered to be a type of career break, that is a reward for time worked in an organisation (Opuko & Gacheri Munjuri 2017). Growing in popularity is the adult gap year, a travelling experience also viewed as a type of career break (Messerli 2008). The COVID-19 pandemic resulted in the emergence of the pandemic career break experience, fuelled by an unchartered and uncertain working landscape and a reimagining of work, life and career by many individuals (Simone & Kannan 2020). The multiple and differing reasons for taking a career break align with various long or short durations of such breaks.

Moving out of a career break*:* Whatever the reason for taking a career break, there is usually an intention to eventually move out of a career break and return to employment, to either the same employer or a different one, in the same field or another one. The length and reason for taking a career break can have an influence on the type of employment role women go back to once they move out of a career break and back into the workforce. Some scholars argue that women may consider an alternative employment role when returning to the workforce, one that will allow them to meet other family-related responsibilities (Arun et al. 2004; Cahusac & Kanji 2014; Zimmerman & Clark 2016). Suitable employment may be sought that provides better compatibility between work and family life. Petrongolo and Ronchi (2020), however, point out that women who seek such compatibility may face

problems when their work is associated with certain professions that demand continuous and inflexible labour market participation of their workers. Financial reasons explain why many women want to return to employment after a career break, but there are also non-financial reasons why women may seek to return to employment (Cabrera 2007), such as for their own self-fulfilment or to combat boredom (Rajesh et al. 2013).

2.3 Employability challenges for women

The nature of employability has changed and evolved due to changes in the working landscape (Cao 2017; Clarke 2007). According to Kovalenko and Mortelmans (2016), Römgens et al. (2020) and Williams et al. (2016), the term employability has multiple and varied definitions. While skills and attributes are important, they correspond with a narrow view of employability (McQuaid & Lindsay 2005). Multiple interconnected factors must now be included when assessing the employability of any individual (Guilbert et al. 2016; McQuaid & Lindsay 2005). An example of wider interpretation of employability is as Guilbert et al. 2016 posit: '…the possibility to access a suitable job or to remain employed, resulting from the dynamic and evolving interactions between governmental and educational policies, organisational strategy, individual characteristics and the social, economic, cultural and technological context' (p. 85). This broadening of the concept of employability has been inferred by many scholars (Forrier & Sels 2003; Guilbert et al. 2016; Hillage & Pollard 1998; McQuaid & Lindsay 2005). All acknowledge that both circumstances and contexts have an impact on employability.

Little is known about how women in STEM manage their circumstances and the broader context as they navigate into, through and out of their career breaks. The stated intention to return to the workforce after a career break (Bian & Wang 2019; Cabrera 2007; Weisshaar 2018) implies that individuals must strive to remain employable. Kovalenko and Mortelmans

(2016) assert that the employability of an individual is influenced by both self-directedness and context. Yet how do women in STEM manage contextual factors of employability that are largely beyond their control when taking a career break?

There is an increasing responsibility by an individual to maintain and manage their own employability (Sin & Neave 2014; Vanhercke et al. 2014; Veld et al. 2015). Several scholars contest this responsibility and the notion that employability is an individual virtue and the lack of it an individual moral failing (Forrier et al. 2018; Healy 2023; Hooley et al. 2018). The widening perception by scholars of what constitutes employability, further complicates this challenging responsibility (Forrier & Sels 2003; Guilbert et al. 2016; Hillage & Pollard 1998; McQuaid & Lindsay 2005). The managing and maintaining of one's employability implies that employability must be a continuous process that goes well beyond acquiring educational qualifications and initial employment (Forrier & Sels 2003; Fugate et al. 2004). Healy (2023) further supports this, declaring that 'employability is better understood as a process than an outcome' (p. 1308). This process of employability requires independence by an individual (Tomlinson and Nghia 2020). This independence has been described elsewhere as an 'individual responsibility for creating employable selves' (Herman 2015, p. 4).

The continual process of managing and maintaining one's employability presents barriers for women to self-manage and nurture their employability when they take a career break. Herman (2015) explains how women in STEM are faced with additional barriers when re-entering the workforce, which some believe can be determinantal to their future career progress (Professionals Australia 2015). These barriers are more prevalent for women in STEM due to the combination of additional career development barriers (Hansen 2020; Professionals Australia 2015; Swafford & Anderson 2020) and systemic barriers (Australian Academy of Science 2019; Greider et al. 2019; Hardcastle et al. 2019) as well as barriers that

relate to both knowledge and women's under-representation (Blackburn 2017; McCullough 2011). The following section discusses the combination of barriers that women may encounter in relation to their individual, personal and external circumstances. These barriers are consistent with the terms used by the respected and grounded scholarly work of McQuaid and Lindsey. These barriers can be both personally and professionally discouraging for women who would like to return to STEM after a career break. Beyond this discouragement, a career break in STEM can result in a major career setback (Sharma 2022).

2.3.1 Individual circumstances

Several scholars have found that women encounter employability barriers in relation to their individual circumstances, that relate to their own personal identity when they take a career break. Individual factors pointed out by McQuaid and Lindsey (2005) include personal skills, knowledge, health and wellbeing, demographic characteristics and previous job seeking experiences. These barriers have been shown to include a reduced level of confidence (Arora & Sharma 2018; Mishra & Mishra 2016) while other barriers identified include a resume gap**,** out-of-date skills, burdensome family responsibilities, inflexible work options, lack of networking and ageism (Cabrera 2007; Herman 2009; Herman 2015; Lovejoy & Stone 2012). Having out-of-date skills is a common barrier for women in STEM who have taken a career break, as Herman and Webster (2010) assert that keeping abreast of technological skills is particularly challenging for returners, due to the speed at which acquired skills become obsolete. Arora and Sharma (2018) also draw attention to this barrier, highlighting the need for retraining opportunities.

Skills maintenance during a career break is a critical aspect that has been emphasised by several scholars. McIntosh et al. (2015) highlight the importance of women maintaining their skills during career breaks as part of an employability plan. This proactive approach

minimises the need for extensive retraining upon re-entry into the workforce. In the field of Information Technology, for instance, skills such as programming must be continually updated to meet employers' preferences for the most current skillsets (Herman & Webster 2010; Panteli 2006). The continuous updating of skills is not only a necessity for keeping pace with technological advancements but also a fundamental component of lifelong learning. Curtis and McKenzie (2001) claim that lifelong learning is vital for adults to reskill, upskill, and enhance their adaptability to change. Furthermore, Healy (2021) reinforces the notion that acquiring new credentials and skills is central to career development research and practice, thereby underscoring the necessity for individuals to engage in continuous learning throughout their professional lives. This sustained effort in skill maintenance ensures that individuals remain competitive and adaptable, ultimately facilitating smoother transitions back into the workforce.

2.3.2 Personal circumstances

Women encounter barriers in relation to their personal circumstances when they take a career break. Common barriers identified by Herman (2015) include financial, professional or other networks of support, as well as caring responsibilities. There is agreement among scholars that attaining the optimum work-life balance can be difficult for many women (Chawla & Kumar 2018; Oyewobi et al. 2019; Rao 2017), including for women working in STEM (Duberley & Cohen 2010; Kameny et al. 2014). Work-life balance, however, is considered key for mid-life women who want to relaunch their careers (Cabrera 2007; Krishna 2016; Marcinkus et al. 2007). Determining how women can appropriately adapt and achieve a balance between their personal and professional lives is perhaps one of the biggest challenges they will encounter.

Modifying employment arrangements to incorporate flexibility and allow women to manage and balance their responsibilities between work and family, can be challenging. Women's desires to work flexibly in order to meet their personal needs conflicts with organisational norms in terms of how employers typically measure their employees' dedication to their careers (Zimmerman and Clarke 2016). The reliance on technology has widened work-related communication beyond the 9 to 5 day, however, easier communication has often resulted in the integration of one's personal and professional life (Inamdar & Nagendra 2017). The risk of women not achieving work flexibility is that their career might end (Lewis 2010; Lovejoy & Stone 2012). Herman and Lewis (2012) found that women working in Science, Engineering and Technology (SET) experienced difficulties in modifying their employment positions, particularly working hours, to balance parenthood with employer expectations. The desire to change employment may arise from a conflict between their professional and personal obligations. Women will naturally be drawn towards more flexible workplace programs and policies to support their return to the workforce (Jenkins et al. 2016; Lovejoy & Stone 2012) in order to balance their professional and personal lives. Kanji and Cahusac (2015) point out how these competing personal and professional obligations can be further exacerbated not only by employers, but also by wider society. For example, there are varied meanings of work among different cultures, particularly Eastern and Western cultures, which can influence the roles of men and women (Chandra 2012; Hassan et al. 2010) as they form part of one's belief and value system.

The implications associated with striving to achieve work-life balance can be long-lasting. For example, over the longer term there are financial disadvantages for women who take a career break (Bravo & Herce 2022; Feng et al. 2019; Rest 2018). Rest (2018) commissioned research to explore the financial effect of career breaks on 1,030 working Australians, both male and female. This research commissioned by Rest (2018), revealed that women take

more career breaks when compared to men, for a longer period, at a younger age, and are financially worse off when they return to the workforce (Rest 2018). Research carried out by Bravo and Herce (2022) found the financial impact from having taken a career break was greater when an individual had experienced occupational downgrading when returning to work. They found this was even more true, if the occupational downgrading occurred earlier rather than later in their career.

2.3.3 External circumstances

Women encounter barriers in relation to their external circumstances when they take a career break which can be problematic, as these contextual and systemic barriers that exist largely relate to the labour market, organisational culture, societal norms and their underrepresentation. It is widely acknowledged in the literature that women remain underrepresented in the STEM workforce (Broadley 2015; Carr 2013; Dockery & Bawa 2018; Kenney et al. 2012; Robnett 2016; Sassler et al. 2017) to the extent that they are considered a minority group (Da Costa 2016). This under-representation is acknowledged by several scholars as occurring also at senior levels, with Blackburn (2017), Daldrup-Link (2017) and McCullough (2011) concurring that women are underrepresented in STEM leadership positions.

Several prior studies have reported entrenched gendered pathways (Broadley 2015), gendered cultures (Bilimoria & Liang 2014), gender bias (Australian Academy of Science 2019; Hart 2016; Professionals Australia 2017) and gender-based occupational segregation (Professionals Australia 2017, 2018; Sassler et al. 2017) existing in STEM organisations. These gendered contextual and systemic barriers can result in additional career development barriers for women in STEM (Bastalich et al. 2007; Kossek et al. 2017). Examples of career development barriers for women in STEM include poor work-life balance and lack of

training opportunities, female role models and career development support (Professionals Australia 2015). Examples of systemic barriers for women in STEM include discrimination, inflexible work options and gender bias (Australian Academy of Science 2019). This combination of barriers can be particularly difficult for women to navigate at times when they take a career break and then return to the workforce.

Herman (2015) draws attention to the existence of gendered cultures in STEM and the flow-on effect they may have on recruitment practices. Friedmann and Efrat-Treister (2023) explored the recruitment of women in STEM and found that different selection criteria were applied between female and male hiring managers, some of which reflected an implicit gender bias. By way of example, male hiring managers placed more value on one's ability to work long hours, while women hiring managers placed more value on an applicant's problem-solving ability. Other influencers on the recruitment and retention of women in STEM include 'cultural barriers, inflexible work practices, systemic bias in advancement strategies and inequities in remuneration' (Professionals Australia 2017, p. 30). Perhaps the greatest difficulty associated with such external barriers, is that they are largely beyond women's control. Several scholars recommend that changes need to be made to existing recruitment processes to attract more applications from women in STEM (Bilimoria & Buch 2010; Diekman et al. 2015; Glass & Minnotte 2010; Smith et al. 2015; Weisgram & Diekman 2016). This would widen the talent pool and potentially increase the representation of women in STEM and women returning to the STEM workforce. Bolton (2016) contends that a better understanding of these barriers is required by STEM organisations, when considering making organisational changes such as a restructure of organisational culture.

Sassler et al. 2017 claim that several scholars recommend changes to address gender barriers in STEM, including a review of organisational processes that may perpetuate gender

inequality. This includes addressing the persistant issue of the stigma in relation to women's career interruptions (Australian Academy of Science 2019; PricewaterhouseCoopers 2016). The stigma associated with having a resume and job-fit gap can prevent women from accessing employment opportunities and result in many talented women not achieving their full career potential. This is mirrored in Peralta's concerns that 'despite half of hiring managers believing that career breaks are becoming more common, one in five would decline an applicant with a gap on their resume' (Peralta 2022).

This stigma partially relates to the flexibility associated with women who take a career break (Stone & Hernandez 2013; Williams et al. 2013). There is a perceived lack of commitment and dedication that is associated with a desire for flexible employment arrangements (Cech & Blair-Loy 2014; Chung 2020). This prejudice is extremely difficult for women to overcome when they have interrupted their career for any reason. The stigma can be deeply embedded within an organisation's culture and therefore make it difficult for women to access workplace policies (Auster 2001; Drew & Murtagh 2005; Professionals Australia 2015). Typically described by scholars as full-time, uninterrupted, and inflexible (Bilimoria et al. 2014; Herman 2009, Herman & Webster 2010; Professionals Australia 2015) the STEM career model can therefore preclude women from accessing workplace policies and obtaining the support they need when taking a career break.

Traditional views on STEM careers generally support an uninterrupted career model, which means that career interruptions for women can result in invisible barriers to employment, such as stereotyping (Australian Government Department of the Prime Minister and Cabinet 2017; Trades Women Australia 2019). These traditional views can prove problematic for women in STEM who interrupt their career, as they are effectively challenging the traditional stereotypical view that a STEM career should be full-time, uninterrupted and inflexible.

Goodson (2012) points out that in an increasingly globalised and digital economy, women are deviating from the traditional career model to that of a more flexible career model.

The ramifications of career barriers may result in women being presented with less favourable employment options when they return to the STEM workforce. Women may find themselves working below their potential, otherwise referred to as occupational downgrading when returning to the workforce (Arora & Sharma 2018; PricewaterhouseCoopers 2016; Saleena & Mavoothu 2013). Women may even decide on a career change after a career break if they cannot return to an appropriate position (Kaushiva & Joshi 2020; Lovejoy & Stone 2012). The negative consequences of taking a career break can be significant for women in STEM as they can impact future employment opportunities and long-term career advancement.

2.4 STEM

Coined by Judith Ramaley in 2001, the term STEM replaced the term SMET (Science, Mathematics, Engineering and Technology) (Sanders 2009). There is a broad combination of knowledge, skillsets and abilities, which make up STEM competencies, and which therefore open up a multitude of different career paths and occupations across a number of industries. According to Carnevale et al. (2011), there are 10 different types of knowledge, 17 different skills and seven different abilities that span the four STEM disciplines. These findings were based on an American occupational database that was used to identify and classify the core cognitive STEM competencies. Siekmann and Korbel (2016) conceptually explore the nature of STEM skills from an Australian perspective, acknowledging the study by Carnevale et al. (2011), due to the similarity of the occupational database used in Australia. STEM competencies have been clearly identified as the types of skills that will form a core part of the future workforce (Australian Academy of Science 2019; Leigh et al. 2020; Professionals

Australia 2015), as they will assist with facilitating and supporting the automation of occupations and digital advances. Furthermore, 'science and innovation are recognised internationally as key to boosting productivity, creating more and better jobs, enhancing competitiveness and growing an economy' ((Office of the Chief Scientist 2014, p. 7). According to Reitman and Schneer (2008) the increasingly service-focused, global and digital economy has also had an influence on the changing nature of careers. These changes place STEM jobs and careers in a prominent position for the future, due to the growing reliance on STEM skills and knowledge that can support a continually evolving knowledge-based global economy. The skills and occupations that are emerging (Khatiwada & Veloso 2019; Kilhoffer 2020; Nguyen & Raza 2020) further confirms STEM's prominence.

2.4.1 Women in STEM

There is a limited body of literature that exists which focuses on women in STEM who take career breaks (Herman 2009, 2015; Herman et al. 2019; Mavriplis et al. 2010; Sharma 2020) and women from overseas countries who work in a particular field of STEM who take career breaks (Arora & Sharma 2018; Herman 2015; Panteli 2006). No prior study has explored how the career break as a transitional experience shapes the employability of women in STEM. This perspective is important, given scholars point out there is an intention to eventually move out of a career break and return to the workforce (Bian & Wang 2019; Cabrera 2007; Weisshaar 2018).

Scholars have noted benefits of employing women who have taken a career break and would like to return to the workforce (All Party Parliamentary Group 2018; Rajesh et al. 2013; Rahman and Shashidhara 2022; Robert Walters 2015). Rajesh et al. (2013) refers to this group of women as a being a largely untapped group that are underutilised within the talent pool. Similarly, Rahman and Shashidhara (2022) are of the view that women who take career

breaks and would like to return to the workforce in the field of computing and emerging technology are a largely untapped talent pool that could be drawn on to fill a current shortage in the workforce. While it is recommended that skills be maintained during career breaks (McIntosh et al. 2015), where permittable, women may also broaden their skillsets through acquiring additional skills when taking their career breaks. Such skills include those obtained through engaging in further education, volunteering, freelancing (Robert Walters 2015), improving emotional intelligence, resilience, time management, people management, lateral thinking, networking, project management and entrepreneurialism (All Party Parliamentary Group 2018). Additional benefits for STEM organisations who rehire women after career breaks include meeting skill shortages, improving workplace diversity, broadening the access to a qualified talent pool in a manner which supports recruitment and retention and capitalising on prior experience to engage women within all levels of the pipeline (Women Returners & Timewise 2018). These benefits are similarly identified by Modassir and Ramesh (2017) to include diversity, experienced talent, well rounded perspectives, shorter lead time to productivity and being able to fill more flexible roles.

For STEM organisations, when their female employees take a career break, there can be a greater impact on workplace diversity due to the gender imbalance that already exists in those workplaces. This gender imbalance means that organisations are missing out on the benefits of having a diverse workforce at all levels. Krishna (2016) highlights the many benefits of workplace diversity, including increased creativity, innovation and lateral thinking, as well as broader skill bases, perspectives and experiences. Other scholars similarly highlight how workplace diversity can foster productivity (Cletus et al. 2018; Rohwerder 2017), creativity (Bamber et al. 2017; Cletus et al. 2018; Hunt et al. 2015; McCluskey 2019; Rohwerder 2017) and innovation (Bamber et al. 2017; Hunt et al. 2015; McNeely 2019).

2.4.2 The Australian STEM context

STEM organisations are negatively impacted when women take a career break. Professionals Australia (2018) describes the impact to organisations when women in STEM choose to leave the Australian workforce to include a loss of knowledge, technical skills, people skills, innovative capability and professional development investment, as well as the cost of retraining. This impact implies that women are valuable assets within their organisations prior to leaving the workforce. Sharma (2021) describes women in STEM who take a career break, particularly mid-career, as being a valuable asset for any economy. Further strengthening this position is the acknowledgment towards the benefits that women in STEM can bring to economies, particularly in terms of productivity and growth. 'Australia's future wellbeing and advancement will be built upon a STEM-literate workforce: to succeed, this workforce must fully engage women' (Prinsley et al. 2016, p. 4).

There is a multitude of gender equity programs (Devis et al. 2023; Kingsley 2020) as well as grant-funded programs for women working in STEM (Husic 2023), which are indicative of the Australian Government's commitment towards increasing the engagement of women within the STEM workforce. Some of the recent strategies put in place by the Australian Government include the 2019 Advancing Women in STEM Strategy, the 2019 Women in STEM Decadal Plan, the Advancing Women in STEM 2020 Action Plan and Towards 2025 An Australian Government Strategy to Boost Women's Workforce Participation. McKinnon (2022) examined many of the strategies implemented by the Australian Government that focused on advancing women in STEM but was unable to determine any positive impact of these strategies. Regardless, these strategies all focus on increasing women's workforce participation in STEM and position the STEM industry as a future growth and pivotal industry that will provide many jobs for the future.

Studies such as Deloitte Access Economics (2014) and Soriano & Abello (2015) highlight the growing importance of STEM skills for Australian employers. Despite this, Weisgram and Diekman (2016) draw attention to a need to improve the perception of STEM jobs to reflect a more family friendly environment in order to increase the recruitment of women working in the fields of STEM. Women in STEM who take a career break could widen the pool of existing and available talent and address workforce shortages, for example in the field of computing and emerging technology (Rahman & Shashidhara 2022). This further strengthens the need to understand the work, life and career complexities that women in STEM encounter when they take a career break. Tapping into this existing pool of talent could help address the alarming statistic highlighted in a recent study by the Department of Industry, Science and Resources (2023) which reported that the Australian STEM workforce is only 15% female.

2.5 Work, life and career engagement

The patterns of women's lives evidently do not fit the mould of the traditional career path. The traditional career path is based on a linear approach **(**Abessolo et al. 2017; Baruch 2004; Mainiero & Sullivan 2005; Sullivan & Mainiero 2008; Zimmerman & Clark 2016). This upward approach sees workers climbing the corporate ladder within a single profession throughout their working life (Baruch 2004; Reitman & Schneer 2008). Nor has the traditional career path always supported the nature of women's careers (Blair-Loy 1999; O'Neal et al. 2008; Sullivan & Mainiero 2008). The broadening of available careers, however, relates to 'an individual's work-related and other relevant experiences, both inside and outside of organisations that form a unique pattern over the individual's lifespan' (Sullivan and Baruch 2009, p.1543).

This non-linear approach to careers is otherwise referred to as the non-traditional career path (Abessolo et al. 2017; Lyons et al. 2012). Engaging with lateral moves that are associated

with non-traditional careers is known to increase the likelihood of employment instability (Taber & Blankemeyer 2015). This instability in employment creates a challenging responsibility for individuals to self-manage their career moves, which is particularly important when taking a career break. The non-traditional or newly emerging career path involves individuals making lateral job moves across organisations, as opposed to vertical moves within organisations and such moves may be made in pursuit of their career and life goals but are often accompanied by career interruptions (Reitman and Schneer 2008). De Vos et al. (2008) and Chu et al. (2007) further elaborate on lateral career moves. De Vos et al. (2008) describe a lateral career move as a horizontal shift that involves a new job role, but not necessarily a change in pay, responsibility or status, whereas a vertical career move involves moving up or down the managerial, technical or professional ladder. In another study, Chu et al. (2007) described a horizontal career move as potentially involving a new job in a new field, whereas a vertical career move may involve a new job but within the same field. These trends require workers to remain adaptable throughout their career (Tomlinson 2017), especially when working across several organisations.

Women have usually preferred the non-linear approach, which allows for career interruptions and is more appropriate to their lifestyle needs (Mainiero & Sullivan 2005). The non-traditional career is boundaryless (Arthur & Rousseau 1996; Rousseau 1995) and self-directed (Briscoe & Hall 2006; Hall 2004; Hall et al. 2013) and multidirectional (Baruch 2004; Lips-Wiersma & Hall 2007). Experiences of work are no longer based on one's career advancement within a single field but can rather relate to the experiences of any type of work throughout an individual's working life (Arthur et al. 1989). This has starkly changed the career trajectories of individuals, bringing with it, however, a sense of unpredictability. This sense of unpredictability and claims about a decrease in permanent full-time employment are trends acknowledged by scholars (Barley et al. 2017; Bornstein 2019; Carney & Stanford

2018). An increase in insecure working arrangements has also been reported (Ashford et al. 2018; Lewchuk 2017; Lam et al. 2015; Pacheco et al. 2016; Quinlan 2004). Further claims have been made by Bornstein (2019), Carney and Stanford (2018) and Pacheco et al. (2016) about an increase in more precarious working arrangements, such as part-time, casual and temporary employment. Other studies note an increase in self-employment (Carney & Stanford 2018; Findlay & Thompson 2017; Roskam 2005; Spreitzer et al. 2017). Together, these claims characterise the contemporary working landscape in which individuals may want to take a career break. The COVID-19 pandemic's 'impact on employment and individual workers has also been widely acknowledged' (Veles & Kim 2024, p. 41). It has further led to a new kind of employment in relation to flexible working arrangements that include remote working and hybrid working (Vyas 2022). The COVID-19 pandemic has also accelerated the trend towards unpredictability in the workplace. Increasingly, attention is being drawn to worker wellbeing and making the opportunity for workers to question their employment conditions and the meaning of their work (Gavin & Arrowsmith 2022).

The dynamics of employment have impacted on an individual's way of working, their experiences of work and the way in which they live, which one study found has resulted in an increase in autonomy for workers (Bridgstock et al. 2015). Individuals are now being presented with an expansion of employment choices, where they are able to consider many types of employment opportunities in various contexts (Santos 2020). This expansion of choice in types of employment opportunities has supported women entering the workforce in increasing numbers. The part-time workforce in Australia comprises 68.2% women (Australian Bureau of Statistics 2020), which suggests a high concentration of women working part-time. Yet despite the continuous increase in women's workforce participation (Domenico & Jones 2006; Strachan 2010; Sullivan & Mainiero 2008) the balancing of work

and life has proved problematic for many (Pocock 2003), resulting in trending career topics such as working from home (Akkermans & Kubasch 2017).

According to Strachan (2010) women's employment patterns and their career experiences have been influenced by shifting cultural, societal and legislative views. The set-up of households, along with changing employment arrangements, has affected how individuals experience their work-life in accordance with their personal life (Pocock 2009). The personal life has increasingly become more of a consideration when contemplating employment opportunities. This merging of women's professional and personal lives has been recognised by scholars (DiRenzo et al. 2015; Greenhaus & Powell 2012; Hirschi et al. 2020; Jacobson & Aaltio-Marjosola 2001; Litano & Major 2016).

A contemporary 'whole-of-life approach' (p. 52), as termed by Litano and Major (2016), means that career development decisions are based on both the professional and personal lives of an individual. Ud Din et al. (2018) highlight how the nature of these decisions can be dependent on an individual's career stage. Their study focused on why women in accounting might take an early, mid or late career break. They found that women's early career interruptions often related to getting married or having children, their mid-career interruptions were due to increasing responsibilities with immediate family and ageing parents, and their late career interruptions were taken to care for spouses and grandchildren. These findings reflect the changing circumstances and lifestyles of women throughout their career and how a career interruption can occur at any career stage and for various reasons. Afif (2019) highlights how work-life integration now means that individuals are making choices to manage their responsibilities across these two domains throughout their lives. That author clearly articulates a blending of work and life domains, as work-life integration, which

creates synergies that intertwine and intersect between the domains, as opposed to work-life balance, which tends to maintain separate boundaries between domains.

From an organisational perspective, Litano and Major (2016) found that leadership within organisations can also play an important role in supporting the work-life management process of employees that is accepting of their professional and personal growth needs through organisational culture and policies. Litano and Major (2016) describe this process as allowing management to identify the resources that can be utilised to support employees' whole-life needs and to facilitate their career development through accessing available and relevant organisational resources. A more recent study by Sani and Adisa (2024) similarly found that leadership plays an important role in supporting the work-life balance of their employees. Kossek et al. (2023) highlight a need for further research that is focused on integrating the fields of leadership and work and life to enhance our understanding of the important role of leaders in developing organisational cultures that support work and life.

2.5.1 Exploring work, life and career engagement

While scholars including Litano and Major (2016) and Usman et al. (2021) have taken a whole-life approach towards career development, Powell et al. (2019) point out that existing work-life research does not sufficiently encompass the multiple roles of an individual. One study draws attention to career self-management models, largely neglecting the interaction of the work and non-work domains that form part of the career self-management process. This results in a lack of conceptual clarity that hinders individuals from self-managing their lives and careers holistically and sustainably (Hirschi et al. 2022). Another study discusses the crisis that is occurring in career development, whereby 'adjustments, modifications, and extensions to existing career development theoretical models proved insufficient to address the crisis in career development brought about by globalisation, changing economic

circumstances, and dramatic shifts in the workplace' (Wehmeyer et al. 2019, p. 184). Those authors recommend new theoretical foundations are required that incorporate key elements such as life design, career construction and adaptability, goal setting, decision making, and self-directedness that reflect contemporary employment trends and career trajectories. There is no existing theoretical framework that is entirely suitable to explore the collective shift in work, life and career engagement that happens when an individual takes a career break. This study addresses this gap within the career development literature. It collectively examines how a shift in work, life and career engagement shapes an individual's employability when taking a career break, considering contemporary employment trends and career trajectories specific to STEM.

2.6 Key theoretical frameworks

As women encounter employability challenges when they take career breaks, that is further complicated by continuous changes in their work, life, career and the occupational landscape, there is a need for a career break framework that can simultaneously explore and explain both shifts in work, life and career engagement and employability. This study takes a new perspective of career break, integrating existing and emerging knowledge of career break, employability and transition to understand this collective shift in work, life and career engagement together with an individual's employability. This integration of knowledge is vital in the current complex and uncertain times. Not only will it assist individuals with managing their own career breaks, but it will also assist STEM organisations to implement suitable workplace policies and practices in relation to career breaks.

There is a paucity of theoretical frameworks that enable researchers to assess how women in STEM navigate into, through and out of their career break experience, as well as determine the implications of this experience. This resulted in the decision to integrate two established

theoretical frameworks for this study. The key theoretical frameworks that were chosen for this study allow exploration of contemporary career breaks as experiences that feature significant transitional change to determine how these changes shape an individual's employability. To explore women in STEM's perceptions and experiences of career breaks, two frameworks were selected to conceptualise transition and employability. The theoretical lens places emphasis on the connection between the concepts of transition and employability, allowing for a deeper understanding of work, life and career engagement. This accords with contemporary societal trends that require a rethink of how an individual deals with significant changes to their work and life, whilst remaining employable when they take a career break.

2.6.1 Schlossberg's transition framework

The transition framework applied in this study was derived from Schlossberg's Transition Model (1981, 2011; Leibowitz & Schlossberg 1982) to explore how women in STEM respond to the transition of a career break. This model accommodates the concept of transition, its process and potential influences (Evans et al. 2010). Career transitions are being explored as a phenomenon due to the evolution of the contemporary work landscape (Sullivan and Ariss 2019). According to Goldin and Katz (2008), the most crucial transitions within the life course are those connected to family and careers. Schlossberg's Transition Model (Schlossberg, 1981, 2011; Leibowitz & Schlossberg, 1982) compared to other transition models has an increased focus on the individual, as opposed to a group or organisation, and is specifically applied to the period of moving into, through and out of a transition, as opposed to a wider period of time (Adler and Castro 2019). Using Schlossberg's Transition Model (1981, 2011; Leibowitz & Schlossberg 1982) as a theoretical framework and exploring the career break as a transition, can make a theoretical contribution to the career break literature in clarifying the career break as a transitional experience and determining how women in STEM respond and adapt to this transition in the contemporary

work landscape. In the context of a career transition, adaptability is key to understanding how one navigates and adjusts to a career transition (Del Corso et al. 2011). For mature women, Whiston et al. (2015) posit that career adaptability is particularly important in relation to their professional lives. An earlier study by Ebberwein et al. (2004) similarly found that mid-career transition experiences were better for those who embraced adaptability.

Schlossberg's Transition Model (1981, 2011; Leibowitz & Schlossberg 1982) is strongly represented in many scholars works as a model for exploring and understanding various career and transitional experiences (Cruz et al. 2013; Moffett 2018; Schmitt & Schiffman 2019; Walker-Donnelly et al. 2019). Furthermore, it is considered to be a valid theoretical base to explore women's career transitions and has also been successfully combined with other frameworks by several scholars to explore women's career transitions (Cherrstrom & Alfred 2020; Cruz et al. 2013; Moffett 2018; Schmitt & Schiffman 2019; Zhu 2023; Zhu et al. 2023). Two recent studies by Zhu (2023) examined the retirement of elite female athletes as a career transition and in another study Zhu et al. (2023) explored the alternative pathways of US women transitioning into a computing career. Cherrstrom and Alfred (2020) examined women's mid-life career changes as a career transition within the context of higher education. Schmitt and Schiffman (2019) explored the transitional experiences of both new and experienced nurses as they transitioned to a new specialty area of nursing. Moffett (2018) explored the return-to-work transition after maternity leave. Cruz et al. (2013) examined the career transition of second career students into professional nursing.

A transition whether anticipated or unanticipated, is 'any event or non-event that results in changed relationships, routines, assumptions and roles' (Anderson et al. 2012 p. 39). Schlossberg's transition model (1981, 2011; Leibowitz & Schlossberg 1982) consists of key sets of factors when adapting to a transition: the individual's perception of the transition, pre-

transition and post transition environments and the characteristics of an individual. Furthermore, the ability to adapt and negotiate a transition is dependent on both the characteristics of the environment and the individual. This model is illustrated below in Figure 1: A Model for Analysing Human Adaptation to Transition.

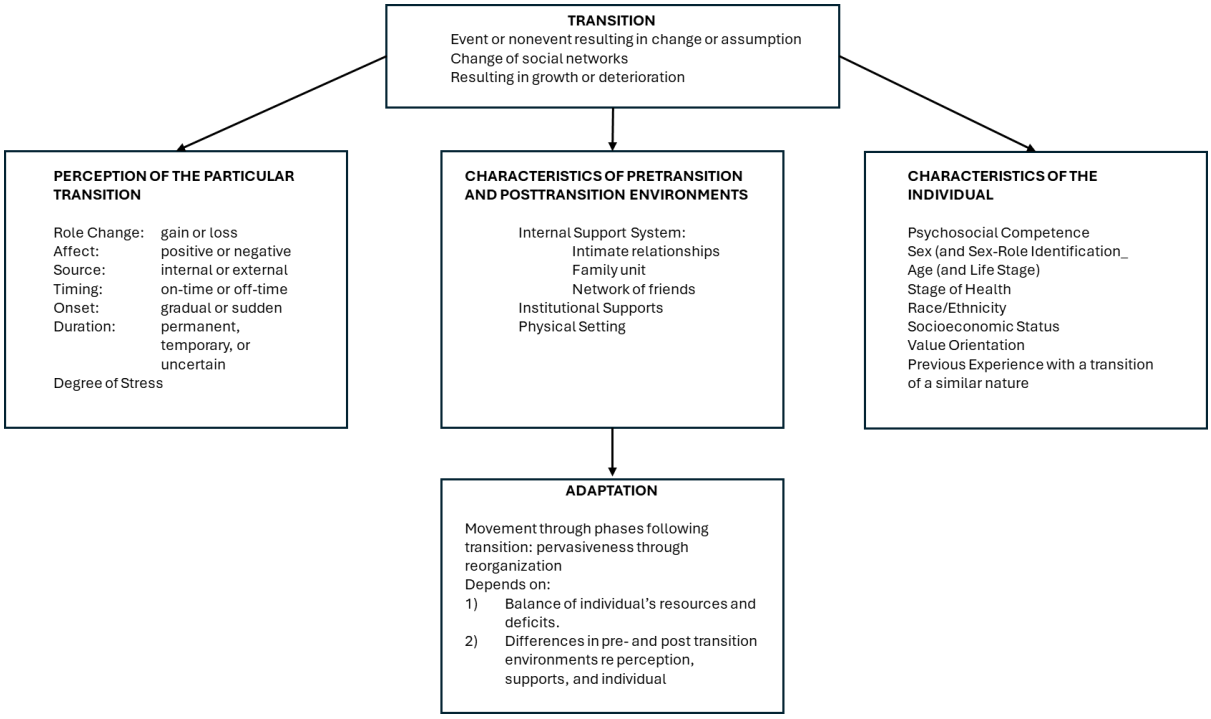

Figure 1: A Model for Anlaysing Human Adaptation to transition

Source: Schlossberg, 1981, A model for analysing human adaptation to transition, p. 5.

Figure 1: A Model for Analysing Human Adaptation to Transition above allows for an assessment of how one negotiates a transition, as well as to recognise the nature, key features, and enablers and barriers that influence a transition. A transition is a process whereby one moves into, moves through and moves out of a situation or experience (Anderson et al. 2012; Schlossberg et al. 1995;). The three main parts to this transition process are presented below namely 'Approaching the transition: Transition Identification and Transition Process, Taking

Stock of Coping Resources: The 4 S System, and Taking Charge: Strengthening Resources' (Anderson et al. 2012, p. 38).

Approaching the transition: Transition Identification and Transition Process: The first part of Schlossberg's transition model is focused on understanding the nature and features of the transition through identifying the key characteristics of a transition, including determining the transition type, for example anticipated or unanticipated, the context based on the relationship between the individual and the transition itself, and the impact in terms of the degree to which the transition alters the individual's daily life. Determining what part of the transition process the individual is at, that is whether they are moving into, through or out of a transition must also be established in this first part as this can influence how an individual responds to the transition.

Taking Stock of Coping Resources: The 4 S System: The second part of Schlossberg's transition model identifies the resources an individual has in order to cope with and negotiate their transition and classifying these resources as either assets or liabilities to the individual. An assessment of coping resources using four key transitional factors of situation, self, support and strategies (the 4 S system) can be carried out.

Taking charge—strengthening resources: The third part of Schlossberg's transition model determines how the resources of the 4 S system can be strengthened in order to improve an individual's ability to respond to the transition, as well as improve the utilisation of existing resources.

Many scholars have used the 4 S System posited from Figure 1: A Model for Analysing Human Adaptation to Transition (Schlossberg 2008).

This study applies Schlossberg's transition model to explore the career break as a transition, to understand the nature and features of this transition, as well as determine how women in STEM respond to emerging changes as they move into, through and out of a career break, which impact their 'relationships, routines, assumptions and roles' (Anderson et al. 2012 p. 39). As Schlossberg's transition process can be applied at any given point in time during a transition (Goodman et al. 2006), it affords the flexibility that this study requires which aims to encourage participants to reflect freely on how they navigate and react to changes throughout their entire career break trajectory. This study uses the 4 S system to identify the resources an individual has in order to cope with their career break to determine how they respond to change (Anderson et al. 2012). The final recommendations of this study consider the coping resources associated with the Schlossberg's 4 S System (1981, 2011), identifying opportunities for both women in STEM and STEM organisations to take charge when responding to change and improve the utilisation of existing resources. These recommendations also focus on improving the management and maintaining of women in STEM's employability. Furthermore, the Career Break Model developed in this study, incorporates Schlossberg's 4 S System (1981, 2011), which can be used as a capability management tool to empower women in STEM to take charge when responding to change and improve the utilisation of existing resources.

2.6.2 Career break as a transitional experience

Consistent with Nortier (1995), this study approaches the career break experience in 'before' and 'after' terms, with a career break representing an experience in which an individual leaves the workforce temporarily (before) and eventually returns to the workforce (after). A

deficit in the career break literature is consideration of how individuals navigate their way through this period of change that takes place during these before and after stages.

This study explores the changes that take place to women in STEM's work and life when they experience novel lifestyles. These new lifestyles relate to women in STEM's new roles, routines and responsibilities. A more contemporary perspective of lifestyles when women opt in or out of the workforce is provided by Biese (2017) who claims that '…most women who opt out also opt into new ways of living' (Biese 2017, p. 4). This contemporary view of a career break suggests that there are many decisions that need to be made by an individual in relation to their work and life when they take a career break and experience novel lifestyles. In doing so, it takes into account the personal and professional lives of women when they are adopting and transitioning into novel lifestyles and '…leaving mainstream career models to adopt new lifestyles, where one can live and work on one's own terms' (Biese 2017, p. 1).

The adoption of new lifestyles further supports this exploration of the career break as a transitional experience to explain how women in STEM cope with and respond to change. Planning for change during career breaks is acknowledged as an effective coping mechanism (Cabrera 2007; Dodds & Herkt 2013; Mavriplis et al. 2010; Shinton 2009). However, how does an individual go about identifying these changes and develop a plan to navigate them during their career break? For example, Simone and Kannan (2023) underscore the importance of recognising changes to an individual's specific job role before, during and after a career break, including any alterations in personal and professional circumstances that may impact their job role upon return.

2.6.3 McQuaid and Lindsey's employability framework

McQuaid and Lindsey's EF (2005) was applied to explore the employability of women in STEM when they take a career break from the individual perspective. The comprehensive

employability framework developed by McQuaid and Lyndsey (2005) provides a holistic view of the concept of employability that categorises factors according to the individual, the personal circumstances of the individual, as well as those within the broader context. The development of McQuaid and Lyndsey's EF (2005) notably altered the discourse on employability to be more holistic (Fuertes et al. 2021). Prior to this, the many frameworks developed over the years to understand the concept of employability (Shobha & Johnson 2021) fell short when focusing on an individual's employability through a lack of consideration of structural and contextual factors (Santos 2020; Turner 2014). Choosing a framework that included structural and contextual factors was imperative for this study, particularly due to the gender factors that exist when working in STEM organisations. These represent barriers that women in STEM must contend with when they take a career break and when they seek to return to the workforce (Australian Academy of Science 2019; Bilimoria & Liang 2014; Broadley 2015; Hart 2016; Sassler et al. 2017).

The design of McQuaid and Lindsey's EF (2005) accommodates a broader perspective of employability (Cao 2017; Clarke 2007; Williams et al. 2016). Other scholars have long urged the need to include circumstantial and contextual factors (Clarke 2007; Forrier & Sels 2003; Hillage & Pollard 1998). McQuaid and Lindsey's EF (2005) incorporates demand and supply factors that far transcend individuals' skillsets and knowledge when assessing the employability of an individual. This framework was appropriate to examine career break experiences, due to its holistic approach that incorporates a broad range of interrelated employability factors. This would provide a more complete overview of women in STEM's career break experiences, incorporating, for example, experiences with remaining job ready, retaining employment, or obtaining new employment. A holistic view of employability would be able to '…highlight the role that experiences play in individual employability development' (Reid et al. 2021, p. 1).

This employability framework has been referred to, built on and adapted by Behle (2020) and Neroorkar and Gopinath (2020) within a graduate and higher education context, and by Hanada and Pappano (2023) in relation to international students seeking employment in Japan. An earlier study by Herman (2015) used this employability framework to identify and group the common employability barriers for women who wish to return to employment in Science, Engineering and Technology (SET). Individual employability barriers were also identified as part of this study, including reduced level of confidence, being out-of-date with technological developments and scientific advancements, resume gaps, age and gender discrimination, general health and wellbeing of the individual (and family members), justification of career break. Personal employability barriers identified as part of Herman's (2015) study included caring responsibilities of family members and lack of support networks. External employability barriers identified by this study include inflexible work practices, organisational cultural barriers and unconscious bias.

A predominant feature of the career break literature is its discussion of the employability barriers that women encounter when they return to the workforce (Arora & Sharma 2018; Cabrera 2007; Herman 2009; Herman 2015; Lovejoy & Stone 2012; Mishra & Mishra 2016). Zimmerman and Clark (2016) recommend further research to identify strategies that could support women when returning to the workforce. This draws attention to the need to understand employability when exploring career break experiences to alleviate return to work barriers. While various employability frameworks exist, none have been used to date to explore employability within the context of a transition, to describe what happens to employability when an individual navigates moving into, through and out of a career break. Employability has been characterised as a process for an individual that requires independence (Tomlinson & Nghia 2020). Individuals are expected to autonomously manage their employability-related decisions, even when they are temporarily away from the

workforce. Studies highlight the vital connection between enhancing employability and continuous or lifelong learning and development of an individual (Davies et al. 2019; Fejes 2014; Römgens et al. 2020). The latter study recommends further research into exploring significant components of employability in different career phases and contexts (Römgens et al. 2020). Table 2: McQuaid and Lindsey's Employability Framework presented below is the employability framework that was applied for this study:

Table 2: McQuaid and Lindsey's Employability Framework

Individual factors	Personal factors	External factors
Employability skills / attributes: • Essential attributes • Personal competencies • Transferable skills • Qualifications • Work knowledge base • Labour market attachment **Demographic characteristics:** • Age, gender etc. **Health and wellbeing:** • Health • Disability **Job seeking:** • Effective use of formal search/information resources • Ability to do CV / application **Adaptability and mobility:** • Geographical • Wage • Occupational	**Household circumstances:** • Direct caring responsibilities • Other family and caring responsibilities • Other household circumstances **Work culture:** • Encouraging work culture within the household **Access to resources:** • Transport access • Financial capital access • Social capital access	**Demand factors:** • Labour market • Macroeconomic • Recruitment **Enabling support factors:** • Employment policy • Other (affordability of public transport, childcare etc.)

Source: McQuaid and Lindsey, 2005, The Concept of Employability, p.209-210.

Table 2: McQuaid and Lindsey's Employability Framework above shows how McQuaid and Lindsey's EF (2005) allows for the interrelation of individual, personal and external factors. This interrelation of factors makes it pertinent to this study, since it takes into consideration the many varying factors in contemporary work and life contexts that could potentially impact the employability of an individual when they take a career break. In examining an individual's employability throughout their career break, it is critical to assess their ability to navigate and adapt to emerging work and life changes. Adaptability is identified as a specific employability factor within McQuaid and Lindsey's EF (2005). It represents the ability to develop insight into one's personal strengths and weaknesses and is also considered to be a key transferable skill. Other studies call for further research into the role of adaptability, especially studies that explore career shocks and behaviour experienced by women in the workplace (Chen, et al. 2020; Spurk et al. 2019).

2.6.4 Career breaks and a holistic approach to employability

Characteristics of employability infer a challenging function by individuals to autonomously manage their employability when they take a career break. Healy (2023) and Tomlinson & Nghia (2020) whose approaches to employability are grounded in different disciplinary traditions and theoretical foundations, characterise employability within the contemporary context as a process. This process is strongly related to self-directedness (Kovalenko & Mortelmans 2016) as well as circumstantial and contextual factors (Forrier & Sels 2003; Guilbert et al. 2016; McQuaid & Lindsay 2005). This strengthening connection between an individual's work, life and career has also emerged as a theme within careers literature. Akkermans and Kubasch (2017) identify broad prominent topics within the careers literature to include 'work', 'home', 'work and life', 'work and family' as well as the terms 'interaction' and 'balance'. Other key terms include 'work-life balance' and 'work-life

authenticity', which are terms noted as salient in women's decisions to return to work after a career break (Mainiero & Sullivan 2005).

An individual's employability has therefore become inherently based on the interrelation of factors, which this study seeks to tease out using McQuaid and Lindsey's holistic EF (2005). This study explores the employability of women in STEM while they navigate a period of transition during their working lives. Changes in employment as well as attitude towards work, life and career discussed within the career development literature support a necessary reconstruction of the career break. The decision to take a career break requires individuals to be proactive and discerning regarding not only their own work, life and career identities but also their employability, given there is an intention to return to the workforce.

2.6.5 Integration of transition and employability frameworks

This study explores women in STEM's career break experiences using Schlossberg's TF (1981, 2011) and employability experiences using McQuaid and Lindsey's EF (2005) as outlined below:

- **Schlossberg's transition framework (1981, 2011):** This framework was applied to explore the career break as a transitional experience. This framework has not been previously applied to transitions associated with a career break to determine how women in STEM navigate and cope with emerging changes as they move into, through and out of a career break.

- **McQuaid and Lindsey's employability framework (2005):** This framework was applied to explore the holistic employability of women in STEM when taking a career break. This framework has not been previously applied to explore the employability

experiences of women in STEM to determine how they manage and maintain their employability during a period of transition that is characterised by significant change.

- **Integration of the frameworks:** These two frameworks were integrated to conceptualise and simultaneously understand how women in STEM navigate and respond to emerging changes as well as manage and maintain their employability when moving into, through and out of a career break. This integration provides a renewed perspective of career break experiences that integrates knowledge of career break, transition and employability to clarify our understanding of how the career break as a transitional experience shapes an individual's experiences of employability.

2.7 Chapter summary

This literature review explores the existing research of career breaks, reviewing employability and transition within the context of women in STEM. The review highlights the limited contemporary perspective associated with career breaks. It then justifies the use of key theoretical frameworks to conceptualise transition and employability. clarifying our understanding of how the career break as a transitional experience challenges and shapes the holistic employability of women in STEM. The review confirms the need to reconceptualise the contemporary career break experience in order to address the challenges that exist for women in STEM who take a career break in what is a continually changing and disruptive work, career and occupational landscape. Chapter 3: Methodology discusses the methodology that was employed for this study and will demonstrate how the chosen theoretical framework will be used to answer the key research question and guiding questions.

CHAPTER 3: METHODOLOGY

3.1 Introduction

This is the Methodology Chapter. It discusses the methodology that was employed to obtain a rich understanding of perceptions and experiences and answer the key research question 'What are women in STEM's perceptions and experiences when they move into, through and out of a career break?'. This chapter commences with an explanation of the rationale for choosing a narrative research approach to articulate women in STEM's perceptions and experiences throughout their career break trajectory. The ethical considerations of this study are then discussed which include the impact of the COVID-19 pandemic, followed by sampling techniques and research methods selected to collect the narrative data, as well as strategies employed to analyse the narrative data and finally validation strategies adopted.

A narrative research approach can increase our understanding of a variety of experiences that relate to the same phenomenon (Riessman 2008). This approach is suitable to answer the key research question of this study 'What are women in STEM's perceptions and experiences when they move into, through and out of a career break?' Answering this question required a richness of data to make sense of and give meaning to many perceptions and experiences of women in STEM. Braun and Clarke's (2006) approach to thematic analysis suited this study, enabling the researcher to become familiar with the narrative data, develop a coding framework, search, review and select and name the themes that emerge and ultimately write about these themes in this thesis. The theoretically informed thematic approach of Braun and Clarke (2006) carefully guided, yet not restrict the analysis of narrative data to ultimately answer the main research question.

The integration of Schlossberg's TF (1981, 2011) and McQuaid and Lindsey's EF (2005) guides the data analysis. The combination of these two theoretical frameworks allowed a conceptualisation of both transition and employability, to explore the career break as a transitional experience and determine how this transitional experience shapes the employability of women in STEM. This knowledge gathered through the integration of a transition and employability framework addressed a gap in the career development literature to examine career breaks. This integration provided a systematic approach to identify emerging themes, suggested by transitional factors to determine how women in STEM respond to emerging changes and employability factors to determine how they manage and maintain their employability. The following sections discuss ethical considerations, the sampling and selection of research participants, the collection of data, analysis of data and the unanticipated impact of the COVID-19 pandemic.

3.2 Rationale for research approach

A qualitative narrative approach was suitable for this study, as quantitative analysis and statistical measures alone would havefailed to capture the depth of meaning required to adequately address the research questions. Creswell's (2007) justification for a qualitative approach is that it is concerned with why something is happening, as opposed to a quantitative approach which is focused on what is happening (Moore 2000). Furthermore, the qualitative approach concentrates on interpretation to bring meaning (Cooper & Schindler 2014) as well as provides perspective to a phenomenon studied (Merriam 2009). A qualitative approach allows for a deep and rich understanding of experiences that ultimately adds meaning to those experiences (Corbin and Strauss 2008).

A qualitative narrative research approach provided for a deep and meaningful exploration and interpretation of career break perceptions and lived experiences. Narrative research can

capture the lives and experiences of individuals through storytelling (Creswell 2008). It can retell lived experiences (Clandinin & Rosiek 2007). It can be a way in which sense can be made of experiences (Baumeister & Newman 1994; Czarniawska 2004). The narrative truth is 'characterised by sense-making and emotional impact, rather than scientific objectivity' (Greenhalgh et al. 2005, p. 443). Participants narrative accounts about their career break experiences provided a deep and rich quality of evidence about women in STEM's attitudes, emotions and behavioural responses that allowed issues and themes to emerge.

A narrative approach has been used in prior research to recognise the enablers and barriers of women's lived experiences (Maheshwari et al. 2023; Mate et al. 2019). Prior research by Chinyamurindi (2016), Heikkinen et al. (2014) and Xian and Woodhams (2008) successfully examined women's career experiences using a narrative approach. Cohen and Mallon (2001) also claim the value of using story-based career research. Other narrative studies of women's careers have taken various perspectives, including how disadvantaged women conceptualise and experience career success (Chinyamurindi 2016), how women manage their careers (Xian & Woodhams 2008) and the influence of spousal support on women's careers (Heikkinen et al. 2014). At the forefront of career development research have been narrative theories of career identity (Hartung 2013; Lengelle & Meijers 2014; Rossier et al. 2021). Reasons for this include career interventions increasingly focused on career meaning and career path contexts to empower self-direction (Rossier et al. 2021) and navigating individual career development within a precarious and uncertain employment landscape (Lengelle and Meijers 2014). Creswell et al. (2007) argue that narrative research is appropriate in any situation where an issue can be better understood through stories. This doctoral study gave participants a platform to tell their story without constraint and allow their voices to be heard, providing them with a platform to reflect on their various experiences at different points of their career breaks.

Collecting data from narrative interviews provided a basis to construct individual narratives that could capture eclectic experiences (McAlpine 2016) and unique experiences reported by participants. The narratives illustrated the sense-making mindset of an individual, their deep reflections and their desire to respond honestly and openly, all encouraged through using a narrative approach. Narrative interviews provided flexibility when managing complexities associated with collecting data. For this study, these complexities related to participants discussing how they personally navigated changing circumstances and contexts, whilst managing and maintaining their employability as they moved into, through and out of one or more career break experiences. The largely unstructured and flexible format of the narrative interviews provided participants with control over their storytelling, encouraging firsthand accounts of multiple perceptions and realities of the same phenomenon.

This study's thematic approach was theoretically informed through the combination of two theoretical frameworks, which allowed the flexible categorisation of data according to existing and emerging themes. The integration of McQuaid and Lindsey's EF (2005) with Schlossberg's TF (1981, 2011) formed a basis for the collection, sorting and analysing of narrative data according to identified themes, as well as new emerging themes that could contribute to answering the main research question. Other scholars have similarly used Schlossberg's theoretical framework or combined it with other theoretical frameworks when dealing with narrative data (Karmelita 2020; Stokes et al. 2018). Karmelita (2020) combined Schlossberg's theoretical framework with Cross's (1991) categorisation of barriers to collect narrative data about transition experiences, while Stokes et al. (2018) used Schlossberg's theoretical framework to narrate the recovery experiences of participants from a substance use disorder.

To answer the key research question ‘What are women in STEM’s perceptions and experiences when they move into, through and out of a career break?’, an interpretive research paradigm guided this study, as the research questions were exploratory in nature. The interpretive paradigm seeks to derive meaning from a richness of reflections and lived experiences (Schwandt 2000). The research paradigm is a framework that reflects the beliefs that underpin a chosen research design (Schwandt 2000). For this reason, it needs to shape the components of a research study. An interpretive framework was required for this study so that rich data could be captured to make sense of and give meaning to women in STEM’s career break perceptions and experiences.

Shaping the decision to integrate two theoretical frameworks were the dimensions of epistemology and ontology, which Holden and Lynch (2004) describe as a researcher’s understanding of reality (ontology) and knowledge (epistemology). The interpretive approach incorporates relativist ontological assumptions, where reality is seen as subjective, along with subjective epistemological assumptions, emphasising the connection between the researcher and their subjects or participants (Saunders et al. 2012). Alharahsheh and Pius (2020) note the difference between interpretivist and positivist paradigms: the interpretivist paradigm allows for a depth of knowledge of perceptions and experiences of a specific social context, compared to a positivist paradigm, which is more reliant on statistics and generalisations. As explained by Mason and McBride (2014), where the researcher perceives the world as having multiple, contextualised 'realities' rather than objective, universal truths, then interacting with participants becomes a valid method for gaining knowledge and revealing attitudes and behaviours regarding the subject matter in question. Employing a narrative approach in this study allowed the voices of women in STEM to emerge through their candid and raw reflections.

3.2.1 Narrative research design

The strategy developed by the researcher guiding this narrative study is illustrated in Figure 2: Narrative Research Design below.

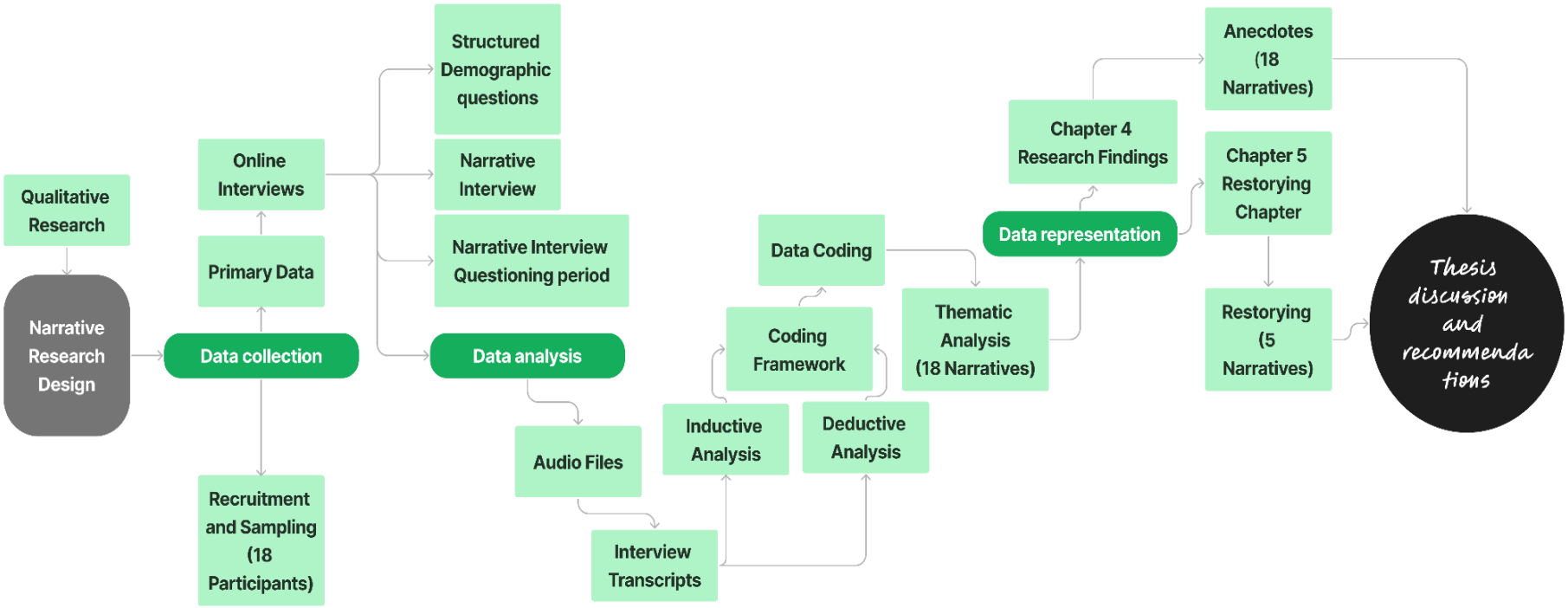

Figure 2: Narrative Research Design
Source: Author

The strategy for collecting, analysing and representing the narrative data about women in STEM's perceptions and experiences is presented above in Figure 2: The Narrative Research Design.

3.2.2 Contribution of career break narratives

The development of career break narratives makes a valuable contribution in today's labour market and career landscape that is continually evolving and unpredictable. Goodson (2012) supports the use of studying contemporary lived narratives when examining careers, particularly given the movement away from the traditional career model towards a more flexible career model within today's globalised and digital economy. Career break narratives represent the true and uninhibited reflections of women in STEM in relation to a significant event that occurred during their working lives and career journey. These narratives invite the reader to immerse themselves into each participant's world when reading about their career break experiences, facilitating a strong emotional connection with them, as participants freely reflect and recount their experiences without constraint. The construction of career break narratives provided true and direct insight into women's sense-making of their own perceptions and lived experiences. Furthermore, they revealed the many complexities, prejudices, misconceptions, beliefs, feelings, emotions and behavioural responses, which may have been difficult to identify and manage using other forms of data collection and analysis. The meaning of these narratives shone clearly through the language and content of their stories (Riessman 2005), hearing women's voices and allowing them to speak their truth.

The women's experiences were shared through open-ended narrative data, compared to a more traditional approach using either a more structured question and answer format, or using a quantitative approach with numbers or statistics. Research methods employed in prior career break research include literature reviews (Bian & Wang 2019; Zimmerman & Clark

2016), structured interviews (Mavripilis et al. 2010), semi-structured interviews (Lim & Mohd Rasdi 2019), in-depth interviews (Lovejoy & Stone 2012; Stone & Lovejoy 2004), surveys (Cabrera 2007; Mavripilis et al. 2010), analysis of existing surveys (Arun et al. 2004; Still 2006;) and content analysis of print media (Kuperberg & Stone 2008).

3.2.3 Role of the researcher

The key aim as a narrative researcher was to make sense of and give meaning to lived career break experiences and the role of the researcher was to '…bring these experiences to life' (Elliott et al. 1999, p. 224). This role came with significant responsibility. Creswell (2013) identifies the key responsibilities of the researcher when carrying out research, which include collecting and analysing the data (Maxwell 2005). Responsibility was assumed by the research in developing the interview protocols for the narrative interviews and for the collection, analysis and interpretation of data.

When carrying out narrative research, it is imperative that the researcher share the control of the narrative interview with each participant (Riessman 2008). This gave participants the opportunity to influence the direction of their own narrative interview when responding to three open-ended questions about their career breaks. Designing the open-ended questions as largely unstructured encouraged pure narrative responses. However, due to the complex nature of the data being collected, some control over the interviews still needed to be obtained through retaining the opportunity to probe participants. The nature of this subsequent probing of participants was more semi-structured; this was necessary to not only guide each participant and encourage them to further reflect, but also to apply the structure of the study's frameworks and learn more about their application.

As stated by Slembrouck (2015, p. 249) 'attention must be paid to the subconscious, the unsaid, and the nearly unsayable' by a narrative researcher of their participants. Often, when

participants became silent during their interview, they would cease making eye contact with the researcher to internally reflect, gather their thoughts and resume eye contact when they felt ready to recommence the interview. This non-verbal communication was seen by the researcher as a cue to gently probe and then decide whether they were ready to continue with the interview. These periods of silence varied among participants and depended on the topic being discussed and the emotions that were raised. Where a participant apologised for a period of silence, they were reassured that they should resume the interview only when they felt ready to do so. Communicating this willingness to remain patient during these periods of silence was important. Non-verbal communication strategies were used regularly, such as nodding or smiling at a participant to demonstrate acknowledgment of their emotions and to convey empathy.

Care was taken to provide an appropriate and safe environment for each participant to facilitate the sharing of their perceptions and lived experiences. Slembrouck (2015) draws attention to the potential reluctance of participants to share their story openly. This potential reluctance was addressed through being both respectful and sensitive to participants' needs throughout the entire interview process and taking the necessary precautions to minimise any ethical risks through maintaining clear and open communication with each participant and clearly conveying their options in relation to their participation in this study.

There was the possibility that strong emotions might emerge while the women were telling their stories, particularly where participants had no prior opportunity to share their story, as they narrated their experiences, in their own words. In the event that an issue maybe raised that upset a participant in any way, choices were offered to them in relation to the direction of their interview. They could either change the topic being discussed or the interview recording could be halted while they gathered their thoughts. Upon reconvening, permission

was once again requested from the participant to recommence and record their interview, or alternatively, participants could choose to stop the interview completely and have the interview recording wiped. Where appropriate, options were presented to the participant to obtain a referral to an appropriate counselling service, either through their own available resources, or, through those recommended by Victoria University.

3.3 Ethics approval and informed consent

Ethics approval (ID: HRE 20-007) was obtained from Victoria University (VU) as the study involved carrying out narrative interviews and the study was identified as low risk. Once ethics approval was granted, participants were approached and informed about the research both directly and indirectly through organisations. An email and accompanying attachments were drafted and sent inviting potential participants to voluntarily take part in this study. This email also contained the VU consent form for participants involved in research to be completed, signed and returned to the researcher, with a proposed interview time (see attached in Appendix 1). All participants emailed the researcher a completed and signed VU consent form prior to their interview.

3.3.1 The COVID-19 global pandemic

The COVID-19 global pandemic impacted the direction of this study in 2020. Ethics approval was first obtained from VU to carry out face-to-face narrative interviews on 13th March 2020. Soon after ethics approval was obtained, the researcher needed to amend the ethics application to reflect social distancing measures by including online interviews. The amended ethics application that incorporated online interviews was approved by VU on 29th May 2020. The unfolding uncertainty of COVID-19 in Victoria, with the second wave from May to September 2020, resulted in the decision to delay all narrative interviews to 2021. The researcher needed to shift the focus during the remainder of 2020 towards thesis writing and

publication writing, to ensure continual progress whilst they simultaneously managed the home schooling of their children. All narrative interviews were completed online between February and September 2021.

3.3.2 Online narrative interviews

Online interviews were conducted due to COVID-19 and the DBA study timeline and to ensure continuity of this study. The initial intention was to carry out all narrative interviews in the traditional face-to-face manner. However, the continued uncertainty of the COVID-19 global pandemic throughout 2020 and 2021, resulted in the extension of social distancing measures. This meant that all interviews were conducted online and no face-to-face interviews were conducted. This alternative is supported by Janghorban et al. (2014) who view online interviews as an appropriate alternative to face-to-face interviews. The decision to include online interviews, as well provide a choice of online platforms to participants, was based on a consideration of multiple factors. These included the features of accessibility, cost and security which Marhefka et al. (2020) recommend should be considered in the choice of an online platform. Participants were given a choice between the online platforms of Zoom, Skype, Webex or Microsoft Teams, depending on which platform they were most comfortable using. Webex and Zoom are two online platforms that are used as collaboration tools by VU. The two online platforms Zoom and Skype are also considered to be useful tools for carrying out online qualitative interviews (Archibald et al. 2019; Williams et al. 2015). The online platform Skype has been used to explore women's experiences qualitatively (Williams et al. 2015) as well as to support a qualitative doctoral study (Deakin & Wakefield 2014). All participants for this study chose the online platform Zoom and gave permission for their interviews to be recorded.

A significant advantage of conducting online interviews was the flexibility for participants to choose an interview time and location where the feel most comfortable, relaxed, and not distracted. For example, interviews with participants could be scheduled in the morning soon after school drop-off time at 9am, or in the evening as late as 8:00pm, which would not be possible if the interviews were conducted face-to-face. Although online interviews provided this flexibility, there was one disadvantage however, of carrying out online interviews, where the chosen location of the online interview was the participant's home. In this case there was an increased chance of a young family member interrupting the interview and causing a temporary halt as the participant attends to them.

Due to the additional reliance on technology in carrying out the online interviews, careful consideration was given to the preservation of quality data. Potential technology issues and interruptions also need to be considered, which may affect the quality of recorded data. Johnson et al. (2019) recommends that to obtain a richness of interview data, extra care must be taken to ensure participants carry out their interviews where they can guarantee a good internet connection and be in a setting where there is minimal background interference. There was minimal noise background interference or technology issues encountered during the online narrative interviews. The recording and storage of data from the interviews were managed in a manner which ensured the confidentiality of participants. This mirrored Gray et al. (2020) suggestion that interview recordings should be audio only to maintain the confidentiality of participants. No video recordings were taken of the participant interviews for this study.

Each participant was advised at the beginning of their interview that they could withdraw from the interview, ask questions, decline to respond to any questions, or communicate any concerns they may have at any time. They were also reassured of the confidential treatment

and anonymity of data and that they would not be identifiable in any results from the study, or publication of results.

3.4 Research participants

The participants sought for this study were women working across all four fields of Science, Technology, Engineering and Mathematics (STEM), therefore incorporating a vast range of skills, knowledge, qualifications and occupations. There were three main requirements for participants to be considered for inclusion in this study. Firstly, the women had to have obtained a minimum qualification of a bachelor's degree, which included STEM subjects. Secondly, the women had taken one or multiple career breaks from a STEM-related employment position at any point in time in their career. Thirdly, the women had returned to a STEM-related employment position after each career break. By selecting participants who met the established research design criteria, the researcher was able to compare data across different participants.

3.4.1 Recruitment and sampling

Developing participant eligibility criteria for the selection of participants required careful consideration (Braun & Clarke 2013), to allow for the overall objectives of this study to be achieved. Participants were sought who had completed one or two of veski's (Victorian Endowment for Science Knowledge & Innovation) Inspiring Women in STEM sidebyside programs (https://www.veski.org.au). This non-profit organisation's focus is to inspire innovation through the delivery of a range of science and innovation-focused events, fellowships and awards. Written consent was obtained from the Chief Executive Officer (CEO) of veski to gain access to participants who had completed one of their inspiring women STEM sidebyside programs. The first program was the 'Stamina: Women Returning to Work' program and the second program was the 'Mid-Career Leaders' program. These

programs offered a combination of events, workshops and networking opportunities, focusing on both personal and professional development. The eligibility criteria for this study were almost identical to those for the 'Stamina: Women Returning to Work' program and somewhat similar to the eligibility criteria for the 'Mid-Career Leaders' program.

A purposive sampling approach was used to attract participants from the two veski programs. Purposive sampling is commonly used for qualitative studies that seek to recruit participants who can provide an appropriate richness of data to sufficiently address the research questions (Patton 2002). Following a lower than anticipated level of interest, an alternative group of women in STEM was needed that would also meet this study's eligibility requirements. After searching online for alternative groups that could be approached, the Australian Academy of Science's inaugural group of STEM Women Changemakers was invited to participate, as well as the Australian Academy of Science STEM Women Lab 'Slack Community Channel'. However, there was still a lower than anticipated level of interest after approaching both of these groups. A snowball sampling approach was then adopted to recruit the remaining participants. Combining purposive and snowball sampling presented an opportunity for the researcher to invite additional women in STEM who had not completed a veski inspiring women STEM sidebyside program and would be eligible to participate in this study. Participants were asked at the conclusion of their interviews whether they could recommend other individuals who may be both interested and suitable to take part in this study. The subsequent expressions of interest gained through these recommendations resulted in a sufficient sample size for this study. Details of the sampling and recruitment of participants are summarised in Table 3: Sampling and Recruitment of Participants below:

Table 3: Sampling and Recruitment of Participants

Sampling technique	**Recruitment of participants**	**Number of participants invited**	**Number of participants who expressed interest**
Purposive	veski organisation Programs run by veski: 1. Stamina - Women Returning to Work Program (2018, 2019 and 2020/2021 cohorts) 2. Mid-Career Leaders Program (2018, 2019 and 2020/2021 cohorts)	108	10
Purposive	Australian Academy of Science STEM Women Changemakers	12	2
Purposive	Australian Academy of Science STEM Women's Lab Slack Community Channel	60	1
Snowball	Participants interviewed Participant recommendations	8	5
	TOTAL:	**188**	**18**

When determining sample size in qualitative research, there are no strict rules, tests, or calculations (Emmel, 2013; Patton, 2002). In this study, as outlined in Table 3: Sampling and Recruitment of Participants, 18 women in STEM expressed interest in participating, and narrative interviews were conducted with all 18. Bernard (2013) suggests a sample size of 10–20 participants for qualitative research examining lived experiences. The inclusion of 18 participants provided sufficient variation in career break experiences to reach data saturation. Data saturation is achieved when additional data no longer yield new insights or add value to the study's conclusions. Several factors influence the saturation point, including the research topic, study scope, and qualitative method employed (Morse, 2000). For this doctoral study, saturation was achieved at 18 interviews due to the narrative research design, the richness of

the data collected, and the constraints of the DBA program's timeframe and parameters. The sampling strategy aimed to gather rich, detailed information from a smaller participant pool, prioritizing depth over breadth. This approach provided high-quality baseline data that could serve as a foundation for future research with a broader population. There is no specific number of interviews agreed upon in the literature regarding the point at which data saturation may be reached (Bekele & Ago 2022). For a dissertation involving a narrative inquiry study, a sample size is generally between six and ten (DeMarco 2020). For this study, given this study is bound by more restrictive DBA dissertation parameters compared to a PhD dissertation, five narratives were selected and restoried.

Participants were approached and informed about the research both directly and indirectly once ethics approval was granted from VU. An email and accompanying attachments were drafted and sent to both veski and the STEM Women Lab Slack Community Channel (an initiative of the Australian Academy of Science). Both organisations forwarded the email and accompanying attachments to potential participants, inviting them to take part in this study. The email and accompanying attachments contained the necessary information to allow individuals to make an informed decision as to whether they were interested and eligible to participate. The email contained the researcher’s contact details if anyone had any questions or comments in relation to the study, as well as instructions for participants to express their interest and provide their contact details directly to the researcher. On this basis, both organisations had no further involvement in the recruitment process of participants. Upon receiving an expression of interest from a potential participant, the researcher emailed them directly with an attached VU consent form for participants involved in research (see attached in Appendix 1) which all participants completed and signed and returned to the researcher prior to their interview. This email also aimed to initiate a personal connection with participants, confirm their eligibility and confirm a suitable interview date and time.

3.5 Data collection

Data collection for this investigation consisted of a combination of demographic questions, as well as narrative interviews. The demographic questions were predetermined structured questions, while the narrative interviews were largely unstructured. The first part of the narrative interview focused on rapport building, as successfully building a rapport with each participant was critical to the success of this study. Permission was been sought from each participant to audio record their interview for transcription. All participants agreed for their interviews to be audio recorded. The data collected from the demographic questions and narrative interviews was recorded, transcribed, coded and analysed by the researcher. This is described in further detail below.

3.5.1 Structured demographic questions

Each interview commenced with participants answering predetermined structured demographic questions. The questions focused on specific details and characteristics of participants' careers, including the relevant STEM field, qualification, scope of job responsibility, occupation and years worked in STEM. The questions also concentrated on career break characteristics including number, length and reasons for taking career breaks throughout their working years (see attached in Appendix 2). Each of these predetermined questions were asked for a specific reason (Moore 2017). The questions provided background information to support the creation of demographic profiles of each participant and serve to build a rapport with each participant prior to hearing their story. The data obtained from these questions also confirmed the relevance of including each participant to the study (Marshall 1996). This information formed part of the data analysis process, further enhancing and allowing detailed comparisons among participants. Bates (2004) highlights the usefulness of incorporating a question-and-answer approach to collecting demographic data during

narrative interviews to enable comparisons among participants. Participant anonymity was maintained in relation to the demographic data obtained, which was of particular importance given the small number of participants (Morse 2008).

3.5.2 Narrative interviews

The second part of the interview was focused on capturing the narrative accounts of the participants. This study used narrative interviews to hear women in STEM's career break perceptions and experiences, to construct individual written narratives. The participant's role in these narrative interviews was that of a storyteller, responding to open-ended questions. Muylaert et al. (2014) views the nature of narrative interviews as in depth and largely unstructured. The participants of this study freely reflected on their experiences in relation to their career breaks and told their stories. This required the researcher to relinquish control of the narrative interview process (Scârneci-Domnişoru 2013). Freedom of expression for participants was paramount and flexibility was carefully built into the structure of the interviews to permit participants to talk about moving into, moving through or moving out of one or more career break experiences. In addition to flexibility, the choice to employ narrative interviews, as opposed to a more typical structured or semi-structured question and answer interview, was to ensure that a richer description and deeper understanding of each participant's perceptions and experiences was obtained.

Rosenthal's (1993) narrative interview sequence provided both structure as well as flexibility for participants when discussing career break experiences. It provided structure by asking participants to discuss the various stages of moving into, through or out of their career break experiences. It also provided flexibility in allowing participants to redirect their narrative and discuss any one of the three career break stages in depth at any given time. One participant, for example, forgot to mention one of their career break experiences. They then backtracked

and discussed this experience. The interview consisted of two main parts: namely, the period of main narration followed by a questioning period, which mirrored Rosenthal's (1993) narrative interview sequence which has not been previously used to explore career break experiences.

The period of main narration was focused on the narrative accounts of participants with an 'initial narrative question posed by the researcher, allowing the participant to tell their story' (Rosenthal 1993, p. 50). This allowed the participants to first tell their story, encouraging freedom of expression through answering the open-ended questions. Connelly and Clandinin (1990) support this view of the importance of the role of the researcher in allowing the participant to first tell their story, while Fontana and Frey (2003) similarly encourage open-ended dialogue between the researcher and the participant. The dialogue was encouraged through the open-ended questions posed to each participant of this study. Holloway and Freshwater (2007) emphasise how a story is generally chronological, providing connections between events and subsequent behaviours.

To further enhance and build on the quality of data from the period of main narration, a questioning period followed. The questioning period of the interview consisted of '…internal narrative questions that relate specifically to the participant's story and external narrative questions that do not relate to the participant's story, but the researcher feels are necessary to ask' (Rosenthal 1993, p. 50). The questioning period provided the opportunity to ask questions about themes either discussed or not discussed by the participant in their main narration. These questions were drawn from knowledge informed by both the literature review and the theoretically informed framework that was developed specifically for this study. Other narrative interview methods such as the Biographic Narrative Interpretive Method (BNIM) can at times be more restrictive and less flexible with their questioning

period in that they are limited to the topics raised by the participant in the main narration (Wengarf 2001).

Each narrative interview for this study consisted of three parts (see attached in Appendix 3). The first part focused on when the participant was moving into a career break and out of the workforce. The second part focused on when the participant was moving through a career break. The third part focused on when the participant was moving out of their career break and back into the workforce. Consistent with Schlossberg et al. (1995) description of transition as a process whereby one moves into, moves through and moves out of a situation or experience, the chronological order of the career break experience essentially formed the beginning, middle and end of each individual narrative. This is illustrated below in Figure 3: Sequence of Narrative Interviews for this Study.

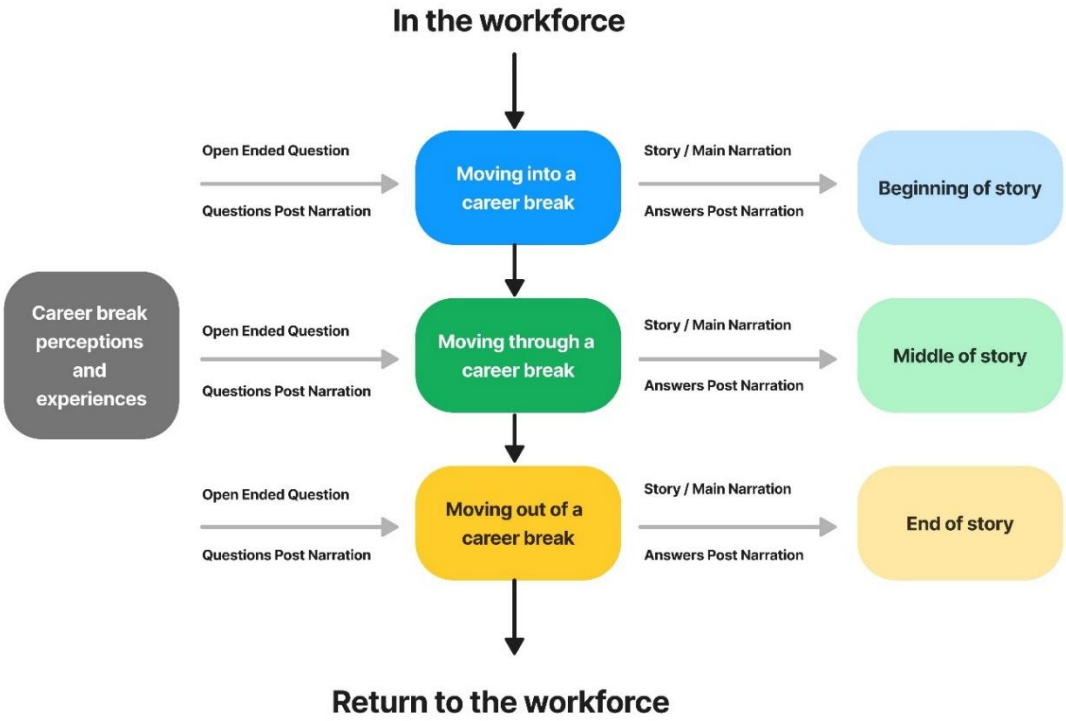

Figure 3: Sequence of Narrative Interviews for this Study
Source: Author

As displayed above in Figure 3: Sequence of Narrative Interviews for this Study, the development of each participant's career break narrative is time-based, in that questions relate to a particular time in the participant's life (Rosenthal 2003). Three pre-prepared open-ended questions were asked, allowing participants to candidly recount their experiences and tell their story. After answering each of the three open-ended questions, a questioning period followed, which consisted of a combination of open-ended and closed questions. This questioning period supported the development of the individual narratives in multiple ways. Questions such as 'How did you feel when…' encouraged participants to focus on providing further details about aspects of their experiences. Questions such as 'Was there…?' also encouraged participants to raise other parts of their experiences that they had not spoken of. Questions beginning with 'You mentioned'…or 'Can you clarify' also confirmed and clarified matters that participants had discussed, particularly when multiple career breaks were referred to throughout their interview.

When structuring the narrative interviews, the intention was to encourage participants to engage willingly, actively and openly discuss their experiences. Sensitivity to participants' needs remained a priority as well as ensuring the participant remained relaxed and comfortable, in the lead-up to the interview, during the period of main narration, the questioning period, as well as post-interview.

3.5.3 Transcription of narrative interviews

After listening to the audio recordings, the otter.ai software program (otter.ai 2021) was used to transcribe the interview recording. The use of otter.ai software program was limited to its transcription services to transcribe the interview voice recordings into a text format. As the accuracy of the transcriptions generated from the otter.ai software program was

approximately 85% (Wollin-Giering et al. 2024), the audio recordings were relied upon to correct any errors in the otter.ai transcribed documents. This allowed a closer connection with the data, ensuring all content was accurately captured, ready for the data analysis stage. The transcript was then formatted to include margins that allowed for comments and clear spacing between the interviewer's and participants' dialogue (Creswell 2008). To ensure anonymity, data was deidentified when transcribing each interview by assigning a pseudonym to each participant during the coding and analysis stage.

The interview transcripts provided first-hand accounts of participants' career break perceptions and experiences. This study integrated the perspectives of Oliver et al. (2005) and Silverman (2017), establishing a robust framework for exploring women in STEM's career break perceptions and experiences. Oliver et al. (2005) emphasises the importance of first-hand representations from interview transcripts, while Silverman (2017) highlights the critical role of transcription in data analysis. By synthesising these insights, the research method could systematically assess and interpret interview data and thus support the aims of this research. The transcripts for this study supported the interpretation of data (Stuckey 2014) in conjunction with the interview notes taken during and shortly after each interview, along with the answers to the structured demographic questions. Participants were given the choice of whether they wanted to view their deidentified interview transcript, prior to the interview transcripts being analysed. Only four participants chose to review their interview transcript. No participant withdrew from this study.

3.6 Data analysis

Braun and Clarke's (2006) phased approach to thematic analysis has been chosen to make sense of the narrative data, develop a coding framework, identify themes and, write about these themes in a meaningful way. Multiple software programs were used for this study as

research management tools during the data analysis stage including otter.ai to transcribe the interviews, Nvivo 12 software program to code the data and extract the Nvivo 12 reports for analysis, Microsoft Word to review the transcribed data and make notes and Microsoft Excel to summarise the data and carry out both inductive and deductive analysis of the narrative data. Once the interview recordings were transcribed and into a text format using the otter.ai program, these files were all permanently deleted from the Otter.ai software program.

3.6.1 Familiarisation with data

Becoming familiar with the narrative data was a crucial step as it involved immersing oneself in the data, looking for deeper meaning and ensuring its preservation. According to Riessman (2005), the language of narratives must be viewed as a resource for the researcher. Riessman (1990; 2008) further stresses the utmost importance of preserving each narrative. To become familiar with the data and derive a deeper meaning the researcher listened to each audio recorded interview multiple times, corrected any errors in the otter.ai interview transcripts and read over the interview transcripts multiple times. The pseudonyms chosen were all common Anglo-Saxon names in alphabetical order from A to R, which corresponded to the date order of the 18 interviews.

Inductive and deductive analytical approaches were applied to allow the themes to emerge. The deductive analysis was theoretically informed according to the frameworks of Schlossberg's TF (1981, 2011) and McQuaid and Lyndsey's EF (2005), whilst the inductive analysis did not restrict the data to the theoretically informed frameworks. The process of deductive analysis consisted of coding data to the theoretically informed codes of Schlossberg's 4 S System (1981, 2011), namely situation, self, support and strategies to understand participants' coping resources, as well as coding data according to individual, personal and external circumstances, to understand participants' employability. The process

of inductive analysis provided flexibility and further guided the analytical process, permitting the creation of new codes and allowing additional data to be captured and coded. The classification of data for this study was therefore based on this combination of inductive and deductive analytical approaches that consisted of both theoretically informed codes and new additional codes. Upon completing data classification, codes could then be grouped according to similar meanings. When engaging in this process, there was a focus on the content of each transcript as well as on using language that best conveyed participants' perceptions and experiences.

Upon completion of the deductive and inductive analysis, an Excel spreadsheet was developed which contained a full list of preliminary codes. This Excel spreadsheet was discussed with the supervision team to obtain their feedback and final approval prior to commencing the coding of data. To support a case-centred approach and assist with the preservation of each story (Riessman 2008), the development of a table in Excel provided a snapshot of each participant's unique experiences. This snapshot story provided a concise summary of each participant's experiences, that was based on the interview transcripts which was useful as a reference and fact checking tool throughout the coding and analysis stages, as well as when writing up the research findings.

3.6.2 Coding framework

To further support familiarisation with and understanding of the data, a visualisation of the coding framework in the form of a mind map was developed using the Nvivo 12 software program (see attached in Appendix 4). This Nvivo 12 mind map provided an illustration that connected the deductive and inductive analysis of the data with the central research question of this study, specifically to understand perceptions and experiences when moving into, through and out of a career break. The Nvivo 12 mind map provided a visualisation of the

coding framework to guide the sense-making of narrative data, with the flexibility to add additional codes as required during the coding process. This coding framework was theoretically informed using McQuaid and Lindsey's EF (2005) and Schlossberg's TF (1981, 2011) and also informed by the identification of additional emerging themes from reading the interview transcripts.

The interrogation of data was according to themes (Riessman 2008). Wherever possible, line-by-line coding was carried out and blocks of narrative data were coded according to themes and sub-themes that could assist with answering the key research question. The coding of data was according to the themes of employability, transition, work and perceptions when moving into, through and out of a career break. These three points of the career break supported the sense-making of data by looking at it chronologically, as a sequence of events (Elliott 2005). Coding blocks of narrative data ensured each participant's own voice was preserved and understood in context. Annotations were also added in Nvivo 12, when coding data, to clarify any details that were not clear, such as which career break the data referred to, in the instance where the participant was discussing multiple career break experiences. This study used the Nvivo 12 software program to structure and code the data and assist with identifying emerging themes from the coded data. The Nvivo 12 software program was chosen, as Victoria University has a Nvivo License Agreement, which allows students to use the Nvivo 12 software program when conducting research.

3.6.3 Themes

This investigation used thematic analysis to interpret women in STEM's career break perceptions and experiences. When thematically analysing the data, the focus was to capture what the participant had said, then to group the data into categories and themes to address the research question. The aim was to '…achieve a synthesis that brings the segments together in

a new and original way to throw light on the issues and to advance the understanding' (Moore 2000, p. 146). For this study, sense-making came from connected chronological data (Elliott 2005) and thematic data (Riessman 2008) according to different perceptions and experiences across the three stages of the career break trajectory.

The identification of emerging themes across interviews was a continually evolving process that commenced during the interview process, prior to coding the data. Relying on a recommended strategy by Daley (2004), concept maps were developed to identify overarching themes. Arrows were used to link groups of codes into categories to identify themes. These concept maps were developed during brainstorming sessions while coding the data. Nvivo 12 was useful when structuring the data and identifying emerging themes. However, once the coding of narrative data was complete, Nvivo 12 was not used to further analyse the narrative data. Rather, following the coding process, Nvivo 12 coding reports were exported and printed, to allow comparison, analysis and interpretation of the coded data to identify common themes and determine how they were connected. 'Thematic analysis is a method for identifying and interpreting patterns of meaning across qualitative data' (Clarke & Braun 2014, p. 6626) and patterns of meaning and themes needed to be derived from the Nvivo 12 coded reports. The Nvivo 12 coded reports assisted with the thematic analysis of the data to analyse the narratives and commonalities across the interviews.

The preservation of participants' individual narratives was always respected. The Nvivo 12 reports contained large blocks of coded content of the participants' narratives, assisting the researcher with the identification of themes and patterns. This is consistent with Riessman's (2008) narrative scholarly approach, in identifying themes and patterns from the content of the narratives. The process for reviewing themes involved reviewing the Nvivo 12 coded reports and interview transcripts to consider whether the themes made sense, the data

supported the themes, to identify subthemes within themes and to identify additional themes (Maguire & Delahunt 2017).

Participants' perceptions and experiences when moving into, through and out of their career breaks were grouped according to their experiences with self (namely the participant), with others, the workplace, their work motivations and work engagement, work and life stressors and their return to the STEM workforce. Work and life changes and their impact on experiences of employment and job readiness became evident through the emergence of these themes. These experiences were interpreted in the context of the research question: 'What are women in STEM's perceptions and experiences when they move into, through and out of a career break?' to determine how they connect.

3.6.4 Restorying

Upon establishing the emerging themes and their connection to one another, attention turned towards restorying the narratives. Restorying is defined by Ollerenshaw and Creswell (2002) as 'gathering stories, analysing them for key elements of the story, and then rewriting the story to place it within a chronological sequence' (p. 332). Given the complexities associated with most participants discussing multiple career break experiences, the restorying process needed considerable care to authentically convey these experiences. To preserve the key elements of each narrative the final interview transcript was the only source used for restorying. The restoried narratives needed to showcase experiences with self, with others, and with the workplace. They needed to highlight participants work motivations and work engagement, their work and life stressors and particular challenges when returning to the STEM workforce.

The aim was to retell the narratives according to the identified themes to address the research question and guiding questions in a meaningful way (Ollerenshaw & Creswell, 2002).

Restorying career break experiences in a meaningful way empowered the voice of each participant. It also provided an understanding of career break perceptions and experiences by making a strong connection with the reader, drawing them deep into each participant's world. Reviewing the interview transcripts along with the snapshot story of each participant's experience created in Excel, could determine which narratives best represented the themes to be restoried along with noting possible reasons for inclusion or exclusion of each transcript.

This study followed the three-step restorying process of Rolón-Dow and Bailey (2021), which consisted of three rounds of editing the interview transcript of a sample of narratives, to present the emerging themes in a chronological sequence and logical order that is understandable to the reader. Throughout these three steps, care was taken to maintain the voice of each participant, as their narrative was clustered into themes. Drawing on the interview transcript as the only source of data during this restorying process ensured preservation of each narrative, which was a paramount aim.

For the first round of editing, the final interview transcript was used as a basis and basic formatting and punctuation was carried out to the document and all interview questions were removed. Keywords were added in brackets to assist with sense-making, such as 'second' or 'second and third' career break. These additional keywords provided important clarity, particularly where a participant's narrative had covered multiple career break experiences. The transcript was divided into sections according to whether a participant was moving into, through or out of their career break. Consistent with the transition process recommended by Schlossberg et al. (1995) the format of each narrative was divided chronologically into three main parts, namely moving into a career break, moving through a career break and moving out of a career break. This format also followed the structure of the preceding narrative interviews, allowing each narrative to showcase a particular theme at different points of the

transition of a career break. This chronological organisation was suitable to address the purpose of this research study (Mukabalisa & Gaikwad 2021): that is, to understand women in STEM's career break perceptions and experiences as they move into, through and out of a career break. Parts of the transcript that were completely irrelevant to the story, such as mentions of COVID-19, were deleted. Each individual narrative was kept in the first person to maintain each participant's voice.

The second round of editing focused on retelling the narrative to showcase a particular theme and remove other parts of the narrative that did not highlight this theme. This allowed each individual narrative to highlight a particular theme in either a positive or negative way, as participants moved into, through and out of their career break. The third and final round of editing focused on fine-tuning each restoried narrative through firstly, obtaining feedback from the supervision team. This feedback was provided during online meetings, face-to-face meetings and when reviewing the drafts of this dissertation. Secondly, giving the participants the opportunity to read and review their own restoried narrative.

The researcher took two additional steps to increase the clarity of the restoried narratives. The first step involved the development of a schematicthat summarised the key elements in a diagram at the beginning of each narrative, to provide more context to the reader and supplement each participant's story. Consistent with Rolón-Dow and Bailey's (2021) approach to restorying, this schematic included the context, a character profile and outline of the plot, which formed the introduction for each narrative. This schematic introduced each participant to the reader, provided context to the experience and presented the experience in an organised way to assist the reader with their sense-making when reading the story (Mulholland & Wallace 2003). The second step concluded each narrative with retelling an isolated experience that was specific to each participant's career break experience, to allow

the reader to recognise the uniqueness of each career break experience beyond any one theme.

3.7 Validity and reliability

Evaluating the trustworthiness of a qualitative study is pivotal to enhance its credibility and validity. According to Creswell (2007), trustworthiness is the main criteria to determining the quality of a study that utilises a qualitative approach. Creswell (2007) proposes eight different validation strategies to enhance the trustworthiness of a qualitative study, recommending that a minimum of two be adopted by qualitative researchers for each study. This study incorporated three of the eight validation strategies recommended by Creswell (2002) of rich and thick descriptions, member checking and clarifying researcher bias to enhance the trustworthiness of this study.

Rich and thick descriptions: Rich and thick descriptions were incorporated to increase the trustworthiness of this study and aid transferability. Stories are a reliable way in which experiences can be reflected upon and understood (Riesmann 2008). For this study, each participant's narrative consisted of rich and thick accounts of their career break perceptions and experiences. The sense-making was derived from narrative accounts that included personal and candid reflections on each participant's emotions, thoughts, feelings and behavioural responses. In this respect, conclusions could be drawn from the detailed narrative accounts which could be useful for future career break research. Such replication could boost the generalisability of findings from this qualitative study (Firestone 1993).

Member checking: The researcher's original intention was to use member checking as a validation strategy, by returning the transcribed narratives back to participants for their review. At the end of each interview, each participant was asked whether they would like to review their own interview transcript once it had been transcribed to confirm the accuracy of

the information obtained. Only four out of 18 participants chose to take up this option. The interview transcripts were emailed to the four participants for their review, requesting they use track changes to note any changes or comments, or highlight separately any comments or feedback they may have in relation to their interview transcript.

Clarifying and addressing researcher bias: Measures were imposed to minimise any potential biases that might affect the credibility of this study. The researcher kept a personal reflexive journal to regularly document their thoughts and reflections throughout the research process, to improve the reliability of the study and to minimise the likelihood of researcher bias (Lincoln & Guba 1982) which related to personal career break experiences. The researcher was conscious of their own career break experience and therefore wanted to ensure that this doctoral study was conducted in a manner that would not be informed by any unconscious bias. The decision to adopt a flexible interview format mitigated this risk by giving participants more control over their interviews. This view is mirrored by Corbin and Morse (2003) view in that participants retain a reasonable level of control within a largely unstructured interview setting. Allowing participants of this study to take control of their interviews encouraged them 'to tell their story in their own words from their own perspective' (Smythe & Murray 2000, p. 331). The decision to adopt a narrative research approach informed of a variety of experiences that related to the same phenomenon (Riessman 2008) allowing for the reporting of both positive and negative experiences. When interpreting and deriving meaning from the narrative data, the researcher relied on the theoretical underpinnings from McQuaid and Lindsey's EF (2005) together with Schlossberg's TF (1981, 2011) giving their study a strong theoretical base to minimise the risk of personal bias. When engaging in the restorying process of Rolon-Dow and Bailey (2021) to construct the stories from the interview transcripts, one condition was to exclude any information that did not represent an emerging theme. In this instance, data selection bias was minimised by

reviewing the entire interview transcript. According to Mello (2002), examining narratives in their entirety is the best way to manage researcher bias.

Reliability: To enhance the reliability of this study, an audit trail of documentation was kept during collection and analysis of the narrative data (Butina 2015). Careful and consistent record keeping, including how records were named, stored and could be retrieved, provided transparency at all stages of this study.

Authenticity: This study presented authentic restoried narratives gathered from participants and in Chapter 5 the selection of stories represents their experiences. The steps taken throughout the three-step restorying process recommended by Rolón-Dow and Bailey (2021) encouraged experiences to be conveyed as authentic. Formatting of the interview transcript was kept to a minimum, but occasionally sense-making was achieved with the inclusion of additional words, highlighted in brackets, particularly when a participant had experienced multiple career breaks. This conveyed the lived experience of participants in an appropriate way. Retaining the authentic voice of each participant was important (Medeiros 2015). To remain close to the voice of each participant the narratives were drawn directly from the interview transcripts in the participants' own words and kept in first person (Scheffelaar et al. 2021). Each restoried narrative consisted of detailed verbatim descriptions of relived career break experiences to support the research findings of this study.

3.8 Chapter summary

This chapter outlined the methodological approach to exploring women in STEM's perceptions and experiences when they moved into, through and out of a career break. It explained the methodological choices and processes undertaken in relation to the recruitment and sampling of suitable participants, data collection, data analysis, trustworthiness of the study and ethical considerations. It justified the appropriateness of choosing a qualitative

study using a narrative approach with a small representative sample. This approach was able to obtain a rich and deep quality of data to make sense of and give meaning to women in STEM's career break perceptions and experiences. These narratives were powerful in that they represented participants' lived experiences exactly as they perceive them, which provided the basis for the researcher to understand and interpret them. The representations of personal experiences were integral to the research approach, which aim to ensure true and accurate reflections of each participant's personal narrative. Chapter 4: Analysis and Findings interprets the interview data and discusses the research findings of this study, including the themes that emerged once the data was collected, coded and thematically analysed.

CHAPTER 4 – ANALYSIS AND FINDINGS

4.1 Introduction

This Analysis and Findings Chapter interprets the interview data, and the research findings are discussed according to the common themes that emerged when thematically analysing the data across all 18 interviews. The first section of this chapter presents key details about all 18 participants and their career breaks. The second section discusses the research findings according to the themes that emerged from the coded data, themes that reveal the women's personal insights into their career break experiences. These research findings are drawn from the interview data collected from the participants, all of whom had taken one or more career breaks and returned to the STEM workforce in either a full-time, part-time or casual role. The career breaks were taken for varying reasons and durations and occurred at various career stages of the women's careers. The 18 interview transcripts were coded and analysed to identify the emergence of common themes that would sufficiently address the central research question of this study 'What are women in STEM's perceptions and experiences when they move into, through and out of a career break?'

4.2 Participant details

All 18 participants had obtained a PhD degree in a field of STEM. At the time of being interviewed, half of the participants resided in Victoria, with the remaining participants residing in either New South Wales, South Australia or Tasmania. Participants were predominantly employed at a university, or at a university research institute. Fourteen participants were married, and the remaining participants were either in a de facto relationship or divorced. Only one participant did not have children. Five participants had one child and of the remaining 12 participants, 10 had two children, one participant had three children, and one had four children. Each participant was assigned a pseudonym to protect

their identity and ensure anonymity. The pseudonym names were all common Anglo-Saxon names randomly chosen in alphabetical order from A to R, which corresponded to the date order of the 18 interviews. Table 4: Participant Details below, provides further information about participants of this study, which relate to their age, STEM field of employment, full-time and part-time employment experience in STEM, the type of job role and the level of job responsibilities at the time of being interviewed. This information is listed in alphabetical order according to the participant's pseudonym, forming part of the data analysis process, allowing detailed comparisons among participants in relation to their experiences.

Table 4: Participant Details

Participant code (pseudo name)	Age bracket	STEM field of employment	Years worked in STEM	Current type of job role	Current scope of job responsibility
Alice	40 - 44	Science and Mathematics	25	Full time	Direct supervision of individuals but not results
Bella	35-39	Science	13	Full time	Leadership position
Clare	35-39	Science	10	Full time	Direct supervision of individuals and results
Diane	45-49	Science	23	Full time	Leadership position
Elsa	40 - 44	Science and Technology	19	Part time	Direct supervision of individuals and results
Fran	35-39	Science	16	Full time	Direct supervision of individuals and results
Grace	35-39	Science	8	Part time	Direct supervision of individuals and results
Helen	60 plus	Science, Technology and Mathematics	48	Casual	No supervision responsibilities
Ingrid	35-39	Science	17	Full time	Direct supervision of individuals and results
Jane	35-39	Science	12	Full time	Direct supervision of individuals and results
Kylie	40 - 44	Science	15	Part time	Project supervision
Laura	30-34	Science	5	Full time	No supervision responsibilities
Mary	40 - 44	Science	15	Full time	Direct supervision of individuals and results
Nicole	35-39	Science	15	Full time	Direct supervision of individuals and results
Olympia	40 - 44	Science	21	Full time	Direct supervision of individuals but not results
Paula	35-39	Science	10	Part time	Direct supervision of individuals but not results
Quinn	35-39	Science	12	Full time	Leadership position
Rose	Older	Engineering	40	Full time	Leadership position

Table 4: Participant Details above shows that at the time of their interview, 50 percent of participants in this study were aged between 35 and 44 years old and 72 percent were employed full-time. The majority of participants were employed in the field of science and

had direct supervision responsibilities. A total of 47 career breaks had been taken among the entire group, indicating that most participants had experienced multiple career breaks, with 10 having taken three or more career breaks. Most participants therefore discussed multiple career break experiences throughout their interview. The nature of the 47 career breaks as described by the participants is summarised in Table 5: Career break Reasons and Durations below and listed in alphabetical order according to the participant's pseudonym.

Table 5: Career Break Reasons and Durations

Participant code (pseudo name)	No. of career breaks	Career break 1	Career break 2	Career break 3	Career break 4
Alice	3	PHD (3.5 years)	Parental (6 months)	Parental (2 years)	N/A
Bella	4	Parental (6 months)	Parental (6 months)	Parental (6 months)	Parental (6 months)
Clare	3	Parental (6 months)	Parental (6 months)	COVID Caring (3.5 months)	N/A
Diane	4	Parental (6 months)	Parental (11 months)	Parental (13 months)	Travel (1 year)
Elsa	4	Honours (1 year)	PHD (4 years)	Parental (7 months)	Parental (9 months)
Fran	2	Parental (5 months)	Parental (6 months)	N/A	N/A
Grace	1	Job role (5 years)	N/A	N/A	N/A
Helen	4	Married/Moved (2-3 years)	Parental (5-6 years)	Health (2 years)	Relocation /Caring (2.5 - 3 years)
Ingrid	3	Holiday (3 months)	Parental (10.5months)	Parental (9 months)	N/A
Jane	2	Parental (6 weeks)	Parental (6 months)	N/A	N/A
Kylie	1	Parental (10 months)	N/A	N/A	N/A
Laura	2	Unemployment (10 months)	Sick (14 months)	N/A	N/A
Mary	2	Sick (3 months)	Parental (9 months)	N/A	N/A
Nicole	3	Travel (9 months)	Travel/ Volunteer (1 year)	Parental (6 months)	N/A
Olympia	3	Unemployment (6 months)	Parental (1 year)	Parental (14 months)	N/A
Paula	3	PHD (3 years)	Parental (9 months)	Parental (9 months)	N/A
Quinn	1	Parental (9 months)	N/A	N/A	N/A
Rose	2	Parental (1 month)	Parental (3 months)	N/A	N/A

Table 5: Career break Reasons and Durations above shows that although the reasons for taking career breaks varied, parental leave was the predominant reason, accounting for 30 out

of the total of 47 career breaks. Twenty-four out of the 30 career breaks taken for parenting reasons, ranged between one month and 10.5 months. Other reasons for participants taking a career break related to travel, health, to pursue further study, relocation, unemployment, job role and caring for children. As the selection criteria for this study did not specify any limitation regarding the duration of the breaks, they varied from as short as one month, to as long as five years. The majority of career breaks, however, were up to one year: 19 career breaks were up to six months and 16 career breaks were between seven and 12 months. The duration of the remaining 12 career breaks were between 13 months and 5 years.

4.3 Key themes

This theme development utilised Braun and Clarke's (2006) phased approach to thematic analysis to develop a coding framework in Nvivo 12 qualitative data management software. This study used McQuaid and Lindsey's EF (2005) to holistically explore the interrelated factors that influence participants' experiences of employability, according to their individual, personal and external circumstances. This study also used Schlossberg's 4 S System (1981, 2011) to identify the coping resources, according to each participant's situation, self, support and strategies, which were considered to have an influence on their ability to cope.

Inductive and deductive analytical approaches were applied to allow the themes to emerge. The deductive analysis was theoretically informed according to the frameworks of Schlossberg's TF (1981, 2011) and McQuaid and Lyndsey's EF (2005), whilst the inductive analysis did not restrict the data to the theoretically informed frameworks. The process of deductive analysis consisted of coding data to the theoretically informed codes of Schlossberg's 4 S System (1981, 2011), namely situation, self, support and strategies to understand participants' coping resources, as well as coding data according to individual,

personal and external circumstances, to understand participants' employability. The process of inductive analysis provided flexibility and further guided the analytical process, permitting the creation of new codes and allowing additional data to be captured and coded. The classification of data for this study is therefore based on this combination of inductive and deductive analytical approaches that consists of both theoretically informed codes and new additional codes. Upon completing data classification, codes were then grouped according to similar meanings.

What emerged from the coded data was the critical roles of self, namely the participant, their STEM workplaces and many other informal and formal sources in the context of the career break. Certain challenges also emerged in relation to participants' work and life. These challenges were concerned with working role changes that occurred while participants were away from the workforce, and other changes encountered when participants were returning to the STEM workforce. Participants' perceptions and experiences when moving into, through and out of their career breaks were grouped according to several overarching ideas: the self, the workplace, others, work and life stressors and work engagement while away from the workforce and on returning to the workforce. Using the theoretically informed framework, four themes emerged during the deductive analysis in relation to transitional and employability experiences: a reliance on self, reliance on the workplace, reliance on others and work and life stressors. Two additional themes emerged during the inductive analysis in relation to experiences with working and return to employment experiences: changes in work motivations and engagement and returning to employment challenges. Table 6: Codes, Categories and Themes below, shows how codes were grouped into categories to identify the emerging themes for this study.

Table 6: Codes, Categories and Themes

Coded perceptions and experiences	Categories	Themes	Inductive / Deductive theme
Employment role, health and wellbeing, work and life commitments	Proactive management	Reliance on self	Transitional and employability experiences (Deductive)
Networking, professional development, action planning	Proactive engagement		
Partner, family, friends, community	Informal sources	Reliance on others	Transitional and employability experiences (Deductive)
Medical, government, daycare, professional development	Formal sources		
Human resources, peer mentors, faculty confidant, colleagues, management	Workplace sources	Reliance on workplace	Transitional and employability experiences (Deductive)
Financial necessity, expectations from work, expectation of self, social external comparisons	Pressures	Changes in work motivations and engagement	Experiences with working (Inductive)
Remain connected and engaged, mental stimulation, professional development	Work values and beliefs		
Job responsibilities, productivity, promotion	Maintain work identity		
Management, human resources, employer, work handover, funding, employment contract, bullying / harassment	Stressors within the workplace	Work and life stressors	Transitional and employability experiences (Deductive)
Health and wellbeing, financial, insurance, job insecurity.	Stressors external to the workplace		
Culture, perceptions, productivity, travel and conferences, job responsibilities	Work challenges	Return to employment challenges	Return to employment challenges (Inductive)
Career development, track record.	Career challenges		
Personal responsibilities, health and wellbeing.	Life challenges		

Table 6: Codes, Categories and Themes above summarises the six themes that emerged from these grouped perceptions and experiences: a reliance on self, reliance on the workplace, reliance on others, changes in work motivations and engagement, work and life stressors and returning to employment challenges. Each of these six themes that emerged from a thematic analysis of data, which facilitated the clustering of the research findings as shown in Table 6: Codes, Categories and Themes above are discussed throughout the remainder of this chapter. Eldh et al. (2020) acknowledge the literature's diverse guidance in relation to the representation of quotations in qualitative studies which includes the use of a large number of comprehensive quotes. For this study, each theme was supported by the inclusion of rich and thick descriptive quotes across the entire data set of 18 narratives, to enhance the thematic analysis, adding depth and authenticity to each theme. These first-hand perspectives not only validated the identified themes but also contributed to the academic rigour of this study, presenting an empirical basis for understanding career break experiences from the individual perspective. Participants' voices offered direct insights into the psychosocial complexities of contemporary career interruptions, creating a grounded and evidence-based approach to understand each theme, which underscores the scholarly credibility of this study.

4.4 Reliance on self

The theme of reliance on self, highlights participants' ability to take charge and self-manage their career break experiences. Participants spoke of their experiences with proactively managing their employment role, their personal health and wellbeing and their commitments, as well as proactively engaging in planning, networking and professional development.

Proactive Management: Eleven participants either retreated temporarily from their employment role or resigned from their employment role prior to going on their career break. Those who resigned did so to either fulfil personal goals, such as having a family, or to

pursue other professional goals, such as obtaining a new fellowship that would strengthen their CV, or they did so because their relationship with their employer was not strong. Participants who retreated temporarily from their employment role, prepared to do so in one of two ways: either through preparing and communicating regular progress updates of their work responsibilities, or by negotiating their intentions in relation to their work responsibilities and the extent to which they could continue to fulfil them while away from the workforce. Clare, for example proactively designed a matrix of her job responsibilities, which she discussed with her boss prior to going on leave:

> *I devised a matrix for us to talk to, and this matrix was basically all of my roles and how I wanted to be contacted throughout the maternity leave, to give them really clear boundaries as to what I wanted, and the theme of that matrix was actually that I wanted flexibility because I actually didn't know what it was going to be like. (Clare, 2021).*

Olympia, Diane and Paula drew on their prior career break experiences when moving into subsequent career breaks:

> *I think I did realise the second time around that people were going to continue to send me emails, and that I found emails extremely stressful, because you could only get your email every, like two weeks or something, and then you open it up and there's just hundreds and hundreds of things. It's like, I can't deal with that, close it again and I knew that the first time around I'd missed out on a bunch of stuff already. It just made my life more difficult, because I had people who were expecting me to reply to an email. I wasn't going to be able to do it. So, the second time around, I definitely put that in place, which is like, if you need to get in touch with me, please send me a text message or phone me or, you know, let me know a different way, don't send me an email, because it's way too stressful for me and I won't read it and that sort of thing. So, I think that they knew what my preferred method of communication was. (Olympia, 2021)*

> *The second and third time, I knew what I was getting into, and I think the first time I was trying to think of ways to stay connected during that break time and so probably doing things like checking email and things like that and thinking about those sorts of things. Whereas once I got to the second and third break, I decided I actually was going to pretty much break and so*

arranged other ways of communication around that. I would only check things if I'd arranged with colleagues or the students. They'd send me a text message first and say get on and look at this. I did pull back from that and from work (Diane, 2021).

I think like you find you let go of a few of these things that I felt that I should be doing. I couldn't help that the handover didn't happen for the first maternity leave. But I think by the second time, I think I was a lot better at just letting go of some of the little things. Like you know, I was really hung up on, I hadn't completed something, or I hadn't done something to the standard that I would have liked to, and I think I kind of just let go of that and just let other people deal with it, or maybe just prioritise, you know, certain things to have completed. I think that would have helped a lot, like I did feel a lot better going into the second maternity leave, and I didn't have things hanging over my head and just to really stick around. Pretty sure with the first maternity leave. Yeah, there was some paper that I was wanting to write, and I'd set myself not goals, but I had said to myself, oh, love maternity leave. I think I'm gonna write this paper, or that paper or, you know, achieve this. No. By the second time I was like, it is what it is, if I get this finished, like, that'd be great, but I didn't have any expectations (Paula, 2021).

While some participants returned to the workforce in a full-time capacity and reassumed their previous employment role, most participants returned in a part-time capacity to what many described as essentially returning to the same employment role. Some of these participants had a phased return to the workforce, choosing to progressively increase their days of work. Regardless of the capacity in which participants returned, many participants spoke of the way in which they changed their approach to carrying out their employment role, as well as their specific job responsibilities. Some participants referred to this as a change in mindset towards working, that was influenced by their different responsibilities and the need to adjust and balance their work and life commitments.

The personal health and wellbeing of half of the participants was impacted by their working life when moving into their career breaks. Four participants felt high pressure from their job; they felt tremendously overworked, burnt out, or simply not able to sustain expected productivity levels. The choice to take a career break for three participants was about maintaining their personal health and wellbeing. Helen felt that she had no choice due to

being diagnosed with cancer. Grace felt forced to make a choice between remaining in her job role or pursuing her desire to have children. Olympia felt she had to make a choice between remaining in her job role and being a present parent, wanting to put her family first to raise happy and healthy children, while knowing this would harm her career prospects. Feeling physically well while pregnant allowed Fran to work up until thirty-eight and a half weeks and complete her work tasks prior to going on her first career break. Alice on the other hand, due to her poor physical health, had to delay her career break to have a child due to her doctor's recommendation to delay falling pregnant.

Maintaining mental health and wellbeing while away from the workforce was important for 13 participants who approached this in a variety of ways. This included a shift in focus towards taking up new hobbies, such as gardening, quilting, crafting, reading widely such as a self-help book, exercising, socialising, keeping generally in good health, focusing on their children, putting an older child into childcare part-time while they were at home with their baby, and pursuing the opportunity to secure some sort of work other than parenting. For some, this shift in focus provided relief to the abrupt changes in their lifestyle while away from the workforce. It also provided some structure to what had suddenly become completely unstructured days, through allowing participants to keep themselves busy, or have some time to themselves and not feel overwhelmed by the sudden reduced intellectual stimulation. Ingrid described this shift in focus as a mental readjustment, while Olympia and Clare spoke of how these changes allowed them to develop a new perspective and become more accepting of their situation. Nicole drew attention towards her embracement of change during her overseas travel experiences, choosing to put herself in situations where she was forced to grow and when it became too much, taking a step back, refreshing and returning to do it again. She spoke of how she relied on her existing skillsets to support her own personal growth, while at the same time, broadening those skillsets with new experiences and pushing

boundaries to adapt to different circumstances and situations. Helen, Grace and Kylie, who encountered significant issues with their mental or physical wellbeing, spoke candidly about their entire shift in focus once away from work towards staying afloat and surviving.

Nine participants, who were predominantly employed within the field of science, spoke of their personal health and wellbeing when moving out of their career break. This largely related to a decision to reframe priorities or values to protect their own personal health and wellbeing that subsequently impacted on how they viewed their employment experiences. Examples shared included recognising that work was no longer the only priority, putting family first before work, taking time off work to support mental wellbeing and not pushing themselves too hard with work to avoid getting sick, doing meditation and reading for inspiration. The importance of mental wellbeing when working was highlighted by Grace, Kylie, Rose and Laura as follows:

> *So, in terms of employability, I had applied for some roles. Some I didn't get but then the timing of things meant that because I was very unwell, that I actually couldn't work. So, there was actually a fair period where I was actually not in a position to work and to apply for work. (Grace 2021).*

> *I had this master plan that at five weeks, I was going to go interstate for a conference. At three months, I was going to fly overseas for a conference. I was going to do a bit of work here and there. I did nothing for the first I think 10 weeks and then I started to realise that what on earth was I thinking. There was no way I was gonna be able to do these things and so I started cancelling stuff and then I got diagnosed with postnatal depression (Kylie, 2021)*

> *I started meditating. I started moving into yoga much more and also started a daily sitting practice early in the morning before the children were awake. Started sitting every morning and that was an absolute turnaround for me. Until that point, I'd struggled an awful lot and I think it was around, in some ways, it was around control, feeling out of control, but not necessarily, not just in the workplace. My whole life just felt out of control and doing a daily sitting practice for me just fundamentally changed everything (Rose, 2021).*

> *I was still insecure about whether I wanted to continue in science, given what I had experienced. Whether I wouldn't be able to work in a culture like this. So, I was just thinking, one step at a time. I just thought, okay, I'm gonna move for six months, finish this paper that I'm working on with my collaborator and then will think about the rest afterwards. Whether I would want to stay or not. So, I wasn't really at that point, I wasn't in a position really in my mindset to really think ahead in terms of whether I would be employable or not, because I had to just make sure that I was able to work first (Laura, 2021).*

Prior to going on a career break, Bella had discussions with her boss on what she could do that would allow her to be a mum to a newborn baby, while also keeping her skills up to date to ensure she was ready when she returned. While away from the workforce, three participants spoke of their own different struggles with balancing their work and life, including having to continue with work responsibilities after their baby had gone to bed, difficulties with bringing their restless baby to work meetings and the anticipation of difficulties with balancing work and life through changing work hours to suit their circumstances.

Work-life balance was a more prominent issue when returning to the workforce that was discussed by 11 participants. Work flexibility was an important consideration for a number of participants. Whether it was being able to work around one's lifestyle, as opposed to the standard hours of 9am to 5pm, being able to work from home one day a week, being able to work around a baby's routine, or attending a work meeting during what was labelled as family friendly hours of 10am to 4:00pm. Balancing commitments also meant setting boundaries around working hours for a number of participants. Examples of these boundaries included not wanting to, or not being able to work much overtime, compared to before the career break, leaving earlier each day so as not to be stuck in peak traffic driving home to family, ensuring work was completed by 4:30 pm each day to reduce the risk of having to work overtime, not being able to work late on a Friday due to having other responsibilities, or no longer being able to agree to spending an extra hour or two at work each day. For some

participants, caring responsibilities infiltrated during working hours. Examples included going to feed their child at an on-site childcare centre during their working day, accessing an on-site breastfeeding room or, where this was not available, expressing milk in a toilet cubicle. Diane and her partner both chose to work part-time to ensure they had a more rounded life and were present in both their work and direct caring roles. Six participants spoke of their struggles with balancing their commitments with work in relation to feeling sleep-deprived and feeling tired at work, pressures when their children became unwell, having a rigid schedule with limited flexibility, and not being able to make a decision at work without considering the needs of family members. Olympia described her life as a 'juggling act' since going on her first career break, which continued over several years:

> *Look I think I'd just describe it as, I feel like life for probably the last seven years, since going on a career break, I often liken it to, you know that juggling act, where you have all those, someone's got all these poles and they're spinning plates on them and they're just trying to make sure that one of them doesn't crash to the floor and break. That's how I describe my life. It's just literally like, okay, emergency, got to keep that thing spinning, got to keep that thing spinning. So that's really how I feel about pretty much the entire time that I've had breaks, and you know, in between the breaks and after the breaks. It's getting a bit better now. But it's literally just firefighting and emergency. What do you call it, survival mode, pretty much. (Olympia, 2021).*

Proactive engagement: Seven participants spoke of the various ways in which they strived to maintain or broaden their professional network and position themselves on people's radars when moving into, through and out of their career break. These participants networked through social media platforms, namely LinkedIn and Twitter, through becoming members of various groups, or through establishing friendships within their local community to broaden their connections. They also contacted prior employers and colleagues, prospective employers, or had conversations with relevant individuals about potential employment opportunities. Prior to going on her career break, Ingrid who had resigned from an overseas

workplace in order to travel, proactively contacted a prior employer to set up an employment position when she returned from her travels, ensuring she would have an income while she looked for an alternative position. Grace similarly contacted individuals in advance, to let them know she was taking a career break for an unknown period of time yet would require their support in the future when she intended to re-enter the workforce. While away from the workforce, Helen and Nicole secured employment roles through either having maintained their professional contacts, or proactively engaging with prospective future employers. Networking allowed three other participants to remain live and relevant on the professional front, through talking and communicating with people or visiting prior colleagues. Conversations were key for four participants wanting to return to the workforce, whether it was over coffee with specific individuals in their field, or through online conversations using multiple online platforms. Alice spoke of how she placed significant value on networking in various ways while she was away from the workforce for approximately two years as highlighted below:

> *I think it's important when I, when we came home and I had four months or whatever till the baby came, I actively got on LinkedIn. It was relatively new. This is nine years ago or eight and a bit years ago and I just, I collected all my [overseas] contacts. I reengaged with all my contacts from Australia, and I've kept that going and I've kept it alive. I used it as an excuse to talk to people that I hadn't talked to in, you know, three, four, ten years' time whatever (Alice, 2021).*

> *It's not something everyone's comfortable doing. But it was very important. It also kickstarts sort of the realisation that I am a networker, that I can do this. I was watching me do it easily and people going, 'oh, well, you're in contact with that person, I wouldn't have even known how to find them' and stuff like that. So, it's allowed me a lot of good connections that I probably don't use as much as I could, but they're there if I need them. (Alice, 2021)*

> *I did things like visit people at the organisation I had left and the university I had studied my PhD at, while I was pregnant before I had the baby and then in the year or so after, just to say hi. I keep myself on people's radars, that sort of thing. (Alice, 2021)*

So, I took time, I guess that was getting to know more people locally, because I mean we had lived here. I mean we kept the same house and just rented it out to people for five years, so we came back to the exact same address. But we only had only ever lived here as college graduates really and we hadn't, my partner had played a bit of local [sport] and that's about it. So, you know, just getting to know people in the local community was, it was obviously valuable. (Alice, 2021)

Because I was having to go from A to an unknown B over those two and a half or three years or whatever, that was where I had to think about it and I used all the tricks I could think of. Like I literally even baked and when I would turn up to meet somebody who was a good contact, I'd be like, 'Look I just happened to [bake] yesterday, so I thought I'd bring some along and share them with you' (Alice, 2021).

I actually totally changed careers really. So, there wouldn't have even really been any benefit to it. I made sure I kept, again with the networking, I made sure I kept sort of connections with the people [overseas], because they were people that were probably going to put me on a few papers after I left. You don't want to be forgotten off a paper and one of those papers came only like [not too long ago], so those, I suspect, I wasn't going to be left off it (Alice, 2021).

Twelve participants spoke of their participation in various professional development programs, activities and initiatives, which they completed for the purpose of maintaining, broadening and enhancing their existing skillsets, knowledge and experiences. When moving into a career break, one participant, Clare, proactively sought pro bono executive coaching that focused on value sorting and reframing of her talents. Clare found these sessions extremely beneficial and provided some further insight:

I sat down with them, and we did value sorting tasks and we did a couple of, you know, just talk sessions as well. But I found that really useful, because it helped me really reframe what my talents are and where I want to go. So, the task was basically a value sorting task, but also in the lens of how you want to work. So, there were working-themed values, and the top corner was things you're good at, the things you want to do. Then there was down the bottom, things you're not good at the things you want to do, things you're bad at that you really don't want to do, and things you're good at that you don't want to do. And it just really made me realise that a lot of the things I was actually doing in my work, were in that corner, which is things that I was good at, but I didn't really want to do. There were some aspects over here that also I was

> *carrying out in my work but could be easily expressed in teaching, could easily be expressed in policy working, in government or as a politician. So, these things were very flexible and malleable. And it helped me value myself, and see what I was good at, but also highlight the other areas that I really wanted to improve and that was a really useful thing to do around that time, because it helped me get control. That was just before I went on the break. (Clare, 2021).*

While away from the workforce seven participants engaged in professional development. Some kept up to date with knowledge within their field through reading academic literature and non-academic literature, which many accessed online, as well as keeping up to date with social media. Diane pointed out that some reading resources came from continuing her memberships with various professional organisations: prior to 2010 during her first two career breaks she received these via mail, whereas during her third career break in 2017 she could conveniently access them online. Other participants completed programs including a Board of Directors course, a Career interruption course and a degree in Information Technology. Bella continued to present at both domestic and international conferences, while Ingrid was required to complete 20 hours of continuing professional development to keep her professional registration. Bella and Paula involved themselves in community engagements, with one speaking at schools about balancing careers and motherhood and another sitting on an industry advisory panel and a local community committee.

When moving out of their career break three participants completed women in leadership programs, two continued to read, or continued with their studies and one participant decided to actively seek involvement in things outside their immediate niche, joining everything they could or volunteering their time.

Participants spoke about the importance of planning for career breaks. Prior to taking a career break, 11 participants made plans in relation to their anticipated departure from the workforce. These plans were predominantly in relation to their job responsibilities, their level

of work engagement, the different birth location of their child or the pursuit of alternative personal goals, such as travel, or professional goals such as applying for a new fellowship. Four participants spoke of how they purposefully timed their pregnancies and controlling the timing of their career breaks to have minimal impact on their work schedules. While away from the workforce, six participants spoke about their plans to either extend their career break, work during their career break, remain connected and network with people, look for a new employment position or manage their financial situation. Five participants spoke about their plans in anticipation of their return to the workforce. These plans took various forms, including preparing for specific job responsibilities, returning on people's radars and communicating about preferred projects when recommencing. Advance planning was carried out when searching for an alternative employment role in cases where their prior employment role was no longer available to return to or other plans did not come to fruition. Grace spoke of her plan with her partner when returning to the workforce, which consisted of her partner not letting go of too much work until they knew she could thrive in her new role.

4.5 Reliance on others

Reliance on others as a theme highlights the many informal and formal sources of support that participants drew upon throughout their career breaks. Seventeen participants spoke of their reliance on informal support from either their partners, family, friends and personal networks within their community. Sixteen participants spoke of their reliance on formal support services in accessing either government, medical, daycare or professional services. The research findings revealed that participants were dependant on these informal and formal sources of support for many different and specific reasons to help them to cope with their career break and respond to the changes to their work and life, particularly as they moved through and out of their career breaks. Participants relied on accessing this support to meet

their specific personal and professional needs. This support was dynamic in nature, according to changes in participants personal and professional needs.

Formal sources: Seven participants drew on medical services to support their mental health, which commenced during their time away from the workforce. These services including counselling, psychologists, psychiatrists, mother and baby unit, postnatal depression support group, breast cancer support group and medical practitioners. Kylie's decision to re-evaluate and extend her career break and return to the workforce two days a week was made in consultation with her doctor.

Government-funded support was accessed by eight participants. Six participants accessed the government-funded child health nurse program and local parenting program, which offered support to both the participants and their child. All but one of these participants spoke positively about these programs, with Rose finding the local parent group program an awkward experience. Kylie felt lucky to be eligible to receive superannuation income support, as she would have otherwise not been paid during her time away from the workforce. When returning to the workforce, Helen accessed an employment service that offered career consulting, which formed part of Australian Government-funded Women Returning to the Workforce Program.

Three participants spoke positively about the professional support they received. Grace spoke of her wish to have obtained this type of support when she was transitioning back into the workforce, and used an analogy to effectively describe this:

> *You can imagine if you haven't ridden a bike in ten years, you know how to ride the bike, but you might have kind of forgotten which way the gears go. Even though you know how to do it, you just need a little bit of a go before you go out onto a highway. It was sort of like that. I just went straight out onto the highway by myself and so I think that's a key area for career re-entry for women, or anyone with a career interruption is to have like a buddy who can just take them under their wing and say look, I know it's been a while, but I know you can do this. You haven't*

lost this. You're capable of this. Don't worry that you can't remember all the nitty gritty details. It's there, you've just got to uncover it again. Whereas, I just had to do that by myself essentially. (Grace, 2021).

Laura, who was on a fellowship, and took a career break due to being unwell, was supported by her professional collaborators to finish multiple projects, which resulted in publications while she was on leave. Laura also felt supported by her funding agency, who extended her fellowship by 12 months when she took a career break. This combination of support provided a safety net for Laura and placed her in a good position in relation to future Australian Research Council (ARC) applications and other similar applications when she returned to the workforce. Another participant, Grace, mentioned the personal benefit of having received good advice from completing an online course, as well as having good mentors when returning to the workforce. Clare spoke of the various ways in which professional support had a positive influence as she moved into, through and out of her career breaks:

So, I had planned I sought out pro bono executive coaching. They were great … and so I sat down with them, and we did value sorting tasks and we did a couple of, you know, just talk sessions as well. But I found that really useful, because it helped me really reframe what my talents are and where I want to go. So, the task was basically a value sorting task, but also in the lens of how you want to work. (Clare 2021).

But it was really the peer mentoring and mentoring from other realms as well. So, my mentors were not always in academia, and they were definitely not in my organisation … so I had a lot of people around who I could draw on for very different things. So, each mentor was for an aspect of my growth and career, I wouldn't always show particular vulnerabilities to my mentors, however, always could do that with my long-term mentor and my peer group. So, it was literally I think that was the only thing that got me through at that time. (Clare, 2021).

I was also awarded a return-to-work grant, which was a very brief partnership with [an external organisation]. They gave a one-off donation to my organisation and that recouped the costs for childcare and paid for my partner to attend conferences with me while my child was small and still breastfeeding. So, it allowed us to maintain my child's connection with me and

their food and allowed me to present my work. So that extra financial burden was reduced. (Clare, 2021).

Childcare was the most common source of formal support that was utilised by 12 participants for a variety of reasons and benefits while away from the workforce, as well as when returning to the workforce. Only Bella, who had taken four career breaks, raised her reluctance about using childcare, preferring to rely on her partner and family instead.

Six participants spoke of their reasons for using childcare while they were away from the workforce. Olympia and Rose continued to send their older children to childcare, while they were home with their babies, which they found helpful for their mental health, as well as allowing them some quality time at home with their baby. Three participants preferred a trial or staged approach to adjust to childcare, gradually increasing the childcare days. One of these participants, however, found giving their child to someone else to be a difficult adjustment. Ingrid felt the need to accept an opportunity to send her second child earlier than she anticipated, due to the childcare centre's two-year wait list.

Five participants discussed reasons for their varied approaches to utilising childcare when they were returning to the workforce. Diane and her partner chose to use childcare part-time, while they both worked part-time, so they could prioritise their parenting. Another participant, Quinn, adopted a staged approach to childcare that coincided with her staged return to the workforce and felt fortunate in that her child, who was a bundle of energy, was kept busy at childcare. Grace described her approach to childcare as planned and strategic, yet nevertheless a challenging adjustment for their family. Fran had to return to work earlier than she expected for two career breaks and felt nervous about sending her children to childcare before they were 12 months old, so relied on her partner and family to babysit when she initially returned to work. Both children went to childcare at 12 months old. Jane, whose

boss had communicated a preference of her working days upon returning, spoke of her struggles with aligning this request with the poor availability of childcare.

The on-site or close proximity of the childcare centre to their workplace proved to be extremely convenient logistically for Clare, Paula and Rose, who described this arrangement as a 'gamechanger' and 'fantastic'. Rose and Clare also spoke of the additional benefits of using childcare that went beyond caring for their child:

> *I was plugged into the university childcare network and so I had a network outside my immediate colleagues who were therefore not engineers, and this was much more normal for them. And so the drop offs and pickups from childcare were absolutely essential. The childcare I used was on campus and I continued, I mean, it was a fantastic arrangement. You could just walk down and feed the baby and walk back to your office and I mean, it was amazing. But those drop offs and pickups and the conversations in the car park, the conversations in the foyer were absolutely essential from a survival perspective. (Rose, 2021)*

> *Having a childcare centre, just literally on your doorstep is a gamechanger. The Centre also is incredibly well set up for scientist parents, I mean the whole place has multiple research organisations and medical and lots of medicos as well. So, everyone sort of speaks the same language and so while the community is still diverse, it is homogeneous in values and the way that we communicate. And so, everything has been easy there. (Clare, 2021)*

Informal sources: Five participants did not have any family support, as their family lived either regionally, interstate or overseas. Another participant, Nicole, whose third career break was for parental leave, preferred that she and her partner take responsibility for their child, even though family support was available. Nicole had a very supportive mothers' group, which she felt provided a separate and independent setting where she could communicate openly and honestly.

Family provided social, logistical or mental health support for participants while they were away from the workforce. Seven participants had strong family support from parents, in-laws or siblings when taking their career breaks, while one participant, Olympia, had occasional

help from family. Claire spoke of how her mother came to visit. Bella received logistical support from family members, helping with older kids' drop offs and pickups while she was home with a baby. Ingrid received babysitting support from family members looking after her baby so she could have some time to herself, which was of benefit to her mental health. When returning to the workforce, five participants relied on family support to mind their children while they were working.

On their return to the workforce following a career break, 14 participants described their partners as being supportive, through altering their working circumstances, for example, to take on a more active parenting role. While away from the workforce, Quinn and Olympia felt supported when their partners also took some time off work. Quinn's partner decided to quit his job when he had to fight to get leave when his child was born. Olympia's partner chose to work four days a week and be home one day a week to help with looking after the eldest of their two children during Olympia's third career break. She found this very helpful, from her mental health perspective.

Two participants, Alice and Laura, who relocated to commence a new employment role when they returned to the workforce, spoke of the support they received from their partners when relocating. Alice relocated with her partner overseas after she felt there was no point in completing a PhD in Australia, if she didn't follow this up with overseas work experience in her specific STEM field, in order to be taken seriously. Laura, on the other hand, relocated to Australia with her partner to pursue her own work, despite her partner being somewhat reluctant to do so. Many participants described the varied support arrangements they had with their partners when returning to the workforce. Nicole, whose third career break was for parental leave, felt she was able to return to work comfortably and confidently since she stayed home for the first six months after the baby was born and her partner stayed home for the following six months. Bella was able to work in the mornings, as her partner's job

allowed him to always be home in the morning with their eldest two children. Clare was able to breastfeed both her children at work and spend a little quality time with them, as her partner would tailor his day and drive the children in for their breastfeed times. Diane and her partner chose to work part-time so they could both take on active parenting roles. Grace's partner did not reduce his workload until she knew she was able to thrive in her new work role as opposed to be thrown into the workforce. One participant, Fran, who returned to work earlier than anticipated due to financial reasons, described the practical support she received from her partner in staying home with the children while he worked casually. Yet, she found it difficult to talk to her partner on an emotional level due to his own work values:

> *The support and emotional support for going back to work. My girlfriends were great around that. But it's hard to talk to my partner about it, because he felt guilty that I was going back to work, because he felt he should be, and he'd been having trouble getting work. He felt, he's always felt, that he should be the provider, even though I want to work, to be part of the workforce. He's grown up having that model, so it's pretty heavily entrenched in him. So, I didn't feel like I could talk to him as much about it because I didn't want him to feel worse than he already did about me going back to work sooner (Fran, 2021).*

Support from friendships played an important role for six participants, predominantly while away from the workforce, yet played a less important role for four of the women. Diane described her different experiences with friendships across her three career breaks. When taking her first career break, she was the first one of her friends to have a child and felt that none of her friends could really help her, whereas by the time she took her second and third career breaks, she had friends who also had children. A number of other positive experiences with friends were discussed. Prior to taking a career break, Grace, who felt she had no choice but to leave her job role due to her desire to have children, drew on emotional support from close friends. While away from the workforce, four participants spoke of friends dropping by, friendships with women who had children, friendships with working mothers or friendships

within their local community and local community networks such as book club or playgroup. Friends played a less important role for other participants, however, while they were away from the workforce. Nicole felt she could be more open and honest with her mother's group, as opposed to sharing with friends or even family, who could sometimes overstep the mark and thus blur the boundaries. Grace spoke of how she went from working full-time, to suddenly having no friends around when taking her career break, as they were all working. Mary spoke of how most of her friends didn't have any kids, which she felt resulted in a different level of communication with those friends.

4.6 Reliance on the workplace

Reliance on the workplace as a theme highlights participants perceptions and experiences with their workplaces and the many different individuals within their workplaces that participants drew on for support, or otherwise had an influence on their career break experiences. The theme reliance on the workplace stemmed from the desire for participants to return to the workforce after a career break and remain employed by their workplace. The research findings revealed that participants drew on the support of various individuals within their workplaces when managing their changing work circumstances. This support was dynamic in nature, according to the nature of changes that emerged as they moved into, through and out of a career break.

All 18 participants discussed their perceptions and experiences in relation to individuals within their workplaces prior to going on career break: nine participants while they were away from the workforce and 14 participants when they were returning to the workforce. This in itself was indicative of the important continuing role of the workplace, particularly given the intention of all participants was to eventually return to the workforce. Prior to going on a career break and whilst away from the workforce, participants discussed their perceptions and

positive as well as challenging experiences with either their colleagues, faculty confidant, workplace mentor, human resources or more senior levels of management, including bosses, supervisors, and employers. When returning to the workforce, participants discussed their positive as well as challenging experiences with colleagues, as well with as more senior levels of management.

Workplace sources: Ingrid and Kylie had challenging experiences with their human resources (HR) departments. Ingrid had two very different experiences with her HR department. Prior to going on her second career break, Ingrid felt her HR department didn't know how to deal with the maternity leave process; however, when going on her third career break, for maternity leave, Ingrid experienced no issue with her HR department:

> *It was a very difficult time with how HR handled it all and I was flabbergasted that they didn't know how to deal with somebody going on maternity leave break. And I don't know how they dealt with other people, because there's certainly other people going on maternity leave breaks. Whether they were doing the same thing, forcing them to change their hours and then not wanting to pay and then, yeah, so that was difficult…But then the second time, the last break like the second maternity leave, they, HR was different, so the people in there were different and there was no issue. They just put me on maternity leave, they advertised the role. Someone else came in and filled in my shoes for that period and there didn't seem to be any problems. So, I don't know why it was such a problem the first time. But it certainly was stressful when you were super pregnant, trying to work out what's going on (Ingrid, 2021).*

Another participant, Kylie, who took one career break, encountered challenges with her HR department throughout her entire career break experience:

> *I found the navigating, the kind of bureaucracy around going on career break a lot more challenging. The you know, getting the paperwork sorted and things that I mean, I would have thought that people go on maternity leave all the time and yet, it took me, I think I filled out my forms to go on maternity leave, maybe four or five months before I was due to go on leave and I actually only got approved for the leave after I'd already had the baby. So, I would say that control over my individual things, absolutely fine, control over the bureaucracy and the paperwork and the sort of process of big approval leave, extremely challenging. So just to give*

> *an indication. I mean, this wasn't just pre going on leave, but through the whole process of me going on leave and then coming back from leave and then trying to sort out the end date of my contract. I think I spoke to about 10 different people in HR and I had to tell them the same story each time and then each time, I thought I was getting an answer and then they would, they would restructure HR and I would get a different person who would go through the whole thing again, or they didn't… know about [it], yeah, so I would say that that was the challenging thing (Kylie, 2021).*

While Clare was on her third career break during COVID, despite not knowing whether she would have a job to go back to, she nevertheless felt some reassurance and less pressure in the strong wellbeing message that was introduced by the HR department in the previous year.

Three participants spoke positively, and one participant spoke negatively about their experiences with mentoring. Kylie had a mentor as she moved into, through and out of her career break, as well as when she was adjusting back into the workforce. Kylie explained how she felt supported in having a workplace mentor who was not directly involved in her work and who could also relate to her personal situation of having children at an older age:

> *It was a really nice support and I felt like it was a safe space to be having discussions where she knew my work context, because she works here as well, but she wasn't directly involved in my work. So, I could get to have discussions I wouldn't necessarily have with my direct boss. So, it was just, it was a really nice, safe space, to have a discussion where she knew enough about the particulars of what I was doing for it to be really relevant and also, I would say, because she'd, you know, I was slightly older when I had kids and so and she'd had kids at the same time. So, it was kind of nice to, I felt like her advice was very relevant (Kylie, 2021).*

Another participant, Clare, felt supported in having multiple mentors from the workplace, as well as mentors from other realms for different reasons, one of whom had dropped by when she was away from the workforce:

> *So, each mentor was for an aspect of my growth and career, I wouldn't always show particular vulnerabilities to my mentors, however, always could do that with my long-term mentor and my peer group. So, it was literally I think that was the only thing that got me through at that time. I didn't have anything else up my sleeve (Clare, 2021).*

Mary, on the other hand, felt supported in having both an individual workplace mentor whom she felt could relate to her situation when providing career advice, as well as a peer all-female mentoring group:

> *Until my maternity leave, I always had a mentor and also a peer mentoring group that met relatively regularly, specifically to talk about, you know, what are the challenges that we're facing in the workplace and that was a female group. So very much focused on cultural differences and support we were lacking at my workplace. Then I've also always had a individual mentor and usually, that's specifically focusing on career and career steps to take and building my CV and that was usually some senior successful academic that I used to talk to. But through that program, I also learned to set my priorities as well and things that are important to me in life. So, for example, after that program, I looked for a mentor and there was one person that I approached and they said, 'Oh, you should never have kids, they're just such a distraction'. And I'm like yeah right, you're not the type of person that I want to have as a mentor (Mary, 2021).*

Rose's experiences with mentors were not so positive. She had taken two short career breaks in the 1990s and had multiple mentors which she had decided to walk away from, as she felt they had no real understanding of what her life was like:

> *Probably tried about three or four and probably half of them were men and in all cases, I walked away from that mentoring, because I felt they had no concept of what my life was, and I chose to just discontinue that mentoring. So, I guess from that, I often encourage younger academics who are coming, who are talking to me about mentors or mentoring or something, to be really confident that if a mentor doesn't, you don't gel with your mentor, then walk away from that relationship. Because again, it can be really depressing, because you've got someone telling you to do something that seems an impossibility in your life (Rose, 2021).*

One participant, Laura, had a disagreement with her supervisor, which she felt had resulted in passive-aggressive and verbally aggressive behaviour towards her. She felt it was unfair that she was being treated differently from her male colleagues and should then receive backlash for not putting up with that. Prior to going on sick leave, Laura had a negative experience

with her faculty confidant after approaching them confidentially to discuss wanting to leave the field of science. This is the advice she received:

> *'With your CV, you have had two fellowships of like prestigious ones in your country, you are, you can't leave science, regardless of how you feel'. And later: 'I haven't heard anything in your story that I haven't come across in my career and overcome in my career myself, so I suggest you go to a psychologist to grow a thicker skin'. And that's how I was sent away and … the week after I completely crashed and then I went on illness leave (Laura, 2021).*

After this conversation, Laura felt even less supported when she emailed the confidant, who did not respond for three weeks, by which time Laura was already on sick leave. Though the confidant apologised for the delayed response, Laura nevertheless said it still happened.

Fran spoke of the lack of support from her course coordinator prior to going on her career break:

> *So unfortunately, the coordinator of the course that I was in is not supportive of people having children during the course. Essentially, she used to be [like that], then she was told she wasn't allowed to tell the people at the start that they essentially weren't allowed to have kids, were not allowed to get married — that the program was your baby and things that impacted that shouldn't happen. So thankfully a few people before me had had kids during the program. So, she had learned to manage it a bit better by the time I told her. But I did still feel a bit shunned, a bit of a bad child (Fran, 2021).*

Prior to going on career break, three participants did not feel supported by their colleagues, due to the lack of acknowledgment they received following news of their pregnancies, to the point where they felt their pregnancies were swept under the carpet, as if it wasn't happening. Two participants on the other hand, spoke of the positive experiences they had with their colleagues prior to going on career break. Quinn was one participant who spoke positively of the support she had from her peers within her working group:

> *A really collegial, supportive group and I think that in itself is a really big difference, probably between sinking or staying afloat when you take a career interruption like this. So, I've been*

really grateful for that, to have good people around me and that made the preparation quite easy (Quinn, 2021).

Olympia was fortunate to feel supported by colleagues both within her working group as well as external to her working group, for different reasons:

So, when I had my first child, I'd only been here for two years. So, it was really quite early on into my employment. So, I think in terms of leading up to it, there were a few senior academics that I had spoken to about wanting to have children, but they weren't in my immediate working area. So having that person to talk to, who I knew, knew what it was like to be an academic, but it also wasn't going to affect my career in any way, because they were in a completely different part of the organisation, that was really helpful, to sort of try and be prepared about, okay, what's it going to be like, what sort of supports are you going to have like, and there's always that biological clock as well, like, you do have to do it at some point, you can't just leave it forever and ever; if it's going to happen, you've got to try to get it to happen. So having that network of support was helpful (Olympia, 2021).

I did find that once I told people that I was going to have a child that suddenly, there was a really great support network in terms of people saying, right you know, it's gonna be wonderful, you know, having a child is going to be fantastic and that was from both male and female colleagues. So, you sort of got initiated into this kind of like, parent club, or even Mum club, where people would suddenly tell you all the things and you know, give you some hot tips, and you know, all that sorts of stuff (Olympia, 2021).

There were mixed experiences of support from colleagues for three participants while away from the workforce. For example, there were social visits by colleagues to one participant's house. Some colleagues communicated to Helen their desire to keep her employed casually while she was away on sick leave to receive cancer treatment. Once Bella had reached a more senior level, she felt that she could rely on a network of colleagues, as the first point of contact, who were at the same level as herself, or a more senior level. Five participants spoke of how they felt supported by colleagues when returning to the workforce because they showed understanding or could resonate with the participant's circumstances. Examples of support came from: a colleague who had experienced a similar situation; a colleague who had

returned to work at the same time; a colleague who had made their workload a lot easier; and colleagues who were accepting of mental health issues.

Prior to going on career break, 15 participants discussed whether they felt supported by management once they had communicated to them their intention to take a carer break. Some spoke generally about feeling supported, some had reassurance from management about continuing with their employment role or career, while others simply felt supported in their decision to take time off from the workforce.

Two participants felt supported by management without giving any reason. Fran, Bella, Helen and Diane said how they felt reassured by management that they would be able to continue in their employment role due to having specific discussions in relation to their job role prior to leaving the workforce:

> *Both employers were very much interested in finding solutions to cover my leads but maintain my position for when I returned. So that was all sorted at the start which was good to have that kind of certainty (Fran, 2021).*
>
> *I would say, the boss prior as well as the current boss were pretty supportive. As I got more senior, I guess, it became a little bit of, 'who's going to manage your team? How are you going to sort that out, while taking this break? Will you be able to do some work from home kind of thing on maternity leave?' So, there were those type of questions. (Bella, 2021).*
>
> *I just had to pack up and move and the company I was working for let me keep working here for a few months. There was lots of working from home I suppose. It was [an interstate] company and the [boss] was pretty progressive and understanding (Helen, 2021).*
>
> *I had two managers at the time and through my other manager, I managed to find someone to engage with during that four-month period. The most we can take the sabbatical break for is five months and I chose to do four at the time. So yes, so they supported me and helped me to do my application for sabbatical leave (Diane, 2021).*

Alice, Diane, Nicole and Olympia felt supported by management in relation to their decision to take time away from the workforce, based on their ability to access entitlements and the

positive discussions that they had with management prior to taking time off from the workforce:

> *They basically said well, what do I care if you spend three months off extra with your baby and then you come back. I want to keep you as an employee. So, of course they totally understood that it would be a sensible thing to do, to let the mother stay home with the baby for another three months (Alice, 2021).*

> *They were very much 'well, this is your decision, what can we do? Of course, when will you come back?' Those sorts of things. So, they let me know all of their requirements and what my entitlements and things were. That was really the extent of what they did (Diane, 2021).*

> *Knowing that they had a good maternity policy and package in place that really gave me the confidence to be able to take that break. If I didn't have, if I wasn't at that organisation, or an organisation in the same sort of situation, there would have been a lot more uncertainty, but I had the policies there, I knew that I had a contract to come back to and a good parental leave package. I think that was, that really sort of gave me the confidence to say, yeah, I can do this. If I didn't have those things, if I didn't have that job to come back to, or a good maternity package associated with it, then, then that would have, I would have had a lot of questions about how do I manage this and a lot less confidence, if I had to try to convince an employer that I could come back full-time, when I had a six-month-old child. I think would have been a very difficult challenge and I luckily, I didn't have to face that (Nicole, 2021).*

> *I guess I felt grateful that I had a workplace that would support me to stay away for a year and then I have a job to come back to, so I felt happy about that (Olympia, 2021).*

Grace found however, that this support was not always consistent within an organisation, as she experienced conflicting levels of support at the same time from different levels of seniority:

> *I felt really disappointed that my immediate boss had excellent intentions and wanted to work through this and find a solution with me but didn't have support from their superiors and the organisation to do that. That [my boss was] going to have to decide between their career or keeping me on (Grace, 2021).*

Other reasons were given by four participants who did not feel supported prior to going on career break: these were changes in management to whom they directly reported, the work values of management, and the behaviour of management. Clare, for example, encountered complications with her new manager prior to going on her second career break, as they did not know each other, nor each other's working styles. This was contrary to having no issue with a previous manager when taking her first career break with whom she had developed a good rapport. Elsa pointed out that she was asked in her job interview if she was planning on having a family anytime soon. She spoke of how management had made it clear that they were not happy when she announced her first and second pregnancies, with the second time even being told she had ruined her career. Paula, on the other hand, when preparing to take her first career break, found her boss was almost too supportive, because they had made assumptions about her intended work engagement. This boss had assumed she wouldn't want to work at all while on her break, and also that she would want to return to work at a reduced capacity. However, when going on her second career break, Paula found her new boss did not make such assumptions. Laura experienced both passive-aggressive and verbally aggressive behaviour from her supervisor prior to going on her career break, after having a disagreement with them and refusing to give in to what they wanted.

Whilst away from the workforce, seven participants discussed whether they felt supported by management while on their break, in terms of ongoing work relationships, as well as whether they felt able to connect with work. Work relationships were viewed as an important source of support by participants while away from the workforce. Two participants who had multiple career breaks, had both positive and negative experiences with managing their relationships with their different bosses. Clare had a good rapport with her boss, who was understanding and supportive when she took her first career break, despite her boss not having any relatable experience of being a full-time carer. However, she found it challenging with her new boss,

with whom she had multiple miscommunications when taking her second career break, despite this boss having had their own experience as a full-time carer. Another participant, Paula, similarly had contrasting experiences, whereby one boss was more accommodating to her needs when she took her second career break, compared to the boss she had when she took her first career break. Bella referred to her work team as a 'family'. She spoke of how her team knew each of her children and how she would visit her team members with her babies during her career breaks.

Contact with the workplace while away from the workforce was discussed by several participants. Participants viewed the limited contact they had with their workplace during this time as both positive and negative. Diane had no contact with her supervisor during any of her three career breaks and the contact she received from HR regarding her return had been initiated by Diane herself. Another participant, Laura, who also did not have any contact, felt she had no assistance from her supervisors to source additional funding for her employment and that the expectation was that she would return to work supported by her own additional funds. Mary spoke of how she didn't receive many emails directed to herself from her workplace while she was on leave. There was nothing set up in her workplace to ensure she remained connected, nor was there support available if she had any issues with returning to work. Due to this, Mary felt lucky that she didn't actually have any issues in that regard. Kylie, on the other hand, who was diagnosed with postnatal depression during her career break, felt very supported by her boss, who agreed to extend her maternity leave and did not expect her to stay connected with work while she was away.

One participant spoke of the logistical support she received from her workplace to enable her to continue with specific work responsibilities. This participant attended meetings with her baby and accessed a departmental maternity leave policy giving her free parking, which she

described as a ‘critical’ form of support that made her feel ‘valued’ by her workplace. Accessing free parking under her work building during her second career break alleviated the additional financial pressure of parking fees when attending work meetings and also alleviated the logistical pressure of getting a child out of the car and into a work meeting.

When returning to the workforce, 12 participants shared perceptions of support related to managing the challenges associated with resuming their employment role and responsibilities, as well as their assessment of workplace policies, processes and opportunities that were available and financial support they could access. Participants spoke of the logistical support they received from their workplace that enabled them to carry out their employment roles and specific responsibilities. Examples provided included allowing job flexibility, use of an allocated breastfeeding room, use of an allocated family room, permitting the expressing of milk at work, holding work meetings between certain hours of the day to allow drop offs and pickups, and adjusting job responsibilities. Participants also spoke of the emotional support they received, such as a warm welcome upon returning and reassurance from management when missing out on a fellowship. Looking more broadly, participants spoke of the support they received through their HR, specifically to access maternity toolkits, promotion processes and applications, leadership training, female-oriented groups and general conversations that focused on workloads and future aspirations. In terms of financial support, one participant, Bella, received a return-to-work bonus from her employer.

Two participants shared their mixed emotions about their workplace. Kylie felt supported by her boss, who had allowed her to do a side project as she struggled to get back into research. However, she felt less supported at the institutional level. Her HR department took a year to confirm the end date of her employment contract and made her feel not particularly welcome

when she participated in her organisation's return to work program. Paula had mixed emotions about her boss's reaction when she took her first career break. She felt that although her boss was very supportive, at the same time she did not feel that support was completely appropriate for her, due to certain assumptions her boss had made. They appeared to think about how her career break would play out and that she would either return to work at a reduced capacity, or not at all. She also didn't agree with her colleagues and manager having limited contact with her while she was on maternity leave, as she felt it should be up to her to make that kind of decision. When returning to the workforce, some participants did not feel supported to continue with their research responsibilities and felt pressures in relation to obtaining further grant funding to keep their jobs, fighting hard to keep their name on a grant application or dealing with attempts to sideline them in favour of younger colleagues. Participants also felt there was a lack of opportunities for mentoring, discussing their career progression and performance and inadequate technology within their organisation to hold online meetings that would allow them to work from home.

4.7 Changes in work motivations and engagement

The theme of changes in work motivations and engagement highlights how career breaks were often not a clean break from work during the time participants were away from the workforce. Participants' altered motivations for working in some capacity while away from the workforce provided evidence of the pressures, as well as the desires for women in STEM to continue to work in some capacity while taking a career break.

Pressures: Six participants stayed engaged with work due to various pressures. These pressures included working out of financial necessity to pay the mortgage, expectations from the workplace as well as from themselves to continue carrying out certain work responsibilities and comparisons with other individuals who may have been working during

their career breaks. Clare drew attention to the pressure of working in the field of STEM, comparing the pressure to continue to work throughout career breaks to that of a journalist or the field of law:

> *I don't think that a lot of people in our field, in a STEM field when they take parental leave, ever really have a career break, because there is such a fear that you won't ever get back into it. It is like a 24-hour news channel and you're a journalist and if you look away, you miss the next story, and that story is critical to your career. It's a tenuous career. It's similar or to be in the field of law. If you don't have clients and if you can't have billable hours and if you lose your network, then you don't have anything to return to. So, it was not really the most peaceful thing. It's a sad thing that we can't actually just really switch off and leave (Clare, 2021).*

Work values and beliefs: Fourteen out of 18 participants placed value on working in some capacity during their career break, by either continuing in their employment role, taking on a new role or through doing volunteer or casual work. Six participants felt continuing to work was important for reasons associated with connecting and engaging. Paula, Elsa and Mary felt it was important to just keep in touch with their workplace:

> *I think you sort of have to, like you're in a fixed term contract, you do have to keep your finger on the pulse. Like you have to be engaged (Paula, 2021).*
>
> *I certainly tried to keep myself involved at some level. You can't escape it (Elsa, 2021).*
>
> *I probably, I did stay connected, because I care a lot about my workplace and my colleagues and my students, so I didn't completely drop off the radar (Mary, 2021).*

Bella, Diane and Olympia had taken multiple career breaks and spoke of how they altered their strategy of connecting and engaging with their work for various reasons, as outlined below, choosing to take more control of how they would connect:

> *As I got more senior, I guess it was trying to put strategies in place so that I could help to direct things from home where possible. So, you know, it wasn't full-time working from home, but it was more that I would plan things out, you know. I would still send an overview to the team so*

they would know what direction they're going in, still agree to have meetings with the students but also have additional supervisors' kind of on call (Bella, 2021).

The second and third time, I knew what I was getting into, and I think the first time I was trying to think of ways to stay connected during that break time and so probably doing things like checking email and things like that and thinking about those sorts of things. Whereas once I got to the second and third break, I decided I actually was going to pretty much break and so arranged other ways of communication around that. I would only check things if I'd arranged with colleagues or the students. They'd send me a text message first and say get on and look at this. I did pull back from that and from work (Diane, 2021).

I knew that the first time around I'd missed out on a bunch of stuff already, it just made my life more difficult because I had people who were expecting me to reply to an email. I wasn't going to be able to do it. So, the second time around, I definitely put that in place, which is like, if you need to get in touch with me, please send me a text message or phone me or, you know, let me know a different way, don't send me an email, because it's way too stressful for me and I won't read it and that sort of thing. So, I think that I knew what my preferred method of communication was (Olympia, 2021).

Alice and Jane, on the other hand, felt that working gave them the required mental stimulation they needed:

So, you know, just getting to know people in the local community was, it was obviously valuable and it's not really about, it's not directly about employability, but it keeps your brain busy, and it gives you other skills and all that sort of stuff. So, you know, a little bit of grant writing to get new shelves for the library and things like that (Alice, 2021).

So, the second one, as I said, I kept in, in contact regularly, I don't think I really stopped working to be honest. I obviously reduced the load significantly, but I don't think I stopped working and I think for me as well, I realised that I needed it, if that makes sense. I needed something other than babies at home (Jane, 2021).

Nicole and Grace chose to work to maintain or further enhance their skillsets:

So, it was very much aligned with trying to build personal skill sets that I think would be attractive for a range of different employment opportunities (Nicole, 2021).

> *I did, do a small amount of work, during what I call as my career break, from home, but I sort of see that as a separate sort of thing that was partly strategic, because it was about showing somebody else that I still had skills and I was reliable, and I could do work (Grace, 2021).*

Maintain work identity: Nine participants spoke of how they maintained their identity at work through continuing to work in their current role in some capacity to either complete specific job responsibilities, keep their productivity going, or due to the timing of being on the cusp of promotion. Examples participants provided included working on papers, following up on things as they came through, carrying out urgent analysis, attending meetings, ensuring continuation of productivity, contributing to their personal track record, supporting students and taking on a temporary assignment. These participants placed importance on maintaining specific responsibilities of their employment role which they felt required their attention. Clare, who managed a team, highlighted the problem of progressing her own work while at the same time progressing the work of her team:

> *Didn't progress my own work, but I helped other people and that's the problem with career breaks like this, when you've got people in your team they don't go on a break. So, you have to keep their work going. So, my own career, my own sense of safety with my salary is tenuous and becomes worse throughout it, but other people's work continues (Clare, 2021).*

4.8 Work and life stressors

Many participants spoke of other sources of stress both within their workplaces and external to their workplace, which they had to contend with as they moved into, through and out of their career breaks. These psychological, physical, social and emotional sources of stress complicated the experiences of participants throughout their career break experiences. Fifteen participants experienced concurrent stresses prior to their career break, six participants during their career break and 10 participants as they moved out of their career break.

Stressors within and external to the workplace: Seven participants spoke of the stresses they experienced within their workplace prior to going on leave. Quinn spoke of the stress of the unfortunate timing and challenging situation in relation to the financial issues and budgetary constraints of her employer. Diane and Paula spoke of the stresses associated with work handovers for two very different reasons: one because of the way in which management chose to redistribute their job responsibilities to their colleagues and the other because of her temporary job replacement resigning unexpectedly prior to their period of leave:

> *I felt like I was having an impact on my other colleagues, because the institution at the time really wasn't, they didn't look at replacing me completely. My work got distributed among everyone else. In many, in most, I would say 70% of my work got distributed and they only replaced some of it. So that actually made me feel in some ways, maybe a bit selfish. But that shouldn't have been about me, that should have been about my workplace actually doing what they were meant to do and completely replacing what I was doing at the time (Diane, 2021).*

> *I was really stressed, I think in the lead-up to the baby about work that I hadn't finished that was left unfinished and we had in place a plan for someone to cover my maternity leave while I was away, which was great, but then she unexpectedly resigned and that put a lot of stress on me at the end to try and find someone else to fill in, to do more detailed handover notes. Yeah, that was quite, that was pretty full on. So, the handover process was, it was quite stressful (Paula, 2021).*

A number of participants also encountered challenges within different levels and departments within their organisations in relation to the lack of support they received from their supervisors, management, HR and work confidants prior to going on leave. Ingrid and Kylie spoke of the administrative difficulties they experienced within their organisation in relation to their career break, prior to their leave:

> *It was a very difficult time with how HR handled it all and I was flabbergasted that they didn't know how to deal with somebody going on maternity leave break. And I don't know how they dealt with other people, because there's certainly other people going on maternity leave breaks.*

> *Whether they were doing the same thing, forcing them to change their hours and then not wanting to pay and then, yeah, so that was difficult (Ingrid, 2021).*

> *I found the navigating, the kind of bureaucracy around going on career break a lot more challenging. The you know, getting the paperwork sorted and things that I mean, I would have thought that people go on maternity leave all the time and yet, it took me, I think I filled out my forms to go on maternity leave, maybe four or five months before I was due to go on leave and I actually only got approved for the leave after I'd already had the baby (Kylie, 2021).*

Beyond the workplace, 10 participants spoke of their own insecurities about their ability to retain their job, prior to going on leave, while others mentioned issues pertaining to their health and wellbeing, including feeling overworked, burned out or falling ill. Fourteen participants spoke about how secure they felt about their ability to keep their job, when taking a career break, which in many instances was influenced by the timing of their employment contracts. Six participants perceived their job security positively, due to having a sufficient amount of time left on their employment contract and knowing they had a job to return to. On the other hand, six participants perceived their job security negatively, due having little time left on their employment contract and the subsequent pressures of getting contract renewals, which often meant having to obtain further funding for their next contract. Two participants, who had taken multiple career breaks, felt both secure and insecure at different points in time. One of these participants, Clare, described how she went from rock bottom to high beyond high, when she thought she would have to leave the field of science and then received a fellowship:

> *I was employed on one-year contracts pretty much every year for like four years, four or five years. I was returning with only three months, really, of my contract. So, when I left for maternity leave, I knew I had three months left when I returned and as far as I knew the conversations I had with the person who was employing me, there wasn't any money for me. So, I did not feel secure. And I felt pretty, pretty low. Because I had to break up with science, it felt very much like I was having to go through a breakup (Clare, 2021).*

I went from rock bottom to high beyond high, because I was given a four-year fellowship. So, I could actually do things independently and I didn't have to rely on my past employer…. So, you know, we've found a really good way to work together now. But it was, it was just such a wonderful feeling. I just felt so lucky that I could return after going over on this trip and with a four-year fellowship. So that really flavoured the feeling of my second career break because I had the stability and I had also independently brought that money in too (Clare, 2021).

Bella described how she felt secure when taking each of her four career breaks as she was always on fellowships, until she missed out on a fellowship application:

As far as employability goes as I mentioned, I was lucky that I was always on fellowships so I didn't have that fear of financial stress and things that, you know, I might not be able to get a job back when I returned (Bella, 2021).

I did just get notification before I went back, when I was going back that I'd missed out on a fellowship. So that was a bit stressful, because obviously the break in between was a bit longer before my child showed up and that was quite stressful, because I knew I only had one year of salary left and if I didn't get the next fellowship, then you know, I would be in trouble as far as salary goes. So that was stressful, and I worried when I went on leave, as well as I guess, when I was coming back that what if I don't get myself into a position that's going to get me the next fellowship? You know, what happens then? (Bella, 2021).

Two participants experienced bullying and harassment prior to going on their career break, one of whom, Ingrid, described this as part of a combination of stresses she experienced prior to leaving the workforce:

The only thing I guess, I needed that time, was like recovery time, because the job I had been in was very full on. So very, super busy, I was burned out, I'd also experienced quite significant harassment and bullying in that position, so I just needed to leave that job and have a break before coming back anyway. So I was, yeah, I just felt happy to be on that break, really (Ingrid, 2021).

While away from the workforce, two participants continued to experience stress within their workplace, with Laura reporting feeling totally isolated. Another participant, Clare, who

continued to engage with specific work responsibilities while on leave, encountered difficulties working with a new manager.

Beyond the workplace, the health and wellbeing of Grace, Laura, Kylie and Helen continued to be a source of stress, due to either feeling mentally unwell, being diagnosed with depression or postnatal depression or the need to receive cancer treatment. Other sources of stress for six participants, while away from the workforce, related to childcare responsibilities, financial pressures within the household, issues with health insurance to access particular support services, dealing with marital separation issues and moving to a new location. Kylie, who was diagnosed with postnatal depression during her career break, emphasised the importance of encouraging people to discuss the challenges associated with career break experiences to foster reasonable expectations, prior to leaving the workforce:

> *I had my role models of what a career break would look like, where I had two friends who'd had kids, and they seemed to breeze through their career break and so in my mind, going on a career break was a relatively straightforward thing. And then I had all these experiences, and I felt like 'oh I'm failing, it's just me' 'that I'm not …' Things aren't going smoothly. And then I went back to these two friends, and they told me about all the challenging things that they'd faced that they'd hidden through the process. And then you talk to more people, and you feel like, you realise that there are so many people who find going on a career break a very challenging thing, or coming back to work can be very challenging, or there's some part of the process that is challenging. And so, although my natural inclination is not to talk about it, I think it's actually really important to talk, because otherwise, everyone has this view that everyone else is doing it really easily and that they're the one who are failing. So yeah, I think it's important to be able to discuss these things, so everyone knows that they're in the same boat. (Kylie, 2021)*

Seven participants reported experiencing stress in their workplace upon returning to the workforce.

Diane had experienced stress in relation to the work handover prior to going on leave and realised the significant impact of unfair work distribution by management on her colleagues upon returning:

> *I certainly wasn't happy afterwards with that impact that it had on others and how it had worked. But equally I was entitled to take that leave. So, it actually wasn't down to me that that was the case and I guess I would have hoped that that those colleagues could have had those discussions with their manager at the time. But I don't know. I don't know whether they did or didn't have those discussions to get that sorted out. But it certainly, it was not fair and it did make me feel guilt when I did return knowing what had happened (Diane, 2021).*

When Quinn returned part-time, she returned to a backlog and mountain of work due to her temporary replacement doing an insufficient job in her absence, as well as projects not being completed. Another participant, Grace, who experienced financial pressures during her career break, returned to a new employment role on a lower salary, despite feeling she had developed various other skills during her career break that contributed to her professional development, and for which she was not financially rewarded.

Four participants reported encountering challenges at different levels and departments within their organisation when returning from their career break, in relation to the lack of support from management and HR: two of them had experienced similar challenges prior to going on leave. Financial pressures were experienced by three participants when returning to the workforce, which resulted in a career change for one, returning to work earlier than anticipated for another, and working while recovering from cancer to stay connected and in line for further work for another participant. Other difficulties when transitioning back into the workforce reported by participants included job seeking and feeling angry and disheartened about not getting an interview for jobs that they felt they should be a contender for, and difficulties with obtaining a suitable job to combat feeling socially isolated. Helen felt she had no control over her situation when she was moving out of her four career breaks,

each of which she took for different reasons. In terms of health and wellbeing, three participants needed to continue to manage their recovery from their mental or physical illnesses.

4.9 Return to employment challenges

The theme of return to employment challenges highlights the shadow of career break experiences on women's work, life and career engagement as they moved out of their career break. These research findings provide evidence of the significant challenges that women must navigate through at this time. Rose expressed her concerns about the significance of this period:

> *I've spoken to some other women in the… and they talk about this shadow of your career break that is almost never acknowledged and it's the shadow that is actually, has a much bigger impact than your actual career break but it's rarely talked about, and the universities don't in no way manage that, the shadow time (Rose, 2021).*

Work and career challenges: Organisational culture and perceptions of capability within the work environment were raised by four participants as casting a shadow over their work experiences when returning from their career breaks. Rose, who had taken two short career breaks in the 1990s, pointed out how career break experiences across two generations were remarkably similar, regardless of their duration, and then further directly connected these experiences with workplace culture. Three participants felt their capabilities were perceived differently when returning from their career breaks, especially when compared to males employed in a similar role. Olympia spoke of the difficulties with accurately reflecting her capabilities in her resume:

> *If I were to try and move somewhere else, I feel that those career breaks would have had a massive effect on my employability, because people who know me know what I'm capable of and what I can do; people who don't know me don't know that story and they just see a CV and think, okay, well, what has this person been doing for all this time? (Olympia, 2021).*

Career break experiences placed various pressures on six participants' productivity on their return to the STEM workforce. Bella spoke of how she felt she had missed out on certain career goals because of taking her career breaks and she always worried about the impact of reduced or loss of productivity on her future career progress and goals when taking her four career breaks. Kylie, who had taken one career break, spoke of the effect on her research productivity due to her own struggles with recommencing research. Kylie explained that she still currently has a modified research program and is working at full capacity again, but in a different way. Time pressures due to working part-time were felt by Paula, in relation to her productivity, when carrying out certain job responsibilities such as writing journal papers. Three participants felt like they were playing catch-up and trying to make up for their time away from the workforce, with one participant, Olympia, concluding that they will never catch up and be as competitive:

> *So, I think those career breaks absolutely had a massive impact on my employability, it's impacted on my, what's the word, competitiveness for things like research fellowships, so I'll probably never get one of those. So, it's just that those are things that maybe I would have been able to do, but I definitely will never be able to catch up. I'll never be able to be that competitive (Olympia, 2021).*

Half of the participants felt pressures in relation to performing specific job responsibilities when returning to the workforce, with some either putting these specific responsibilities on hold and others adapting their job responsibilities. The job responsibilities related to research, the ability to write and publish in journals, writing first author publications, completing administration-associated tasks and completing unfinished work. Several of these participants found it difficult and struggled to get back into research due to either their reduced FTE loading, caring responsibilities, the intensity and long hours required, and simply not being in the right headspace. Working part-time created time pressures for participants when completing certain job responsibilities. Administrative tasks became burdensome, meeting

urgent deadlines were a sole focus, and there were mounting job responsibilities relating to both unfinished work and new work. Kylie, Rose and Olympia described how they adapted their job responsibilities:

> *My head really wasn't in the game as far as research, but because I had this side project, I found that super helpful, because it gave me something constructive to do but it didn't have the same pressure that maybe doing the research component would have done. I mean I was doing research, but not at the quite the same kind of intensity as I would have done otherwise (Kylie, 2021).*

> *I found I moved much more into lab work, modelling, that's much more desk-based, much more home-based and much fewer, you know, it's much harder to get away, that's how I found. I also moved more into, more service roles, because again, that seemed more straightforward to do that sort of work, then my research (Rose, 2021).*

> *I didn't really put my hand up for a lot of stuff that I knew was just going to be way too stressful for me to do and too difficult to manage (Olympia, 2021).*

Life challenges: Five participants spoke of their restricted ability to travel for work to conferences, meetings, seminars, to listen to guest speakers or to perform fieldwork once they had returned to the workforce, due to either caring responsibilities, being regionally based, or not feeling mentally up to it. This restricted ability to travel for work was not necessarily through a lack of opportunities, as Kylie pointed out:

> *I guess the biggest thing is the travel, is that it's not, you know, people can provide you with, there's an opportunity to travel, or there's an opportunity to do fieldwork. But actually, it's either not feasible because of daycare, or, you know, or I didn't feel mentally ready to do those sorts of things, and so there's internal things like that, where I felt like it wasn't possible (Kylie, 2021).*

Kylie, who took one career break, felt there was no impact to her career trajectory; however, she experienced significant personal challenges when returning from a career break. Six participants, however, felt their career progression and track record were impacted from taking time off from the workforce. They felt future opportunities to progress their careers

were negatively impacted due their career breaks, leaving a hole in their track record and hindering their ability to meet professional expectations. Diane and Jane explained this:

> *I know that I've killed my academic career because I won't get promoted now because I can't tick the boxes (Diane, 2021).*

> *There's a big hole in my track record and obviously, track records in my industry mean that you get grants, mean that you get opportunities and promotions and employment…There's an expectation that you go overseas and do a postdoc overseas for a few years. I wasn't going to do that with two babies, like, you know, I needed my family's support, and I do believe that that has been looked at quite negatively on, in sort of future prospects going forward (Jane, 2021).*

The personal wellbeing of four participants were discussed in terms of either their own mental struggles or their caring responsibilities when returning from a career break. Laura was conscious of the need to protect her own mental health and prioritised her working day around that. The other three participants often felt sleep-deprived, tired or stressed from caring responsibilities, which at times filtered into their working life. Elsa described the prolonged impact of caring responsibilities on work and momentum:

> *I think the issue with maternity leave is it doesn't end when you go back to work really and just because it's not direct caring time, there's still sleep deprivation, stress, them getting sick. All sorts of ad hoc problems that occur that you weren't having to deal with prior and I think this certainly impacts on work and it does impact momentum (Elsa, 2021).*

Eight participants spoke of how their personal responsibilities impacted on their work when returning to the workforce. They experienced challenges associated with managing sick kids and then getting sick themselves, kids not sleeping through the night, doing earlier pickups, breastfeeding, working according to daycare hours, sharing parenting responsibilities and overall having a more rigid and less flexible schedule. Jane and Ingrid described some of the ways in which these challenges impacted their ability to work at their desired capacity:

I always left work early because I didn't want to drive 40 minutes at five, six o'clock at night with little kids and so I missed a lot of that networking as well. So a lot of that, you know, drinks down the pub in the afternoon, or even some conferences (Jane, 2021).

So, we had the day care worked out, but definitely there was greater stress in that I couldn't just stay and finish whatever I was doing. My time was no longer just my time and I had babies relying on me to get back on time. So that, that first year, just trying to manage that was difficult (Ingrid, 2021).

4.10 Distinct participant experiences

In addition to the themes discussed throughout this chapter, which emerged from commonalities across the narratives, several distinct participant experiences were also unveiled that reflected circumstances unique to the career break experiences of only one participant. Some of these unique circumstances are mentioned that could potentially resonate with other women in STEM who take career breaks and present opportunities for further research. Quinn described what she referred to as having an 'unofficial career break', whereby she had returned to the same employment role, but she was not fulfilling all of her required job responsibilities due to preparing for an Australian Research Council (ARC) bid. Helen was unclear of her career path when taking her second career break, due to privatisation issues within her particular STEM industry. Alice who had been working overseas and returned to work in Australia after her second career break, took approximately nine years to reach an equivalent employment position in Australia, with no recognition given towards her overseas employment experience. Jane found out that she was going to have to plan a career break the day before she commenced her first postdoc appointment, as she had just discovered she was pregnant after returning from overseas. Rose was the first female to take a career break from her department.

4 .11 Chapter summary

The themes discussed throughout this chapter provide a rich picture of women in STEM's perceptions and experiences as they moved into, through and out of their career breaks. A thematic analysis of the data revealed significant changes occurred to all participants work and life and how these changes had an influence on their employability. Chapter 5: Restorying presents the restorying results of a sample of narratives. which showcase and further interpret the themes presented and discussed in this chapter.

CHAPTER 5 – RESTORYING

5.1 Introduction

This Restorying Chapter presents the narratives of five out of the 18 participants who were interviewed for this study. The interview data was interpreted by means of a thematic analysis across all 18 interviews and included quotes drawn directly from the narratives that support the research findings. The thematic analysis of data revealed six themes of interest: these were experiences in relation to a reliance on self, reliance on others, reliance on the workplace, changes in work engagement and motivations, work and life stressors and return to employment challenges. These themes warranted further study, and a sample of narratives were selected for restorying to investigate the themes more deeply. This formed part of the analysis strategy of this doctoral study to answer the key research question 'What are women in STEM's perceptions and experiences when they move into, through and out of a career break?'. This chapter is included to demonstrate restorying as a robust way of constructing the methodology of this study. It showcases women in STEM's career break experiences in a chronological sequence and logical format providing a futher depth of knowledge that is understandable for the reader. The restoried narratives further showcase the emerging themes, highlighting at a deeper level, the emerging work and life changes and implications of career interruptions, as well as the gendered dynamics of career breaks in STEM.

Ollerenshaw and Creswell (2002) define restorying as 'gathering stories, analysing them for key elements of the story, and then rewriting the story to place it within a chronological sequence' (p. 332). There was no attempt to summarise the participants' narratives for this study. As recommended by Scheffelaar et al. (2021) the narratives were drawn directly from the interview transcripts in the participants' own words and kept in first person to maintain and remain close to each participant's voice and avoid the inclusion of the researcher's voice.

Restorying narratives forms part of the meaning making process (Connelly & Clandinin 1999) presenting the key elements in a chronological sequence (Elliott 2005; Ollerenshaw & Creswell 2002) within a general, coherent framework that makes sense to the reader (Creswell 2007).

As participants navigated the transition process of moving into, through and out of a career break (Anderson et al. 2012; Schlossberg et al. 1995) they viewed their career breaks differently. They spoke of their experiences and changing needs and wants in relation to their work and life when preparing to leave the workforce, spend time away from the workforce and subsequently when returning to the workforce. These three stages of the transition process of a career break, provided a logical framework for restorying the narratives to aid understanding of the sequence of emerging changes, participants responses to these changes and the impact on their employability throughout their career break. Restorying calls for individual narratives to be retold and restructured in such a way that is more comprehensible for the reader (Ollerenshaw and Creswell 2002). The purpose of restorying is to communicate narratives and highlight the significance of the experiences that are related within these narratives from the perspective of each participant (Kim 2015).

A sample of five narratives were chosen to restory, as this study was bound by more restrictive DBA dissertation parameters compared to a PhD dissertation. The five chosen narratives are representative of women in STEM's career break perceptions and experiences, and together they articulate extensive knowledge about all six of the emergent themes. Each narrative conveys these themes authentically, in a way that can ultimately address the research question in a meaningful way (Ollerenshaw & Creswell 2002).

Four out of the six emerging themes are relevant across the entire transition of moving into, through and out of a career break (Anderson et al. 2012; Schlossberg et al. 1995;). The remaining two emerging themes are relevant to only part of the transition of a career break:

one theme relating to changes in work motivations and engagement when moving through a career break and the other theme relating to return to employment challenges when moving out of a career break. Four of the five narratives discuss multiple career break experiences, which include participants' reflections on what they had learned from their prior career break experiences. The chosen narratives provide a depth of knowledge that clearly communicates an emerging theme and is representative of women in STEM's varied career break perceptions and experiences. To achieve this depth and representation, the five chosen narratives are based on career break experiences that vary according to the number of career breaks taken, career break duration, career break motivations and the differing personal and professional needs and wants of participants.

From the cluster of career breaks, the chosen sample includes one participant who had taken the minimum number of one career break, one participant who had taken the maximum number of four career breaks and three participants who represent the majority of the cluster, who had taken between two to three career breaks. This study adopted the three-step restorying process recommended by Rolón-Dow and Bailey (2021) as this process was able to convey each narrative authentically '…in a more accessible and concise story that illustrates and respects each participant's experience' (Rolón-Dow & Bailey 2021, p. 8).

Consistent with Rolón-Dow and Bailey's (2021) approach to restorying, each narrative includes the context, a character profile and outline of the plot. These important elements form the introduction for each narrative, as shown in Figure 4: Context, Character and Plot below.

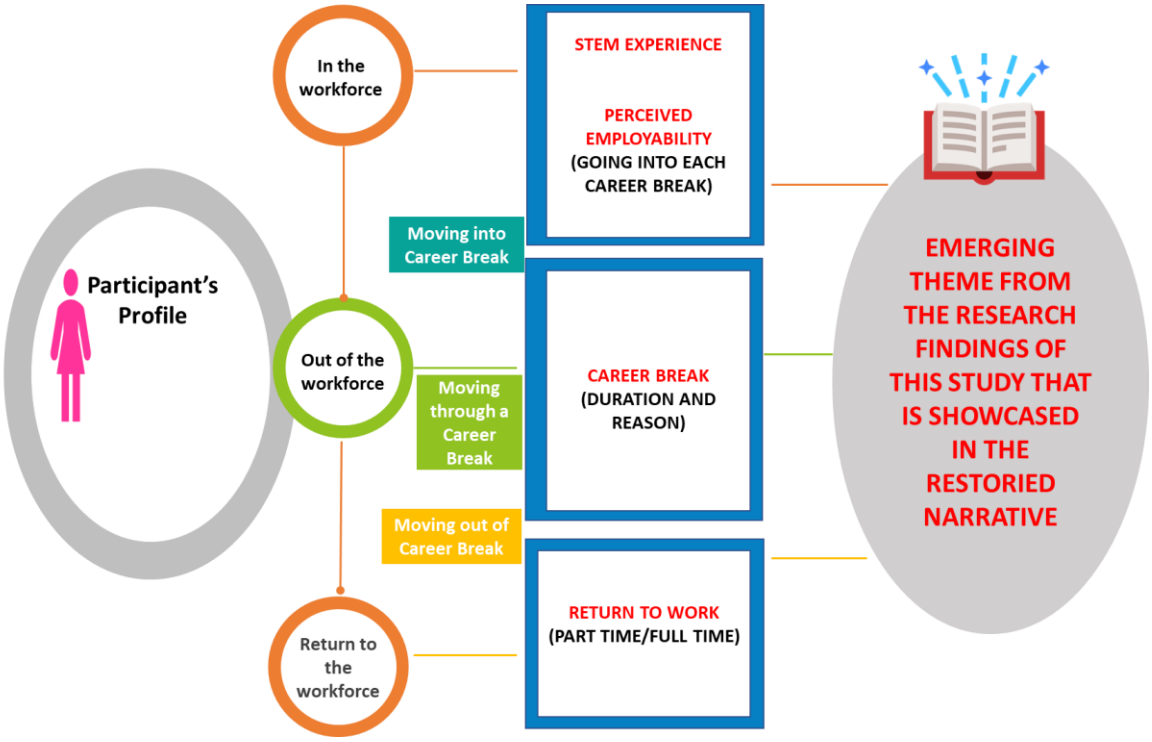

Figure 4: Context, Character and Plot
Source: Author

A schematic was designed to convey pertinent knowledge about each participant as shown above in Figure 4: Context, Character and Plot. This supplements the participant's story, introduces each participant to the reader, provides context to the experience and presents the experience in an organised way to assist the reader with their sense-making when reading the story (Mulholland & Wallace 2003). It establishes an initial connection between the reader and the participant 'allowing the reader, through the writer, to make contact with those been studied' (Mulholland & Wallace 2003, p. 8). Following this contextual snapshot of each participant**,** the remainder of the narrative is reproduced in the participants' own words and through their voices. Together, these five restoried narratives discuss one or multiple experiences of the same phenomenon either at one particular point of the career break trajectory, or, throughout the entire career break trajectory in a chronological sequence.

This chapter presents the five participants' narratives of their lived experiences, in their voices that have been restoried to showcase the themes that emerged from the research findings of this study.

5.2 Nicole's narrative: Reliance on self

Nicole's narrative draws attention to the proactive role of an individual to address challenges during career interruptions associated with skill retention and development, maintaining professional networks and professional identity, job searching, as well as managing work and life commitments.

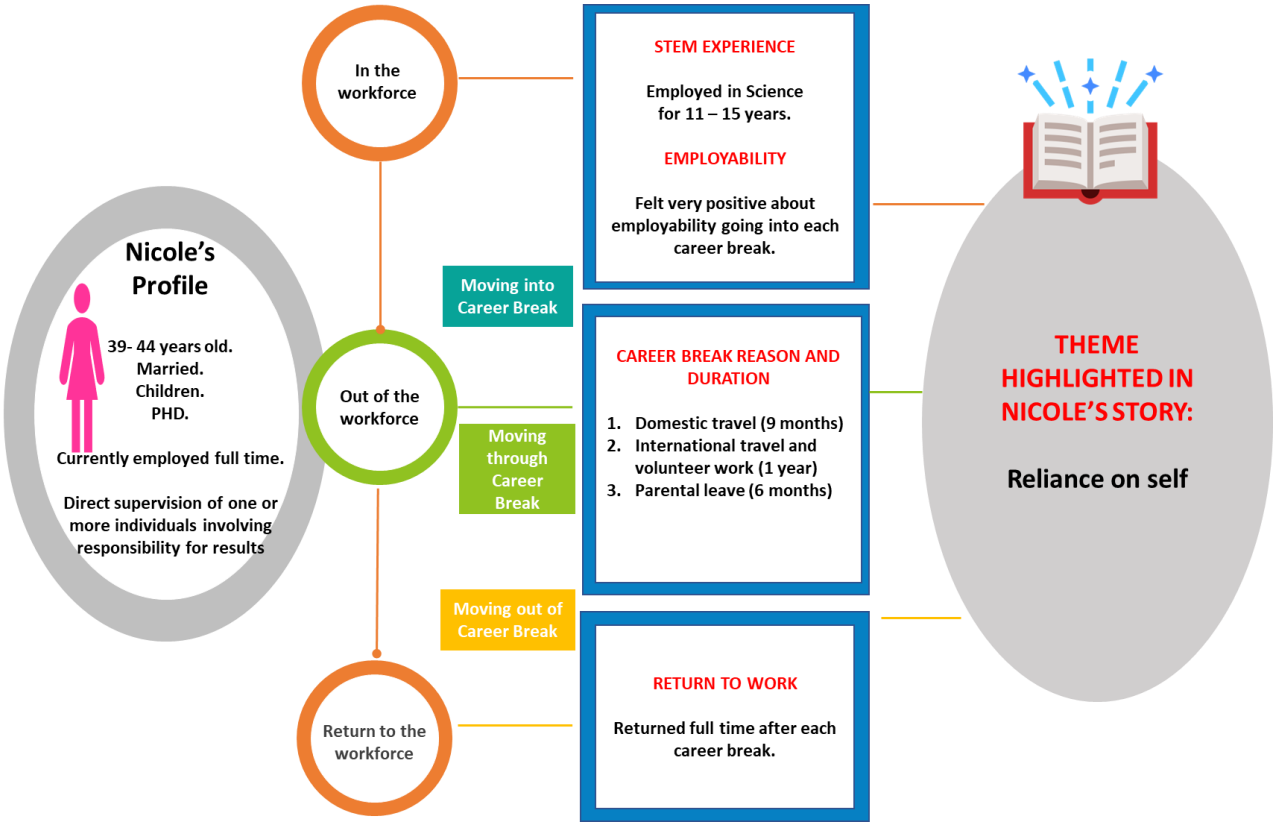

Figure 5: Nicole's Context, Character and Plot
Source: Author

Nicole's experiences when moving into her career breaks in Nicole's words as drawn directly from the interview transcript:

> *When I was preparing to take the first two breaks, which were associated with travel, there was a lot of uncertainty around what my career path or employment opportunities would look like post those breaks, in both situations. [The first career break] was a very sort of intentional decision to leave, because I felt like I was becoming very specialised and heading down a very narrow career path, if I stayed in academia, and so I wanted to go out and learn a lot more and*

broaden my horizons a bit more. So, I guess I was a bit uncertain about what was going to happen post that one, but I was quite young and willing to take risks. I didn't have responsibilities. The second [career break], by that time in my career, I was quite comfortable in my capabilities and thought that I would be, somewhat employable when I got back. So, I didn't intend to return to that company. I didn't put any pathways, any sort of mechanisms in place for that one. I just was confident enough that I'd be able to find employment when I got back. I guess [I was] apprehensive for the second [career break], because that was international travel and volunteer work where I don't speak the language very much, and that pushed a lot of boundaries. So [I was] apprehensive about stepping out of my comfort zone but excited by the whole opportunity. The third [career break] was for me to take a break when I had my child. I am in science and the historical records of the places where I've worked were not particularly good in terms of women returning post having children, so I made sure that I was in a position where I had a secure contract for a long enough duration to be able to come back at the end of that contract and I'd been there long enough to be entitled to my full parental leave benefits. So that was a very considered approach to that break and because it worked, you know, once I fell pregnant, I was quite confident that I could have my child and then come back to that role with enough time to then be able to move on and find the next one. The third [career break], where I took time off to have my child, I was confident to be able to do that, because I had been able to put myself into a position where I was secure and I was in an environment where I thought that I could, control, you know, how that process went and it was important that I knew that I had the ability to come back and remind everybody of what I'm worth before the contract ended. I think, the [career breaks] were all pretty well considered, in terms of where I was at in my life at those times. So, I did them intentionally to be able to get the most out of them for me, personally and my partner as well. I don't necessarily think that there was a lot of support, particularly from family or friends that gave me the confidence to leave and take these breaks. They were very much my own decisions.

Nicole's experiences when moving through her career breaks in Nicole's words as drawn directly from the interview transcript:

So, I guess for the first two breaks, I had a similar tactic in making sure that I stayed relevant in terms of my employability. In the first [career break] picking up casual consulting work throughout that break, which I was really happy to do. I knew that [the consulting work] was a relevant skillset that I hadn't done before. So, I took that opportunity quite openly and I knew it was only for, two weeks here or two weeks there. So, it wasn't a long-term commitment and something I could just jump in and have a bit of fun with and develop another skill set. Because I thought that, at that point, I was coming from academia and I didn't really know what that

next opportunity would be, so it was very much aligned with trying to build personal skillsets that I think would be attractive for a range of different employment opportunities. So that was a strategy that I employed throughout that job, throughout that travel. Then, just self-learning throughout that time as well. In the second [career break], again, wanting to make the most of that next break and develop again personally. Then I looked at volunteer opportunities throughout [an overseas country] in a related field and ended up doing volunteer work. Well, first I did some language lessons, so I could engage and be able to communicate with the local people, not very successfully, but I tried, and then did volunteer work in two different parts. [The first was] associated with a research program. So, I brought my skills from Australia across the world and figured that that would be something good that I could do for my own personal benefit, as well as translating that to completely different ecosystems. The second one was a similar experience. I did a whole bunch of assessments as a part of that project, but in a completely different environment and also taught there as well. So, I don't have a background in education there. I've done a little bit here and there throughout my academic career, but then [I] was teaching to [locals and local] students that had come in. Again, something that came up sporadically that I thought, that's a good opportunity for me. So yeah, I think, just taking the opportunities when they present themselves to develop professionally was really important, particularly when you're doing something like travel, which is very much voluntary. Look, to be honest, the second [career break] when I travelled internationally to countries where I didn't speak the language, that was probably the most challenging for me. You know, a lot of the places that we went were quite not as well developed as Australia and personally that was quite stressful. That was a stressful situation to be in and took quite a lot of perseverance, I think, to get through that and putting myself in a situation where I was really pushing the boundaries for a bit and being quite uncomfortable in a situation, then when it ended up getting too much, pulling back, going to a hostel where they do speak English, getting comfortable again and then going out, pushing again, and coming back. So, I think that that was probably a strategy that we employed throughout our international travel as we faced different challenges, is [to] put ourselves in situations where we had, we were forced to grow and then when it got too much, just taking a step back, refreshing and then going out and doing it again. In terms of when I was on my maternity break [third career break], I really took that time just to, to be engaged with my child. I would have enough learning and things to do there, as opposed to worrying too much about my professional career development and because I had that job security, I already knew I was going back then. I was comfortable that I didn't need to do anything above and beyond in that situation.

Nicole's experiences when moving out of her career break in Nicole's words as drawn directly from the interview transcript:

> *I think I felt quite good about my employability in returning to the workforce. The first [career break], it's hard to remember what it specifically was like, but I knew that I was employable, like I knew that I had the right skillsets. The second [career break] when I was travelling, I engaged with prospective future employers very early on through that process. So, I took 12 months off, but I think that I started contacting people about coming back and identifying a new job, probably six months into that process and had a few of those conversations going on live while I was travelling, to the point where I had a couple of opportunities lined up by the time I came back. So, I was kind of comfortable with that. So yeah, I think, returning to work from the travel breaks [the first and second career breaks], that's when I had uncertainties about what those opportunities would be. I think in both cases, as in terms of contacting my network and seeing what opportunities arose and what might be coming up and that was sort of the main way that I engaged with them. I tried to keep that conversation going with that professional network, even while I was taking those breaks. So, I stayed live, I stayed relevant and in the forefront of their minds, as somebody that they might want to engage with, when I did return. I always made it very clear that I was coming back. This is a fixed term thing that I'm doing. So that messaging was very clear to anybody and then just keeping live, keeping current and keeping visible as well through social media, through twitter accounts and LinkedIn as to, you know, what you are currently doing. So, people were seeing, not only hearing from you from email, but they might be seeing you on those platforms as well. [During the first career break], I probably started those conversations and applying for jobs about two months out before I came back. [For the third career break], I negotiated to be able to work from home, for some of that time. That was quite important, I think, in terms of being able to hand over the parental responsibilities to my partner. That's something that enabled me to be able to go back in a confident way. I think what came out of [my career break experiences], is I was probably more capable of achieving things that I didn't necessarily think that I could do before. So, you know, pushing those boundaries and being able to adapt to different circumstances and situations as well.*

A unique feature of Nicole's career break experience:

Nicole was the only participant to take three career breaks for a combination of reasons relating to domestic travel, international travel and to have a child. When taking her third career break to have a child, although Nicole had access to informal sources of support from

family and friends, she found the formal source of support from her mother's group to be one of her biggest sources of support for reasons outlined below:

> *I had a very supportive mothers' group that I could tap into, and I think that that was probably one of the biggest things that helped me through that process, because that was you know, almost a separate group. So, you could go there, and you could be completely open and honest…I think with the mother's group that was very separate, independent and I didn't have those, didn't have those barriers, as I guess I did with some of my family and friends, which would come up every now and again.*

While many other participants drew on the available informal source of support from family, Nicole preferred the child-minding responsibility remain with her and her partner when her child was young:

> *We had family around, but at that age, I wasn't really comfortable with leaving my child for long periods of time with them or anything, so, pretty much just with us.*

5.3 Bella's narrative: Reliance on others and the workplace

Bella's narrative demonstrates the critical support that is required from others such as from partners, family and the workplace when taking a career break, which enabled her to continue to manage her changing work and life responsibilities and continue to advance her career in STEM.

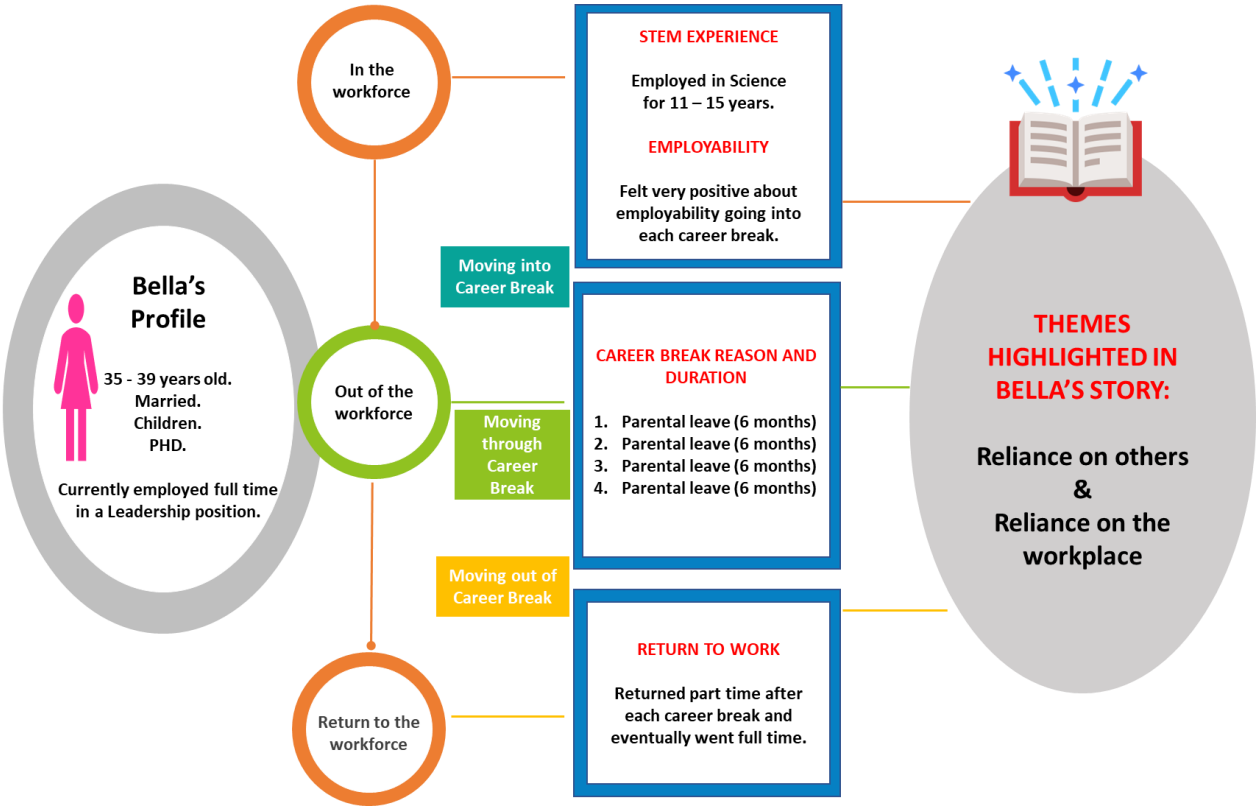

Figure 6: Bella's Context, Character and Plot
Source: Author

Bella's experiences when moving into her career breaks in Bella's words as drawn directly from the interview transcript:

> *As far as employability goes, as I mentioned, I was lucky that I was always on fellowships, so I didn't have that fear of financial stress and things that, I might not be able to get a job back, when I returned sort of thing. So that was quite positive. Generally, I guess, when obviously, [my career breaks] were all pregnancy-related and so I always had that initial 'What's my boss going to think about, being pregnant, again and again and again?' I still worried about what*

my boss would think and whether they would think, I'm [going to] become lazy, or not as productive. So that was always I guess the initial concern, as soon as I fell pregnant. As soon as you kind of get that positive and have to tell the boss, I think that's always a bit of a worrying time. Generally, though, I would say, the boss prior as well as the current boss were pretty supportive. As I got more senior, I guess, it became a little bit: 'Who's going to manage your team? How are you going to sort that out, while taking this break? Will you be able to do some work from home kind of thing on maternity leave?' So, there were those type of questions. There was a lot of planning to slow down the research work at the time that I would be full-time away when I was more junior. As I got more senior, I guess it was trying to put strategies in place so that I could help to direct things from home where possible. So, it wasn't full-time working from home, but it was more that I would plan things out. I would still send an overview to the team, so they would know what direction they're going in, still agree to have meetings with the students, but also have additional supervisors' kind of on call. There was that support network of colleagues that were either the same level as me or more senior who could be the first line of contact. But then in the situation that the team needed me specifically, then I would always make time to chat to them. My boss (since my second career break) always, I guess, encouraged me to start planning a year or two out from the next fellowship, which more often than not, would fall when I was on maternity leave. So, they would always be talking about, 'what can you do that can allow you to be a Mum to the newborn? Are there things that you can kind of keep up with to make sure that when you come back, you're ready?' So I definitely think they were a big encourager, as far as not to just drop everything for six months, and then try to pick it up again. My partner and I were kind of adverse to childcare. So, we always made the plan so that we could have a large family without the need for childcare. So, I guess it's sacrificing our time together, but making sure that the kids get the best of both parents' sort of thing. So, I always knew my partner would be there for that.

Bella's experiences when moving through her career breaks in Bella's words as drawn directly from the interview transcript:

I also was lucky enough to be in the university system, which has very good maternity leave pay. So, I never had the financial stresses of taking the time out and certainly for the third and fourth, I actually had the financial benefits of the maternity leave system because they pay you, I think it was 24 weeks full-time leave. So that was all really positive, and I think having that, I guess you felt almost like they valued you, even though you were going on maternity leave, that they wanted you back. [Eventually] I moved to live near my parents. I've got lots of siblings. So, I've always had very strong family support and that was true for when I was home with a newborn, and its winter and the big kids need to be picked up, my parents would do all those

school and kinder pickups and try to help me out as best she can. So that's always been really nice to have that extra support. I must say, with the fourth [career break], I did just get notification before I went back when I was going back, that I'd missed out on a fellowship. And that was quite stressful because I knew I only had one year of salary left. And if I didn't get the next fellowship, then, I would be in trouble as far as salary goes. So that was stressful. And I worried when I went on leave as well, as I guess, when I was coming back that 'what if I don't get myself into a position that's going to get me the next fellowship?', you know,' what happens then?' And my boss was quite reassuring, like, they were always, 'we'll find a way, we'll find a way, we don't want to lose you' sort of thing. So, that was always good to have that extra support, and that there would be a way.

Bella's experiences when moving out of her career breaks in Bella's words as drawn directly from the interview transcript:

(As mentioned), I've been quite lucky, I guess in that I've always had a lot of family support and partner support. So, with the first I guess, two children, my partner would always work a job that meant he would be home in the mornings. I would then, try to be working in the morning so I knew that he would support the family. I also had reasonable support from my partner's family when I was living near them. But [eventually], I decided we should all move back to where my parents live, to get the support from my parents as well. So, I guess we've always moved our life, so the children get the best that we can, and then worked around the family. So, we've always varied it. So early on, with baby number one and two, my partner actually took like almost a night shift, to make sure that I could continue my career. So, he wouldn't start work till 4 pm and finish at midnight. So, then I could go to work during the day, and he would look after the babies. That worked for baby one and two and then we realised that he was not sleeping and finding life really difficult doing that, because obviously he would get home at midnight or 1:00 am and then he would wind down by the time he fell asleep, then I was gone. Then he had to be full-time dad, so he was finding that really difficult. We moved [eventually] to come close to my parents and my partner took on a shift that started at more like 11:00 am in the morning. So, it still meant that he could have primary responsibility for school drop offs and getting the children ready in the morning. But then my partner would have the support of my parents during the daytime, small ones to take to kinder or to mind until I got home. So, when my partner was doing those sorts of things, I was then starting work at 5:30 am or 6:00 am and then I would leave at 2:00 pm so I could be back for school pickup. Basically, then I take on all the afternoon duties. A huge positive was always the return-to-work bonus as far as salary. Basically, it was an incentive to return. Because I knew, especially as I had more and more children, that I would never want to go

straight back full-time. Like the idea of going back full-time with a six-month-old was kind of too hard to imagine. So, I think the fact that I was always eligible for some sort of return to work bonus, actually, I was only eligible for the last three [career breaks] so that was a huge positive because it just alleviated that concern of what are you going to do with the baby because obviously, you can't hand your newborn or six-month-old to someone else. And as I mentioned, we kind of didn't want to use childcare at all. So that I think was a positive knowing that I didn't have to return full-time. So yeah, I was returning at halftime, I was getting paid a full-time wage for that first six months. So, you kind of felt like the university valued you and wanted you back, which was all really positive. I think the other positive was the flexibility of my job. My boss never has expected me to work nine to five. It was sort of what hours suit your lifestyle. So, a lot of the time, I would actually go in really early and then leave early so that perhaps my parents would only have to have the baby for an hour or two in between my partner and I, dropping and picking up the little one. So, I think that was a huge benefit as well and I know that not many jobs have that ability to be flexible, so that was always a really big positive. I guess by the same token, I always had that worry and concern 'what if my boss is sick of me asking for special treatment because I've got kids?' And again, my boss has always been super understanding. So, I think a lot of it you build up in your own mind and think it's going to be a difficult conversation when ultimately, they usually just go, yeah, whatever works, as long as you're productive, we don't really care what you do. Which has been nice. And I think, by the fourth one especially, I'd already proven myself and shown that I can be productive, and I can work hard regardless of what hours I'm doing. I guess my major concern was always the loss of productivity. So, I would always think to myself, 'me versus someone else. They've kept going for six months, whereas I've kind of slowed down, to a crawl for six months'. So, there was always that concern about productivity. I think six months is not long enough to necessarily lose skills. I think it's probably because my team are very strong, and I've built quite a strong team that they usually can continue pushing along, even with me barely managing them sort of thing. So, I think that's always helped.

A unique feature of Bella's career break experience:

Bella was the only participant to have a large family and take four career breaks to have children. Bella was the only participant to negotiate a change in career direction prior to going on maternity leave to have her second child, as outlined below:

I was halfway through a fellowship, and I decided I wanted a career direction change. So, I negotiated that I would go on maternity leave and then come back to a different group after the

second one to finish my fellowship there. So, I still knew I was going back to two years of salary funding.

Though Bella was happy with this change in her career direction and despite the comfort of returning to two years of salary funding, she nevertheless felt less in control compared to when she took her other three career breaks, due to the uncertainty associated with returning, as outlined below:

For the second one, I felt less in control just because I was swapping groups, I didn't know about the new group. You know, I knew that potentially, they were shifting from one [place] to another, so there was that geography change as well. So, I think with the second one, I felt out of control and unsure.

5.4 Grace's narrative: Work and life stressors

Grace's narrative spotlights the emotional and psychological work and life stressors of taking a career break associated with her workplace, personal and professional identity, lack of clear re-entry pathways and concern around future career prospects.

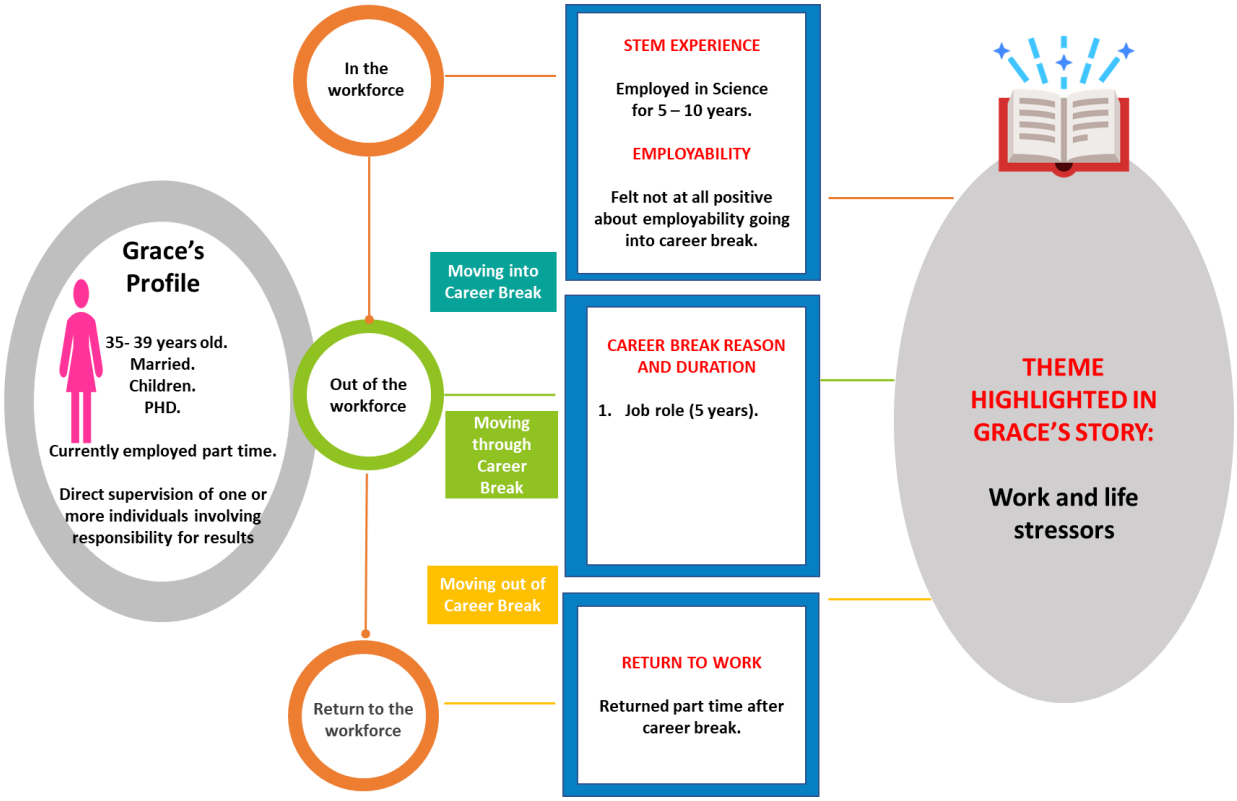

Figure 7: Grace's Context, Character and Plot
Source: Author

Grace's experiences when moving into her career break in Grace's words as drawn directly from the interview transcript:

> *The reason [for taking my career break] is that I couldn't continue in my previous[employment] role if I was going to be able to have children. I knew that by doing so, most people would have considered it career suicide. I felt I had no choice. The choice I had was to have children or have a career and I chose children. I was very concerned about my ability to be re-employed in that specific area again. I knew by leaving that it would be very difficult to do that kind of role again. I felt conflicted. I felt sick. I felt like this was really unfair. I felt like if I was a man, I would never be in this position. I felt incredulous that [they] couldn't deal with this situation,*

other than to force me to choose between having children and doing my job. I felt disappointed that my immediate boss had excellent intentions and wanted to work through this and find a solution with me but didn't have support from their superiors and the organisation to do that. I thought about what my options were. I think they could just argue that I could no longer do the role that I was employed to do and because you're on contracts as well, so they can just choose to not renew your next contract. I guess I got to the point where I was so annoyed with the system but knew that it wasn't doing me any good and the one thing that I wanted was to have children, and I wasn't going to let all of that stop me from having children. So, the best way to do that was actually just to retreat entirely from the situation and come to terms with the fact that I would be unemployed for a period of time, so that I can have my children. I might have been forced out of this role, but I wasn't done, and I had intentions to come back and to be in (the same field) again.

Grace's experiences when moving through her career break in Grace's words as drawn directly from the interview transcript:

It's difficult because I was fortunate enough to have my children, but at the same time you're kind of paralysed by guilt. For several years I couldn't spend much money or enjoy myself if you know what I mean, because I was dependent, we were dependent on one salary. Although we knew there would be a time that that would occur briefly, we didn't think it would happen for such an extended period of time. So, you just, you don't ever feel like you can do something for yourself. I just always constantly felt like I had to keep our spending very, very tight. I think there's, you wax and wane in between, you know, feeling probably grateful that I was able to have my children and the reason why I took my career break came off, if you like, if I'd taken it and then not have children at all, not being able to have them and be, I guess, empty handed, so to speak. And you sort of, you get told, look at the children you have, you should be so grateful. I am grateful, but you also feel angry that I had to make that choice or be forced and give up so many other things. I think society has a very hard expectation of Mums and in my opinion, it was like, it's not enough to just be a Mum. Society expects that you're a Mum, but you're also something else, that you would be raising your children, but at the same time, you're also working, you're also contributing to society. Which is something I always wanted to do. It felt constantly like it wasn't enough to just be a Mum. So, in terms of employability, I had applied for some roles. Some I didn't get, but then the timing of things meant that, because I was very unwell, that I actually couldn't work. So, there was actually a fair period where I was actually not in a position to work or to apply for work. I think some found it hard to understand. I think I've alluded to this before, that 'You got what you wanted, shouldn't you be grateful? Why are you unhappy? You can't undo what's happened. You should just be happy that you've got the

children now'. So, it was hard for them to get that, I think, and to get the concept I was talking about before that, particularly like older generations, [for whom] it was okay to just be the Mum. There wasn't this expectation that you had to be a Mum and something else as well. They struggled to understand that and therefore support me in that. Some things I did was, do a course and also set up a routine. But unfortunately, some of those things I couldn't maintain because I was actually too unwell to do so. But they were really important to providing structure to a suddenly completely empty unstructured day.

Grace's experiences when moving out of her career break in Grace's words as drawn directly from the interview transcript:

So I think, when it came to actually re-entering my area, because I did do a small amount of work, during my career break from home. But I sort of see that as a separate sort of thing that was partly strategic, because it was about showing somebody else that I still had skills and I was reliable and I could do work, but it was also about helping with paying the mortgage. I definitely found that there were people who were not even going to even consider me once they saw that big break. I was just completely off the radar and that was pretty disheartening to sort of not even be considered for an interview when you had all of the skills that they were asking for. It was just that you hadn't used those skills recently. That was hard to accept. When you're applying for jobs that you know you should be a contender for and you don't even get an interview and you know that it's because of that break it is disheartening and it does make you, to a certain extent angry. [My partner and I], we had a plan for him not letting go too much of his work until we were sure that I had something but to be in a position where he could reduce some of his workload to really enable me to thrive in a new role as opposed to be thrown into the workforce, Trying to adjust children into daycare situations that they're not familiar with, or me doing it all by myself. It was a big challenge for all of us getting used to that. On a kind of more professional technical angle, I made contact with some of my professional contacts, and I asked could I get some experience because I haven't had any experience for that long, and none of those things came off, unfortunately. So that was probably the most scary part to be honest, was knowing that I had all of those technical skills but that they were rusty and not really feeling like there was someone that I could be open with and who would just help me get started again. I think I knew going back in that I wasn't doing this for financial reasons. To go to try and re-enter and be, to be on a lower salary than where my whole person experience should put me. So, it's hard to think clearly sometimes talking about this. It just is surprising to me that we can't look beyond this break and see what else is possible and it's all got to do with the committed, competitive nature of research funding. That's all based on the track record,

essentially. Research kind of drills into your brain that you need to have a track, impressive track record, you need to be leading, you need to have momentum, you can't have this gap here.

A unique feature of Grace's career break experience:

Grace took the longest career break by far out of all participants. When taking her career break Grace spoke of how she viewed her skillsets from a different perspective, looking for a particular research area that she could target after spending a long period of time away from the workforce. Grace discussed how she came to the realisation of how her existing set of skills could make a contribution within the STEM workforce as below:

I saw a research area that really, really needs help solving and that I had those skills to do that and therefore it didn't, it was less about me and my achievement and more about how I can contribute to solving that problem for society. So, when I framed it like that in my head, it meant I had nothing to lose because I would be helping solve the problem.

5.5 Paula's narrative: Changes in work motivations and engagement

Paula's narrative highlights the tensions between STEM workplaces and women in terms of their desires to balance their work and life responsibilities with their career progression when taking a career break.

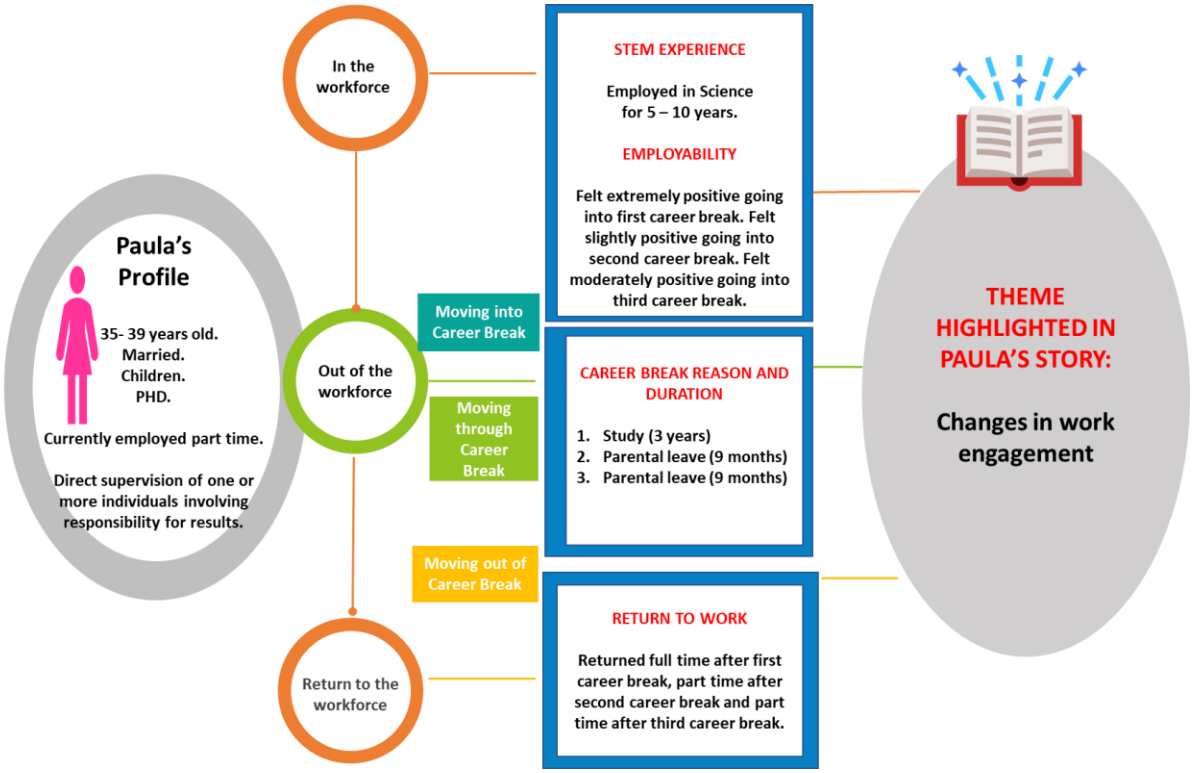

Figure 8: Paula's Context, Character and Plot
Source: Author

Paula's experiences when moving through her career breaks in Paula's words as drawn directly from the interview transcript:

> *There was still, even while I was on leave, there was still contact with students. Like you don't ever, not that I mind, but I guess in a way, like that's kind of good from the academic roles, is that when you have students, you always have contact with someone. So that was good to be involved in regular supervisors' meetings, just to stay in touch with the research. But my colleagues could also see that I was still there. I'm attending the meetings, even though I've got a baby. But I'm still there. It's very important I found to show your face a lot, remind people that you're still there, because it's really easy to forget, you know, when people have got money and they need to think about someone for six months' time for a grant and if you're not, kind of*

reminding them that 'yeah, I'm doing okay, I'll be back shortly', it's just easy to forget. [The second career break], I think I had still left, because of the messy handover, I still had a few things that I felt were outstanding, that I should be addressing and that I wanted to contribute to, because it was my project and I did feel very territorial over my project, because I knew that it meant you stay on that project, you'll get long-term funding and I did. I guess actually, I did feel quite, I don't know if vulnerable is the right word, or, I'm not sure what the right word is, panicky, anxious, perhaps about losing control over that, over that funding source and the relationships that we'd built with the project partners. Whereas with the third [career break] maternity leave, I very much had gotten to a point where I was a lot more independent in my funding. So, I had sought my own funds. I wasn't dependent on someone of a higher level employing me. I was a lot more independent, so that made a big difference. But I think definitely the [third career break], I was a lot more excited about having the time off, because I knew what I was doing and I knew that I could manage to do some work while I was on maternity leave and I wanted to as well, because I did get quite bored the [last] time [second career break]. My child was a very good sleeper, so I kind of felt like I was twiddling my thumbs a bit. So, the second time round [third career break] was a lot cruisier. I was a lot more comfortable. So, it's probably just more capable I think of looking for extra work or, doing extra things, still keeping my finger in the pie. Whereas the first time around, it was like a real unknown. [I live] hours from the university, so I had, I've been spending an increasing amount of time working from home. So, I have developed quite a good process for connecting with colleagues. So, I think as I mentioned before, that co-supervising students was actually quite a good thing, because it did give you that opportunity to still stay in touch with the research and also with your colleagues. People kind of just tend to leave you alone when you're on maternity leave. There certainly was an assumption of don't bother that person, they're on maternity leave, just don't bother them. I don't really agree with that. I think it should be up to the person who's on maternity leave to make that decision, on whether they want to be contacted or not and you see it with lots of other people. A lot of people are just really keen to just stay in the loop and they want to. You know, motherhood, or parenting is, everyone deals with it differently and I very much still wanted to be kept in the loop, particularly during the first maternity leave [second career break] that I took. So, I guess students was probably the only thing that was really, it wasn't a strategy though. It was just what you agreed to do, but it was still given as the option of, 'you don't have to, you don't have to still supervise the student during that time'. And it's like, well, you kind of do, particularly if they're finishing their PhD and they need your feedback. So that was good. I was just trying to think what community roles that I did. I did lots of community, volunteering things. We live in a small town, so it's kind of all hands-on deck in terms of volunteer roles. So, the first time around, that first maternity leave [second career

break] that I took, I'm pretty sure I finished up one of my volunteer roles just before I had the baby. I think I did assume that it was going to be too much for me, and it probably would have been to be honest. But yeah, by the time the second one [third career break] came along, I was on an industry advisory panel. What else was I on? I was on [a local community] committee, or maybe that was the only two, anyway, I was quite involved. So, I had other things on the go and that's been a strategy for me, is to have those other things kind of ticking along that you can get involved in and I think I kind of need that as well. I don't know, I think I'm a bit kind of, I just like to be doing, I really like using that part of my brain. Like I enjoy my kids, but I just really like using that part of my brain. So, I do tend to seek out things like board positions and leadership type stuff and the industry role was really good. Although, I did find that quite stressful during the second maternity leave [third career break] that I took. I think that was more to do with the running of the organisation rather than the schedule itself. Like it was very accommodating. Zoom was starting to come in as a popular thing for meetings and because that industry board had input nationally, there were lots of Zoom meetings. I remember breastfeeding with my camera off and then like interjecting at various points to the baby crying and they're like 'oh, hold up the baby' and everyone's like, 'oh that's nice'. So yeah, that was really good. I did lots of stuff, actually. The second maternity leave [third career break] was really great for that. I'd actually did a lot of stuff with my child. I brought them with me to quite a lot of meetings and trips and things and it was really good. Like, I feel like I was staying relevant and involved and I wasn't having a complete break. So, I think that second one [third career break] was quite a positive experience. I would always check [emails] and I guess that you always have, I don't know if I had any at the time, but I might have had some journal, some papers that were under review, or funding, or other sorts of opportunities. I think you sort of have to, like you're in a fixed-term contract, you do have to keep your finger on the pulse. Like you have to be engaged. People have very short memories. It's just easy to forget and you are a harder option to employ in a way. It probably takes a strong leader and someone who can really appreciate the benefit of still employing you, to go with someone who has a bit of a different life situation than as opposed to someone who's fresh out of their PhD and doesn't have any kids and has endless time, or a man. I couldn't help that the handover didn't happen for the first maternity leave [my second career break]. But I think by the second time [my third career break], I think I was a lot better at just letting go of some of the little things. Like, I was really hung up on, [if] I hadn't completed something, or I hadn't done something to the standard that I would have liked to and I think I kind of just let go of that and just let other people deal with it, or maybe just prioritise certain things to have completed. I think that would have helped a lot, like I did feel a lot better going into the second maternity leave [my third career break] and I didn't have things hanging over my head and just to really stick around.

Pretty sure with the first maternity leave [my second career break], there was some paper that I was wanting to write and I'd set myself not goals, but I had said to myself on maternity leave, I think I'm [going to] write this paper, or that paper or, achieve this. No. By the second time [my third career break], I was like, it is what it is, if I get this finished, like, that'd be great, but I didn't have any expectations. I think probably my only goal was really staying in touch and doing my industry position, which was a paid position, but it was more like a consulting type position. So, if you didn't turn up, you just didn't get paid and that was no big deal. So, I think, it was definitely, my strategies, like if I was to have a third child, to go out to sort of keep in touch, keep your brain ticking over with more sort of volunteer consulting type things. To stay in touch with colleagues, just through email, or even just to go into the office with the baby. Everyone loves that. That's always a good one. Yeah, definitely keep the students and just regularly remind people that you're here and follow up. Maybe just follow up on a few papers that someone hasn't done that they said they were going to do. Just to stay in touch but don't make any firm commitment to delivering on something. Yeah, that was a mistake. That made things very stressful, just to, 'I'll get to it if I can, but feel free to contact me if you have any questions'. I was always very open too, if there was any questions that people had about the project, or how I'd done something like, 'I'm available'. I think there's lots of ways that you can still keep your career pedalling along while you're on those breaks that isn't like your paid job or paid work. There's lots of other things like I've mentioned about the community board, leadership positions within community groups, industry roles, like there's lots of things that you can do to keep your brain going and often those things, they're voluntary, so you can put in as much, or as little as you can, like you're not paid for it. So, while you should always aim to put it in as much as you can, I think those ones are really good.

A unique feature of Paula's career break experience:

Paula was from a small town that was located a few hours from her workplace, so she had some experience working from home in some capacity prior to taking her career breaks. After having her second child and returning from her third career break Paula spoke of a shift in focus on the type of work that she chose to engage in, that was more suitably aligned with her own work and life circumstances. Though Paula does not attribute these changes directly to her career breaks, she did implement this shift in focus after taking her career breaks and returning to the workforce part-time as outlined below:

I think being tight, like being on a part-time, yeah you do actually prioritise and I'm pretty picky I guess about what I work on now. Like it's got to have meaning, it's got to have impact, it's got to be pretty directly relevant to like a business situation. Like I very much moved away from one area and into another area. It's a lot easier for me to and I can, yeah, I'm a lot more efficient I think, working on these new topics, [that I can relate to] and I understand and I'm very knowledgeable. On the, you know, how the business operates, like how the decision-making works. So, I leverage that a lot in my research, because I can be thinking about that sort of stuff when I'm at home chatting with my partner and so that's been a plus. And I think I did realise, I don't think that was related to my career breaks at all, but I did realise that just living remotely and living [in a small town], like how much more difficult it is to work on topics. Being someone who's like, you know, kind of isolated in their working situation. Whereas if I'm working on stuff that's directly relevant to where I'm living, in my mind and I guess my previous manager did say this to me, they were like, 'I feel a lot more comfortable with you working remotely, knowing that you're working on things that are directly relevant to where you're working.' And yeah, I think that's been a really good approach. Yeah, so I have definitely shifted my focus.

5.6 Olympia's narrative: Return to employment challenges

Olympia's narrative draws attention to some of the deeply entrenched systemic challenges within the STEM workplace associated with culture, lack of flexibility and gender bias that can shape return-to-work experiences in STEM.

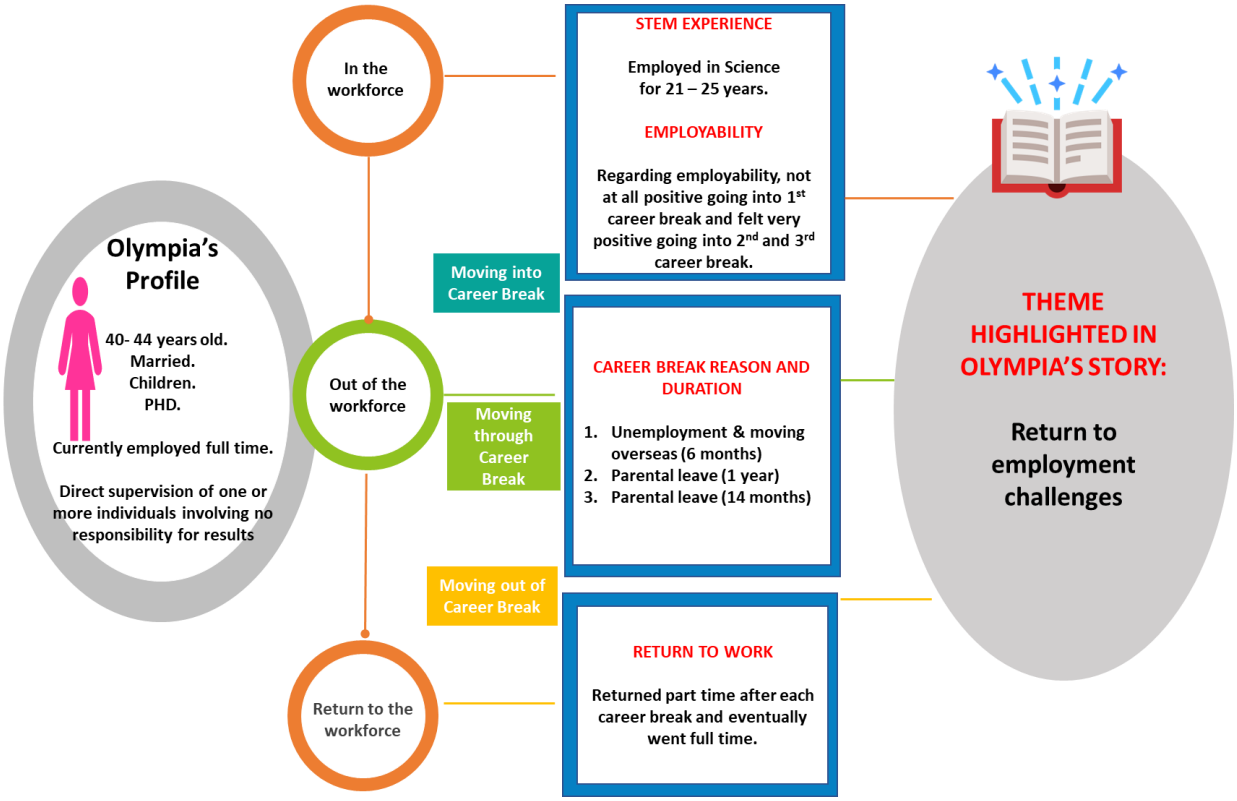

Figure 9: Olympia's Context, Character and Plot
Source: Author

Olympia's experiences when moving out of her career breaks in Olympia's words as drawn directly from the interview transcript:

> *Because I knew I wanted to have children, I deliberately chose a workplace and role where I knew I would be supported to take parental leave of a year or so and still come back to the same role. I am extremely fortunate in that regard. I felt very strongly that if I chose to have children while not being employed, that is, have children and then resign from a role, or have children while not employed, I would end up being forced to take an extended, 5 year plus break away from the workforce, and that the roles that would be available to me when I wanted to return would be diminished in stature, responsibility and level of interest/challenge than the*

ones I had before having children. I felt very strongly that I would not be competitive due to the large pool of potentially employable and qualified people coming through the ranks. I don't know whether that would have happened to me. But it has happened to many professional women I know. I worked really hard to earn my PhD and work professionally in this field, and I really did not want to lose all that effort, skills and knowledge by being unemployed or underemployed following having children, when I really wanted to work. Before the career break, [I was] like, 'Okay, well, I've just got to get the thing done, I'll just get in early, work until till late at night and then if I need to do it on the weekend, I can do that and etc.'. I think the main thing that changed for me [was] that because of the particular career break that I came back from, I realised I couldn't make a single decision without thinking about the effects of that decision on two or three other people. So, the rest of my family. So, that's really a different way of thinking, you're not solely focused on yourself, you're actually thinking, okay, I now have to think about this. I have to think about that and I have to line this up and line that up. So, you have to think about, you have to plan, okay, I'm going to be able to work from 9:00 am to 4:00 pm and then I've got to go and then that's it. So, if I don't get my stuff done during that time, it's just not happening. So, you just have to be really strict with your time I think, because there's just not enough hours in the day. It makes it a different way of thinking about things I think. [I returned part-time for the second and third career breaks]. That was only possible because my partner went down to three days a week. So that's how we were able to manage it and eventually we both went back up to four days a week and then eventually now we're both full-time. I think the difficult thing that happened was when I came back from having my first child, when I came back part-time, my teaching load was never reduced. In fact, I have now got, you know, I got more teaching and that definitely affects your employability. But because you're good at teaching and because somebody has to teach these classes, I just get loaded up with teaching and I have very little time for research and that just, that incrementally impacts where you are. Since coming back to the workforce and having had some time to really think about all the things that happened to me as a person, it felt that some of those were actually really unfair. For example, not ever having a reduced teaching load and therefore only having less time for research. I think probably the most challenging thing, was missing out on these fieldwork opportunities and when you'd see colleagues returning from the field or coming back with information, that was really hard. What I had to do, some of those times actually had to write up research, or write up papers, based on fieldwork that I didn't get to do. That was actually really hard. It sort of felt this disconnect between the place and what you were writing about, because you hadn't actually seen it. So, it took me a while to be able to go back to those places, and then see it and then I was like, okay, now I can write that, because I've been there. So yeah, I think, so that was probably the most challenging thing, was missing out on those

fieldwork opportunities. So, I think the career break, so having two kids, that year and a half that I was back at work, I didn't really put my hand up for a lot of stuff that I knew was just going to be way too stressful for me to do and too difficult to manage. So, by the time you end up looking at it, there's a period of time from sort of seven years, where I felt that I just was not able to lead research projects, to sort of put a heap of effort into research, which is the main thing that influences employability in my career, because of having kids, and because of taking a career break. So, that's actually quite significant. I've only maybe had two years away, but the actual impact is probably seven years' worth.

You have all these researchers suggest that it's not only the period of time that you take away from your work that impacts outputs and productivity and all that sort of stuff, it's the period leading up to it, when you are preoccupied with something else, let's be honest, and the period when you come back where it takes a long time to get going. Yeah, and then when you come back to the workforce, of course, your child goes to daycare, and they get sick and then you get sick, and it was just like this blur of just complete exhaustion when I got back, and I really felt like that was just something I just had to kind of soldier through. I didn't want to be seen as like the person who has a child and has a career but can't handle it and can't do it. All that sort of stuff. So, I just kept going, kept going and kept going and I think I still feel that exhaustion. If I look at my career in relation to perhaps people that have been doing this for the same amount of time, because of the career breaks I'm taking, because of the non-linear career path that I follow, I'm probably seven to eight years behind people, men primarily, who are the same age as me and that's difficult to deal with, but I've accepted it because, you know, I had to trade off. I have a happy family at home and that's important to me, but I'll never catch up. I've got maybe 25 years left in the workplace and I'll just never catch up. I've been told flat out, oh look at your CV. I've done as much as I possibly could do within my capabilities and time that I had available and you just get told you're not competitive for this fellowship, you're not competitive for that, you're not competitive for this. And I just, you know, like, great, it's not like I've done anything different than anybody else. I just took time away and you can never catch up again. So that's the reality. I felt like having that time away had massively impacted on my employability in terms of my research output. So, I feel that, I feel quite secure in my job here, but because, you know a variety of different reasons, but if I were to try and move somewhere else, I feel that those career breaks would have had a massive effect on my employability, because people who know me, know what I'm capable of and what I can do. People who don't know me, don't know that story and they just see a CV and think, 'okay, well, what has this person been doing for all this time?'. So, I think those career breaks absolutely had a massive impact on my employability. It's impacted on my, what's the word, competitiveness for things like research fellowships, so I'll probably never get one of those. So, it's just that those are

things that maybe I would have been able to do, but I definitely will never be able to catch up. I'll never be able to be that competitive, so that's the effect of that. So yeah, absolutely, those career breaks had a massive impact on research output, research productivity, grant income, PhD student supervision, there's a whole bunch of KPI's that there's no way I could fulfil during that time away, but are absolutely not accounted for when someone is assessing whether they want to hire you, or give you a grant or not. In theory they are, in practice I don't think so.

I feel like life for probably the last seven years, since going on a career break, I often liken it to, you know that juggling act, where you have all those, someone's got all these poles and they're spinning plates on them and they're just trying to make sure that one of them doesn't crash to the floor and break. That's how I describe my life. It's just literally like, okay, emergency, got to keep that thing spinning, got to keep that thing spinning. So that's really how I feel about pretty much the entire time that I've had breaks and in between the breaks and after the breaks. It's literally just firefighting and emergency. What do you call it, 'survival mode', pretty much.

A unique feature of Olympia's career break experience:

Olympia was the only participant to take three career breaks for a combination of reasons relating to unemployment and having two children. When returning from one of her career breaks, Olympia went on an overseas work trip as part of her continuing research project. In order to do this, Olympia proactively communicated her work intentions with others in advance, as well as engaged in considerable logistical planning, as she alluded to below.

So, preparing to return back to work. So, there were a few things like I think, definitely let people know that I was going to be coming back. So, you know, you send an email, like, 'yes I'm going back, and I'll be available from this time to that time'. I think the projects that I really wanted to be involved in were the ones that I really prioritised. So particularly, for example, , I was already on a research project, which involved some field trips overseas. So, one of the field trips was running, not long after I was due to come back from leave. So, I made sure that I was going to be able to go on that field trip and I told everybody look, 'I really want to participate in this field trip, I will be available, it is going to be possible' and you know, [I]made sure that there were childcare arrangements in place to allow me to go on that field trip and that was really a fantastic experience. It was really great to have that time. So those sorts of things are really important. Just letting people know that 'yes, I am available'.

5.7 Chapter Summary

The restoried narratives presented in this chapter showcase five career break experiences from very different perspectives. Respect was given towards presenting authentic and true representations of each participant's experiences. These narratives provide evidence of the transition of a career break and the significant changes in work and life that take place for an individual working in STEM, which impact on their experiences of employability. These narratives powerfully convey five participants' lived experiences, through their voices, using their own words. Chapter 6: Discussion towards a reconceptualisation explains how the interpretation of the research findings connects to the theoretical framework and the literature to understand women in STEM's career break perceptions and experiences as they move into, through and out of their career break: findings that suggest a need for a reconceptualisation of the career break experience.

CHAPTER 6 – DISCUSSION TOWARDS A RECONCEPTUALISATION

6.1 Introduction

This Discussion Chapter interprets and explains the research findings in the context of the key theoretical lenses chosen for this study, as well as existing research on career breaks, employability and transition. This contributed towards a reconceptualisation of the career break experience that this study presents in the form of a Career Break Model. This chapter is comprised of four key parts. The first part explains career break management. The second part discusses the career break as a transitional experience. The third and fourth parts separately analyse the application of the chosen transition and employability frameworks. The third part explores how this study's participants coped with their career break experiences according to Schlossberg's 4 S System (1981, 2011). The fourth part examines how participants' circumstances affected employability by a hiatus in their working lives according to McQuaid and Lindsey's EF (2005).

Schlossberg's TF (1981, 2011) and McQuaid and Lindsey's EF (2005) were applied to explore the career break perceptions and experiences of a group of women employed in STEM. This integration of theories supports the key research question of this study to be answered: 'What are women in STEM's perceptions and experiences when they move into, through and out of a career break?' Schlossberg's 4 S System (1981, 2011) revealed how participants utilised their resources to respond to emerging changes when moving into, through and out of their career breaks. McQuaid and Lindsey's EF (2005) provided insights into how participants' broad set of circumstances impacted on experiences of employability when moving into, through and out of their career breaks.

This study illuminates the strong connection between the concepts of employability and transition, demonstrating how employability is impacted by an individual's ability to address change when they take a career break. In exploring this strong connection between these two concepts, it also provides a deeper understanding of the collective shift in an individual's work, life and career engagement when they take a career break.

6.2 Career break management

Managing their career break experiences proved to be a rather complex process for participants in their endeavours to continue to succeed both professionally and personally. There was much deliberation by participants on how to appropriately manage and achieve cohesion between their changing work and non-work responsibilities, while attending to their own needs and wants as they looked back on their various career breaks. Mary provided an example of this, explaining the support she received from a mentoring program, saying: '*…I also learned to set my priorities as well and things that are important to me in life'*. Attaining balance between work and non-work roles proved difficult for all participants, at different points of their career break, for various reasons. Many also contemplated whether taking career breaks had long-term effects on their careers, as well as reflected on the considerable disruptions that had occurred to their working and non-working lives. This mirrors Whiston and Cinamon's (2015) call for better career management, which takes into consideration an individual's work and non-work roles. These participants, who had all taken career breaks, faced difficulty in autonomously managing and aligning their own needs and wants with their ongoing work responsibilities, while ensuring their employability did not suffer. This calls for a cohesive approach towards career break management that promotes a deeper level of understanding towards identifying changes in an individual's collective work, life and career experiences and the impact that these changes have on employability. This aim is consistent with scholars who advocate for a more rounded whole-of-life approach towards career

management (Hirschi 2020; Litano & Major 2016). The research findings echo findings of other scholars, that work and life should be a joint consideration (DiRenzo et al. 2015; Greenhaus & Powell 2012; Hirschi et al. 2020). Afif (2019) draws attention to the differences and benefits of both work-life integration and work life balance, whilst others advocate the need for work-life balance (Chawla & Kumar 2018; Oyewobi et al. 2019; Rao 2017).

Participants of this study were women who were employed in competitive, academic, non-traditional careers. They repeatedly spoke of the importance of strong self-directedness in terms of managing their own outcomes at all stages of their career breaks. Other studies also confirmed the need for autonomous career management within non-traditional careers (Briscoe & Hall 2006; Hall 2004; Hall et al. 2013). Latack (1984) describes how individuals can negotiate careers by trying to alter a situation or a relationship. Participants' ability to perform such negotiations, through management of their career breaks, were tested and these research findings indicate that the ability to do so was not entirely within their control. Diane, for example, experienced significant challenges with her work handover, resulting in additional stress for her colleagues, which Diane felt should not have arisen, as she should have been able to rely on her *'...workplace actually doing what they were meant to do...'* As they prepared to take a career break, participants could not always rely on their workplace to ensure that suitable arrangements were in place. This meant they could not necessarily be the ones in control of events in their workplaces. This aligned with Pearlin and Schooler's (1978) findings that the broader social and economic contexts can disrupt an individual's personal efforts to manage change.

Self-directedness was also required by participants when maintaining their employability. They aimed to be job ready when it was time to return to the workforce. Kovalenko and Mortelmans (2016) similarly point out that employability is influenced by one's self-

directedness. Other studies emphasise the importance of ongoing employability whilst away from the workforce (Sin & Neave 2014; Vanhercke et al. 2014; Veld et al. 2015). Nilsson and Ekberg (2013) claim that this is a prime responsibility for those taking time away from the workforce. In this study, all participants displayed a high level of self-directedness and awareness in relation to employability. This was evident throughout their career breaks but was particularly evident at times when navigating their return to the workforce.

6.3 Career break as a transitional experience

All participants experienced changes to employment and subsequent novel lifestyles due to taking their career breaks. The majority of career breaks were anticipated by participants due to reasons such as parental leave, however those that were unanticipated related to participants health and wellbeing. The transition process of moving into, through and out of a career break (Anderson et al. 2012; Schlossberg et al. 1995) was discussed by all participants. The career break trajectory encapsulated this transition process which consisted of being part of the workforce, to spending time away from the workforce and then subsequently returning to the workforce. The intention to return to the workforce after taking a career break as highlighted by Bian & Wang (2019), Cabrera (2007) and Weisshaar (2018), was evidenced by all participants successfully returning to the workforce after each of their career breaks. In conjunction with changes in circumstances of employment, all participants experienced the impact of lifestyle changes as they moved into, through and out of their career breaks. These changes were often associated with changes in employment, highlighting the strong connection between work and life. Several scholars have studied this amalgamation of women's professional and personal lives (DiRenzo et al. 2015; Greenhaus & Powell 2012; Hirschi et al. 2020; Jacobson & Aaltio-Marjosola 2001; Litano & Major 2016). These research findings affirm how the personal and professional lives of women are generally altered in some way due a decision to take one of more career breaks. This view is consistent

with Biese (2017) who provides a more contemporary perspective of women's lifestyles when they opt out, saying that '… most women who opt out also opt into new ways of living' (Biese 2017, p. 4). This study adopts a new definition of the career break that takes into consideration earlier definitions (Bian & Wang 2019; Cabrera 2007; Weisshaar 2018), as well as the contemporary perspective offered by Biese (2017) and the research findings of this study. This new definition of a contemporary career break is: '*Where an individual takes a temporary planned or unplanned break from the workforce, at any time and for any duration throughout their career due to professional or personal reasons, which results in significant changes to their work and life and emerging novel lifestyles.'*

The research findings demonstrate the importance of transition, evidenced in the significant changes to work and life that happened for all participants when taking their career breaks. Embracing career break-associated changes in employment and lifestyle and adapting to a new reality can be termed a 'transition' that impacts on individuals' routines, roles, relationships and lifestyles. Schlossberg's TF (1981, 2011) drew attention to these emerging career break-associated changes, highlighting how women in STEM's lifestyles, relationships, routines and roles were altered. The career breaks recounted by all participants of this study represent transitions, as participants revealed the significant and varying changes that occurred in their work (professional) and life (personal) which impacted on their lifestyles, relationships, routines, and roles as they moved into, through and out of a career break.

The work changes that occurred for all participants related to their circumstances of employment, while the life changes were bought on by the novel lifestyles which participants adopted as they moved into, through and out of their career break. Coping with and adapting to these changes in work and life proved more problematic for some participants than for

others. Grace described the abrupt change in routine when stopping work, going from *'...structure to a suddenly completely empty unstructured day'.* The participants themselves, as well as workplaces and many others, all played a critical role as each participant learned to cope with watershed work and life changes.

6.4 Coping with a career break: Influential factors

This study explores the resources that women in STEM utilise as they navigate their career breaks. This study carried out an assessment of coping resources using Schlossberg's 4 S system (Anderson et al. 2012; Schlossberg 2011) to understand the key resources, which are considered to influence an individual's coping ability. Participants' career break experiences are discussed in further detail below according to the key coping resources of the 4 S system, namely situation, self, support and strategies.

Career break situation: To assess how a situation can affect a transition, elements taken into consideration include trigger, duration, role change, timing and concurrent stressors (Goodman et al. 2006). There were various reasons (Sharma 2020) and specific reasons (Gwal 2016) that triggered participants to take their career breaks, including travel, health, to pursue further study, relocation, unemployment, job role and caring, although the most common trigger was for parenting reasons. These triggers were motivated by both workplace-initiated push and personal (e.g. family) pull factors (Cabrera 2007; Hewlett & Luce 2005; Stone & Hernandez 2012; Stone & Lovejoy 2004). All career breaks were of a temporary duration, as participants went on to speak about their experiences of rejoining the workforce. Most career breaks were anticipated by participants, though three spoke of the struggles associated with being faced with a forced choice to take a career break due to health and wellbeing issues, or their confliction between work and life priorities. Regardless of the trigger, all career breaks involved a role change for participants throughout the transition

process when moving into, through and out of their career break. This role change was evident in participants novel lifestyles bought on when leaving the workforce, spending time away from the workforce and when returning to the workforce. The timing of career breaks was an important consideration, particularly when participants were on the edge of receiving a promotion, approaching the end of their employment contract, needing to increase their focus on their health and wellbeing and when considering the impact of timing on their work schedules and career stage. As 15 of the 18 participants had taken multiple career breaks, knowledge and learnings from prior career break experiences were at times referred to as having a positive influence. Paula for example felt *'... a lot more comfortable'* when managing her subsequent career break experiences. Concurrent stressors were experienced by participants throughout their career breaks both within and external to their workplaces. Within their workplaces, participants experienced stressors with all levels of management, HR, work handovers, funding, employment contracts and bullying or harassment. External to their workplaces, participants experienced stressors in relation to their health and wellbeing, financial situation, insurance and job insecurity.

Self: An individual's personal and demographic characteristics, such as age, gender, ethnicity, health and socioeconomic status, may influence an individual's views and perceptions when navigating their transition (Anderson et al. 2012). The research findings allude to some of these characteristics. The age bracket of participants was disclosed during the structured interview segment; however, participants did not further elaborate on their age in relation to their career breaks. One participant who identified their culture spoke of how, within their culture, once you became a Mum, work became less of a priority. Chandra (2012) and Hassan et al. (2010) wrote about the varied meanings of work among different cultures, especially in regard to the expected roles of men and women. Gender was raised as an issue by participants in several ways: being part of female networks and groups, being the first female to be

employed within a department, being the first female in a department to take a career break and when comparing their own career paths to male colleagues within their organisations who hadn't taken career breaks. Several participants spoke about experiencing physical and mental health issues throughout their career breaks, while others spoke of the pressing need to maintain their health and wellbeing. The health and wellbeing of an individual can be an employability barrier (Herman 2015) and positive career development must include proactiveness regarding one's wellbeing (De Vos et al. 2011). The socioeconomic status of participants was not raised by participants; however, several participants alluded to a need to work, or not to work based on their personal financial situation.

Self also includes consideration of psychological resources, such as commitment and values, spirituality and resilience that may influence an individual's views and perceptions when navigating their transition (Anderson et al. 2012). Participants expressed their commitment to working and personal satisfaction from working, valuing the notion of balancing work responsibilities with non-work responsibilities. Many participants continued to remain professionally connected and work in some capacity during their career breaks, and all participants were motivated to return to the workforce. Participants' recounts of searching for whole of life satisfaction were consistent with one recent description of a self- directed protean career outcome that is value driven (Li et al. 2022). All participants displayed resilience in their ability to navigate the broad range of professional and personal changes and associated challenges they encountered when moving into, through and out of their career breaks. Only one participant referred to spirituality when discussing their positive experiences with meditation.

Career break support: Support as a coping resource is focused on the type and function of external resources that an individual draws on when navigating their transition (Anderson et

al. 2012). Evident within the emerging theme of reliance on others, participants spoke willingly of the times when they needed to rely on others. Participants relied on their workplaces and other informal and formal sources of support throughout their career break experiences when responding to change and to meet their own needs and wants. The research findings of this study indicate that reliance on the workplace and others was an effective coping mechanism for participants to deal with emerging changes that were either difficult for them to control, or simply beyond their control when managing their career breaks.

Participants drew on the support of their informal network of partners, family members, friends, and members within their local community, as well as their formal network of medical, daycare, governmental and other professional services. This support was drawn on for logistical, mental health, physical health, social and financial reasons, as well as in pursuit of participants' own personal and professional needs and desires. This enhanced the ability for participants to respond to and address some of the challenges they encountered, which they perhaps could not have managed on their own. Participants also drew on the support of their workplaces. This was a critical form of support for participants when they were discussing the career break-associated changes to their employment role and their own needs and responsibilities. This reliance on others was also evident throughout participants' discussions regarding their workplace relationships; where they were able to access favourable workplace policies and practices; for example, Olympia felt grateful that workplace policies would enable her to *'...still come back to the same role'.* The need to rely on an accommodating workplace and collaborate was vital, particularly as any barriers they encountered in this regard were largely beyond their control. Collaborative relationships and their link to career progression is recognised by scholars in several forms. Collaboration has been found to enhance career progression, particularly for women (Van der Wal et al. 2021)

and college students (Ledwith 2014) and identified as a behavioural competency in those who can proactively shape their career (Barnes et al. 2022).

Career break strategies: Being strategic is a coping resource that an individual implements to autonomously control, modify and manage as they navigate their transition (Anderson et al. 2012). Evident within the emerging themes of reliance on self, the research findings reveal how participants proactively implemented various strategies to negotiate changes when taking their career breaks. Strategies highlighted by this study include planning and maintaining relationships, relationship building and personal development.

Planning strategies were commonly reported by participants. Career break forward planning was often mentioned, particularly in relation to returning to the workforce (Cabrera 2007; Greer 2013; Mavriplis et al. 2010; Zimmerman & Clark 2016). Many participants spoke about how they planned for changes in their employment role and job responsibilities, to deal with their reduced capacity to work and reduced productivity while away from workforce. Careful timing and logistics were critical during the period of returning to the workforce.

Managing changes to job roles, responsibilities, and the broader work-life dynamic was essential when navigating career breaks for those participants who intended to remain with the same organisation. It is important to identify any changes to an individual's specific employment when taking a career break, including any changes to their personal and professional circumstances that may impact their employment role when returning (Simone and Kannan 2023). The decision to resign from an employment role also required planning from some participants, as these decisions were often as Nicole described an *'...intentional decision to leave...'* to pursue alternative personal or professional goals. The decision to resign from an employment role also called for proactive networking, so as not to jeopardise future job and financial security. Insufficient networking is widely acknowledged as a

common career break failing (Cabrera 2007; Herman 2009; Herman 2015; Lovejoy &Stone 2012).

Some participants talked about their proactive planning when resuming their employment position, focusing on their resumption or continuation of specific job duties, communicating their preferred projects to work on and re-establishing their presence within their professional network in anticipation of their return to work. Conversely, for other participants, proactive planning meant exploring alternative employment opportunities, ensuring that any new job prospects aligned with their situation. A study by Lovejoy and Stone (2012) found that most women had planned to pursue alternative employment opportunities as their career break came to an end, with few planning to return to their former employer. A reason for this is explained by Zimmerman & Clark (2016), who draw attention to how women's priorities and values can change, particularly after having children, which naturally influences the type of employment they would prefer to return to.

Maintaining relationships and relationship building were beneficial strategies that were adopted by participants to connect with others. Nicole provided examples of multiple strategies she used to connect with others *'…through social media, through twitter accounts and LinkedIn…'.* Networking is identified as an additional skill that can be acquired during career breaks (All Party Parliamentary Group 2018). Participants engaged in networking to maintain and broaden their professional connections, maintain their connections with the workplace and create employment opportunities. Communication played an important role when managing workplace relationships, particularly when advising of changes in circumstances, which would potentially impact participants return to employment.

Participants also placed importance on developing strategies that focused on their own personal development and personal situation. They pursued their professional development to

maintain and enhance their skillsets and knowledge. Skill maintenance is recommended during career breaks (McIntosh et al. 2015). Participants sought to manage both their professional and personal identities which Zimmerman and Clark (2016) claim women in STEM can do in various ways when maintaining their professional identities during their career break. They managed their physical, mental and financial wellbeing, and adjusted their expectations of self and others realistically. Herman (2015) studied the general health and wellbeing of women who would like to return to the SET workforce. That study found that time management was key to rebalance their work/life commitments and responsibilities.

6.5 Career break and remaining employable: Influential factors

The research findings highlight the influence of emerging career break-associated changes in shaping participants' experiences of employability. Women working in STEM required significant adaptability throughout their career break, as there was a continuing need for them to embrace change and rebalance their needs and wants. Adaptability and the ability to respond to change emerged as a critical feature and influence in shaping participants' career break experiences. As participants' employment circumstances changed when moving out and then back into the workforce, so did their lifestyles, leaving them with no choice but to adapt and respond accordingly and continually endeavour to keep their work and life in balance to reflect their novel lifestyles. This ability to adapt influences an individual's employability (Forrier et al. 2009; Fugate et al. 2004; O'Connell et al. 2008; McQuaid & Lindsay 2005; Thijssen et al. 2008) and exploring the career break as a transitional expérience using Schlossberg TF (1981, 2011) drew attention to this

Embracing work and life changes during a career break required participants of this study to have a high level of individual adaptability that positively contributed to their professional and personal lives and supported them to eventually resume their employment and careers in

STEM. Worker adaptability and mobility is acknowledged by several scholars as key to maintaining employability (Fejes 2014; Fugate et al. 2004; McQuaid & Lindsay 2005), and job success (Xu et al. 2017). Adaptability has also become a necessary component of career development (Chan & Mai 2015) and career success (Guan et al. 2013; Ohme & Zacher 2015; O'Connell et al. 2008; Rudolph et al. 2017).

The concept of adaptability took on a new meaning as participants were moving into, through and out of their career breaks, when dealing with continual changes to their working and personal lives. These changes required participants to respond to these changes and embrace new lifestyles. There was a need to continually adopt new roles in the process of ceasing work, spending time away from the workforce and eventually returning to the workforce and uncertainties associated with these new roles challenged participants' self-image.

Adaptability is acknowledged by several scholars as an important component of employability (Forrier et al. 2009; Fugate et al. 2004; McQuaid & Lindsay 2005; Thijssen et al. 2008) in terms of an individual's basic transferable skills and their mobility and flexibility (McQuaid & Lindsay 2005; Thijssen et al. 2008). The contemporary precarious nature of jobs, along with the perceived responsibility of individuals to manage and develop both their careers and employability has shifted the focus from mutual, two-way organisational commitment to the value of individual competence, resilience and adaptability (Sullivan & Baruch 2009). This is also represented by the non-traditional, or new career path, which is focused on lateral moves by individuals across organisations, as opposed to vertical career moves within one organisation, which meet their career and life goals and is often accompanied by career interruptions (Reitman & Schneer 2008). The non-traditional career thus requires workers to have an increased capability to adapt throughout their careers

(Tomlinson 2017) as the lateral moves associated with the non-traditional career increases the likelihood of experiencing instability (Taber & Blankemeyer 2015).

These participants displayed adaptability throughout their career break experiences in many ways when they experienced novel lifestyles whilst attempting to remain employable. Some were keen to retain their previous employment; others actively sought a change of employment. In situations of unemployment, individuals who are adaptable are likely to be more employable (McArdle et al. 2007) and adaptability is important to employability for retaining older workers in the workforce (Midtsundstad 2019).

Arguably, there are challenges with disentangling the concept of employability from real world experiences. Drawn from the research findings, Figure 10: Career Break Influences on Employability synthesises research data, summarising influences on employability when taking a career break. This study used McQuaid and Lindsey's EF (2005) to holistically explore the interrelated factors that influence participants' experiences of employability according to their individual, personal and external circumstances. The work and life changes resulting from their career breaks impacted on all participants' individual, personal and external/work circumstances, as illustrated below in Figure 10: Career Break Influences on Employability.

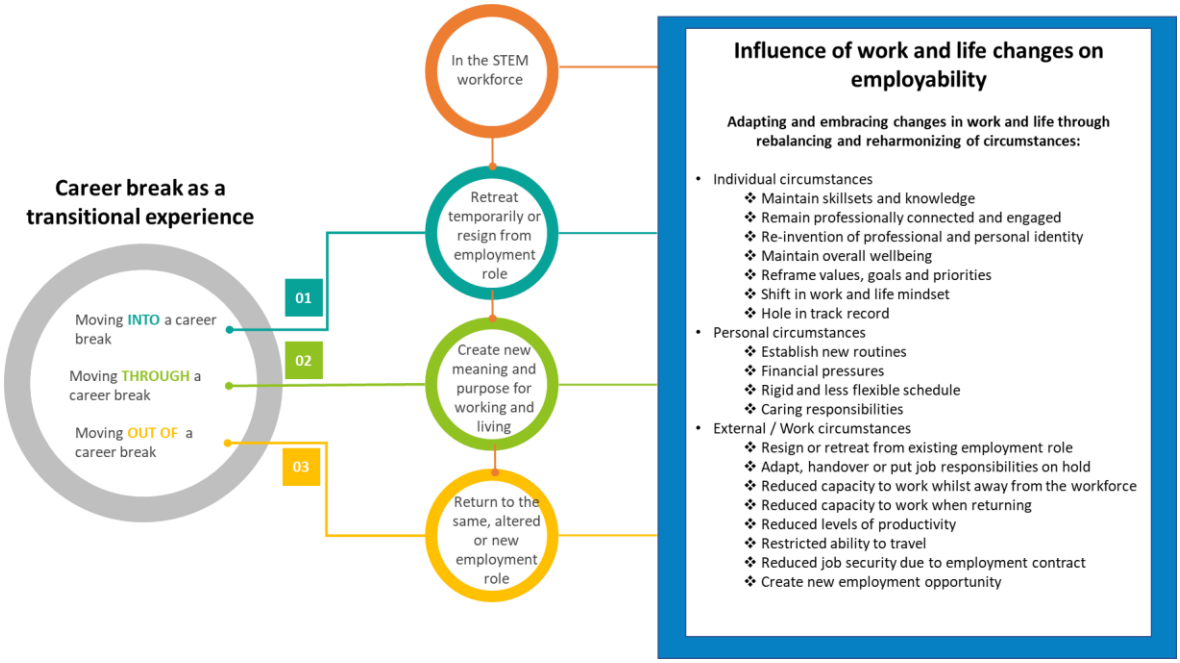

Figure 10: Career Break Influences on Employability
Source: Author

Consistent with McQuaid and Lindsey's EF (2005), this summary above in Figure 10: Career Break Influences on Employability is divided according to the key elements of individual, personal and external circumstances. This provides a holistic perspective of influences, both positive and negative on participants' employability as they moved into, through and out of their career breaks. These are explained in further detail below.

Individual circumstances: The individual circumstances of participants such as skills and attributes and other demographic characteristics (McQuaid and Lindsey 2005) had a direct influence on their employability when taking career breaks. Participants strived to maintain and enhance their skillsets and knowledge in a variety of ways. In doing so, they hoped to avoid the danger of having out-of-date skills, highlighted by several scholars because of having taken a career break (Cabrera 2007; Herman 2009; Herman 2015 Lovejoy & Stone 2012). Participants completed various courses, attended conferences, attended community engagements, continued to access resources with their continuing professional memberships,

and kept up with reading in their specialist field and more broadly. These efforts to maintain skillsets and knowledge are aligned with the recommendation by McIntosh et al. (2015) for women to maintain their skills during their career breaks, as well as to engage in lifelong learning and continuous reskilling and upskilling which would increase the ability for an individual to adapt to change (Curtis & McKenzie 2001). A lifelong learning approach towards skill development is looked on favourably by STEM organisations, who seek employees who demonstrate a willingness to continually learn throughout their careers, in or out of the workplace (McGunagle & Zizka 2020).

Participants had to determine ways in which they could maintain their professional identity while they were moving through their career break. There are various ways in which women can maintain their professional identity while they are taking their career break (Zimmerman and Clark 2016). Paula, for example, described her need to approach this through *'...staying relevant and involved... and ...staying in touch...'.* Participants contemplated how they could continue to work in some capacity, how they could continue to remain connected to their workplace, or how they could engage in networking with others. Some networked within their existing professional networks, or with prospective future employers while away from the workforce, hoping to secure a new employment position in advance. Other participants relied on networking to remain relevant on the professional front. For participants such as Clare, this was critical as *'...if you lose your network, then you don't have anything to return to'.* Networking and communicating with others either face to face or through online platforms was also considered important for participants such as Nicole, when returning to the workforce, who felt she was *'...keeping live, keeping current and keeping visible as well...'.*

The shift in focus away from work, when taking career breaks, saw many participants inevitably shift their focus from their professional identity to that of their own personal identity. Changes in work identity however can be problematic for women attempting to redefine themselves (Kanji & Cahusac 2015). Some participants struggled with ensuing stresses associated with both their personal and professional wellbeing, which further complicated this redefining of themselves. This resulted in a need to reframe their priorities and values and also determine how to share some of their responsibilities, particularly parenting responsibilities, when returning to the workforce. Other studies have shared a similar view that time spent away from the workforce can influence and alter the values of women (Zimmerman & Clark 2016; Kanji & Cahusac 2015).

The necessity to embrace novel lifestyles while away from the workforce resulted in work taking on new meaning and purpose due to alterations to participants' work motivations and how they engaged with work while they moved through their career breaks. Some had the desire to continue to work in some capacity, while others felt pressured to do so. Pressures came from the individual's own expectations, from the expectations of others and from participants' personal situation such as the need to work out of financial necessity. The desire to continue to work was often based on the value participants placed on remaining professional, connected and engaged. They kept connected with their workplace and maintained their professional identity despite being away officially on a career break. This desire to keep working was fulfilled either through their existing employment role, taking on a new employment role, or through volunteer or casual work. On a more personal level, for some participants, work also provided a much-needed mental stimulation, as well as an opportunity to enhance existing skillsets. Alice for example felt that continuing to work in some capacity *'...keeps your brain busy and it gives you other skills'.*

Personal circumstances: The research findings illustrate how the personal circumstances or surroundings of participants such as the household, household views towards working and access to financial resources (McQuaid and Lindsey 2005) had a direct influence on their employability when taking career breaks. Participants' schedules became more rigid and less flexible due to changes in their personal situation and responsibilities. This was particularly so in relation to caring responsibilities, where Ingrid felt *'...time was no longer just my time…'* while Olympia similarly felt *'...you're not solely focused on yourself...'.* These adjusted schedules required participants to adapt and rebalance their work and life, adjust their mindsets and often to re-invent themselves when taking their career breaks. Many participants relied on support from their partners or family to mind their children, otherwise relying on childcare when returning to the workforce. The active and co-parenting role of partners continued to be crucial for participants, with various arrangements needing to be made as they moved out of their career breaks (Cherlin 2016).

Many participants experienced difficulties with rebalancing their work and life when adjusting to life away from the workforce or continuing to work in some capacity while away from the workforce. Other studies note women's difficulties in attaining work-life balance (Chawla & Kumar 2018; Oyewobi et al. 2019; Rao 2017). For many of these participants those difficulties became most prominent when they returned to the workforce and had to harmonise their work schedule with life responsibilities (Pocock 2003). Participants spoke of the various ways in which they had changed their approach to work when moving out of their career break to meet and harmonise their personal and work responsibilities, often by adjusting their specific work responsibilities, incorporating more flexibility in their work hours, and adopting a new mindset. Mayhugh (2019) points out that work-life integration requires a shift in mindset by the individual. This reharmonisation of work and life, however, and re-inventing of oneself when returning to the workforce proved difficult for some

participants more than others. Participants gave examples of the difficulties with managing the unforeseen weight of caring responsibilities, such as having sick children, sleep deprivation and the demands of breast feeding. Reinvention of self was especially difficult for those who had been out of the workforce for an extended period of time (Orgad 2016).

External circumstances: The research findings illustrate how the external circumstances, primarily in relation to the workplace had a direct influence on participants employability when taking career breaks, particularly evident within the emerging theme of reliance on the workplace. Accommodating workplace policies towards participants taking career breaks were imperative. Leave policies could affect their retention of employment role and their employment contract renewal, particularly when their intention and desire was to return to the same organisation. Barriers encountered by participants regarding workplace policies and practice were largely beyond the control of participants. This was evidenced in Kylie's experiences when she described *'…navigating, the kind of bureaucracy around going on career break…'*, as well as Ingrid's experiences with having a *'…difficult time with how HR handled it …'.* These examples show how workplace policies and practices can represent barriers for their employees (Wheatley 2012).

Each participant needed to manage their employment role through either resigning, or retreating temporarily, in part or fully, from their employment role. This decision to either resign or retreat to some extent, was governed by several factors: participants' learnings from prior career break experiences, their desire to pursue other goals, the strength of their relationship with their employer, financial pressures, workplace expectations, personal expectations and desires, or a desire to rebalance commitments. The decision to retreat temporarily from their employment role required many participants to forward plan for their career break to minimise disruptions. They needed to consider who would handle their job

responsibilities in their absence and also think about what level of work engagement they would agree to while away from the workforce. Some participants even planned their pregnancies to take advantage of what they considered to be the ideal timing to take their career break.

Participants perceived their ability to keep their job was in many instances influenced by the timing and fixed term nature of their employment contracts; this meant, as Paula raised, that *'...you do have to keep your finger on the pulse'.* Increased job security was evident where participants returning to work felt they had a sufficient amount of time left on their employment contract. On the other hand, if little time was left on their employment contract upon returning, they would feel the subsequent pressure of negotiating a contract renewal, which often meant sourcing additional funding. This situation was associated with decreased job security. Participants spoke of the challenges they faced within the STEM working landscape, which is largely characterised by insecure and precarious working conditions, short-term employment contracts and competitive funding policies. Short-term, casual employment contracts for women employed in the STEM workforce are prevalent (Professionals Australia 2021). Participants' experiences with job security and working arrangements within STEM also reflect the contemporary working landscape described by many scholars. Some point out the increase in insecure, precarious working arrangements (Ashford et al. 2018; Lam et al. 2015; Lewchuk 2017; Pacheco et al. 2016; Quinlan 2004).

Few participants returned from their career breaks in a full-time capacity, with most participants returning to the workforce part-time and some opting for a phased return to the workforce, gradually increasing their days of work. An increasing number of organisations do offer the option of part-time employment, especially for women returning to the workforce (Fitzenberger et al. 2016; Gilley et al. 2015). However, part-time employment arrangements

deviate from the typical STEM career model, which is typically described as full-time, uninterrupted, and inflexible (Bilimoria et al. 2014; Herman 2009, Herman & Webster 2010; Professionals Australia 2015). On returning to the workforce, relationships with colleagues, as well as more senior levels of management including supervisors and their employer within the workplace became very important. Relationships were influenced by how positive participants felt towards their changed circumstances, the rapport they had with specific workplace colleagues, as well as the availability of supportive policies and practices that would alleviate the professional and personal pressures associated with returning to the workforce. According to Jenkins et al. (2016) and Lovejoy and Stone (2012) a sign of supportive policies and programs is their flexibility. All of the participants expressed the significance of flexibility when discussing their return to the workforce, attributable to their desire to achieve harmony between work and life. This view is shared by Lovejoy and Stone (2012) and Zimmerman and Clark (2016).

Challenges for participants at times related to the stigma associated with women returning to the workforce, which many scholars associate with inflexible employment conditions (Cech & Blair-Loy 2014; Chung 2020; Stone & Hernandez 2013). The stigma can be ingrained in an organisation's culture and be a barrier for women wanting to access workplace policies (Auster 2001; Drew & Murtagh 2005; Professionals Australia 2015). This stigma was experienced by these participants, who all worked in a STEM organisational culture. They reported negative perceptions of their capabilities, their productivity, time pressures, their STEM career progression and the gap in their STEM track record due to taking one or more career breaks. Parenting responsibilities often restricted their ability to travel for work, and it was sometimes difficult to resume specific job responsibilities, to modify those responsibilities, or put them on hold. Participants alluded to a male dominated work culture

when discussing some of these negative perceptions, comparing their employment situation as less favourable to males without family ties and responsibilities.

The two participants who accessed childcare services while away from the workforce chose to do so for their older child. This choice was made to support their mental health and to provide quality time to spend with their younger child. Many participants chose to access childcare services when moving back into the workforce, some of whom found this to be a difficult adjustment. Returning to work often meant adjusting to new routines. While their children were very young, some participants preferred a trial or staged approach when accessing childcare, gradually increasing the childcare days, although waiting lists also determined when a child could commence. The close proximity of a childcare centre to a workplace provided logistical benefits, while access to an additional network, such as grandparents, provided social and emotional benefits for some participants.

6.6 Chapter summary

This chapter discussed how the research findings and the literature support the need for a reconceptualisation of the career break experience, one that is based on a new perspective of navigating changes throughout the transition of a career break: that is, moving into, through and out of a career break, without losing employability. This affords the identification of positive and negative influences on employability and transition and highlights how one's employability is shaped by the changes he/she experiences. This new perspective is eloquently supported by the narrated experiences of a group of women in STEM, all of whom had taken one or more career breaks. The participants all reported certain tensions about how their decision to take a career break might have affected their employability, even though for many it was a deliberate choice to take a career break and have a family as well as a career.

Chapter seven: Implications, Recommendations, Limitations and Conclusions is the final chapter and concludes this doctoral study.

CHAPTER 7 – IMPLICATIONS, RECOMMENDATIONS, LIMITATIONS AND CONCLUSIONS

7.1 Introduction

This is the Implications, Recommendations, Limitations and Conclusions Chapter. It is the final chapter of this doctoral study, which explored the perceptions and experiences of 18 women in STEM who had taken between them 47 career breaks. To guide the study of the participants perceptions and experiences, as they moved into, through and out of their career breaks, the transition framework of Schlossberg (1981, 2011) in conjunction with the employability framework of McQuaid and Lindsey (2005) were applied. The integration of these two theoretical frameworks permitted the exploration of the career break as a transitional experience and determine how this transitional experience shaped the employability of women in STEM.

This study's findings inform women employed in STEM as well as STEM organisations about how career break experiences within the contemporary working landscape can shape an individual's employability. The research findings of this study therefore serve to inform on both an individual level and on an organisational level. In this regard, the recommendations of this study are made from two perspectives: Women in STEM can use these research findings to consider ways in which they can take charge to handle and alleviate some of the challenges associated with taking a career break. STEM organisations can consider these research findings as a means to facilitate a more positive career break experience, especially for their female employees, through the development, adjustment and execution of flexible and family friendly workplace policies and practices.

7.2 Theoretical implications

The new perspective of career break experiences presented in this study contributes to the literature of career break, employability and transition. Despite the growing phenomenon of career breaks, little research has examined the relationship between employability and the career break as an experience that features significant transition. The literature on career breaks reveals the challenging nature of this experience, especially for women, and particularly when women seek to return to the workforce. This study builds on this literature to understand the transition of a career break and its impact on an individual's employability.

Schlossberg's TF (1981, 2011) has not previously been applied to explore the career break specifically; thus, the research findings of this study extend the career break literature and provide new understandings of how women in STEM deal with emerging work and life changes when taking a career break, as well as clarifying the career break as a transitional experience. The application of Schlossberg's TF (1981, 2011) highlights the critical role for women in STEM to cope with and respond to emerging work and life changes, which resulted in significant alterations to their lifestyles, relationships, routines and roles. This framework was well suited to this study of career breaks. It was able to support an understanding of how individuals navigate, cope and react to change throughout the transition process of leaving the workforce (moving into), spending time away from the workforce (moving through) and returning to the workforce (moving out). This reflects Schlossberg et al. (1995) description of the transition process whereby one moves into, moves through and moves out of a situation or experience. Much of the existing literature on career breaks is devoted to one part of this process, usually the experience of moving out of a career break. For example, predominant focus of previous career break literature relates to the barriers that women encounter when they return to the workforce (Arora & Sharma 2018; Cabrera 2007; Herman 2009; Herman 2015; Lovejoy & Stone 2012; Mishra & Mishra 2016), with Herman

(2015) finding that women employed in STEM face additional barriers when re-entering the workforce.

Perceiving the career break as a transition revealed how an individual's employability is shaped by the changes they experience to their lifestyles, relationships, routines and roles, challenging their ability to remain employable when returning to the workforce. These changes required individuals to have a level of adaptability that positively contributed to their future work and career experiences. This study found a strong connection between the ability for individuals to adapt to change and their retention of employability. Other scholars concur that adaptability is positively related to an individual's employability (Forrier et al. 2009; Fugate et al. 2004; McQuaid & Lindsay 2005; O'Connell et al. 2008; Thijssen et al. 2008). While McQuaid and Lindsey's EF (2005) acknowledges adaptability and mobility as key transferable skills, this study provides a broader perspective of adaptability through new understandings of how employability is impacted by a period of transition for an individual, whereby they must navigate and adapt accordingly.

Recognising the career break as a period that features significant changes to work and life, suggests a new perspective for career breaks to be understood as subjective and autonomous experiences, with characteristics that highlight the importance of work, life and career planning through conscious and connected decision making. Participants of this study needed to have a self-directed approach to manage complex experiences of work, life and career collectively, while maintaining their employability. The combined theoretical frameworks of this study allowed for an understanding of how participants managed their career breaks to harmonise work, life and career experiences that went well beyond their initial decision to simply take a break from work.

This study reconceptualises the career break experience and provides a new perspective of the phenomenon that fits the contemporary, more precarious work environment, affording continual change and facilitating progression. This reconceptualisation normalises the expectation that individuals will want to take breaks throughout their working life and that organisations will build this into their policies and practices. In this way, the career break will be seen as a cyclic event that forms part of employees' career journey, encouraging continued work, life and career development and progression. As part of this study, a theoretically informed Career Break Model is proposed that draws on the strengths of Schlossberg's TF (1981, 2011) and McQuaid and Lindsey's EF (2005) as critical constructs that are integrated to understand transition and its impact on an individual's employability within a contemporary context. This model allows for changes in contemporary work environments and can help individuals to identify and plan for their work, life and career experiences, whilst taking their employability into consideration. Planning for change during career breaks is acknowledged as an ideal coping mechanism by Cabrera (2007), Dodds and Herkt (2013), Mavriplis et al. (2010) and Shinton (2009). The Career Break Model is a useful tool to assist women in STEM to manage the identification of work and life changes as they emerge, and to develop plans to navigate and cope with those changes while maintaining employability.

This study also contributes to the narrative literature, recounting the lived experiences of 18 women in STEM as they moved into, through and out of their career breaks. Although narratives have previously been included in studies that relate to careers (Chinyamurindi 2016; Heikkinen et al. 2014; Xian & Woodhams 2008) and career transitions (Vahidi et al. 2022; Li & Lai 2022), they have not previously been used to explore the career break trajectory as a transitional experience. The narratives from this study were able to articulate the entire career break trajectory, as well as different points of the career break trajectory of

women in STEM, providing context to further understand their behavioural responses when moving into, through or out of a career interruption.

7.3 Practical implications

This study has practical implications for women in STEM and STEM organisations when facilitating career breaks. Women in STEM could apply the Career Break Model to manage and tailor their own career break experiences. STEM organisations could also use the Career Break Model to raise their awareness of both positive and negative aspects of career breaks and their impact on employee's professional and personal needs, wants and capabilities. This could translate into improvements in the delivery of workplace policies and practices in relation to career breaks.

Use of the Career Break Model can highlight conflicts between employees' professional and personal obligations, which could assist STEM organisations to alter or design more favourable employment conditions for employees who take a career break. Perceived confliction between professional and personal obligations and desires was a key driver in participants' stated intentions to alter their mode of employment. Most participants did alter their employment role, with few participants making a lateral career move across organisations. Kanji and Cahusac (2015) draw attention to how competing personal and professional priorities for an individual can be exacerbated by organisational indifference. This study draws attention to the importance of flexible work options and systemic prioritising of work-life balance. Few participants returned from their career break in a full-time capacity, with most returning to the workforce at reduced hours and some opting for a phased return to the workforce.

Management of career breaks within the contemporary working landscape requires an individual to embrace and accommodate continuous change, as well as facilitate continual

progression with regard to their collective work, life and career experiences, whilst nurturing their employability. Women in STEM could use the Career Break Model as a self-management capability tool to manage their own career breaks dynamically. Use of the model by individuals could raise their awareness of the key transition and employability factors that influence work, life and career engagement. Taking individual responsibility for one's career outcomes in this way has been advocated in previous studies (Hall 2004; Fugate 2006; Nauta et al. 2009; Sullivan & Baruch 2009). The Career Break Model could help women in STEM to assess their own capabilities by carrying out an evaluation of their circumstances, as well as identifying the coping resources that might be accessible, or not accessible to them. The importance of recognising and adopting coping mechanisms when taking a career break has been stressed by Mavriplis et al. (2010).

Women in STEM need to be able to identify their own personal and professional needs and wants prior to leaving the workforce. The Career Break Model could facilitate this and also allow re-evaluation as required. Similarly, Mainiero and Sullivan (2006) assert that consideration should be given to women's lifestyles and responsibilities when managing their career interruptions. Recognising how these needs and wants can be met, and determining when it is necessary to draw on the support of others or collaborate with others to implement strategies is a critical aspect of managing and coping with a career break. A study by Van der Wal et al. (2021) draws attention to the importance of collaboration to aid one's successful career progression. The extent and nature of support and collaboration with workplaces and many others that were reported by these participants varied, depending on their own personal and professional needs and wants, as well as the coping resources that were readily available to them.

The Career Break Model allows women in STEM to identify their own changing needs and wants in relation to their work, life and career and to harness their own capabilities. For example, women may prioritise a need for work flexibility to meet their responsibilities (Zimmerman & Clarke 2016). This process of analysis of needs and capabilities could then inform their decision making when navigating career breaks and determine the role of their support networks, such as their partners, family members, friends, medical services, Government services, daycare services and their workplaces. As their circumstances change, women could re-evaluate their professional and personal needs and wants and revisit the type and extent of support they may require. This process in itself could enhance their coping mechanisms and help to ensure that career breaks are more positive, nurturing experiences.

Results of the present study show that participants' work, life, and career aspirations were not consistently fulfilled throughout their career breaks, highlighting the importance of addressing these poor outcomes. Insights provided by DiRenzo et al. (2015), Greenhaus and Powell (2012), and Hirschi et al. (2020), suggest that considering an individual's work and life domains jointly can illuminate any misalignment between their capabilities and aspirations in both the personal and professional spheres. The Career Break Model represents an opportunity for individuals to reassess and realign their personal and professional capabilities and aspirations when taking a career break.

An individual can use the theoretical lens of the Career Break Model to determine their capabilities. They can assess their coping mechanisms according to Schlossberg's 4 S System (1981, 2011) and assess their employability capabilities according to McQuaid and Lindsey's EF (2005). The Career Break Model incorporates a broad perspective of employability that is recommended by Cao (2017), Clarke (2007) and Williams et al. (2016) to include a range of circumstantial and contextual factors (Clarke 2007; Forrier & Sels 2003; Hillage & Pollard

1998; McQuaid & Lindsey 2005). This is consistent with a contemporary whole-life approach that advocates that a woman's life and career must both be taken into consideration (DiRenzo et al. 2015; Greenhaus & Powell 2012; Hirschi et al. 2020; Jacobson & Aaltio-Marjosola 2001; Litano & Major 2016).

By integrating career management with both professional responsibilities and personal life, as proposed by Whiston and Cinamon (2015), individuals can effectively navigate the complexities of career breaks that take place in many different circumstances of evolving needs and lifestyles. Proactive self-management of capabilities not only fosters thoughtful decision making and planning but also highlights the crucial roles of individuals, support networks, and workplaces in combined support for the career break experience, including the individual's successful reintegration into the workforce. Furthermore, this approach aids in managing expectations regarding one's abilities, as underscored by Prieto-Rodriguez et al. (2022), who found that gendered perceptions impact women in STEM, often serving to slow their career progression. Recognising and addressing such gendered biases are essential steps in ensuring equal opportunities and allowing all employees to reach their full potential.

7.4 Development of a Career Break Model

The present study demonstrates how significant work and life changes that emerge when taking a career break can influence an individual's ability to cope and to remain employable. This highlights a need to conceptualise a Career Break Model that allows individuals to systematise the stages of moving into, through and out of a career break, whilst affording continual change and facilitating continual development. This study conceptualises a Career Break Model that integrates knowledge of career break, transition and employability and allows for a deeper understanding of how an individual navigates and copes with the changes that emerge when taking a career break whilst they manage and maintain their employability.

This model features the strengths of Schlossberg's TF (1981, 2011) and McQuaid and Lindsey's EF (2005), which the model defines as critical constructs that must be integrated to clarify our understanding of how the career break as a transitional experience shapes the employability of an individual.

Combining Schlossberg's TF (1981, 2011) and McQuaid and Lyndsey's EF (2005) has illuminated two findings: first that the resources of Schlossberg's 4 S System, namely an individual's situation, self, support, and chosen strategies can be either enablers or barriers in terms of the transition experience of a career break; second that the broad set of circumstances, namely individual, personal and external circumstances can act as either enablers or barriers to an individual's employability. The strong link between the concepts of transition and employability indicates that the ability to remain employable is impacted by an individual's ability to navigate and react to change when taking a career break. This conceptualisation provides a broader perspective and measurement of the concepts and influences of both employability and transition. It therefore assists in the understanding of career break experiences and the complexities and challenges individuals face when they temporarily leave the workforce. The application of a transition and employability framework by this study introduces a novel conceptual approach to understanding career breaks, providing a rich understanding of individual experiences through their in-depth narratives. The integration of these two theoretical frameworks contributes to the development of a conceptual Career Break Model, which serves as a tool to explore individual career break experiences. Testing this model and obtaining empirical evidence within a contemporary context could further refine and enhance its relevance for modern applications.

The Career Break Model positions the career break as an event that involves significant transition. Consistent with the transition process recommended by Schlossberg et al. (1995)

the model illustrates the career break trajectory as a transitional experience in three parts, as an individual moves into, through and out of a career break. Throughout this transition process, an individual encounters career break associated changes, which may impact on their routines, roles, relationships and lifestyles.

There are three key constructs that provide the backdrop of and justification for this Career Break Model, each of which has a specific focus that has been identified in this study. Together, these constructs position the career break as having three major purposeful intents: management, coping with change and remaining employable. The first key construct reflects the shift towards individual agency in regard to the decision making of individuals seeking to take a career break. It illustrates the often-complex management process required from an individual wanting to continue to engage in decision making in relation to their work, life, career and employability, including when taking a career break. The second key construct of the Career Break Model relates to an individual's ability to cope and navigate the changes to their lifestyles, relationships, routines and roles. The third key construct of the Career Break Model relates to understanding the influence of career break-associated changes on an individual's employability. Taken together, these constructs can have either a positive or negative influence on individuals' experiences. These three key constructs are illustrated below in Figure 11 Career Break Model, which provides a suggested framework to examine career breaks:

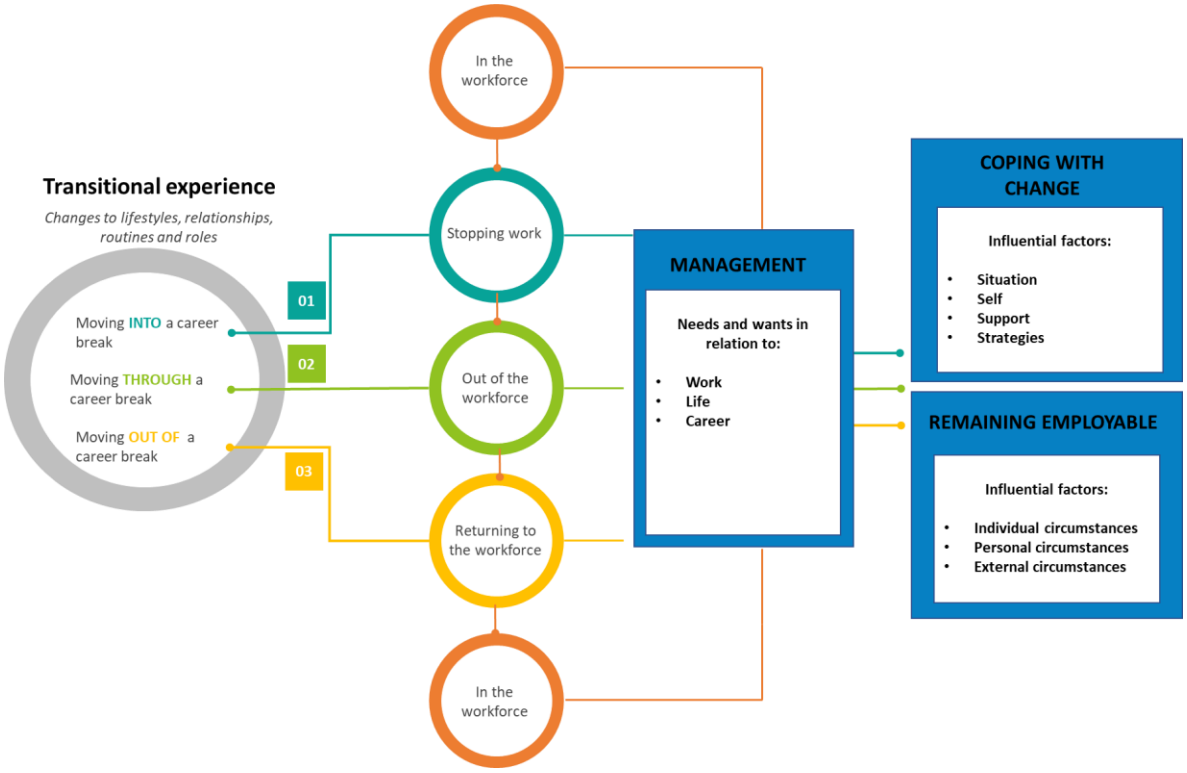

Figure 11: Career Break Model

Figure 11 Career Break Model above illustrates how these key constructs combine to reflect the following responsibilities for an individual to take charge when moving into, through and out of a career break:

- *Establish collective needs and wants:* Consider work, life and career plans collectively.

- *Determine coping capabilities relative to resources to meet collective needs and wants:* Ascertain what coping resources are available and not available to assist an individual with adapting to and responding to change throughout their career break, according to the resources of Schlossberg's 4 S System (1981, 2011). Having access to more or fewer resources can influence the individual's experiences either positively or negatively.

- *Determine employability capabilities relative to holistic circumstances to nourish workforce return:* Determine how an individual's broad set of circumstances enable or hinder the managing and maintaining of their employability, according to the employability factors of McQuaid and Lyndsey's EF (2005).

The evident responsibility of participants to self-manage their career breaks and adapt accordingly hinges on adopting an appropriate thinking process at each stage of their career break to facilitate a successful return to the workforce. This process of self-management involves maintenance and nourishment of all of one's work, life and career goals, contributing to a successful workforce re-entry and holistic career success in the long term. The Career Break Model illustrates the career break as a subjective and autonomous experience. It highlights characteristics that blend individuals' work, life and career plans through connected decision making, reflecting on a series of work and life changes and aligning them with their professional and personal needs and aspirations when moving into, through and out of a career break.

Women employed in STEM can use the Career Break Model as a self-management capability tool to design and tailor their own career break experiences. They can identify their work and life needs and wants and then assess their actual capabilities to meet those needs and wants through the theoretical lens of the Career Break Model. An assessment of capabilities is vital for an individual when attempting to take charge of their career break. They can determine their coping capabilities relative to the resources available to them, according to Schlossberg's 4 S System (1981, 2011). They can assess and determine their employability capabilities relative to their individual, personal and external circumstances according to McQuaid and Lindsey's EF (2005). The results can then be re-evaluated as required and adapted accordingly.

All levels of management, as well as HR practitioners within STEM organisations can apply the Career Break Model to develop and adjust their career break policies and practices. STEM organisations can use the Career Break Model to gather information about their employees' professional and personal needs and wants. Management and HR practitioners can then determine which resources are available to their employees to meet their personal and professional needs and wants and how workplace policies and practices can best provide them. This process would also highlight some workplace challenges experienced by employees in the context of taking a career break, which might suggest how existing career break policies and practices fall short and could be modified to alleviate some of those challenges.

Figure 11: Career Break Model provides a robust framework to examine career breaks as it is informed by existing research on career breaks, employability and transition, interpretation of the research findings of this study and theoretically grounded, incorporating Schlossberg's TF (1981, 2011) and McQuaid and Lindsey's EF (2005). It establishes the critical role of an individual when taking a career break: self-management, coping with change and remaining employable. In this regard, the simplicity of the Career Break Model can be flexible and adaptable and therefore relevant across different contexts to understand diverse career break experiences and challenges regardless of field of employment or career stage.

7.5 Recommendations for women in STEM:

This study puts forward certain recommendations for women in STEM that highlight the need to manage their professional identity, professional development, employment contracts and their overall health and wellbeing when taking a career break.

7.5.1 Management of professional identity

Women in STEM are recommended to readjust their professional identity to accommodate their new non-work identity as it emerges during a career hiatus. Zimmerman and Clark (2016) suggest various ways in which women in STEM can maintain their professional identity while they are moving through their career break. Participants in this study point out many ways in which they remained connected with their workplace or continued to engage with work in some capacity, all of which contributed towards preservation of their professional identity. These findings highlight ways to remain connected and engaged in some capacity, whether through an existing employment role, taking on alternative work responsibilities, networking, attending an occasional or regular workplace meeting, visiting colleagues at work or responding to emails. Remaining connected and engaged in some capacity could also be achieved through taking on a temporary, casual or volunteer role. Responses demonstrate that career breaks were often not a clean break from working and participants placed value on maintaining some sort of professional identity. Lovejoy and Stone (2012) found that women held on to their professional identity when taking a career break despite undergoing a transformation in their personal lives.

7.5.2 Management of professional development

This study recommends that women in STEM engage in online or face-to-face professional development opportunities that are flexibly delivered to maintain and enhance their skillsets and knowledge. McIntosh et al. (2015) also recommend skills maintenance during career breaks while Curtis and McKenzie (2001) agree that lifelong learning and continual reskilling and upskilling can increase an individual's ability to adapt to change. Participants in this study took various opportunities to complete courses, programs or seminars that enhanced and maintained their skillsets and knowledge. Other opportunities include reading academic

literature, non-academic literature and accessing social media platforms, all of which can be conveniently accessed online. Some academic literature, however, may only be accessed through specific professional subscriptions or memberships. Being involved in the local community may also present opportunities for personal or professional development, such as becoming a member of a kindergarten committee, participating in local community activities or taking volunteering opportunities. Many of these opportunities for personal or professional development would help to minimise the danger of out-of-date skills, which is a particular barrier encountered by women in STEM who take career breaks (Cabrera 2007; Herman 2009; Herman 2015; Lovejoy &Stone 2012) as well as addressing the retraining barrier for an individual who has out-of-date skills (Arora & Sharma 2018). Given the depth and breadth of competencies across the fields of STEM, it is recommended that professional development be tailored to meeting an individual's needs. For example, falling out-of-date with technological development and/or new scientific knowledge, due to a career interruption have been noted as almost inevitable (Herman 2015) and require professional development targeted to individual needs.

7.5.3 Management of employment contracts

Women in STEM need to think carefully about their employment contract, its duration, and the timing of their career break, as the nature of STEM employment contracts varies and can govern whether or not they can return to secure employment. According to the Rapid Research Information Forum (2020) the majority of temporary employment arrangements in STEM are held by women, increasing the prevalence of job insecurity. The research findings support findings of previous literature that characterises a STEM working landscape as one that is insecure and precarious. Working arrangements are commonly short-term employment contracts and contracts dependent on competitive funding. Other studies have found these to

be typical working conditions in STEM organisations (Bornstein 2019; Carney & Stanford 2018; Pacheco et al. 2016).

This study indicates that the level of job insecurity can also be an influencing factor for determining the extent to which participants wanted to remain connected and engaged while away from the workforce. Most set boundaries for when and how they would remain connected and engaged that was reflective of alterations in their lifestyle and priorities. Some participants, for example, preferred their workplace to communicate via text messages or telephone calls, while others preferred to be contacted by email. All were aware that communicating clear expectations about their availability was a good way of setting boundaries for colleagues and management.

7.5.4 Management of health and wellbeing

The challenge to manage changes in work, life and career whilst maintaining employability when taking a career break, can have implications for one's wellbeing. Herman (2015) found that an individual's health and wellbeing status can be an employability barrier for women who would like to return to the SET workforce after a career break. This study therefore recommends women in STEM to take a proactive approach to monitoring their specific wellbeing needs as they arise and to develop appropriate self-care and collaborative strategies to address them, especially in the context of a career interruption. Positive career development must include conscious monitoring of one's wellbeing (De Vos et al. 2011).

This study recommends that self-care strategies are implemented by individuals to support their own wellbeing when dealing with abrupt changes in lifestyle while away from the workforce. Strategies can provide structure in the form of new routines that will keep one engaged and mentally stimulated and may assist with shifting an individual's focus away from their previous working routine. For example, this could mean taking up new hobbies,

exercising, socialising, utilising babysitting or childcare services, or even continuing to work in some capacity. Caring for one's mental and physical wellbeing involves an increased reliance on self-care strategies and may mean a complete shift in focus away from work, as some participants found. Such a reframing of priorities to balance work and non-work commitments is recommended to protect one's wellbeing. For example, Zimmerman and Clark (2016) found that women's priorities and values often change once they have children, and this impacts on the type of employment they wish to return to. This reframing of priorities and values can therefore be based on an assessment of the importance given towards one's work and life commitments. In instances where self-care strategies cannot address the specific wellbeing needs of an individual during a career interruption, the individual should seek wellbeing support from an appropriate specialist. Drawing on participants experiences, this support could come from formal services, such as medical, government, childcare or other professional services, or from informal sources, such as partners, family and friends.

7.6 Recommendations for STEM organisations

This study makes recommendations for STEM organisations that are focused on the clarity, accessibility, design, development and execution of career break policies and practices. It also suggests strategies to manage staffing logistics and to provide mentoring support to employees.

7.6.1 Visibility of career break policies and practices

STEM organisations can use the Career Break Model to facilitate clear and visible career break policies and processes. The design and delivery of such policies should encourage accessibility by clearly conveying the expectations and responsibilities of both STEM organisations and their employees. Employees should be allowed and encouraged to access

these policies when needed. Achieving this clarity of expectations could alleviate some of the problems experienced by employees which were reported by this study's participants when they take a career break. Such problems include systemic barriers, such as inflexible work options that particularly affect women who want to work part-time (Australian Academy of Science 2019) as well as career development barriers (Hansen 2020; Swafford & Anderson 2020) and cultural barriers.

7.6.2 Flexible workplace policies and practices

To counter the systemic barrier of inflexible work schedules, organisations should identify ways to build more flexibility within their workplace policies and practices. Jenkins et al. (2016) and Lovejoy and Stone (2012) found that women need to consider flexibility from all angles when returning to the workforce. Flexibility within the workplace means STEM organisations having an awareness of some of the challenges associated with work-life balance and work-life authenticity for women in STEM who take a career break. This knowledge could be drawn from use of the Career Break Model. According to Mainiero and Sullivan (2005) both work-life balance and work-life authenticity are important considerations when women are making the decision to return to the workforce after a career interruption. Studies of mid-life women who want to relaunch their career have also found that work-life balance is key (Cabrera 2007; Krishna 2016; Marcinkus et al. 2007) yet women in STEM struggle to achieve work-life balance in their career development (Professionals Australia 2015). Some suggestions from this study's participants include meetings being scheduled during family friendly hours, having the option to work from home on certain days and discussing challenges associated with employees' specific job responsibilities that may need to be altered temporarily.

Transparent recognition of flexibility within organisational career break policies and practices, is a step in the right direction towards addressing concerns raised by (Stone & Hernandez 2013) and (Williams et. al. 2013) in relation to the stigma of flexibility that exists towards women who take a career break. Those authors discuss a perceived stigma directed towards women who take a career break, perhaps connected with an undercurrent of opposition to flexible career break policies. This study acknowledges that this kind of stigma may not necessarily be eliminated within an organisation purely by new workplace policies and practices. Sometimes stigma arises out of an organisation's culture, and this can sometimes determine whether or not women choose to access flexible workplace policies, even if they exist (Auster 2001; Drew & Murtagh 2005; Professionals Australia 2015).

7.6.3 Develop post-career break policies and practices

Exploration into employees' career break experiences, with the help of the Career Break Model, could assist STEM organisations to develop post return to employment policies and practices. These policies could have a significant influence on whether individuals choose to return to the same organisation after a career break or decide on a lateral career move with a new organisation. The work, life and career challenges experienced by participants went beyond women in STEM returning to work after a career break. These challenges were associated with employees returning to work at reduced hours, reduced levels of productivity, pressures to complete specific job responsibilities, time management pressures, logistical constraints to travel for work, difficulties with maintaining work life balance and being faced with a gap in their career track record that they felt would never be filled.

7.6.4 Streamlined execution of career break policies and practices

Determining the way career break policies and practices will be executed and how employees will access them warrants just as much consideration as their design and development. This

study demonstrated the importance of the role of HR and management in facilitating streamlined access to policies and practices relating to career breaks. These research findings include examples that demonstrate a need for managers and HR practitioners to have clear knowledge of the various types of leave arrangements on offer and how to communicate them to employees. This includes having to re-negotiate and make any necessary adjustments to agreed leave arrangements. Ongoing communication also forms a critical aspect of the role of HR and management to maintain rapport with staff and ensure transparency of expectations and assumptions, which must be consistently delivered across an organisation. They need full knowledge of each employee's employment role and their wishes about staying connected with the workplace while on leave, as some women in STEM were more willing than others to remain connected to their workplace.

7.6.5 Management of specific job responsibilities

STEM organisations must know in detail and understand the specific job responsibilities associated with each employee's employment role in the context of an employee planning a career break, due to the research findings highlighting the varying effect in which taking a career break has on specific job responsibilities. Simone and Kannan (2023) highlight the importance of identifying any changes to an individual's specific job role prior to, during or when returning from a career break, including any changes to their personal and professional circumstances that may impact on their job role when returning. Clear communication between the employee and management is critical when discussions about the management of specific job responsibilities take place. Prior to taking a career break, decisions will be needed about which job responsibilities will be handed over temporarily or reassigned, and how any issues that arise in relation to those job responsibilities will be dealt with. These decisions will be influenced by the ability and desire for the employee to remain connected and engaged in some capacity with their job responsibilities. As an employee moves through

their career break, all of this could be re-evaluated by both the organisation and the employee, with any necessary job role adjustments communicated. As highlighted by this study, this re-evaluation of an employee's job responsibilities is particularly important at the time when an employee moves out of their career break and returns to the workforce If the employee is returning to work at a reduced FTE loading, as most participants of this study did, this requires careful management. There must be complete transparency about the status of any work in progress, particularly any that had been assigned to another person, as well as determining the employee's capacity to resume their previous job responsibilities relative to their return-to-work capacity and FTE loading.

7.6.6 Providing access to a variety of mentoring arrangements

This study recommends that STEM organisations implement a career break mentoring program that consists of a variety of mentoring arrangements, in the interests of increasing employees' wellbeing. Consideration should be given to establishing female support networks that could target career break issues. Gwal (2016) suggests that women should work with mentors when stepping away from the workforce. In this study, some participants spoke of the benefits of being a member of a female network and this study has included examples of how the personal wellbeing of participants was supported by mentors and mentoring services. Women in STEM could benefit from having multiple mentoring arrangements in place that could benefit them for different reasons. Personal mentoring arrangements can be valuable where a mentor can relate to an employee's personal situation. Professional mentoring arrangements, on the other hand, could also be helpful, particularly in relation to remaining connected with their organisation while away from the workforce and when moving back into the workforce. Career mentoring could focus on revisiting one's career goals, aspirations and career trajectories, particularly when employees are returning to the workforce. Some mentoring arrangements could therefore directly relate to one's work, while

other mentoring arrangements could remain totally impartial to one's work and be beneficial at a personal level. Patten et. al. (2023) found that mentors play a valuable role for dietitians who wanted to return to the workforce, by offering coaching, resume assistance and constructive criticism.

The variety of mentoring arrangements recommended to guide and support participants' personal, professional and career development, further draws attention to a need for STEM organisations to establish the role of a career break mentor, which this study recommends is critical to the success of a career break mentoring program. A conceptualisation of the role of a career break mentor is illustrated below in Figure 12: Mentor for Career Break Program.

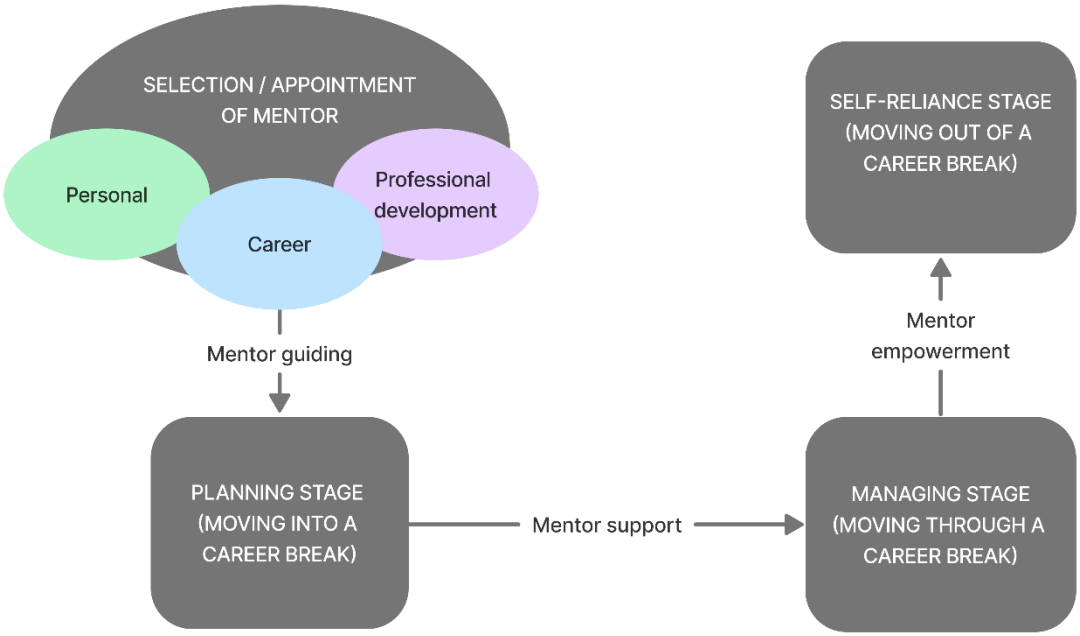

Figure 12: Mentor for Career Break Program
Source: Author

Figure 12: Mentor for Career Break Program above, illustrates the pivotal role of a mentor in career break scenarios, emphasising how the mentor's guidance, support, and empowerment

can significantly enhance an individual's personal, professional, and career development throughout the mentoring process. This process is delineated into three key stages: the planning stage, the managing stage, and the self-reliance stage. During the planning stage, a mentor provides strategic guidance to help develop a comprehensive career break plan. In the subsequent managing stage, the mentor supports the individual's adaptability, focusing on reassessing changes in work (e.g., motivations, desire for flexibility), life (e.g., health and well-being, priorities), career (e.g., goals, trajectory), and employability (e.g., skillsets) as per the career break plan. In the final self-reliance stage, the mentor empowers the individual towards self-sufficiency, facilitating their ability to independently integrate and manage changes across work, life, career, and employability as they move out of the career break and into the next phase.

7.7 Limitations

This study is focused on the Australian context, using a narrative approach with a small sample of 18 women who work in STEM occupations, drawn from four Australian states. Due to the parameters of the DBA research program, including the given timeframe and the in-depth nature of the information sought in using a narrative approach to answer the research question, the results may be somewhat limiting in being generalised. However, this very aspect of gaining in-depth and deep insights will allow further studies to dig deeper into areas of attention for career break and women in STEM. There were other factors in relation to the participants which may act as limitations of this study. All participants resided in Australia, despite three career break experiences relating to overseas residences. All participants of this study were female and had obtained a PhD qualification. The majority of participants were employed in the fields of Science and Higher Education. Further research is recommended in relation to carrying out a similar study to the broader population of both women and men employed in STEM, who hold different levels and types of educational qualifications.

Another limitation of this study is the necessary reliance on each participant to articulate their career break experiences openly and honestly. The amount of time that has passed since the career break experiences in which participants were reflecting on, means that their recall of particular aspects of their experiences may have been recalled slightly different. Most career break experiences were taken by participants prior to the COVID-19 pandemic, with only one participant reporting that one of their career breaks was taken due to the impact of the COVID-19 pandemic. The research findings of this study are therefore limited in relation to assessing the impact of the COVID-19 pandemic on career break experiences. The research findings did not extend to reviewing the various types of work arrangements that became widely accepted during and after COVID-19, such as hybrid work and working from home. However, this provides an opportunity for further research to explore career break experiences during and following the COVID-19 pandemic. Given the scope of this doctoral study and limited to its focus on career breaks and women in STEM, future work can be done in reviewing STEM Policy to help guide policy makers.

7.8 Future research opportunities

This study makes a significant contribution to improve understanding of career break experiences as part of a growing body of career development literature. Its focus on a group of highly qualified women working in STEM careers will be sure to create interest in the STEM sector and will point to further research opportunities. These opportunities focus on a need to further examine career breaks as an experience that collectively integrates work, life and career experiences with experiences of employability. Future research opportunities could include the individual level or organisational level in STEM or other industries.

Individual level: Further research may explore the impact of career breaks in STEM according to gender, employment sector, duration of time spent away from the workforce and

reason for leaving the workforce and compare individual strategies and experiences. As most participants of this study were predominantly employed at a university, or at a university research institute, further research could be undertaken into the impact of career breaks on the academic career, further exploring some of the characteristics this study alludes to such as grant funding, research funding and publications. As parenting reasons was the predominant reason for participants taking a career break, further research could be undertaken into the impact of other reasons discussed in this study, such as completing a PHD, which is considered a career building exercise. Other research could explore the 'shadow' of career breaks, which was a term one participant used to describe the career break 'shadow' that exists once employees have returned to the workforce. Further empirical evidence could also test the robustness of the Career Break Model developed for this study. Further research is recommended to determine the relevance of the two long existing frameworks of Schlossberg's TF (1981, 2011) and McQuaid and Lindsey's EF (2005) within the contemporary setting, to test their realities of limitations, adequacies, inadequacies, and generalisations. A longitudinal study could be carried out to validate the Career Break Model by following a group of women in STEM as they navigate into, through and out of their career break, contacting them at these three key stages of the career break trajectory.

Organisational level: Scholars could explore the career break policies and practices that exist within STEM organisations from various perspectives. For example, they could examine existing HR support mechanisms or assess how well institutional career break guidelines are incorporated within workplace diversity, equity and inclusion policies and practices. There is also scope to examine the support mechanisms that currently operate. Potential research questions include: How well do they support the decision making of employees? What programs or initiatives exist in relation to supporting employees to remain connected with their workplace while away from the workforce and when returning to the

workforce? Scholars could explore and further refine the role of a career break mentor conceptualised in this study to determine its applicability across different groups and contexts.

Policy level: The research findings of this study provide insights of real experiences which could be used as a platform to carry out further research that could assist STEM policy makers, as well as STEM industry associations. Further research is warranted to explore Australian policies and practices that are focused on increasing, retaining and supporting women in STEM who take a career break, as well as ensuring gender diversity within STEM organisations. There are also opportunities to explore labour economics within STEM, particularly from a sociological perspective, as this study draws attention to the importance of psychological wellbeing to an individual's ability to work and the importance of the retention, inclusivity, health and wellbeing and equitable recruitment of women in STEM to the Government's agenda.

7.9 Conclusion

The key research question 'What are women in STEM's perceptions and experiences when they move into, through and out of a career break?' has been addressed through the narratives in this study. The participants' personal reflections narrated how their work and life changed and their response to these changes when taking their career breaks shaped their employability, contributing to both theory and practice. This research study of 18 participants moving into, through and out of a total of 47 career breaks describes and confirms the challenge for women in STEM to collectively manage their work, life and careers, whilst maintaining their employability when taking a career break. The results of the analysis revealed the critical role of relying on self, but also on relying on many other informal and formal sources of external support, as well as the workplace, to maintain their professional

and personal wellbeing. These critical roles were revealed as participants narrated their experiences of navigating the transition of a career break; they sought to flourish in their career breaks yet were also having to draw on the support of others to cope with the difficulties they faced in addressing their changing needs and wants that were bought on by changing circumstances and contexts. The research findings highlight the many and varied challenges participants faced throughout the phases of their career break experiences, as well as the critical and standout support that is required for example through mentoring arrangements, which enabled participants to thrive. They also provide a deep and rich quality of evidence that could be used as a platform to carry out further research on career breaks. The contributions of this study provide a fresh understanding of how women in STEM perceive their career break experiences. These experiences are transitional, often characterised by significant work and life changes which impact on their work, life and career engagement, further shaping their experiences of employability.

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Appendix 1: Participant consent form

CONSENT FORM FOR PARTICIPANTS INVOLVED IN RESEARCH

INFORMATION TO PARTICIPANTS:

We would like to invite you to be a part of a study into 'Navigating career break transitions: Employability experiences of women working in STEM related Employment'. The findings from this study may provide valuable knowledge informing policymakers, practitioners and business leaders with information to improve both workforce and career development strategies for women in STEM who choose to take a career break.

The aims of this study are to:

1. Explore and explain the career break transitional employability experiences of women in STEM related employment.
2. Develop a conceptual understanding of career break transitional employability.
3. Identify employability factors when women in STEM related employment are transitioning into, through and out of a career break.

Should you wish to be a part of this study, you will be required to participate in interviews, lasting approximately 1 hour at a Melbourne location of your choosing, that is agreed with researcher, Josephine Simone. Please note that due to the current COVID-19 situation, social distancing measures will be employed where necessary.

In the instance where social distancing measures are required, online interviews will be carried out using the online platforms of Zoom, Webex, Skype or Microsoft Teams.

In the instance where social distancing measures are not required, participants will be offered the choice of either face to face, or online interviews using the online platforms of Zoom, Webex, Skype or Microsoft Teams. With your permission, the interview will be audio recorded and transcribed. There is the possibility that the interview may raise various emotions (both positive and negative), while you are discussing your career break experiences and associated life changes and decisions of employability. In this instance you can choose to either temporarily or permanently cease the interview and instruct the researcher to destroy the interview recording.

CERTIFICATION BY PARTICIPANT

I, ……**(PARTICIPANT'S NAME)** of

……**(PARTICIPANT'S SUBURB)**

certify that I am at least 18 years old* and that I am voluntarily giving my consent to participate in the study: **'Navigating career break transitions: Employability experiences of women working in STEM related Employment'** being conducted at Victoria University by Josephine Simone.

I certify that the objectives of the study, together with any risks and safeguards associated with the procedures listed hereunder to be carried out in the research, have been fully explained to me by researcher, Josephine Simone and that I freely consent to participation involving face to face or online interviews, lasting approximately 1 hour at a Melbourne location and agreed with researcher, Josephine Simone, taking into account social distancing measures. All interview details including date, time and location will be confirmed and agreed with researcher, Josephine Simone in writing via email.

The interview will consist of the following:

1. Answering structured demographic questions.
2. Discussing my career break employability experiences, specifically:

- when transitioning out of the STEM workforce and into a career break. This will be followed by a questioning period.
- when transitioning through a career break. This will be followed by a questioning period.
- when transitioning out of a career break and back into the STEM workforce. This will be followed by a questioning period.

I certify that I have had the opportunity to have any questions answered and that I understand that I can withdraw from this study at any time and that this withdrawal will not jeopardise me in any way.

I have been informed that the information I provide will be kept confidential.

Signed: …….

Date: …….

Any queries about your participation in this study may be directed to Dr Selvi Kannan on 9919 XXXX**)**

If you have any queries or complaints about the way you have been treated, you may contact the Ethics Secretary, Victoria University Human Research Ethics Committee, Office for Research, Victoria University, PO Box 14428, Melbourne, Vic., 8001, email Researchethics@vu.edu.au or phone (03) 9919 4781 or 4461.

Appendix 2: Structured Interview Questions

1. What is your current job title? _____

2. Describe the scope of responsibility that best describes your job?

- Leadership position in the organisation
- Direct supervision of a department, involving responsibility for results ie: budget, policy, personnel
- Direct supervision of one or more individuals with no responsibility for results
- No supervision responsibilities

3. In which STEM field does your employment position primarily fall within?

- Science
- Technology
- Engineering
- Mathematics
- Combination of ……

4. How many years have you worked in STEM?_____

5. What is the type of employment role that you currently have?

- Full time
- Part time
- Casual
- Other (please specify)_____

6. What is the highest level of education you have completed?

- Doctorate
- Master's Degree
- Postgraduate Diploma
- Bachelor's Degree

7. Can you indicate your age according to the following age brackets?

□ 25 – 29 years old
□ 30 – 34 years old
□ 35 – 39 years old
□ 40 – 44 years old
□ 45 – 49 years old
□ 50 – 54 years old
□ Older

8. What is your marital status?

□ Single (never married)
□ Married, or in a domestic relationship
□ Widowed
□ Divorced
□ Separated
□ Defacto

9. Do you have children?

□ No
□ Yes

10. If yes, what are the ages of your children? _____

11. How many career breaks have you taken? _____

12. Can you tell me the year, approximate length and reason for each career break and whether you considered each to be good or bad timing in your life?

(a) YEAR_____ / LENGTH _____/REASON _____

(b) YEAR_____ / LENGTH _____/REASON _____

(c) YEAR_____ / LENGTH _____/REASON _____

(d) YEAR_____ / LENGTH _____/REASON _____

13. How positive did you feel going into each career break in terms of your employability?

O Extremely	O Extremely	O Extremely
O Very	O Very	O Very
O Moderately	O Moderately	O Moderately
O Slightly	O Slightly	O Slightly
O Not at all	O Not at all	O Not at all

14. Describe the negative impact of each career break on your employability?

O Significant	O Significant	O Significant
O Moderate	O Moderate	O Moderate
O Slight	O Slight	O Slight
O Not at all	O Not at all	O Not at all

Appendix 3: Narrative interview questions

1. The first part of your story begins with you sharing your perceptions and experiences when you were moving into your career break. That is, from the time you made the decision to take a career break, while you were still working, through to the time you actually left the STEM workforce to commence your career break. *How did you feel about the changes you experienced to your work and life and the impact of these changes on your experiences of employment?*

Questioning period.

2. The next part of your story relates to you sharing your perceptions and experiences when you were moving through your career break. That is, during the time you spent away from the STEM workforce on your career break and how you adapted to any changes in your circumstances and lifestyle. *How did you feel about the changes you experienced to your work and life and the impact of these changes on your experiences of employment?*

Questioning period.

3. The last part of your story relates to you sharing your perceptions and experiences when you were moving out of your career break. That is, from the time you made the choice to return to the STEM workforce through to the time you actually returned the STEM workforce. *How did you feel about the changes you experienced to your work and life and the impact of these changes on your experiences of employment?*

Questioning period.

Appendix 4: Nvivo coding framework