

FEMALE TRANSFORMATIONAL LEADERSHIP AND IMPOSTER SYNDROME
MITIGATION IN TRADITIONALLY MALE-DOMINATED INDUSTRIES

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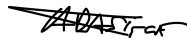
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Dedication

To my best friend, Dr. Jake Jones,

Your unwavering support and encouragement have been my anchor throughout this journey. Your belief in my abilities, even in the toughest moments, has been a constant source of strength. Thank you for being my confidant, offering wisdom and positivity, and for celebrating every milestone with me. This thesis is dedicated to you, in deep gratitude for your invaluable support and steadfast faith in my potential. Your presence has been a beacon of inspiration and motivation.

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ABSTRACT

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Imposter syndrome (IS) presents a significant barrier to the advancement of women in traditionally male-dominated industries, perpetuating a culture of exclusion and hindering progress towards gender parity in leadership roles. This study investigates the causes, effects, and potential solutions of IS among female workers in male-dominated sectors, focusing on themes identified through interviews with a cohort of female leaders and workers.

Through a multi-case study design, the research explores the experiences of women in various male-dominated industries, revealing pervasive themes such as gender imbalance, gender bias, and a lack of female representation in leadership positions contributing to feelings of IS. Participants reported instances of being undervalued, overlooked, and invalidated by a predominantly male leadership, exacerbating feelings of professional inadequacy and hindering career progression.

Despite these challenges, participants offered valuable insights and recommendations for combating IS in the workplace. Strategies suggested included establishing support networks, promoting open and transparent discussions about IS, fostering inclusivity and equality, implementing an open-door policy, providing training

and development programs for both men and women, and encouraging mentorship opportunities.

Mentorship emerged as a particularly effective tool for providing resilience and combating IS, with female mentors playing a crucial role in inspiring confidence and guiding career trajectories in male-dominated industries. The findings underscore the importance of transforming organizational cultures to promote diversity, equity, and inclusion, thus creating environments where women feel supported, valued, and empowered to overcome the barriers posed by IS.

Overall, this study contributes to a deeper understanding of the complexities surrounding IS in traditionally male-dominated industries and offers practical strategies for fostering a more inclusive and supportive workplace environment conducive to the advancement of women into leadership positions.

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CHAPTER I: INTRODUCTION

1.1 Introduction

As a practice, transformational leadership is characteristically celebrated for its charismatic and directive nature (Sihite et al., 2020; Jambawo, 2018), its capacity for influencing followers (Pradhan & Jena, 2019; Koveshnikov & Ehrnrooth, 2018), and its positive employee and organizational outcomes (Saira et al., 2020; Siangchokyoo et al., 2020). Research literature evidences these powerful components as they contribute to leadership effectiveness. For instance, Ayman et al. (2009) note the evidenced effectiveness of transformational leadership at both group and individual levels, given leadership qualities such as accountability facilitating follower growth and development by challenging followers to think creatively, learn new skills, and acquire new abilities. Andriani et al. (2018) find that transformational leadership and motivation have a positive and significant effect on job performance. Several authorities (e. g., Nielsen & Taris, 2019; Boamah et al., 2018; Samanta & Lamprakis, 2018; Turnnidge & Côté, 2018) speak to the transformational leadership attributes and behaviors—such as trust building, acting with integrity, encouraging others, encouraging innovative thinking, and coaching and developing people—that contribute to positive organizational outcomes such as follower citizenship behavior and work engagement, follower job satisfaction, and follower psychosocial growth and development. However, how effective transformational leadership is in effecting change in specific and extreme contexts of deep psychological aberration(s) is relatively unknown. In part, the paucity of research in this area prompts a study of female transformational leadership and the mitigation of imposter syndrome in traditionally male-dominated industries both in general and three traditionally male-

dominated industries in particular: IT and Software Development, Financial Management, and Life Sciences.

In the United States, workplace federal initiatives for equality reach back to the 1960s, starting with the Equal Pay Act of 1963 authorizing the Department of Labor to enforce the protection from sex-based wage discrimination for men and women who perform substantially equal work in the same establishment (P. L. 88-38, H.R. 6060, S. 1409). This act was followed the next year by the Civil Rights Act of 1964, which included the Title VII prohibition of employment discrimination based on race, sex, color, religion, and national origin (Civil Rights Act of 1964 § 7, 42 U.S.C. § 2000e et seq). By 2009, President Barack Obama had signed into law the Lilly Ledbetter Fair Pay Act of 2009, addressing pay discrimination and the filing of charges with the Equal Employment Opportunity Commission (EEOC) (P. L. 111-2); and 12 years later, as of June 2021, a protocol had been established to ensure not only equality but workplace diversity, equity, inclusion, and accessibility (The White House, 2021). However, despite policy, initiatives, and legislation, there continues to be a disproportionately lower number of women in traditionally male-dominated professions, as Table 1.1 illustrates.

Table 1.1

Global Percentage of Women in Male-Dominated Professions

SOURCES: Eurostat, 2021; U.S. Bureau of Labor Statistics, 2021; Tandon, 2018)

INDUSTRY	WOMEN INDIA	WOMEN UK	WOMEN US
Agriculture	28%	33.33%	36%
Construction	10%	10%	10.9%
Manufacturing	12%	29.6%	29.5%

In the United States in 2020, only 6.5% of women worked full-time in male-dominated occupations (Bureau of Labor Statistics, 2021). In South Asia, the female labor force participation rate is only 23.6%, as opposed to 80% for men ('South Asia Women in the Workforce Week,' 2020). In India, the setting for this study, only 27 percent of adult women work outside of the home (Mehra, 2019) while earning 19% less than men (Pandey, 2022); and in job postings, 60 percent of all gender-targeted ads cite men as preferred job candidates (Chowdhury et al., 2018). As these few examples indicate, the disproportionate number of females in traditionally male-dominated industries is a worldwide phenomenon. It is logical to conclude that the experience of otherness is likewise shared on a global scale, leading to the increased influence of imposter syndrome in the workplace. It is therefore critical to understand the impacts of imposter syndrome on female leadership in multiple industries and synthesize strategies to alleviate its impacts to improve the confidence and performance of individual professionals up to entire industries themselves.

1.2 Research Problem

In general, the problem of focus in this study is the mitigation of imposter syndrome in traditionally male-dominated industries. Particularly, the problem of female leadership facilitating the mitigation of imposter syndrome in three specific male-dominated industries: IT and Software Development, Financial Management, and Life Sciences. Imposter syndrome contributes to and even perpetuates inequalities (Edwards, 2019). Also called imposterism (Clance and Imes, 1978), the imposter phenomenon (Grossman, 2020), or imposter feeling (Breeze, 2018), imposter syndrome has been considered to shape one's entrepreneurial identity (Ladge, Eddleston, and Sugiyama, 2019), shape one's workplace identity (Crawford, 2021; Zepeda, 2020), and constrain all of these at the same time resulting in an identity-based oppression (Edwards, 2019). Imposter syndrome, which is categorized into five types—the superhero, the natural genius, the expert, the perfectionist,

and the soloist (Perez, 2020)—is also considered by some to be self-perpetuated in women, as they engage in four different types of behaviors: 1. diligence (taking every effort to prevent others from discovering their imposter status); 2. intellectual inauthenticity (intentionally concealing actual ideas and opinions); 3. charm (seeking approval of superiors by making oneself well-liked/perceived as special); and 4. avoiding displays of confidence (being cognizant of society’s rejection of successful women and consciously portraying oneself as timid (Edwards, 2019, p. 19). As Benson et al. (2022) summarize, gender, along with race and other intersectional aspects, can compound how imposter syndrome is experienced. Especially for women in the workplace, imposter syndrome affects the subject’s physical health, mental health, and overall well-being (Crawford, 2021; Bravata et al., 2020; Stucky, 2020). It negatively affects personal and professional, private and public relationships (Le, 2019; Lacey & Parlette-Stewart, 2017), and subsequently impacts functioning, productivity and performance outcomes for the organization (Aparna & Menon, 2020; Zanchetta et al., 2020).

This study is based on the assumption that transformational leadership, in best practices conditions, can effect needed change. As such, female transformational leadership is a prime type of leadership that has the potential to mitigate imposter syndrome experienced by female (and sometimes male) employees in male-dominated workplaces. It is the belief informing this study that female transformational leaders can mitigate imposter syndrome perhaps by maintaining zero-tolerance policy and procedures (Sharma et al., 2021), perhaps by treating the cause(s) instead of the symptoms of imposter syndrome (Lorello et al., 2020; Mullangi & Jagsi, 2019), and certainly by inspiring, influencing, and empowering all but especially female employee-followers.

1.3 Purpose of Research

The main objective for this study is to identify the causes and effects of imposter syndrome in traditionally male-dominated industries and to explore the potential solutions and strategies for female transformational leadership to mitigate imposter syndrome in specific male-dominated industries. To achieve the main objective, the following specific goals were created: 1. identify the predictors of imposter syndrome in traditionally male-dominated industries both in general, and in three industries in particular: IT and Software Development, Financial management, and Life Sciences; 2. identify the outcomes of imposter syndrome in traditionally male-dominated; 3) explore the potential solutions and strategies for generic leadership mitigating the perpetuation of the imposter syndrome in traditionally male-dominated industries; and 4) determine the potential solutions and strategies for female transformational leadership mitigating the perpetuation of the imposter syndrome in the three traditionally male-dominated industries.

1.4 Significance of the Study

The focus on these specific male-dominated industries was determined by reviewing the corpus of relevant literature and concluding that 1. there is no consensus on female transformational leadership and imposter syndrome in IT and Software management and Financial management, two fields increasingly narrowing the gender gap; and 2. that while there is research focused on transformational leadership, imposter syndrome, and IT software field, the literature rarely focuses on female transformational leadership mitigating imposter syndrome in this particular field and does not present strategies for mitigating imposter syndrome in other situations. The need for further research is, therefore, a key implication coming out of a preliminary review of the current literature (Grossman, 2020; Armstrong & Shulman, 2019; Iverson et al., 2019). This study is intended to synthesize ideas to address gender-specific and type-specific leadership in a gender-specific context, and is one of the first to address ideas for mitigation of the often-

neglected imposterism experienced by female employees in predominantly male-operated organizations and industries. This study is also intended to contribute to the current and limited body of business management literature focused on leadership as it effectively facilitates organizational functioning, productivity, and performance outcomes. Moreover, the findings from this study should have implications for practice by leading to an increased understanding of the imposter syndrome in the male-dominated workplace, and educating female transformational leaders to understand the impact of imposterism from the level of the individual to the level of the organization while enhancing efforts to mitigate imposterism in such contexts.

1.5 Research Purpose and Questions

One main research question and three sub-questions guided the study:

RQ1: What strategies are available for female leadership to mitigate imposter syndrome in male-dominated industries?

Sub-question A: What factors contribute to female employee feelings of imposterism in male-dominated industries?

Sub-question B: What impact does imposter syndrome have on female employee self-efficacy and, in turn, on organizational performance outcomes?

Sub-question C: What strategies have been used by female leadership to alleviate female employee feelings of imposter syndrome in male-dominated industries?

To answer the research questions, a qualitative case study will be applied, a design that was decided to be preferable for its utility in providing compounded evidence, allowing for a wider exploration of the research questions and theory (Gustafsson, 2017) and enabling the researcher to comparatively understand the causes of, effects of, and solutions for imposter syndrome experienced by females in several traditionally male-dominated industries.

1.6 Limitations, Delimitations, and Assumptions

There are some limitations to this study, including that the data collected for three male-dominated industries may not be generalizable to all male-dominated industries. Another limitation is that the study will be to include only studies focusing on companies from the United States and Switzerland. This means that the study will not be generalizable to all countries. This study was based on the assumption that transformational leadership in best practice conditions can effect needed change, and female transformational leadership is a prime type of leadership that has the potential for mitigating imposter syndrome experienced by female (and sometimes male) employees in male-dominated workplaces. It is the Assumption in this study that female transformational leaders can mitigate imposter syndrome perhaps by maintaining a zero-tolerance policy and procedures (Sharma et al., 2021), perhaps by treating the cause(s) instead of the symptoms of imposter syndrome (Lorello, Cil, and Flexman, 2020; Mullangi and Jagsi, 2019), and certainly by inspiring, influencing, and empowering all but especially female employee-followers.

1.7 Definition of Terms

The following terms and definitions are used throughout the study:

- **Leadership:** In this study, leadership is defined in terms of the ability to coordinate, organize, influence, motivate, guide, and support a group of individuals working toward a common/shared goal in a workplace setting.
- **Male-dominated industries/occupations:** Male-dominated occupations are those comprised of 25% or fewer women ('Women in Male-Dominated Industries and Occupations (Quick Take),' 2021).
- **Imposter syndrome:** Abbreviated as IS. Also called imposterism (Clance and Imes, 1978), the imposter phenomenon (Grossman, 2020), or imposter feeling (Breeze, 2018), imposter syndrome is a pattern of the belief and internalized

feeling of fear that one is misrepresenting oneself, is not as capable as others might think, and will eventually be exposed as a fraud (Mullangi and Jagsi, 2019).

CHAPTER II: REVIEW OF LITERATURE

How effective transformational leadership is in effecting change in the specific and extreme context of the imposter syndrome is relatively unknown. Yet it is important that female transformational leadership has tools and takes efforts to mitigate imposter syndrome (Arleo et al., 2021; Stucky, 2020), especially in male-dominated industries. Current research has given a great deal of attention to issues of, challenges in, and barriers to successful transformational leadership in general. A limited amount of research has focused on female transformational leadership in male-dominated industries. There is almost no research on female transformational leadership and the imposter syndrome in specific male-dominated industries such as Financial Management and Life Sciences. Two fields are increasingly narrowing the gender gap. While there is research focused on transformational leadership and imposter syndrome in the IT software field, the literature rarely focuses on female transformational leadership mitigating imposter syndrome.

This review of the literature consists of a discussion of the foundational conceptual framework as well as female leadership theory for social transformation as the theory framing the study of female transformational leadership and imposter syndrome. The review includes literature on transformational leadership, female transformational leadership, and transformational leadership and change. The review also includes theory-based and evidence-based literature on the imposter syndrome, focused on the imposter syndrome and organizational culture, and specific focus on transformational leadership and mitigation of the imposter syndrome in all industries in general, and in male-dominated industries in particular.

2.1 Conceptual Framework

A study of female transformational leadership and imposter syndrome mitigation is founded upon the concept of transformational leadership and the construct, imposter syndrome, in general. Taken together, these constructs lend to a consideration of the potential of transformational leadership to mitigate imposter syndrome.

2.1.1 Transformational Leadership

Transformational leadership can be specifically defined in several ways, depending upon the discipline and context in which it is used. As a conceptual originator, James MacGregor Burns (1978, p. 20) coined the term to mean leadership that occurs “...when one or more persons engage with others in such a way that leaders and followers raise one another to higher levels of motivation and morality.” Burns’ definition emphasizes the interpersonal dynamics over the visionary features of leadership (van Eeden et al., 2008). Bass and Avolio (1991, 1994) and Bass (1997) built on Burns’ (1978) characterization by adding that a transformational leader is visionary, charismatic, intellectually stimulating, and concentrated on innovation, creativity, and growth. Additionally defined as leadership that is associated with particular personality traits, transformational leadership is exercised in both work-related and social contexts as it manifests in long-term, vision-based motivation (Jung and Wu, 2003), maintaining, modeling, expecting, and promoting high moral and ethical standards (Bonsu and Twum-Danso, 2018; Jambawo, 2018), conscientiousness (Aydogmus et al., 2018; Hansbrough and Schyns, 2018), taking initiative (Begum et al., 2020; Boukamcha, 2019), and stimulating follower innovative behavior (Suhana et al., 2019; Pieterse et al. 2010). Such traits are effective in individual contexts, whereby the trait enables the leader to possess and demonstrate the trait, attitude, and behavior, as well as interpersonal contexts, where leadership influences others to emulate the trait, attitude, and behavior (Begum et al., 2020). Conversely, influenced in form and enactment by cultural context, say scholars

Karakitapoğlu-Aygiün and Gumusluoglu (2013), transformational leadership can be compromised in character to devolve into destructive anti-transformational leadership that inhibits goal achievement by followers and organizations; leadership that is distrustful of, fearful of, and closed to change; passive/ineffective leadership that shirks responsibility, fails to take initiative, falls short of problem solving, and is weak in decision-making, division of labor, advising followers, and building/maintaining leader-follower relationships; and active-failed leadership that, lacking in vision, becomes preoccupied in minutiae and micro-managing—shortcomings that on a destructive/unethical-ineffective/incompetent continuum are more characteristic of the dark side of leadership.

Transformational leadership, sometimes called charismatic leadership (Sihite, Andika, and Prasetya, 2020; Jambawo, 2018) as the concept was developed out of a study of leadership practices by charismatic and successful U. S. presidents (Bass, 1997), is the most active leadership style and has been typically considered the most effective and therefore the most desirable (Begum et al., 2018; Giddens, 2018; Bass and Avolio, 1991)—though, again, in some contexts and settings other leadership styles such as transactional leadership may be most desired (Samson and Ilesanmi, 2019). According to findings by Crede, Jong, and Harms (2019, abstract, para. 5), “...the value of transformational leadership behaviors may be limited in developed economies such as Western Europe and North America, while transformational leadership is most effective in Africa, the Middle East, South America and parts of Southeast Asia.” The research literature over time has determined that transformational leadership is characterized in terms of four dimensions, also known, according to Bass (1997) and Bass and Avolio (2007) as the “‘four I’s of behavior’”: 1. Idealized influence/charisma, whereby leadership provides insight into goals, encourages pride, and develops respect and trust of followers; 2. Inspirational motivation, whereby leadership establishes high expectations and communicates these expectations

simply and symbolically (memorably); 3. Intellectual stimulation, whereby leadership assists in increasing intelligence and rationality by way of problem-solving activities; and 4. Individualized consideration, whereby leadership provides attention, guidance, training, and support to each individual as needed. Current literature features these components of transformational leadership and highlights the components taken together in terms of 1. and modeling ethical behavior that inspires respect and loyalty (Ribeiro, Yücel, and Gomes, 2018; Sharif, 2018); 2. influencing (Pradhan and Jena, 2019; Koveshnikov and Ehrnrooth, 2018), empowering (Saira, Mansoor, and Ali, 2020), and transforming (Siangchokyoo, Klinger, and Campion, 2020) followers/employees; 3. contributing to positive employee and organizational outcomes (Saira, Mansoor, and Ali, 2020; Siangchokyoo, Klinger, and Campion, 2020); and 4. embracing and subsequently effecting economic, social, organizational change (Asbari, Hidayat, and Purwanto, 2021; Sihite, Andika, and Prasetya, 2020; Stucky, 2020; Pradhan and Jena, 2019; Sharif, 2019). As the term transformational connotes, this leadership style is centered on change, embracing change, encouraging change, and arriving at positive change for the organization.

2.1.2 Transformational Leadership Emphasizing Change

Literature relevant to this study that is focused on transformational leadership and change ranges from theoretical literature, including emergent and contingency transformational approaches, to organizational change management, to the nudge theory of change, to leadership and change theory based on change models. This literature is indirectly relevant as it informs female transformational leadership mitigating imposter syndrome in traditionally male-dominated industries. Kanter (1983) approached leadership and change as comprised of process-driven activity for transformation opportunities. In this respect, the change process involves the reconceptualization of organizational patterns that “crystallize” into new possibilities as they are relevant to the organization and the context

of the change(s). This including new policies, new products, new attitudes and subsequent new behaviors, new ideas, and/or new methodologies. Based on such an approach, Kotter (2012) assumed that change has the potential to help organizations adapt from a management perspective to prevailing economic forces and developed a seven-step emergent model for change focusing on a. establishing a great enough sense of urgency; b. creating a powerful enough guiding coalition; c. having/creating a vision and strategy; d. communicating the change vision; e. empowering others to broad-based action toward that vision; f. planning and devising short-term wins; consolidating gains/improvements and producing still more change; and g. institutionalizing new approaches in the culture. Such a model puts transformational leadership in prime position. Past literature has evidenced the legitimacy of the Kotter's (1996) emergent, transformational approach. For example, Carlson and Davis (1998) investigated media selection by middle management compared to executive directors using several methods and found that directors are more self-oriented and rely on ease of access and use than managers, who instead rely more on richness and social presence criteria from being other-oriented.

The essence of the emergent approach to leadership and change is in its requirement of the leader(s) to take account of the organization as a whole in a total system focus that requires the change driver or change agent to possess an in-depth understanding of the structure(s), infrastructure(s), and material and human resources to design and implement change. Though critics of the emergent approach have maintained that such a total-system strategy can be too broad in scope and can therefore compromise the attention needed for situational contexts (Barnard and Stoll, 2010), respondents have proposed that there can be too much reliance upon the situational context, forsaking the whole organizational culture needs.

Dunphy and Stace (1993) focused on the transformational nature of change, defining change in terms of four key factors: 1. a major reengineering of the organization's strategies, 2. employee anticipation of change and willingness to change, 3. encouraging and using employee commitment to change, and 4. completely renewing organizational culture. The authors maintained that such a long-term strategic approach integrates both hard and soft constructs and /or dimensions, physical and material structures, systems, and technologies; and human vision(s), values, attitudes, and behaviors. Past literature has evidenced the legitimacy of applying Dunphy and Stace's (1993) contingency model of change. For example, Gardner and Ash (2003) demonstrated the value of adopting information systems and e-commerce as a core element of change strategy. The researchers contended that when IT adoption strategies are weak, organizational benefits typically attributed to strategic information technology interventions will be markedly low. One of the primary reasons for these results, said Gardner and Ash (2003), is that management in charge of such intervention has a weak understanding of what is involved in both the interface between technology resources and human resources and the "symbiotic" relationship afforded by information systems and effective strategy. Yet, where the emergent model is said to be lacking is where the contingency model compensates by differentiating responses to and implementations of change, though the contingency model has the disadvantage of relying too heavily on the change initiator's interpretation of what needs to be done and on the change agent's management style (Moniz Jr, 2010). Still others suggest that any vision of change should take into account change as an ongoing process rather than as a static and contingency-based event (Gazley and Kissman, 2022).

Thaler and Sunstein (2008) emphasized the key to organizational change is understanding behaviors and attitudes can change if nudged. From a psychological and behavioral-economical perspective, the authors considered humans as acting and/or

reacting based on either automatic reflexive thinking tendencies or reflective tendencies. Therefore, the authors contend, the nudge must align accordingly by leadership taking into consideration the biases and faulty misconceptions of people relying too heavily on a small amount of information (anchoring), the ease of example recall (the availability heuristic), or the status quo or herd mentality biases that compromise their nudge-ability. Past research has evidenced the legitimacy of applying Sunstein and Thaler's (2008) nudge theory to leadership and change. For example, Egan (2013) compiled a "nudge database" that empirically demonstrated successful nudges as behavioral change intervention achieved in 11 areas of application including health and well-being, energy, ecology, and education. Nudge theory does not receive the criticism that a too normative approach like contingency theory receives, as the nudge approach also has the advantage of including the entire organization and performing a systematic overhaul, if warranted, whereas other approaches do not. However, like the contingency approach, the nudge approach has the disadvantage of being one which provides only short-term relief, when change is ongoing and should have long-lasting effects. This requires long-lasting behavioral changes that the nudge does not typically elicit.

Alternative leadership and change theory based on change models includes the Anderson and Anderson (2010) model of change, Mintzberg and Quinn's (1991) model of change, and the ADKAR model developed by Hiatt and Creasey (2003). In the first model, Anderson and Anderson (2010) proposed people, process, and content areas should be the focus of nine stages for effective change management: 1. prepare to lead the change; 2. create organizational vision, commitment, and capacity; 3. assess the situation and determine design requirements; 4. design the desired state; 5. analyze the potential impact of the designed state; 6. plan and organize for implementing the change; 7. implement the change; 8. celebrate and integrate the new state; and 9. learn and course correct. With the

Anderson and Anderson model, the change agent is involved in each phase, and as through a prescriptive approach, rational thought and effective action are clearly defined. At any juncture, the rigorous demands are on leadership and the organization to stay attentive, critically evaluate and reevaluate, and revise accordingly as change is moved from thought to action, as appropriate. Unlike some of the other approaches, the Anderson and Anderson (2010) approach does take into account the cyclical nature of change, prompting leadership to in turn take into account the dynamism of the task distribution process (Drobyazko et al., 2019). Yet, this model does accommodate different kinds of change with mechanisms for differentiating change implementation strategy, a facet that is conducive for transformational leadership and change relevant to this study.

In a second alternative model of change, Mintzberg and Quinn (1991) ground their theory of change in the context or situation that guides the extent of the change and that, therefore, informs change strategy: like contingencies, these situations or contexts concern the age, size, and health of the organization, the capacity of the technical system to handle change, and the external environment dynamics. Past research has evidenced the legitimacy of Mintzberg and Quinn's (1991) model of change. For instance, Chan-Olmsted (2006) applied the model to discuss investigations of typological managerial decision-making in media firms. Making a distinction between strategic planning that involves adherence to preprogramming rules, etc., and strategic thinking that involves "synthesis, intuition, creativity, and exploration," the researcher concluded that logic, vision, and action are the variables of decision making, depending upon the context in which the decision is made, but decision making strategies have yet to be supported further by empirical studies because of the abstract nature of decisions, behaviors, and outcomes of the same. Yet, as can be seen with the Anderson and Anderson (2010) approach, Mintzberg and Quinn's (1991) model accounts for different scenarios and lends to a differentiation of strategies

applied in response. How large or small an organization is, how long it has been in business, and its capacity for change are key factors in how effectively the enterprise can implement change strategy. With Mintzberg and Quinn's model, change will be more readily embraced with what has been committed to taking effect and staying in effect more readily and for a longer duration. However, this is said with the understanding that resistance to change is one of the primary threats to effective, sustainable change (Hiatt and Creasy, 2012; Barnard and Stoll, 2010).

Perhaps in response to the criticized shortcomings of Mintzberg and Quinn's (1991) model, a third model by Hiatt and Creasey (2003) offers a tool for strategic change management with steps that build one upon the other and include the need for awareness, desire, knowledge, ability, and reinforcement (ADKAR)—or, the need for attention to the reality of change, intention to change, capacity for and knowledge of how to change, and positive reinforcement of positive change strategy/strategies. Prior research has supported Hiatt and Creasey's (2003) ADKAR model. For example, Wabomba (2010) applied the model to investigate media enterprise-specific implementation. Wabomba concluded that what is most important is that the firm choose and implement the best-fitting approach, to improve management efficiency and to take advantage of “existing synergies within the corporation” as the firm makes contextual improvements as well. The ADKAR model also has the benefit of being people-centered. Like the others of its type, it takes into account the free will of people and accounts for their capacity limitations and their capability restraints (Hiatt & Creasy 2003). The ADKAR model even accommodates people's resistance to change, though ADKAR needs to be coupled with another more rational-action model for systematizing, standardizing, and customizing change strategies and processes.

2.1.3 Female Transformational Leadership

For this study, transformational leadership is also defined in terms of female transformational leadership in a work-related context that is traditionally male-dominated, establishing an integrated definition of transformational leadership and female leadership characterized as leadership that accommodates and champions a socially dynamic environment with additional traits and behaviors that are female transformational leadership-specific. These traits include flexibility and adaptability that balances self-beliefs and self-values with other-beliefs and other-values (Sharif, 2019); display of caring, sharing, and emotional intelligence for relationship-building as extensions of maternal instincts (Chaplin-Cheyne, 2021; Sharif, 2019); encouragement of open communication (Sharif, 2019; Zuraik and Kelly, 2018); and balance of not only job demands and job resources but personal and professional relationships (Ree and Wiig, 2020; Sharif, 2019; Hua et al., 2018). In addition, female transformational leadership has been identified by Sharif (2019) for occasional utilization of non-transformational leadership behaviors as necessitated for behavioral flexibility in response to a socio-culturally changing work environment of mixed ages, genders, experiences, and /or ethnicities/nationalities where cultural and social values inform and influence leadership behaviors. The leadership traits and behaviors in general and transformational leadership traits and behaviors specifically in women have also been distinguished from those general leadership traits and behaviors and specific transformational leadership traits and behaviors of men. For example, an informal review by Krynzman (2021) reveals that female leaders are more often transformational in style, are more task-oriented, are more inclined toward flat organizational structure(s), and promote cooperation and collaboration as well as mentoring and training of others. This contrasts with male leaders who are more often transactional in style, are more performance-focused, are more inclined toward hierarchical organizational structure(s), and promote competition over cooperation and collaboration.

In the context of transformational leaders in business, while Munir and Aboidullah (2018) found no significant gender differences in practicing transformational leadership behaviors (in the role of school principals), Dappa, Bhatti, and Aljarah (2019) found that female and male leaders adopt transformational leadership skills in different ways, which in turn have differing effects on followers. These effects include employee satisfaction, financial performance, and organizational effectiveness. According to the researchers, female transformational leaders are perceived to be more caring and considerate of the well-being of followers, compared to male transformational leaders who pay less attention to follower well-being and only focus on employee outcomes.

2.1.4 Imposter Syndrome

The term imposter syndrome is less ambiguous and is defined as a pattern of the belief and internalized feeling of fear that one is misrepresenting oneself, is not as capable as others might think, and will eventually be exposed as a fraud (Mullangi and Jagsi, 2019). Sometimes called the imposter phenomenon (Grossman, 2020) or imposter feeling (Breeze, 2018), imposter syndrome has been considered to shape one's entrepreneurial identity (Ladge, Eddleston, and Sugiyama, 2019), shape one's workplace identity (Crawford, 2021; Zepeda, 2020), and constrain all of these at the same time resulting in an identity-based oppression (Edwards, 2019).

Imposter syndrome has been categorized into five competence types: the superwoman/man, who defines success as being able to master and juggle multiple tasks or accomplishments and attempts the same to the detriment of his/her own well-being (Young, 2011); the natural genius, who finds it imperative to be naturally intelligence and ability gifted over others (peers, siblings) and who expect to conquer any task at first attempt but who, when results do not match, becomes consumed by self-doubt and experiences excessive worry about topping the performance of others (Young, 2011); the

expert, who defines competence in terms of how much he/she knows and how much he/she can accomplish but who, subscribing to the belief that he/she will never know or do enough, experiences profound self-doubt and the fear that he/she will be exposed as being less than an experienced, knowledgeable, and credentialed expert(Young, 2011); the perfectionist, who establishes exceedingly high goals for herself/himself and failing to achieve these unreachable ends, becomes consumed by self-doubt and experiences excessive worry about equaling the performance of others (Young, 2011); and the soloist, who expects to be so independent and autonomous that he/she refuses help (or asking for help), to the possible detriment of quality performance that would have been achieved through collaboration or support from supervisors (Young, 2011). Regardless of the competence type with which individuals identify, imposter syndrome is considered by some to be self-perpetuated in women, as they engage in four different types of behaviors: 1. diligence (taking every effort to prevent others from discovering their imposter status); 2. intellectual inauthenticity (intentionally concealing actual ideas and opinions); 3. charm (seeking approval of superiors by making oneself well-liked/perceived as special); and 4. avoiding displays of confidence (being cognizant of society's rejection of successful women and consciously portraying oneself as timid) (Edwards, 2019, p. 19).

The psychology behind imposter syndrome, as experienced by women in particular, reaches back in early literature to Clance and Imes (1978, p. 241), who asserted, "...an internal experience of intellectual phoniness...appears to be particularly prevalent and intense among a select sample of high achieving women." The researchers, drawing from Deaux's (1978) and Deaux and Emswiller's (1974) attribution theory and study—which emphasize causal attributions that are male favoring and female derogating, whereby a male actor's success on a stereotypically masculine task will be attributed to skill/ability in comparison with the same success of a female actor on the same task being attributed to

luck— explain the clinical symptoms of imposter syndrome typically affecting women to include “...generalized anxiety, lack of self-confidence, depression, and frustration related to inability to meet self-imposed standards of achievement” (p. 242). Clance and Imes (1978, p. 244) maintained that female imposters are of two groups given family history and family dynamics. In the first group are the high achieving women...[who] escaped, at least to some degree, the societal sex-role stereotyping in the preschool years that can be transmitted through the parents” (p. 244). In the second group are the women who had a family that assigned them as the sensitive ones or the social ones in the family while their siblings were deemed the intelligent ones in the family, and implicitly, the sensitive women would never be as intelligent as their siblings even after they have proven themselves to be so. The woman in this group is conflicted, wanting to buy into the family mythology but at the same time wishing to dismantle that myth. Even when she succeeds beyond the reach of the anointed sibling, however, the family remains fixed on the myth, inciting distrust in family perceptions and doubt about self-worth on the part of the female now ensconced in feelings of imposterism—feelings and beliefs that are amplified first at school, later at work. Once the imposter phenomenon has taken root, the authors say, the woman displays four types of observed adaptive behaviors: diligence and hard work, work done to perform but also to prevent being exposed as a fraud; intellectual inauthenticity, engaged in by concealing actual thoughts or opinions and compensating by telling listeners (peers, supervisors) what is calculated as being what the listeners want to hear; charm and perceptiveness, needed to impress, win approval, and be recognized and acknowledged as special; and approval-seeking in combination with silence in the face of opposing views, also done to maintain the status quo, placate, and keep under cover.

Subsequent research over several decades has led to the determination that imposter syndrome or imposter phenomenon can both internally and externally affect men, as well

(Khan and Khan, 2021; Lee et al., 2021; Badawy et al., 2018; Lane, 2015; Lawler, 1984; Harvey, 1981; Imes, 1979). However, intensity varies among the two genders (Khan and Khan, 2021). For example, the effect on men includes increased anxiety that is more severe for men who experience imposter syndrome than for women who experience imposter syndrome (Khan and Khan, 2021; Badawy et al., 2018); and indeed, several studies suggest that gender can have the potential to exacerbate feelings of imposterism (Benson, Gentry, and Shugars, 2022; Badawy et al., 2018). Evidently, as Benson, Gentry, and Shugars (2022) summarize, gender, along with race and other intersectional aspects, can compound how imposter syndrome is experienced. Nadal et al. (2021) affirm, adding that imposter syndrome is potentially impacting for people from historically marginalized groups, and this includes men, women, people of color, queer and transgender people, immigrants, persons identifying with a religious minority group, and people living with disabilities who are likely to internalize negative, oppressive feelings about their identities. Especially for women in the workplace, however, imposter syndrome affects the subject's physical and mental health and well-being (Crawford, 2021; Bravata et al., 2020; Stucky, 2020), negatively affects personal and professional, private and public relationships (Le, 2019; Lacey and Parlette-Stewart, 2017), and in turn impacts functioning, productivity and performance outcomes for the organization as a whole (Aparna and Menon, 2020; Zanchetta et al., 2020).

2.2 Theoretical Framework

This study draws on transformational leadership theory in general and female leadership theory for social transformation in particular. Other theories have been applied to similar studies. For instance, self-concept-based U theory, originating with Scharmer (2009, 2018), has been used to explain the ways that transformational leadership influences followers by increasing follower self-efficacy, increasing follower social identification

with the group, and prompting value internalization and workplace self-engagement (Pradhan and Jena, 2019). However, contextually, general transformational leadership theory is useful for the study of leadership that influences follower behavior to achieve optimum organizational outcomes (Lai et al., 2020). Relatedly, female leadership theory for social transformation informs an understanding of leadership as viewed through a gender-specific lens. Combined, transformational leadership theory and female leadership theory for social transformation become useful for exploring female transformational leaders as change agents (Chin et al., 2008) bringing about significant social, political, and cultural change in the workplace that yield greater equality for followers and improved outcomes for the organization.

2.2.1 General Transformational Leadership Theory

In the tradition of Burns (1978), Bass,(1985) established four main tenets of transformational leadership, often characterized as the ‘four I’s’ of effective transformational leader behavior’: 1. Idealized influence/charisma, 2. Inspirational motivation, 3. Intellectual stimulation, and 4. Individualized consideration. These key behaviors lend to the characterization of transformational leaders who exact social change, which Burns reputedly neglected and Bass incorporated in transformational leadership theory (Bass, 1985). According to Bass, transformation or change is brought about by such leadership that: 1. expands a follower’s portfolio of needs, 2. transforms a follower’s self-interest, 3. increases the confidence of followers, 4. elevates follower expectations, 5. heightens the value of the leader’s intended outcomes for the follower(s), 6. encourages behavioral change, and 7. motivates others to higher levels of personal achievement (Bolden et al., 2003, p. 5).

The entirety of related literature on transformational leadership covers a wide array of aspects, constructs, characteristics, and dimensions in a broad range of disciplines. In

addition, the literature includes work drawn on theory relevant to the research context. A passel of literature exists to explain transformational leadership. Focused on change in particular, research has identified several key factors requisite for effecting change. Jones (2019), who maintains that scholars of transformational leadership have left the concept of transformation itself unexamined, proposes that -in general- the transformational leader builds trust and elicits respect in order to provide the motivation for followers to achieve the change required. Muralidharan and Pathak (2018, p. 571) explain that a key quality of transformational leadership that affects change is "...the ability to have people in society to work cooperatively to manage their own governance." This type of leadership is active and proactive and helps others to help themselves by engaging them in shared visions and goals through a reciprocal leader-member exchange dynamic (Bopi-Kerepa, 2020).

The characteristics of transformational leadership to effect change have been evidenced in research around the world. In a study of a change process and transformational change occurring in a pharmaceutical company in Sweden between 2005–2014, Brandt et al. (2019) found that in addition to sense-making activities, persistent adoption of quality improvement tools, and dispersed power, it was sequential change activities brought about through visionary, transparent leadership that enabled successful organizational change evidenced as a 40 percent increase in productivity. In a study of transformational leadership and increasing black economic empowerment in South African organizations, Grobler et al. (2019) found that implementation of a Broad-Based Black Economic Empowerment framework through transformational change leadership, characterized by leaders' personal commitment, values, and beliefs and support in driving effective transformation, and incorporating Kotter's steps and additional essential elements, can result in successful, sustainable black economic empowerment. Similarly, some literature addresses the potential for pseudo-transformational leadership, which manifests in low idealized

influence, self-interested agendas, and control or manipulation of followers (Montaudon-Tomás et al., 2021). This bastardized form of transformational leadership does less to effect change for the organization and more to influence followers who come to collude in destructive behaviors that have daunting consequences (Mackey et al., 2021). However, as a majority of the literature reveals, when an organization needs radical, fundamental change(s), authentic transformational leadership is the best fit (Junita, 2019).

2.2.2 Feminist Leadership Theory for Social Transformation

Numerous theories and models have been developed to explain transformational leadership, its domains, and its specific components. For instance, social role theory has been presented to conceptualize transformational leadership behavior(s) (Sharif, 2019; Saint-Michel, 2018). Social exchange theory has been forwarded to explain and support transformational leadership and employee organizational commitment (Keskes et al., 2018; Ribeiro, Yücel, and Gomes, 2018). Self-concept-based U theory has been used to explain the specific ways transformational leadership influences followers (Pradhan and Jena, 2019; Koveshnikov and Ehrnrooth, 2018). However, in terms of female transformational leadership, as it centers on, aims toward, and results in change, feminist leadership theory for social transformation becomes most relevant, especially to inform the study of the mitigation of imposter syndrome by female transformational leaders in male-dominated industries. Taking its cues from Scharmer's (2009; 2018) U theory (or Theory U), which posits for profound change, leadership must influence by increasing follower self-efficacy, increasing follower social identification with the group, and prompting value internalization and workplace self-engagement (Pradhan and Jena, 2019), and radical feminist theory, which maintains that men and women differ and women's distinctiveness must be praised rather than exploited to undermine women's prospects (Topić et al., 2020), feminist leadership theory for social transformation is premised on change and on goals of

reducing or eliminating gender inequality and other social inequalities (Bell et al., 2020; Viezzer, 2001).

Feminist leadership theory for social transformation applied to the study of imposter syndrome is rare. Especially rare is research applying the theory to imposter syndrome prominent in traditionally male-dominated fields, which is consistently problematic for women experiencing it. Yet some outliers exist in part. For example, Crawford (2021, p. 27) acknowledges, “While experiences of women in male-dominated careers are multifaceted and vary based on the individual, a sense of disparity and otherness remains consistent across the board.” The widespread nature of imposter syndrome as it is experienced by women in the male-dominated workplace is also characterized in the limited literature, based on predictors and includes symptoms of low self-worth, low self-efficacy, and lack of self-confidence, frustration, anxiety, shame, and depression; and maladaptive personality and social dysfunction (Crawford, 2021; Bravata et al., 2020). In particular male-dominated industries, the causes and symptoms of impostorism can vary, can be exacerbated, or can be not only self- but other-perpetuated. This phenomenon is reflected in the literature. Breeze (2018, p. 192) identified the prevalence of imposter syndrome in academia as consistently apparent “...across disciplines, career stages, and social locations.” Edwards (2019, p. 23) reaffirms the phenomenon in an auto-ethnographical exploration of being a black woman in a predominantly white, middle-aged, male academy whereas a scholar, she continued to experience self-doubt that was not an internal issue but that was “...illustrative of systematic issues within the broader social context.” In medicine, where inequalities in salary, advancement opportunity, and performance standards persist, imposter syndrome is representative of a systematic, institutional- and cultural-level phenomenon that Grossman (2020), Stucky (2020), and

others say needs to be addressed at such levels in order to bring about the social change that makes the industry more equitable and inclusive.

In the male-dominated industries under study in this thesis, imposter syndrome is not only perpetuated by the women enduring it but also perpetuated by others. For example, in the IT and software development industry, women have reported that observing a lack of women in leadership, management, or senior executive positions convinces them (women with feelings of imposterism) that they are not fit for or capable of such advancement (Crawford, 2021). In the traditionally male-dominated architecture and construction field(s), even women in senior management positions report the industry is still a “man’s world” or is still a characteristically “gruff”, masculine environment where women working in construction consistently experience career barriers such as ‘...informal selection processes, lack of recognition, disrespect in the form of “building site banter” in the corporate office, few career promotion chances, difficult working conditions, and maternity issues’ (Infante-Perea, Navarro Astor, and Román-Onsalo, 2021, p. 5). In the persisting male-dominated field of Finance and Life Sciences in general, it has been found that gender bias and gendered language appear on a widespread scale, from the media to public leaders, perpetuating a practice that ‘[pays] little attention to woman workers and [lionizes] male managers and leaders (Mitchell, 2019, p. 26). As a result, research has identified many female managers who admit to experiencing imposter syndrome (Mitchell, 2019).

Extant theory-based or evidence-based literature focused on imposter syndrome is typically limited to affirming a. antecedents, b. predictors, and c. consequences of imposter syndrome, imposter phenomenon, or impostorism, including, respectively, a. gender, family/social role expectation(s), and personality or character traits (Aparna and Menon, 2020; Lane, 2015) as well as social context(s) (Feenstra et al., 2020); b. gender effects, age

effects, and comorbid conditions (Bravata et al., 2020) as well as low self-esteem (Taylor, 2009); and c. negative impact on the individual sufferer, including on mental well-being, on healthy risk-taking and innovativeness, and on career progression (Boyle et al., 2022; Downing et al., 2020) and negative impact on leader behaviors, including managerial decision making, innovative work behavior, and organizational citizenship behavior (Aparna and Menon, 2020).

The research thus far informs and lends to the potential of transformational leadership to mitigate imposter syndrome. In a study of imposter syndrome as an obstacle to women pursuing power, McLean (2017, p. ii) asks why men "...continue to be over-represented at the top, occupying positions of power in the workplace" and suggests, "One reason may be that women need to solve the challenge of experiencing the impostor syndrome." Thus, a good place for starting to solve the problem of imposterism in male-dominated industries is with female transformational leaders. Indeed, in a study of transformational leadership and leader and follower prototypical and antitypical attributes, Avolio et al. (2022, p. 443) assert, "...transformational leadership should be a more salient leadership style when leaders and followers operate in extreme contexts wherein followers look to leaders to provide reassurance, inspiration and moral purpose, and expect them to act in idealized ways to guide them through the ethical and life-threatening challenges that characterize these contexts." Female transformational leaders can therefore mitigate imposter syndrome perhaps by maintaining a zero-tolerance policy and procedures (Sharma et al., 2021), perhaps by treating the cause(s) instead of the symptoms of imposter syndrome (Lorello, Cil, and Flexman, 2020; Mullangi and Jagsi, 2019), and certainly by inspiring, influencing, and empowering all especially female employee-followers. Likewise, existing research has informed leadership approaches and strategies for mitigating imposter syndrome. Some approaches involve mitigating imposter syndrome

with a change of maladaptive aspects of culture, where, for example, the culture is gender imbalanced with gender bias and therefore necessitates a complete culture change “...to promote an environment of support, edification, and equality” (Stucky, 2020, p. 553). Such approaches, suggested by Mullangi and Jagsi (2019), will serve to treat the cause, not the syndrome or symptom(s). Treating the cause at the root of the problem of impostorism is also recommended by Lorello, Cil, and Flexman (2020), who specifically point to the need for exposing and breaking through systemic biases and mitigating pervasive individual and systemic biases. Among these approaches are the recommended specific strategies, including for leadership to provide unconscious bias training to mitigate unconscious bias (Byrne, 2020); developing zero-tolerance policy and procedures to mitigate harassment, victim shaming, and blaming; promoting a culture of inclusivity (again, by bias-reduction training) (Sharma et al., 2021). In turn, such approaches and strategies will contribute to elevating women in and under leadership, improving self-efficacy for both leaders and followers, and improving leadership styles for leaders and career progress for followers by way of empowerment in social and work-related contexts.

2.3 Summary

The review of relevant literature uncovered general research on transformational leadership, female transformational leadership, and transformational leadership and change, as well as theory-based and evidence-based literature on imposter syndrome, imposter syndrome and organizational culture, and transformational leadership and mitigation of the imposter syndrome in all industries and in male-dominated industries in particular. While some literature is relevant to this study as it is theory-based and focused on transformational leadership and change and covers a range from emergent and contingency transformational approaches to organizational change management, to the nudge theory of change, to leadership and change theory based on change models, it was

considered indirectly relevant as it informs female transformational leadership mitigating imposter syndrome in traditionally male-dominated industries. Theory-based and evidence-based literature more directly relevant to this study has captured the significance of transformational leadership comprised of dimensions and components that point to transformational leaders as effective leaders because they build strong, individualized relationships with their followers while also offering exemplary conduct to serve as a model for followers. As the literature further suggests, transformational leadership is also valued as it affects change in the organization and among the people. As a majority of the literature reveals, when an organization needs radical, fundamental change(s), authentic transformational leadership is the best fit (Junita, 2019). This theory-based and evidence-based literature further explores transformational leadership in general and female transformational leadership in particular and also as both concern the specific and extreme context of the imposter syndrome in several industries.

A majority of the literature reviewed draws on theory and focuses on barriers to change and strategies to overcome these barriers to change for effective transformational leadership in general. A limited amount of this research has focused on female transformational leadership in male-dominated industries. While the research thus far informs and lends to the potential of transformational leadership to mitigate imposter syndrome, a small body of research specifically introduces female transformational leadership and recommends approaches and strategies for exacting change as it involves female employees overcoming the challenges of imposter syndrome as it negatively affects the organization if untreated and as it can be mitigated in order to improve organizational culture and in turn contribute to optimum organizational performance. Consistent with this small body of literature, the research findings of this study will hopefully help to close the

gap and help inform female transformational leadership strategies to mitigate imposter syndrome and improve organizational culture and performance overall.

CHAPTER III: METHODOLOGY

3.1 Overview of the Research Problem

The overarching problem of focus in this study is the mitigation of imposter syndrome in traditionally male-dominated industries, and of specific focus is the problem of female leadership facilitating the mitigation of imposter syndrome in three specific male-dominated industries: IT and Software Development, Financial management, and Life Sciences. As gender, race, and other intersectional aspects can compound how imposter syndrome is experienced (Benson et al., 2022), it is especially the case for women in the workplace and is consistently problematic for women working in male-dominated industries affecting the subject's physical health, mental health, and overall well-being (Crawford, 2021; Bravata et al., 2020; Stucky, 2020), negatively affects personal and professional, private and public relationships (Le, 2019; Lacey & Parlette-Stewart, 2017), and in turn impacts functioning, productivity and performance outcomes for the organization (Aparna & Menon, 2020; Zanchetta et al., 2020).

3.2 Operationalization of Theoretical Constructs

This study draws on transformational leadership theory in general and feminist leadership theory for social transformation in particular. Together, the theories identify observable and/or measurable constructs: effective transformational leadership characteristics, traits, attitudes, and behaviors; imposter syndrome in female employees, including predictors (such as gender, global self-worth, and self-concept) and outcomes of imposter syndrome in both the general and specified traditionally male-dominated industries; and potential solutions and strategies for both generic leadership and female transformational leadership mitigating the perpetuation of the imposter syndrome in traditionally male-dominated industries.

3.2.1 Effective Transformational Leadership Characteristics, Traits, Attitudes, and Behaviors

The literature indicates that there are several scales most researchers used to measure transformational leadership. The most often quantified and qualified components of effective transformational leadership are those established by Bass (1985) and include (1) idealized influence/charisma, (2) inspirational motivation, (3) intellectual stimulation, and (4) individualized consideration. While general criticism by Jensen et al. (2019) contends that conceptualizing transformational leadership makes for operationalizing problems, as transformational leadership confounds leadership actions and their effects and thus leadership effects rather than leadership behaviors are measured, these four components are operationalized in this study by one of several available scales: (1) Operationalization of Measurement Instrument for Transformational Leadership (OMITL) (Jensen et al., 2019); Questionnaire for Measuring Transformational Leadership of Public Sector (QMTLPS) (Nilwala et al., 2017); and the Multifactor Leadership Questionnaire (MLQ) (Avolio and Bass, 2004).

The OMITL developed by Jensen et al. (2019) is based on a four-factor measurement model specified from a pool of 19 items and reflects psychometric properties of (a) transformational leadership, (b) contingent nonpecuniary rewards, (c) contingent pecuniary rewards, and (d) contingent sanctions. The QMTLPS developed by Nilwala et al. (2017) is comprised of 10 items loaded to three of the four Bass (1985) domains: Idealized Influence, Intellectual Stimulation, and Inspirational Motivation. The MLQ developed by Avolio and Bass (2004) is a composite of nine leadership scales (five transformational, three transactional, one laissez-faire) and three outcome scales measuring idealized influence, intellectual stimulation, inspirational motivation, and individualized consideration.

3.2.2 Imposter Syndrome in Female Employees

Among published studies, operationalization of imposter syndrome involves one or more of the following scales: the Clance Impostor Phenomenon Scale (CIPS) (Clance 1985); the Harvey Imposter Scale (HIPS) (Harvey and Katz, 1985); the Perceived Fraudulence Scale (PFS) (Kolligian and Sternberg, 1991); and/or the Leary Impostor Scale (LIS) (Leary et al. 2000). The Clance Impostor Phenomenon Scale (CIPS) (Clance 1985) is a 20-item measure based on a 5-point Likert-type scale focused on three factors: feeling like a fake, discounting achievement, and attributing success to luck. The CIPS has been found to have high internal consistency ($\alpha = .84 - .96$) (Clance, 1985).

The Harvey Imposter Scale (Harvey and Katz, 1985) is a 14-item scale measuring tendencies of imposterism. The HIPS has an internal consistency of .70 and is rated positively for content validity (Mak, Kleitman, and Abbott, 2019). The Perceived Fraudulence Scale (Kolligian and Sternberg, 1991) is a 51-item scale measuring imposter phenomenon as it reflects intellectual and professional fraudulence characterized by fraudulent ideation, self-criticism, achievement pressure, and negative emotions. The PFS shows unstable internal consistencies, but initial construct validity shows positive correlations with convergent measures of neuroticism and discriminant measures of self-esteem (Ibrahim, Münscher, and Herzberg, 2020). The Leary Impostor Scale (Leary et al. 2000) is a seven-item scale concerning three key attributes— the sense of being a fraud, fear of being discovered, and difficulty internalizing success—and has a reported internal consistency of .87 (Ibrahim, Münscher, and Herzberg, 2020). According to Mak Kleitman and Abbott (2019, p. 12), the Leary is aligned with a unidimensional conceptualization of the impostor phenomenon and the CIPS, HIPS and PFS are based on multidimensional definitions of the impostor phenomenon, though “...measures are operationalized in

research and applied settings by calculating overall scores rather than subscale scores based on the corresponding factors.”

3.2.3 Potential Solutions/Strategies for Generic and Female

Transformational Leadership to Mitigate Imposter Syndrome

Potential solutions and strategies for female transformational leadership to mitigate imposter syndrome were discerned through an examination of the literature. Results were uncovered that pointed to employer mindfulness of the prevalence of imposter syndrome, employees’ extenuating factors and coping skills, possible treatments for imposter syndrome in professional settings in male-dominated industries, an organization’s resources available for supporting those with imposter syndrome, and steps to take in the evaluation of treatments and assessment of solutions established or implemented.

3.3 Research Purpose and Questions

The purpose of this study includes one main objective and four subsequent objectives: the main objective for this study is to identify the causes and effects of imposter syndrome in traditionally male-dominated industries and to explore the potential solutions and strategies for female transformational leadership to mitigate imposter syndrome in specific male-dominated industries in Switzerland. The subsequent objectives are as follows: 1. to identify the predictors of imposter syndrome in traditionally male-dominated industries in the US in general and three industries in particular: IT and Software Development, Financial management, and Life Sciences; 2. to identify the outcomes of imposter syndrome in traditionally male-dominated industries; 3. to explore the potential solutions and strategies for generic leadership mitigating the perpetuation of the imposter syndrome in traditionally male-dominated industries; and 4. to determine the potential solutions and strategies for female transformational leadership mitigating the perpetuation of the imposter syndrome.

To accomplish the purpose and objectives of the study and answer the research questions, the researcher conducted a qualitative case study to explore the impact of female transformational leadership and the imposter syndrome in three fields, increasingly narrowing the gender gap. Objectives of the study also included to consider whether female transformational leadership mitigated imposter syndrome in particular fields specific to this study. Combined, meeting the objectives of the study and the objectives of the study are intended to represent one of the first studies to address gender-specific and type-specific leadership in a gender-specific context and one of the first to address these for mitigation of the often-neglected impostorism experienced by female employees in predominantly male-operated organizations and industries. In addition, meeting the objectives of the study is intended to contribute to the current and limited body of business management literature focused on leadership as it effectively facilitates organizational functioning, productivity, and performance outcomes.

3.4 Research Design

To fulfill the objectives of the study and to answer the research questions, a multi-case study design was employed, a design that was decided to be preferable for its qualitative utility in providing compounded evidence, allowing for a wider exploration of the research questions and theory (Gustafsson, 2017). This approach enables a broader understanding of the causes of, effects of, and solutions for imposter syndrome experienced by females in several traditionally male-dominated industries. The study is delimited to three case agencies. This study was conducted using a qualitative approach using a multi-case study design. Yin (2014) explains that the case study design is useful for exploring and understanding complex social phenomena and real-life events such as organizational practices, procedures, and processes. Creswell (2013, p. 97) further defines the case study as "...a real-life, contemporary bounded system (a case) or multiple bounded systems

(cases) over time, through detailed, in-depth data collection involving multiple sources of information... and reports a case description and case themes.” Stake (2006, p.) elaborates that, in multi-case study research, “...the single case is of interest because it belongs to a particular collection of cases. The individual cases share a common characteristic or condition. The cases in the collection are somehow categorically bound together...[as] members of a group or examples of a phenomenon.” The multi-case design was decided to be preferable for its qualitative utility in providing compounded evidence, allowing for a wider exploration of the research questions and theory (Gustafsson, 2017) and enabling the researcher to comparatively understand the causes of, effects of, and solutions for imposter syndrome experienced by females in traditionally male-dominated industries. Multiple case studies—collecting data from more than a single case agency—is not only helpful in identifying causes and effects of imposter syndrome in male-dominated industries but assists the researcher in collecting in-depth data across related cases) that can produce detailed and relevant information that be analyzed across the cases to determine shared themes such as cases and effects of imposter syndrome, among others. A qualitative case study design has been used by Talat (2021) and Ali and Zia (2021) to explore imposter syndrome among women.

3.5 Population and Sample

The study population is comprised of women employees in one of the three aforementioned male-dominated industries – Financial Management, Life Sciences, and IT and Software Development. The study sample included 12 women in total with 4 from each industry.

3.6 Participant Selection

Participants were selected for this study using purpose sampling. Purpose sampling is a non-probability sampling technique in which researchers deliberately choose specific

individuals or groups from a population based on predefined criteria that align with the research objectives (Patton, 2002). This approach allows researchers to focus on particular characteristics, experiences, or expertise that are relevant to their study, ensuring that the sample is representative of the specific aspects they wish to investigate (Patton, 2002). Eligible individuals were women employees in one of the three aforementioned male-dominated industries. In addition to purpose sampling, the researcher also used snowball sampling with the goal of recruiting at least 4 participants from each of the industry agencies for a sample totaling at least 12. The sample size was decided with an eye toward being able to reach data saturation, the point when no new information can be gleaned and no more relevant data of value need be added (Guest et al., 2020). Snowball sampling, which is based on the researcher contacting a knowledgeable entity (such as the employer) and asking for referrals, which in turn lead to other referrals, etc., was found to be useful for advertising for recruits on social media platforms such as Facebook, Twitter, LinkedIn, or Instagram.

3.7 Instrumentation

As this is a majority qualitative study, the researcher will act as the instrument for data collection and evaluate the data for this project. During data collection and analysis, the researcher will also be accountable for setting aside and bracketing their own bias. The researcher also designed the interview protocol used to collect data in this study (Appendix A). The semi-structured interview was used in conjunction with the three scales—Operationalization of Measurement Instrument for Transformational Leadership (OMITL) (Jensen et al., 2019), the Questionnaire for Measuring Transformational Leadership of Public Sector (QMTLPS) (Nilwala et al., 2017), and the Multifactor Leadership Questionnaire (MLQ) (Avolio and Bass, 2004)—to identify effective female transformational leadership traits; and interview questions were designed to elicit

responses regarding female employer mindfulness of prevalence of imposter syndrome; any observed outcomes of imposter syndrome; any organizational resources that exist and any that the female employer uses for supporting those employees with imposter syndrome; any practical or projected (female employer-suggested but not yet implemented) steps to take in the evaluation of treatments and assessment of solutions established or implemented for mitigating imposter syndrome; and/or any solutions, treatments, or strategies the female transformational leaders currently implement to mitigate imposter syndrome.

3.8 Data Collection Procedures

Relevant participants were contacted to discuss the research and provide and collect forms of informed consent. A packet was emailed to each eligible participant that included 1. a digital copy of Operationalization of Measurement Instrument for Transformational Leadership (OMITL) (Jensen et al., 2019), the Questionnaire for Measuring Transformational Leadership of Public Sector (QMTLPS) (Nilwala et al., 2017), and the Multifactor Leadership Questionnaire (MLQ) (Avolio and Bass, 2004); and 2) a copy of the semi-structured interview protocol. The female employer-participants were also sent by email a cover letter explaining the instruments, noting they should complete at least one of the three scales (but could complete all three scales if they so choose), and instructing them to please complete the scale or scales first. The interview responses could be written for those who had no time to meet online (through Zoom or Skype) or to speak by telephone. The interviews could also be by phone or online based on participant choice. If the responses were to be completed in writing, the researcher asked that they be returned within one month. If the responses were to be on the phone or online, the researcher provided a set of potential interview dates and times, and the participant selected the appointment based on her individual schedule. The interview date-time options ranged over a one-month period. Reminders were sent out at the two-week mark.

3.9 Research Design Limitations

As is the case for the entirety of this study, there are some limitations to the multi-case study research design. Limitations include a. that the data collected for three male-dominated industries may not be generalizable to all male-dominated industries and b. the data collected in select settings (Switzerland and the United States) may not be generalizable to all countries or regions. In addition, because case studies, in general, are more time-consuming (Gustafsson, 2016) and multiple case study research is exponentially time-intensive, the researcher may not have provided a comprehensive or exhaustive collection, analysis, and presentation of data and findings.

3.10 Conclusion

It is the belief informing this study that female transformational leaders can, as researchers have only begun to conclude, mitigate imposter syndrome perhaps by maintaining zero-tolerance policy and procedures (Sharma et al., 2021), perhaps by treating the cause(s) instead of the symptoms of imposter syndrome (Lorello, Cil, and Flexman, 2020; Mullangi and Jagsi, 2019), and certainly by inspiring, influencing, and empowering all but especially female employee-followers. In meeting the objectives of the study and the objectives of the literature review, and combining the findings from the three case industries based on instrumentation including imposterism scales, effective female transformational leadership measures, and surveys and interviews, the findings from this study should have implications for practice by lending to an increased understanding of the imposter syndrome in the male-dominated workplace, educating female transformational leaders to understand the impact of imposterism on the individual and the group as well as on the organization and enhancing efforts to mitigate imposterism in such contexts.

CHAPTER IV:

RESULTS

4.1 Summary Statistics of Participants

Prior to performing thematic analysis, descriptive information representing participants' demographic aspects such as age, work experience, and salary range was analyzed. Table 1 shows the results of this analysis. Most of the participants indicated their highest education level (Figure 1a) as either the Bachelor's (41.7%, n = 5) or Masters (41.7%. n = 5). The remaining two participants indicated PhD as their highest education level. In terms of age range (Figure 1b), a majority of the participants were aged between 20 and 30 years (33.3%, n = 4) and between 50 and 60 years (33.3%, n = 4). The remaining participants were aged between 30 and 40 years (16.7%, n = 2) and between 40 and 50 years (16.7%, n = 2). In terms of salary range (Figure 1c), the highest earners in the sample earned well above \$131,000 (33.3%, n = 4). The second-highest earning category consisted of those who earned between \$110,000 and \$130,000 (16.7%, n = 2). Three participants earned between \$70,000 and \$110,000, while four participants earned between \$50,000 and \$70,000.

Table 1

Descriptive Statistics of the Sample Population

Demographic Aspect	Category	Count	%
Highest Education Level	Bachelor's	5	41.66667
	Master's	5	41.66667
	PhD	2	16.66667
Age	20-30	4	33.33333
	30-40	2	16.66667
	40-50	2	16.66667
	50-60	4	33.33333
Salary	50-70K	4	33.33333
	70-90K	1	8.333333
	90-110K	1	8.333333

110-130K	2	16.66667
130K+	4	33.33333

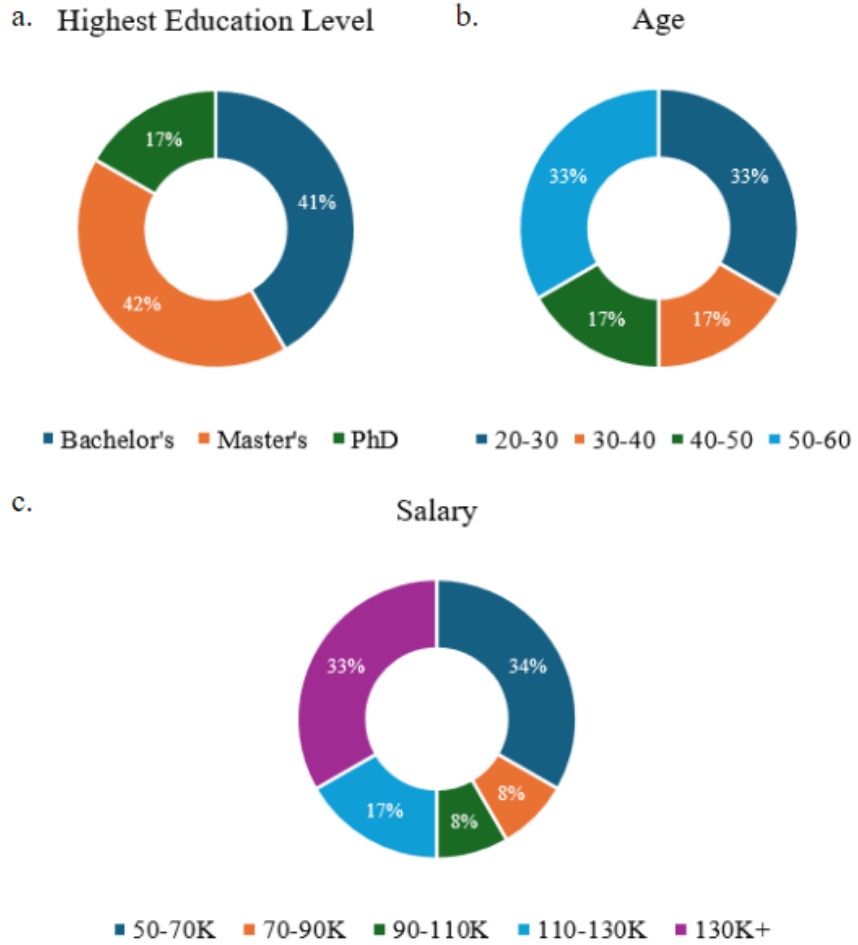


Figure 1

Demographic breakdown of all surveyed participants (n=12) in fields of Financial Management (n=4), Life Sciences (n=4), and IT and Software Development (n=4) by education level (a), age (b), and salary (c).

4.2 Sub-Question A

The first sub-question was stated as follows: What factors contribute to female employees feelings of imposterism in male-dominated industries?

Two themes answered this research question. The first theme was that gender stereotypes and male dominance significantly contribute to imposter syndrome among women. As shown in Table 2, 10 participants contributed to this first theme. The 10 participants made a total of 23 statements that pointed toward gender stereotypes and male dominance as the main causes of imposter syndrome among women. The second theme was that lack of confidence and feelings of professional inadequacy contribute to impostor syndrome. As shown in Table 2, this theme received support from only 5 participants. The participants made 13 statements that reflected the lack of confidence and feelings of professional inadequacy among women.

Table 2

RQ1 Themes

Name	No. of Participants	Frequency
Theme 1 - Gender stereotypes and male dominance contribute to IS among women	10	23
Gender biases & Stereotypes contribute to IS	6	10
Lack of female representation in leadership positions	4	5
Male dominance promoting IS	7	8
Theme 2 - Lack of confidence and feelings of professional inadequacy contribute to IS among women	5	13
Feelings of professional inadequacy & meaninglessness in work	3	6
Lack of confidence among women	3	6
Having a discussion with CEO and COO, who intimidated on going against my values and principles	1	1

4.3 Theme 1: Gender Stereotypes and Male Dominance Contribute to IS

Among Women

10 participants contributed to this theme. All 10 participants agreed that gender stereotypes and male dominance have contributed to IS among women in male-dominated industries. According to the participants, a culture where males dominate every sector contributes to the stereotype of female gender based on the type of jobs they are entitled to do other than those done by men. Participants also stated that gender imbalance and gender bias where males are dominant in everything are more likely to contribute to imposter syndrome among female employees who feel like they are out of place due to males being preferred for every position in the organization. In addition, participants reported that mainstream media and cultural depictions have often associated women with certain professions and characteristics unsuitable for specific jobs. Women are also stereotyped based on gender bias and gender language which promotes a practice that pays little attention to female employees as compared to male staff, participants reported.

Further, participants highlighted that the limited lack of women representation in top leadership positions contributed to increased IS among women. As reported by participants, there is increased male domination and gender bias and stereotypes, which lead to IS among women. The participants concluded that such as gender bias and stereotyping contribute to the feeling out of place among women thus leading to increased imposter syndrome among women working in male-dominated industries or sectors. As per the participant's responses, three sub-themes were established during thematic data analyses including gender bias and stereotypes contributing to IS, lack of female representation in leadership positions, and male domination promoting IS as discussed below.

4.3.1 Sub-Theme 1: Gender Bias and Stereotypes Contribute to IS

6 of the 10 participants above contributed to this sub-theme by attributing increased imposter syndrome among women to the gender bias and stereotyping of women in male-dominated industries. According to the participants, most women are ignored until they have to prove themselves simply because they are women, unlikely male counterparts who do not need to prove anything to work in a particular sector. The majority who experience such situations are mentally and emotionally exhausted a cost that male leaders do not often need to pay to be taken seriously for a job or certain positions in the company. Participant 10 highlighted mainstream media and cultural depiction of women as a cause for increased gender stereotyping and bias by stating, “Mainstream media and cultural depictions have often associated women with higher-pitched or feminine voices as being less credible, informed, or authoritative.” Participant 1 also reported on another general theme.

“A lot of women are looked down on until they prove themselves simply because they are women. This can be mentally and emotionally exhausted and is a cost that male leaders do not often need to pay to be taken seriously.” - Participant 1

According to the participants’ responses, women's decisions are often questioned and not trusted to be used in operational practice organizations because of their gender and stereotyping of their actions. As per Participant 4, common gender stereotypes impacted women’s confidence in the male-dominated workplace. Participant 4 reported aggressiveness among men makes them often seen as strong leaders, while women who are assertive and not as aggressive as their male counterparts are seen as bossy or pushy, thus contributing to gender bias and stereotypes that lead to increased imposter syndrome among women. Due to gender stereotyping and gender bias, men could react negatively to any strategy that appears to focus on female inclusion in the workplace:

“There are common gender stereotypes that impact women’s confidence in the workplace. For example, men who are aggressive are often seen as strong leaders,

while women who are assertive – not even as aggressive as their male counterparts – are seen as bossy or pushy. Some men may react negatively to any tactic that appears to focus on women’s inclusion in the workplace, as they see this as excluding men. These tactics can further be undermined by some men who perceive them as the sole reason for a woman’s advancement in their male-dominated company: “she only got the promotion because she’s a woman.” -Participant 4

Participant 6 reported that although imposter syndrome happens to both men and women, the societal pressures of being a woman make women feel more of an imposter compared to the way men feel. Other than gender bias as a barrier to women working in male-dominated workplaces, racial background, religion, and sexual orientation also acted as barriers against female leaders, which contributed to imposter syndrome among women in male-dominated industries.

“I’m sure that it (imposter syndrome) happens to both men and women, but I feel like all women in some capacity feel like an impostor due to the. I think that apart from the obvious example of gender bias as a barrier, racial background, religion, sexual orientation, among other factors, can act as barriers against female leaders.”
– Participant 6

Other participants, like Participant 9, highlighted that women’s decisions or ideas are often questioned purely based on their gender, and this can negatively impact confidence in one's decisions/work due to the feeling that maybe she may not know what she is presenting, and that her opinions are invalid to the course of the organization. Such feelings among women have contributed to increased imposter syndrome in most male-dominated workplaces where women feel out of place.

“If a man questions a woman’s work or decisions, then it can lead to her feeling that maybe she does not know what she is talking about. It can impact confidence

in ones decisions/work. “There are times when the thoughts, ideas or decisions made by women are questioned, I believe, purely based on their gender. I have recently been involved in a situation where my word was not considered, I needed a male colleague to say the same thing before action was taken.” – Participant 9

4.3.2 Sub-Theme 2: Lack of Female Representation in Leadership Positions

In this sub-theme, 4 of the 10 participants agreed that the lack of female representation in executive positions contributed to imposter syndrome among women. With fewer women overall in a male-dominated industry, there was a corresponding lack of adequate representation of women in leadership positions within a male-dominated industry. Participant 7 mentioned a lack of women representation in leadership roles, “I think lack of female professionals at the same level/higher creates this feeling of imposter syndrome.” Participant 7 also highlighted the need for this to change.

“Many women may find the lack of representation to be startling and discouraging, but I see it as a fuel to get myself to those higher positions so that one day when there are new young women coming in – there will be women in those roles that were once always filled by men.” – Participant 7

Participant 10 revealed that the shortage of women in leadership roles placed a significant burden on women who aspired to assume these positions in the future.

“A significant issue that immediately comes to mind is the lack of representation. When there's a shortage of women in leadership roles or positions that capture our interest, women find themselves needing to exert extra effort to envision themselves within those roles.” – Participant 10

Participant 2 reported that women find it hard to ascend to top leadership positions in many successful male-dominated organizations and industries, “It’s hard for women to look at the top of so many successful companies in our society that have been led by men

for so long.” There are challenges in trying to network and create relationships when the discussions are centered on a male-dominated group and interests. Participant 4 reported that the barrier to building connections can be “...isolating and contribute to feelings of inadequacy...”, thus leading to increased imposter syndrome among women in a male-dominated industry.

“With fewer women in a male-dominated industry, these stereotypes are often amplified. And then there are the pitfalls of trying to network and build relationships at work, when the small talk and pleasantries center around male-oriented interests (i.e. sports) that fewer women can contribute to. This barrier to building connections can be isolating and contribute to feelings of inadequacy.” – Participant 4

4.3.3 Sub-Theme 3: Male Domination Promoting IS

7 participants contributed to this sub-theme with all 7 highlighting male domination as a factor promoting IS among women in male-dominated sectors. The participants reported that men have always dominated and been at the top with adequate representation by the top leadership teams in every organization globally. Participant 2 reported that men have fair representation at top leadership which influences the culture of leadership positions in their favor, thus contributing to an increase in imposter syndrome among women working in these organizations.

“Men have always been at the top & have always seen themselves represented by the top leadership teams in every company in the world. This is where we differ based on gender. There will always be throwbacks and certain industries like venture capital and banking that have a patriarchal underpinning to them.” – Participant 2

Male dominance contributes to women feeling out of place in such workplaces as reported by Participant 3. “Not only am I a woman, but I am also a young professional. I felt very out of place because all the male coworkers just talked amongst themselves and are very loud.” As stated by Participant 5, imposter syndrome is prevalent in a male-dominated industry because the gender balance seemingly reduces imposter syndrome in her male colleagues and subsequently makes female colleagues feel even more out of place.

“In my experience especially in a male dominated industry imposter syndrome in women is more prevalent because of the gender inequality. I think as a woman in a male-dominated industry, feelings of imposter syndrome are more prevalent due to being surrounded by more males who don’t exhibit as much imposter syndrome.”
– Participant 5

As suggested by Participant 6, men often received respect from coworkers by default in male-dominated industries, reinforcing a sense of belonging that is not standard with women who do not receive the same level of baseline support.

“I think sometimes women can face a lack of respect in male-dominated industries when the industries are so heavily thought of only guys. And if a woman experiences this lack of respect and accepts it, it makes sense that they would start to think of themselves in a lower regard than they deserve. I think in a male-dominated industry men often receive respect without any other context and thus don't hold themselves to a low standard.” – Participant 6

Participants 7 and 8 also agreed that there is inequality in terms of pay differences and privileges that make women feel like outsiders in the organization which leads to IS among these women.

4.4 Theme 2: Lack of Confidence and Feelings of Professional Inadequacy

A second theme emerged that answered the first research question directly. The crux of this theme, impostor syndrome among women in male-dominated industries arises from lack of confidence and feelings of professional inadequacy. This theme received support from 5 of the 12 total participants. Just like the first major theme, this theme also had a collection of sub-themes that contributed to a broader discussion and more insights on IS in male-dominated workspaces.

4.4.1 Sub-Theme 1: Lack of Confidence

Participants described lack of confidence as one of the factors contributing to impostor syndrome. Participant 10, for instance, described how she occasionally felt apprehension during technical meetings. However, this apprehension was, in turn, caused by inherent biases against the female gender. Given that she was the only woman in those meetings, she felt she would be labeled less knowledgeable than her male colleagues:

“I have felt apprehension during technical meetings where I was the only woman present. In such instances, I've been concerned that my voice was sticking out in meetings since it's obviously feminine in contrast to the others and this could unfairly lead to me being labeled as "ditsy" or as possessing less knowledge due to inherent biases, thereby undermining my credibility.” – Participant 10

Participant 11 also described how she had a problem with physical signs of apprehensive or nervous behavior, especially when interacting with her male team members. This constant signs of nervousness contributed to her impostor syndrome since she started avoiding any opportunities that would trigger them.

“I remember the first time I got up to present a deck of my making, along with the creative team to share our campaign. I had a problem with blushing, so I would turn beet red...and it was noticeable. I think this physical reaction is caught up in

imposter syndrome, and caused me to avoid these opportunities...that is a career killer!” – Participant 11

Participant 6 also described lack of confidence among women as a significant barrier hindering women from combatting impostor syndrome. This participant emphasized that women do not generally want to talk about impostor syndrome, but may benefit both themselves and other women if spaces to talk about these issues were more standardized.

“I think a barrier that female leaders may encounter in their efforts to combat and posture syndrome would be gaining the confidence to speak on it. If we all feel like we don't belong it's hard to express to others because no one wants to admit that they don't feel they belong.” Participant 6

4.4.2 Sub-Theme 2: Feelings of Professional Inadequacy

Closely related to the lack of confidence, feelings of professional inadequacy and self-doubt also factor into impostor syndrome among women in male-dominated industries. Participant 1 described how she sometimes feels like she is lagging behind in terms of job productivity which in turn triggers a rise in imposter syndrome.

“I feel like I’m falling behind peers often, as if my work is meaningless in comparison or that I don’t know as much as the people around me. Sometimes this also impacts my ability to ask questions when I need help or need answers because I feel like I should already know the answer or solve the issue on my own.” – Participant 1

Participant 9 and Participant 10 also held similar views. For instance, Participant 10 described how she felt her work was meaningless during her internship: “During my internship at Biogen, I felt the entire time as if I was not doing enough for no tangible reason.” Participant 9 made statements indicating that women not knowing their value is a

factor that may contribute to impostor syndrome. Such statements include “I think much of what a woman needs to do to reduce IS is to understand her value,” and “A woman needs to believe in her own worth in order to combat IS”.

4.5 Sub-Question B

The second sub-question was stated as follows: What impact does impostor syndrome have on female employee self-efficacy and in turn on organizational performance outcomes?

Only one theme appeared among the interviewees to this second research question; that impostor syndrome contributes to loss of opportunity and promotions inhibiting career progress. As shown in Table 3, this third theme received support from 9 participants, who made 18 statements directly related to impostor syndrome as a barrier to professional success and career progression. It is worth noting the other 6 respondents either did not think they could answer this prompt or felt they did not have enough professional experience to comment.

Table 3

RQ2 Theme

Name	No. of Participants	Frequency
Theme 3 - Impostor Syndrome contributes to loss of opportunity and promotions thus inhibiting career progress	9	18
Impostor syndrome Effect on Career Progression and Leadership	4	8
Women fear going for promotion opportunities due to the feelings of professional inadequacy	7	10

4.6 Theme 3: Impostor Syndrome Contributes to Loss of Opportunity and Promotions Inhibiting Career Progress

The analysis of the data revealed two sub-themes that described how the impostor syndrome hindered the career progression of women.

4.6.1 Sub-Theme 1: Imposter Syndrome Effect on Career Progression and Leadership

The responses from four participants informed this sub-theme with the overall response being that impostor syndrome was detrimental to a person's career success. When asked to share their thoughts regarding the effects of impostor syndrome, Participant 1 asserted that the majority of the women lacked the confidence to apply for leadership or certain positions if their qualifications and experiences did not match the job description. The participant stated that "... men who apply to the same roles are often underqualified to do so/do not meet all the criteria for [the position]. The effects of impostor syndrome - although not explicitly mentioned by the participant- were evident in, "a wide gap between the confidence of women and men to take risks in the workplace."

Agreeing with Participant 1, Participant 2 stated that, "I think [imposter syndrome] can be detrimental to a woman's success." Explaining her response, Participant 2 asserted that imposter syndrome was associated with emotional, physical and mental exhaustion. Trying to prove oneself constantly was exhausting and could hinder career progress and leadership as it does not instill confidence in one's abilities. In addition to physical, emotional and mental exhaustion, Participant 2 also stated that, "[imposter syndrome] makes workplace criticism feel existential, rather than just a part of a day's work." When women are made to feel like they are not good enough for certain positions, they may stop progressing their careers as well as stepping up into leadership positions. As a result of imposter syndrome, Participant 2 continued, "Most women will stop before they even start in the quest of chasing their career dreams, especially leadership opportunities."

It is important the concept of impostor syndrome is well understood in the workplace. Participant 4 asserted that rather than misjudging women -especially those working in industries dominated by men- it was imperative that, “We have to be careful when characterizing impostor syndrome... it’s not an illusion inside their head, it’s a feeling that is at least.” Regarding career growth, Participant 4 asserted that many women were unwilling to advance their careers by saying, “if a woman feels like a fraud at work they are less likely to speak up in meetings, take on new challenges, highlight their achievements, and advocate for a promotion – all of which stifles career progression.” Participant 4 argued that in an organization where majority of the women suffered from impostor syndrome, “then men will be even more likely to advance their careers and occupy leadership positions at a higher rate than women.”

Supporting the sentiments shared by Participant 4, Participant 9 stated that her fear of not speaking up resulted in her dealing with complicated software designed during their architectural discussion. Verbatim, participant 9 stated that, “If a person feels that maybe they “do not belong” in their role, they will likely not speak up and offer valuable input.” Further, the participant reported, “A workplace climate where employees are not compelled to speak up and offer their input will result in a lesser product delivered and unhappy employees.” Thus far, participants agree that impostor syndrome hinders career and leadership progress through fear and inability to speak up resulting in reduced organizational productivity.

4.6.2 Sub-Theme 2: Women Fear Going for Promotion Opportunities Due to Feelings of Professional Inadequacy

In response to this theme, interviewed participants concurred that impostor syndrome created an illusion of inadequacy and incompetence that discouraged many from pursuing their career goals. For instance, Participant 1 reported, “Impostor syndrome often

holds people back from doing something, and this is reflected in applying for jobs due to feeling underqualified or inadequate.” This touched on previously addressed themes where Participant 1 reiterated that many women failed to apply for a leadership position if their experience and qualifications did not tally the job requirements 100%. In a similar vein, Participant 11 reported that excessive blushing and the onset of sudden shyness could be symptoms of imposter syndrome as it, “...caused me to avoid these opportunities...that is a career killer!”.

Imposter syndrome creates a feeling of not belonging which the participants characterized as a contributor of delayed career growth. For instance, Participant 3 stated, “The potential effects of imposter syndrome could be that we don’t feel like we belong, we can feel uncomfortable at times, and sometimes very out of place.” This feeling of being out of place impeded career progression as, “...if we feel out of place and uncomfortable with only men in the industry, then we might be scared to ask for a raise, or for a promotion” (Participant 3). Participant 4 added additional insight with her view that while men perceived themselves as qualified and fit for leadership positions, imposter syndrome in women sowed feelings of doubt, “It (IS) seems to be more prevalent among women that we doubt our ability to take on a new challenging role.” Participant 5 reiterated that rather than going for promotions directly, “women usually think of the skills they’ll need in order to succeed in a promotion” something that has personally slowed down her career progress.

Feelings of fear and inadequacy as a result of imposter syndrome lead to a lack of self-appreciation amongst women and their work or contributions to a workforce.

“It’s only going to make women feel worse about being at work. If you feel like you don’t belong, you aren’t going to reach out when you need help. If you think that you don’t deserve to be in the position you are, you aren’t going to try to go for the promotion, you’ll feel lucky you have what you do.” – Participant 6

Participant 8 agreed with this sentiment when stating, “I think imposter syndrome leads individuals to feel as though they do not belong somewhere or are good enough to be there.” Furthermore, “If individual feel as though they do not deserve a specific position or role, they will not be confident enough to take on bigger projects for fear of failure or living up to what they are afraid everyone is thinking.” Participant 8 further reported that the feelings of not deserving a career growth, new opportunities, or promotions as a result of imposter syndrome was detrimental to women’s overall career growth. Therefore, imposter syndrome perpetuates a feeling of being not good enough that instills hesitancy and fear that hinders career progress through loss of promotions and career development opportunities.

4.7 Sub-Question C

The third sub-question was stated as follows: What strategies have been used by female leadership to alleviate female employee feelings of imposter syndrome in male-dominated industries?

Surprisingly, the responses to this question were some of the most diverse which led to the generation of five distinct themes. Each respondent also contributed to multiple themes while providing their response. Table 4 displays these themes.

Table 4

RQ3 Themes

Name	No. of Participants	Frequency
Theme 4 - Support networks and open & transparent discussions on IS can help address IS among women	10	25
Open & Transparent Discussions on IS	2	7
Open forums, workshops, and conferences	6	6
Support Groups & Resource Networks	7	9
Women should be transparent about IS to bolster confidence	2	3

Theme 5 - Promoting Inclusivity and Equality can help address IS	9	15
Males should treat their female colleagues with equality	5	5
Organizations should promote inclusivity & diversity	7	10
Theme 6 - Open-door policy & a supportive work environment can help address IS	8	11
Open-door Policy	1	2
Safe and Supportive Work Environment	6	6
Support Culture	3	3
Theme 7 - Training & Development programs focusing on both men and women	6	10
Training and development focusing on female victims of IS	4	4
Training and Development focusing on male counterparts to improve their awareness	3	6
Theme 8 - Mentorship as a way to provide resilience and combat IS	11	25
Mentorship as a way to provide resilience and combat IS	11	25

4.8 Theme 4: Support Networks and Open and Transparent Discussions on IS Can Help Address IS Among Women

8 participants contributed to this theme. Support networks, as well as open and transparent discussions about imposter syndrome, were highlighted as strategies and techniques to address IS among women as reported by the participants. Support networks on IS among women enhance individualized attention, whereby transformational leadership was described as providing attention, guidance, and support to each individual as needed to address the negative impacts of imposter syndrome among women working in male-dominated industries. Further, the participants revealed that engaging in open and transparent communication can enable women to address imposter syndrome problems they face in male-dominated industries. Thematic data revealed four sub-themes, including (1) Open and transparent Discussion on IS, (2) Open forums, workshops and conferences,

(3) Support Groups and Resource Networks, and (4) Women should be transparent about IS to bolster confidence.

4.8.1 Sub-Theme 1: Open and Transparent Discussion on IS

2 participants indicated that the strategies they used to address IS were to engage in open and transparent discussion about IS. Participants also reported that transformational leadership fosters a positive change in the collective imagination of what it feels like to be a woman who does not face imposter syndrome. Some of the strategies used in open and transparent discussion included creative brainstorming, hosting non-judgmental discussions with guiding questions and talking points, and storytelling and scenario building. All of these proposed techniques enable fostering positive change over the status quo among women, particularly when guided by transformational leadership.

“I perceive transformational leadership as leaning into fostering positive change over following the status quo and catalyzing the collective imagination of what it looks like to be a woman who does not face imposter syndrome. Creative brainstorming, hosting open discussion with guiding questions & talking points, story-telling, and scenario building are big enablers for this.” – Participant 10

One participant highlighted that open and transparent discussions ideally would be held where women could speak openly to all of their colleagues about imposter syndrome and how to overcome it. According to Participant 2, open and transparent discussion would be held across all genders to share diverse experiences with imposter syndrome and create a foundational understanding for every woman to hear and understand how to navigate the challenges imposter syndrome presents. “A next step would be discussions where women could speak to their colleagues, across all genders, and share their experiences with imposter syndrome and build a baseline understanding for everyone to hear.”

4.8.2 Sub-Theme 2: Open Forums, Workshops, and Conferences

6 participants contributed to this sub-theme. According to these participants, open forums, workshops, and conferences were suggested as a way for women to discuss and mentor each other on the challenges of imposter syndrome for women in technology. The participants emphasized that workshops can take advantage of transformational leadership to build confidence in those at risk of suffering from IS. Forums or training sessions can teach women to identify strengths in order to challenge perceptions of incompetence and teach strategies for coping with failures without unduly reinforcing those perceptions of incompetence. The participants explained that women in workshops can be taught to be mindful of perfectionism and to set reasonable expectations for themselves, as well as learn techniques to accept constructive criticism without experiencing IS. Participant 10 emphasized the need for conference programs for women in technology including workshops to discuss and for mentoring women on IS challenges. “The Grace Hopper conference is a great program for women in technology and usually includes workshops discussing and mentoring on these challenges for women.”

Participant 11 had the interesting insight that the new normal of nonstop video conferences that replaced in-person meetings has led to feelings of isolation among coworkers that can contribute to the proliferation of IS among women in technology focused careers.

“I laugh as we come to the office and still meet via video. I do think getting people TOGETHER without making it a forced march is an answer. Finding a way to do that more dynamically with teleconferencing is critical as well – weekly afternoon coffee hours (had those at Fidelity, and they worked)” - Participant 11

3 participants highlighted that organizations can foster the creation of open forums, workshops, and conferences where employees would meet to discuss and share experiences of IS and other challenges they face at the workplace. According to Participant 2,

companies or organizations should not expect staff to handle this task alone, but employees should see it happening from the top as part of the culture of the entire business.

“A company or organization cannot expect its employees to foster this ideology until they see it from the top. Whether this comes from hosting events, open forums for individuals to share any negative experiences, smaller support groups within the organization that may be based on individual departments, etc.” – Participant 2

2 participants suggested that the hosting of discussion events should be conducted using open forums for individuals to share negative experiences using smaller, more intimate support groups within the organization based on individual departments. They suggested that organizations could use clubs and supplementary training sessions for empowering women and offering an avenue for women to support each other. Further, the participants reported that organizations could show more effort by providing options for professional therapy for women employees who experience IS at workplaces. Participant 3 reported, “may be organizations could have some sort of club for empowering women and supporting each other. It could also be a forum or some training sessions.” Participant 6 suggested open conversation, therapy and overall support to women as a way to alleviate women from imposter syndrome challenges in different male-dominated industries, “I think organizations can promote open conversations, therapy, and just overall support to all of their employees.” Participant 7 reported conferences to be ideal for meeting with different women facing imposter syndrome challenges outside of the standard workplace environment, “I enjoyed a conference called Girl Up when I was in high school, and it was all about women in the political sphere.”

4.8.3 Sub-Theme 3: Support Groups and Resource Networks

7 participants contributed to this sub-theme, suggesting support groups and resource networks as strategies to address imposter syndrome among women in male-dominated industries. Participant 1's comments really built the backbone of this theme.

“I think seeking out connections with peers is key so that they have a sense of community/aren't lonely. There are also conventions/retreats dedicated to showcases of women leadership, networking with other female leaders, etc. Intentionally building relationships with others who support them and offer advice creates a safe space for likeminded female leaders to help each other and build each other up.” - Participant 1

Participant 11 provided insight into the impacts of remote work on creating a support network which she also considered a critical component of developing business skills and inspiring leadership aspirations.

“We have the remote workplace, and it is much harder to create a network and community that can support you in the soft skills, politics, mentorship... all the collaborations in the world cannot be there by your side in situations I have shared. Being remote, it is easy to get defeated and hide behind your avatar – no body language to pick up on by colleagues and mentors, the very nature of the medium can drown out your ability to get a word in.” - Participant 11

Creating internal female support groups can be a great start to build self-confidence among women who are experiencing IS reported Participant 2. “I think internal female support groups would be a great start to building self-confidence and having these discussions.” She further elaborated that setting up women's resource networks within the organization or broader industry would help women share their experiences more easily and build a community if one is not easily attainable in their workplace. Participant 4 echoed this sentiment by suggesting, “Setting up or endorsing women's resource networks

either within a company or within the broader industry so that women can share experiences more broadly and build community.”

Some of the 7 participants reported having support groups for women such as Women in Tech and Working Mothers that foster a sense of togetherness and community allows women to connect and provide other women with guidance in combating IS. They reported these groups were particularly necessary in male dominated industries where women employees may not have the support they need locally. Participant 5 reported that support groups create a sense of community, allowing women to connect and share different experiences about IS which help them address the challenge by building self-confidence:

“At my company there are support groups for women such as Women in Tech and Working Mothers that foster a sense of community and allows women to connect and offer support to others on their experiences. There are many support groups that help build self-confidence for female employees, such as the national Women in Tech community.” - Participant 5

As indicated by Participant 6, support groups where women can express their feelings about imposter syndrome help relieve the stresses that come with imposter syndrome, thereby diminishing its effects. “I think that having support where women can express feeling imposter syndrome will only decrease the feeling.” Support networks such as the Women Innovation Network encourage women to succeed and thrive within their various workplaces with increased self-confidence, reported Participant 8. Participant 8 highlighted the Women Innovation Network is a successful strategy because it gives companies and transformational leaders a resource that can help women reach their workplace potential and overcome imposter syndrome while also showing female employees that a company is invested in their career success.

"Even more specifically, the Women Innovation Network, whose main goal is to encourage women to succeed and thrive within the workplace. I think this is a very successful strategy [to combat IS] because women know that their company wants them to succeed and is working to show them resources that can help them." - Participant 8

4.8.4 Sub-Theme 4: Women Should be Transparent About IS to Bolster Confidence

2 participants contributed to this theme. The responses from the participants indicated that being transparent in discussion about imposter syndrome was critical to discussion or open forums having the necessary impact of alleviating the stresses of IS. Sharing difficulties or general experiences with IS through an open and transparent discussion is capable of empowering other women with the skills and knowledge to overcome IS and ahead of it in workplaces. In support of this, the following claim was made by Participant 10 who stressed the importance of transparency and honesty in women mentors with the power to inspire and support other women suffering with IS.

"When women mentors in our life are transparent about their difficulties with imposter syndrome and advise on how to navigate them, it empowers other women with knowledge to get ahead of it and work against it. Female leaders can inspire and support other women in similar situations through transparency about their experience with imposter syndrome." - Participant 10

However, a caveat was introduced in Participant 6's responses, who reported that discussions about imposter syndrome alone may not be enough to challenge the problem of IS in some women. "I also think that after talking about [IS], it might be hard to gain support because there's no way to bolster someone else's confidence or at least not one right

way.” The implication of this statement may lead to the idea that continual support is needed to fight the effects of IS amongst women in the workplace.

4.9 Theme 5: Promoting Inclusivity and Equality Can Help Address Imposter Syndrome

Creating a work environment that fosters equality and inclusivity was a tactic that was supported by 9 of the 125 participants in helping women overcome the feelings and effects of imposter syndrome. To describe the concept of inclusivity and equality in greater detail, 2 major subthemes were developed from participant responses. These focused on how male coworkers should treat female colleagues and how business organizations can promote women to prevent IS.

4.9.1 Sub-Theme 1: Males Should Treat Their Female Colleagues with Equality

As mentioned by 5 participants, male employees can help their female colleagues address impostor syndrome by involving them in organizational processes. For instance, Participants 6 and 9 stated that male employees ought to treat their female colleagues with respect. Verbatim, Participant 6 said “Treating their female coworkers as equals and with respect and championing them for things that they might be good at even when they're not around.” Participant 8 emphasized the role of male colleagues in mitigating imposter syndrome stating that, “Male allies can contribute to creating a more inclusive environment by making it clear that they want to hear what their female counterparts have to say.” Participant 10 built on this theme by saying that in male dominated environments, “women may feel less included in the day-to-day camaraderie which can contribute to feelings of not belonging or imposter syndrome.” Participant 11 concurred with Participant 10 that men were required to be mentors and allies. The participant emphasized that focusing on the person rather than their gender was important to a feeling of belonging.

4.9.2 Sub-Theme 2: Organizations Should Promote Inclusivity and Diversity

Almost half of the participants (7 in total) stated that organizations as a whole can mitigate the negative impacts of imposter syndrome by fostering inclusivity and equality in their culture. Participant 1 asserted that organizational leaders played a crucial role in promoting organizational inclusivity and diversity through employee empowerment and psychological safety. Participant 1 also warned that leaders could promote harmful behaviors if they did not encourage inclusivity. “Many leaders in the workspace don’t [foster inclusivity], and it’s harmful for women since a leader’s actions can easily influence the rest of the team’s behavior and encourage stereotypical beliefs to fester in a company’s culture.”

The role of the organization in promoting employee inclusivity and diversity was evidenced by the responses of Participant 4. She asserted that, “[The organization] should include inclusive hiring practices, empathetic leadership, and unbiased performance evaluations.” Similarly, Participant 5 reiterated that employees valued diversity in leadership and, “Providing mentorship, ensuring there is diversity in leadership, and ensuring there is no wage gap” would show women their work and contributions are valued by the company. Supporting the need for and importance of equality in her education and career, Participant 7 acknowledged that, “I think female and male students were treated with equal respect by peers and professors, and I have felt the same way in the workplace so far.” She felt satisfied in her work despite the environment being male dominated as, “I have never been treated like I was less capable than my male counterparts.”

Emphasis on equality and inclusivity were made by Participant 8 who reported that, “[Organizations] need to make sure that they are sending the message to all employees that everyone should be treated with equal respect and that any form of unequal treatment will not be tolerated.” Agreeing with Participant 8, Participant 9 reported that it was imperative

that all employees be treated equally notwithstanding their gender. Although the organization was tasked with creating an inclusive environment, Participant 9 also emphasized that, "...the woman herself must develop the confidence required to combat [non-inclusivity]." Adding to the comments made by other participants, Participant 10 asserted that organizations that lacked inclusivity and diversity were required to, "...promote inclusivity and create spaces for psychological safety / empowerment." In summary, these 7 participants believed strongly that inclusivity and diversity were important in alleviating the effects of imposter syndrome.

4.10 Theme 6: Open-Door Policy and a Supportive Work Environment Can Help Address IS

8 participants highlighted that an open-door policy, safe and supportive work environments, and an overall supportive culture in the organization can help prevent IS and help women impacted by its effects to open up and receive support. According to these participants, an open-door policy enhances collaboration and support from leadership, and a supervisor who encourages women to express themselves reduces the risk of IS while providing an avenue for women to seek support as well. Some participants stated that supportive and safe working environment with collaborative leaders bolsters a woman's self-confidence and subsequently reduces the feeling of imposters syndrome. A supportive organizational culture comes from the top leadership, and an organization with continued commitment to upholding these ideals will see employees suffer less with the challenges of IS. Three sub-themes emerged from this theme including the open-door policy, a safe and supportive work environment, and creating a support culture as strategies that can help address IS.

4.10.1 Sub-Theme 1: Open-Door Policy

1 participant contributed to this sub-theme by stating that an open-door policy allows women to open up and discuss their challenges with IS without the fear of receiving judgment. According to Participant 6, this is important because having the backing of leadership enhances confidence when working in male-dominated workplaces. Participant 6 also responded that through an open-door policy, upper management cannot only help women develop relationships between co-workers, but also enhance personal conversation that could improve workplace performance and confidence.

“An open-door policy is a nice thing to say but making sure that people actually take you up on it and that you actually allow people to open up without fear of judgment is important. I think an open-door policy with upper management would not only help develop the relationship between coworkers, but also allow for personal conversations that improve workplace performance.” - Participant 6

4.10.2 Sub-Theme 2: Safe and Supportive Work Environment

In this sub-theme, 5 participants responded that a safe and supportive work environment can bolster women’s confidence and help address IS through collaboration and safe working relationships. Responses from Participant 1 indicated that women’s input should be considered and valued to make them feel positive about their role and working environment. Participant 1 also reported a positive interaction with leadership in her past where, “my input is heard, valued, and considered. Additionally, in teams with successful leaders, collaboration is considered which fosters a better work environment for everyone.” Participant 10 initially felt that she was underperforming in her role. However, encouragement from her colleagues and leadership helped change that mindset.

“My manager / technical leads gave me highly positive reviews. This reframed my mindset to give more space in my thoughts to think I’m doing well. Because of this

supportive work environment, I have not felt imposter syndrome as much since that internship.” - Participant 10

Similar to Participant 10, Participant 11 responded that a supportive and safe work environment was critical to nurturing natural career growth even when some bad actors are present. “I saw that environment as a place where I could thrive, learned so much and gender did not seem to be a factor although one of the male principals was a leech and did hit on a few women.” Participant 8 elaborated on this point by stating, “Overall I think [safety] is about the culture of the company more than any given specific policy, they need to make sure they are fostering a supportive environment.” Yet it was Participant 7’s comments that tied the various responses from this cohort neatly together.

“I think creating a safe environment where women feel like they can share their lived experiences and feelings in a space where they won’t be criticized or talked down upon would foster a company culture where there is less imposter syndrome and women would feel more empowered.” - Participant 7

4.10.3 Sub-Theme 3: Support Culture

This sub-theme of generating a supportive culture was shared by 4 Participants who felt that organizations need to have an inclusive and supportive cultural environment that allows women to grow their career while offering work/life balance. Participant 10 suggested the need to support working women in balancing their work life and family matters to eliminate the feeling of imposter syndrome. “The support is needed so working women who also are mothers can balance their advancement in the industry while also being a good family member.” Participant 2 also highlighted that top management has a significant role to play when creating a supportive culture to combat IS. “An inclusive, support culture comes from the top, and an organization’s continued commitment to upholding these ideals, as well as transparency .” Participant 4 added an important qualifier

by stating, “Creating a culture, however, is more than a written code of conduct.” She implied that it was the job of leadership to lead by example if a supportive culture was to prevail. Participants 6 and 2 reported that creating an environment where women can openly speak up concerning personal challenges without fear of retaliation is important to address IS.

“I think that it's hard to create a culture of anything when it's not existent in the current culture but just trying to create an environment where people can speak up about personal things without fear of retaliation or judgment is incredibly important.”

- Participant 6

4.11 Theme 7: Training and Development Programs Focusing on Both Men and Women

6 participants agreed that training and development programs which focus on both men and women can be used to address imposter syndrome among women in male-dominated workplaces. They suggested that training both men and women can enhance collaboration toward workplace goals and can improve the mentoring and training of others which organically promotes positive competition in the workplace regardless of gender. Such cooperation between male and female colleagues would lead to a reduced occurrence of imposter syndrome as it would reduce feelings of otherness women feel in a male-dominated industries. In this theme, two sub-themes emerged that focused on training and development for female victims of IS, and training and development focusing on male counterparts to improve awareness of female IS in the workplace.

4.11.1 Sub-Theme 1: Training and Development Focusing on Female Victims of IS

4 participants contributed to this sub-theme by reporting that training and development should focus on the IS victims directly. They suggested that training and

creating awareness from other women about their strengths and ability to work in male-dominated sector would help women address the feeling of IS, thus lowering the barriers to leadership advancement. Participant 10 commented that having training and development programs to help victims of IS view their abilities positively and reduce self-doubt would assist them in realizing their career aspirations as women working in male-dominated sectors such as IT.

“I’ve also been told from my aunt and mom about my cousin’s experience with imposter syndrome – a woman who went to MIT for electrical engineering. Acknowledging the dissonance between my high view of her abilities and her moments having self-doubt helps me realize that if I feel the same about myself, that is not necessarily reality. I believe all this awareness from other women has lowered the barrier for myself when taking on leadership positions at school, enrolling in difficult computer science courses, and applying to roles in technology.” - Participant 10

Participant 11 also reported that training and development focusing on IS victims can help them overcome self-doubt about their abilities thus addressing imposter syndrome challenges they have working in male-dominated industries. Alternatively, Participant 4 suggested, “Training on self-care and self-advocacy can be helpful in quieting the inner voice that holds people back from recognizing and promoting their strengths.” Participant 8 posited that training programs should target imposter syndrome directly when they stated, “[A] training or development program that focuses on educating members of an organization on what imposter syndrome is and how you specifically can create a more inclusive environment could be extremely beneficial to a company.”

4.11.2 Sub-Theme 2: Training and Development Focusing on Male Counterparts to Improve Their Awareness

3 participants contributed to this sub-theme, and all agreed that training and development focusing on their male counterparts to improve awareness of IS could help in addressing imposter syndrome among women. Participants reported that training sessions about IS should be provided to male colleagues to make them understand the challenges women face in male-dominated industries. The thought being that, if men understood imposter syndrome, they could work to counter causes of imposter syndrome in women. Participant 3 summarized this thought process in her statement.

“I think men should also get trained and have some sessions about [imposter syndrome]. If men understood better, then we would not feel as out of place in the industry and that would help with imposter syndrome. I think men should be more aware of these issues. That would help them understand how women feel and maybe in their actions, they would be more careful as to what they say or do. If men were more aware of their surroundings and the people around them, women would maybe feel a bit less threatened or uncomfortable.” - Participant 3

Some participants, such as Participant 4, indicated that most men want to be allies and do not intentionally limit inclusivity. As such, awareness is important to help male colleagues actively change their behavior to address the causes of imposter syndrome among women the industry.

“In my personal experience most men are not looking to limit women’s input and opportunities at work, and if they are contributing to a culture that is less than gender-inclusive it is not intentional. Awareness is therefore critical, and male colleagues can help by taking note of situations that inhibit inclusion and actively change them as they’re occurring.” - Participant 4

However, Participant 9 was not as sure of her male colleague’s willingness to change. She indicated it was possible that male counterparts do not comprehend imposter

syndrome in the same way women do, thus they may not be as eager to adopt solutions which they do not understand or see as a problem. “It is possible that male counterparts do not understand imposter syndrome or have not experienced it as much as woman, so may not be eager to implement solutions they do not see as an issue.”

4.12 Theme 8: Mentorship as a Way to Provide Resilience and Combat IS

One of the more prominent themes, 11 participants agreed that mentorship is a significant way of providing resilience and combating IS as mentors can provide a resource to validate feelings and optimize strategies to counteract its effects. Having mentors who have been in a similar situation can provide women with useful tips on how overcome them while revealing opportunities they may not have known existed. Some participants reported that women mentoring other women is important because it allows women to see leadership positions as something tangible. It gives women avenues to learn how to ascend to leadership roles themselves by directly understanding the requirement needed to attain such as positions by other women. It also provides women with proof that -while imposter syndrome can be hard to fight- it should not deter their aspirations of leadership in a male-dominated industry. According to Participant 1, women sometimes need to be seen as more successful than men to achieve the same positions. Having a mentor can help guide them in ways to present themselves to help them achieve higher standing.

“Women often need to have multiple credentials, be exceptional, to be considered for something professional or academic that men may get without those qualifications. From what I’ve seen in other women, having a mentor is beneficial because they are someone who has been in their place before and can provide useful tips, show them opportunities they may not know about otherwise, and share their thought processes.” - Participant 1

Participant 10 urged that female mentors can help other women to avoid self-blame by sharing their challenges and thus lessening thoughts related to imposter syndrome. “Further, [women mentors] help women avoid the bind of blaming themselves by externalizing the challenges. As a result, we can more easily lessen the importance of our thoughts related to imposter syndrome and go for leadership positions.” Participant 11 suggested fostering meaningful mentorship is helpful particularly when your female mentor is viewed as an ally to your success. “Significantly – my manager at work (a woman) was also my mentor and she coached me for the aforementioned meeting and kept eye contact with me during this big meeting with positive questions to help me along.” A similar claim was shared by Participant 3 who commented on the need of female mentors to prevent IS.

“As a young woman in the corporate world, I would’ve loved to have a female mentor in a more leadership position where I could ask questions and get advice about being a woman in a male-dominated industry.” - Participant 3

The participants shared that mentorship helps female mentees navigate similar situations in their own career by sharing their experiences from their path to success in workplaces dominated by men. Participant 4 contributed to this theme by reporting that female leaders who have succeeded in a male-dominated industry can be mentors for other women in their workplace and provide an example that career progression is achievable, thus addressing imposter syndrome challenges.

4.13 Conclusion

The purpose of this study was to explore the strategies available for female leadership to mitigate imposter syndrome in male-dominated industries. The study was also intended to explore the causes and effects of impostor syndrome among women in male-dominated industries. Findings reveal three main causes that contributed to the

participant's own experiences: gender stereotypes and male dominance cultures, lack of self-confidence, and consistent feelings of professional inadequacy. Secondary findings reveal the key consequence of impostor syndrome as felt by the participants; loss of opportunities for promotion inhibiting career progression. Lastly, the participants had several ideas for strategies that can be used to assist leadership –particularly female leaders– to mitigate impostor syndrome in male-dominated industries. Key strategies suggested by the participants included: (a) Support networks and open & transparent discussions on impostor syndrome, (b) promotion of inclusivity and equality, (c) training and development programs focusing on both men and women, and (d) mentorship programs to help women build resilience. The next chapter will focus on discussion of these findings in light of existing literature, implications of the findings, and recommendations for future research and practice.

CHAPTER V: DISCUSSION

The problem of focus in this study was the mitigation of imposter syndrome in traditionally male-dominated industries. The purpose of this study was to identify the causes and effects of imposter syndrome in traditionally male-dominated industries and to explore the potential solutions and strategies for female transformational leadership to mitigate the imposter syndrome in specific male-dominated industries. This was accomplished by interviewing a cohort of female leaders and workers in a male-dominated workplace to hear their experiences directly. By listening to these women, this study serves to increase the overall understanding of imposter syndrome in the male-dominated workplace and to educate female transformational leaders about the impact of IS on the individual, the group, and the organization as a whole. The results of this work add to the body of literature that aims to enhance efforts to mitigate imposter syndrome in such contexts.

To address the purpose of this study and to answer the main research question, a multi-case study design was applied. This design was chosen for its qualitative utility in providing compounded evidence, allowing for a wider exploration of the research questions and theory (Gustafsson, 2017) and enabling the researcher to comparatively understand the causes of, effects of, and solutions for imposter syndrome experienced by females in several traditionally male-dominated industries. Thematic analysis was used to analyze data from the participants with many major themes emerging from their responses. This chapter presents a discussion of the resulting themes, implications, and recommendations for continuing to study female imposter syndrome in male-dominated workplaces.

5.1 Discussion of Results

According to this study's findings, participants reported gender imbalance and gender bias -where males are dominant across workplace hierarchy- are more likely to contribute to imposter syndrome among female employees who feel like they are out of place due to males being preferred for every position in the organization (Theme 1). The findings provide insight into how these women are stereotyped based on gender bias and gender language which promotes a practice that pays little attention to female employees as compared to male staff (Sub-Theme 1.1). These actions actively contributed to feelings of imposter syndrome among the cohort. The lack of female representation in executive positions also played a role when participants reported incidences of imposter syndrome (Sub-Theme 1.2). Collectively, the most reported contributing factor that caused imposter syndrome among 7 responders was that the feeling of male dominance in the workplace promoted imposter syndrome in their experiences (Sub-Theme 1.3).

An additional source of impostor syndrome that emerged from the responses among the women in the cohort was mention of an overall lack of confidence and feelings of professional inadequacy in the male-dominated environment (Theme 2). This was observed to arise in a negative feedback loop where individuals were subjected to demoralizing experiences that resulted in imposter syndrome which in turn led to additional negative experiences and feelings of professional inadequacy (Sub-Theme 2.1 and 2.2). A standout experience was also reported where a negative encounter with leadership caused severe effects on the female employee (Sub-Theme 2.3), stressing the long-term negative impacts leadership can elicit if imposter syndrome is not understood and handled in a constructive manner. Collectively, the impacts of recurrent imposter syndrome were reported by the cohort as being inhibitive to career progress with 7 participants stating that they had felt fear to pursue leadership roles due to compounding feelings of professional inadequacy (Theme 3, Sub-Themes 3.1 and 3.2).

Despite the severe outcomes of imposter syndrome faced by the case study participants, they were eager to offer many suggestions to combating the onset of IS in workplaces and organizational cultures (Themes 4-8). The most popular suggestion mentioned by 10 participants was that organizations can use support networks, open forums, and support groups to facilitate open and transparent discussions about imposter syndrome and strategies to address imposter syndrome among women (Theme 4). It was noted by 2 members of the cohort that this is only effective if women are transparent in sharing their experiences about IS as comradery and shared experiences help bolster the confidence of women working in male-dominated industries (Sub-Theme 4.1). Additionally, the participants emphasized that organizations need to create a work environment that fosters equality and inclusivity to help women overcome the feelings and effects of imposter syndrome in a male-dominated sector (Theme 5). This meant that female employees needed to feel supported and valued, particularly by their male colleagues (Theme 5.1). Support from leadership in the form of an open-door policy was also highly valued by 8 participants, as well as the concept of leading by example to create a safe and supportive work environment (Theme 6). Dedicated training to focus on imposter syndrome for both male and female workers was suggested as a helpful solution by 6 members of the cohort, but interestingly there was disagreement on whether male coworkers could be counted on as allies based on individual past experiences (Theme 7). The most highly recommended solution to preventing and combating imposter syndrome mentioned by 11 participants, however, was positive mentorship from another woman in a leadership position (Theme 8). This result is of particular importance as a positive feedback loop of women assisting women in their career growth would gradually serve to reduce the impacts of male-dominated organizations in causing imposter syndrome and ultimately leading to more diverse and inclusive industries.

5.2 Discussion of Research Question One

5.2.1 Gender Stereotype and Male Dominance Contribute to IS Among Women

From this research, the participants made it evident that gender stereotypes and male dominance have contributed to IS among them and likely to women in other male-dominated industries. The responses suggest that women are more likely to feel they are not valued and wanted in male-dominated industries such as IT and manufacturing due to the highly perceived prevalence of gender bias and stereotyping practices in these sectors. Such practices contribute to imposter syndrome among women in the workplace, particularly when women are ignored or not respected, contributing to mental health issues compared to men who do not need to incur such costs.

These findings align with previous research, which indicated that in the persisting male-dominated fields, a gender bias and gendered language disseminate a practice that pays little attention to female workers and makes male workers more powerful and dominant (Mitchell, 2019, p. 26). As a result, previous research has identified women leaders admittedly experiencing imposter syndrome (Mitchell, 2019).

The respondents also reported the phenomenon that, although imposter syndrome likely happens to both men and women, the pressures they felt as women in the male-dominated work environment seemed more severe than what was faced by their male counterparts. These results concur with past literature that gender can have the potential to exacerbate feelings of otherness causing and subsequently imposter syndrome (Benson et al., 2022; Badawy et al., 2018). Contributing to this feeling were reports by some of the participants of their opinions and decisions often being overlooked and invalidated by a mostly male leadership. Such feelings among the women were stated to increase feelings of imposter syndrome as women feel out of place in these types of environments. The findings have been observed in prior research indicating that gender, along with race and

other intersectional aspects, can compound how imposter syndrome is experienced among women in male-dominant sectors (Benson et al., 2022). While this study primarily focused on gender and its impacts on IS in a disparate workplace, women working in male-dominated workplaces can experience discrimination based on their racial background, religion, and sexual orientation, which would present additional barriers against female leadership and should be explored in subsequent work.

The participants in this work reported that the lack of female representation in leadership contributed to experiencing IS in the tech industry, which is supported by other bodies of research that have connected the lack of female representation in executive positions as contributors to imposter syndrome among women (Benson et al., 2022). The finding shows that a continued shortage of women in leadership positions will propagate a self-fulfilling prophecy toward the spread of imposter syndrome in women. The results call for women's representation in leadership to encourage and mentor other women to have confidence and believe they can achieve success in male-dominated workplaces.

Women have found it difficult to work in male-dominant industries as barriers to building connections can be isolating and contribute to feelings of inadequacy, thus leading to increased imposter syndrome among women in a male-dominated industry. Previous research also indicated that when women feel isolated and not valued, they feel out of place at the workplace thus contributing to imposter syndrome (Benson et al., 2022). In a male-dominated industry, the culture of men having always been at the top leaves female employees to not see their potential value and experience imposter syndrome (Benson et al., 2022). From the participants, male dominance promotes imposter syndrome among women working in the same workplace as male-dominating practices mean men receive respect and privileges by default that women have to comparatively work hard to achieve.

These results indicates the need to mitigate male dominance in organizations within overwhelmingly male-influenced sectors to reduce imposter syndrome among women.

5.2.2 Lack of Confidence and Feelings of Professional Inadequacy Contribute to Impostor Syndrome

The women in this study reported that a lack confidence was a common contributor to imposter syndrome. Inherent bias against their gender made them feel less knowledgeable than men in the workplace. Many of the women specifically referenced past events that had caused a lack of confidence particularly when discussing important issues with men where they were made to feel under valued or unheard. These findings can be observed in other studies which indicated that imposter syndrome is exhibited among women when they make every effort to prevent others from discovering their imposter status, intentionally concealing actual ideas and opinions, charm and avoiding displays of confidence by being cognizant of society's rejection of successful women and consciously portraying oneself as timid (Edwards, 2019, p. 19).

The findings suggest lack of confidence among women is a significant barrier hampering women from combatting impostor syndrome which affects organizational performance. When imposter syndrome is experienced by capable women in the workplace, it affects the subject's physical health, mental health, and overall well-being (Crawford, 2021). The findings agree with past research that feelings of professional inadequacy and self-doubt likely propagate general unwellness and problems with performance which leadership needs to counter swiftly. The study outcome provides insight that women's lack of confidence could be a key factor that increases imposter syndrome in male-dominated organizations.

5.3 Discussion of Research Question Two

5.3.1 Impostor Syndrome Contributes to Loss of Opportunity and Promotions Inhibiting Career Progress

As imposter syndrome was faced by many of the interviewed women, it was reported by 9 to affect their career progression and leadership. The findings suggest that impostor syndrome is detrimental to a person's career success as it contributes to the loss of opportunities and promotion which hinders career progression among women. Women who reported lacking self-confidence likewise reported to not applying for leadership positions to progress in their careers. There is a need for organizations to understand the concept of impostor syndrome in the workplace to help women overcome such feelings and pursue their career aspirations of leadership positions.

The findings concur with women in senior management positions who report the industry is still a masculine environment where women working in construction consistently experience career barriers such as informal selection processes, lack of recognition, disrespect in the form of building sites and few career promotion chances with difficult working conditions, and maternity issues (Infante-Perea et al., 2021). It can be concluded from this finding that imposter syndrome hinders career and leadership progress through fear and inability to speak up resulting in reduced organizational productivity and continuation of a male-dominated leadership structure.

Other than the loss of opportunities, imposter syndrome contributes to the fear among women going for promotion opportunities in organizations dominated by men. Research findings underscore that imposter syndrome creates an illusion of inadequacy and incompetence that discourages many women from pursuing their career goals, a key contributor to delayed career growth. This is partly consistent with past research indicating that lack of self-confidence, frustration, anxiety, fear, shame, and depression; and maladaptive personality and social dysfunction cause imposter syndrome (Crawford,

2021). These research findings suggest that imposter syndrome propagates a feeling of fear that hinders career progression through the loss of promotions and career development opportunities among women.

5.4 Discussion of Research Question 3

5.4.1 Support Networks and Open and Transparent Discussions on IS Can Help Address IS Among Women

To address imposter syndrome among women, the participants suggested that organizations can promote support networks to facilitate open and transparent conversation about imposter syndrome as a key strategy. It was reported to enhance individualized attention, whereby transformational leadership provides attention, guidance, and support to each individual as needed to address the negative impacts of imposter syndrome among women working in male-dominated industries. The accounts from the case study support previous research which demonstrated that inspirational motivation and support from leadership helps address imposter syndrome (Yue et al., 2019). The support could also be provided through individualized consideration, whereby leadership provides attention, guidance, training, and support to each individual as needed (Yue et al., 2019).

Transformational leadership fosters a positive change in the collective imagination of what it feels like to be a woman who does not face imposter syndrome. Some of the strategies used in open and transparent discussion included creative brainstorming, hosting open discussion with guiding questions and talking points, storytelling and scenario building which are big enablers of fostering positive change over the status quo among women. Open communication helps women speak to their colleagues about imposter syndrome and how to overcome IS. Organizations could have some sort of club for empowering women and supporting each other in different sectors through training sessions in workshops that can be used to identify strengths to challenge perceptions of

incompetence. Current literature features these components of transformational leadership and highlights the components taken together in terms of building trust and engaging in transparent communication to enhance collaboration which would reduce IS among women (Yue et al., 2019). In this regard, the findings suggest that creating internal female support groups can be a great strategy to build self-confidence among women who are experiencing IS.

5.4.2 Promoting Inclusivity and Equality Can Help Address Imposter Syndrome

The participants in this study suggest that creating a work environment that fosters equality and inclusivity can help women overcome the feelings and effects of imposter syndrome. Male staff at the workplace can help women address imposter syndrome by engaging them in all processes and practices of the organization. Similarly, previous research indicated that developing a zero-tolerance policy against female discrimination and stereotyping would help reduce imposter syndrome (Sharma et al., 2021) This can be achieved by developing procedures to mitigate harassment and victim shaming and blaming; promoting a culture of inclusivity through bias-reduction training of both women and men (Sharma et al., 2021). Such approaches and strategies would contribute to elevating women and under leadership, improving self-efficacy for both leaders and followers and improving leadership styles for leaders and career progress for followers, by way of empowerment in social and work-related contexts in male-dominated industry.

The responses from the interview female leaders show the need for organizations to promote inclusivity and diversity by involving women in organizations' processes. A culture of inclusivity by design would help organizations to mitigate the negative effects of imposter syndrome among women by ensure that women feel a sense of contribution and belonging. This study suggests that treating women equally in the workplace helps

promote the inclusivity of female employees in important organizational decisions, which would alleviate imposter syndrome.

5.4.3 An Open-Door Policy and a Supportive Work Environment Can Help Address IS

Many members of the interviewees stated that they had -at least at one point- feared opening up about the challenges of IS. 8 of the participants suggested that open-door policies would allow them to communicate freely about the challenges of IS and thus get the help and support they may need. The open-door approach can create a supportive culture and working environment through direct acts by leadership that encourage women to work alongside their supervisors. The findings are also supported by previous research which indicated that some approaches involve mitigating imposter syndrome with the change of maladaptive aspects of culture, where the culture is gender imbalanced with gender bias and therefore necessitates a complete culture change from leadership to promote an environment of support, edification, and equality (Stucky, 2020). Organizations should have an inclusive and supportive culture which can help and allow women to advance their career growth in the sector as they balance their job roles with being a good and supportive family member.

This study suggests that an open-door policy enhances the perception of being heard and valued while also providing communication with management to help women develop supportive relationships with leadership. This communication could improve workplace performance by limiting feelings of imposter syndrome among women through a shift in culture and an increase in direct support from decision-makers.

5.4.4 Training and Development Programs Focusing on Both Men and Women

The participants were keen to suggest that training and development programs for both men and women can address imposter syndrome among women in male-dominated

workplaces. Such training programs were purported to enhance cooperation and collaboration as well as mentoring and training of others, in turn promoting positive competition in the workplace regardless of gender, such cooperation and collaboration in training both men and women can lead to reduced imposter syndrome because it increases women's self-confidence working in a male-dominated industry.

Training and development programs for mitigating IS have been reported in other studies such as Krynzman (2021) who revealed that female leaders are more often transformational in style, are more task-oriented, more inclined toward flat organizational structure(s), and promote cooperation and collaboration as well as mentoring and training of others thus addressing imposter syndrome. The current study provides important information regarding the need to train victims of IS as well as men to promote inclusivity in the workplace, which reduces imposter syndrome.

5.4.5 Mentorship as a Way to Provide Resilience and Combat IS

Mentorship was the most recommended way for dealing with imposter syndrome, being favored by 11 of the interviewed participants, as it was able to provide resilience in combating the forces of IS. The interviews indicate that that mentoring women by other women provides a subtle confidence toward attaining leadership positions in male-dominated sectors. Mentorship allies were especially important to some of the participants, with them sharing direct stories of how a positive female mentor helped guide their career trajectory and inspire them to help others in turn. Mentorship thus provides women with proof that leadership roles are attainable, and allows them to understand that -while imposter syndrome can be hard to fight- it should not deter their possibilities to achieve their dreams in a male-dominated industry.

The results were supported by Dappa et al. (2019) who found that female and male leaders adopt transformational leadership skills in different ways, which in turn have

differing effects on followers. Female employee satisfaction through mentorship provides resilience to help them combat imposter syndrome in male-dominated sectors such as IT. Transformational leaders are perceived to be more caring and considerate of the well-being of followers through diversity and inclusivity by mentoring women on the need to have confidence in their abilities. The study results suggest that mentorship helps female mentees to navigate similar situations in their careers by sharing their experiences from their path to success in workplaces dominated by men and can result in positive feedback loops that create cultures of inclusion.

CHAPTER VI: IMPLICATIONS, FUTURE DIRECTIONS, AND CONCLUSIONS

6.1 Introduction

In the male-dominated sectors, imposter syndrome is not only perpetuated by male-dominated cultural structures, but also by the women enduring it. Women have reported that observing a lack of women in leadership, management, or senior executive positions convinces them they are not fit for or capable of such advancement. The results of this case study and research thus far lends to the potential of transformational leadership to mitigate imposter syndrome among women, particularly in the form of mentorship and guided support networks. Transformation leaders are particularly important as fundamental cultural changes are necessary to create the inclusive and supportive environment needed to combat IS in male-dominated businesses. The current study findings indicated that women desperately need to solve the challenges of experiencing impostor syndrome, as it has severe and detrimental effects on advancement. However, strong female transformational leaders show promise to help guide more women into leadership roles and encourage an environment of diversity and inclusion.

6.2 Implications

Imposter syndrome occurs due to a combination of factors, but largely stems from male-dominance in organizations. This study is intended to synthesize ideas to address gender-specific and type-specific leadership in a gender-specific context and is one of the first to address these for mitigation of the often-neglected imposter syndrome experienced by female employees in predominantly male-operated organizations and industries. Organizations can therefore address these challenges by enhancing diversity and inclusivity in their workplaces by offering equal promotion opportunities to all merited

staff members based on qualifications and not gender. Such actions would provide a safe working environment for all in the organization.

These results further contribute to the current and limited body of business management literature focused on leadership as it effectively facilitates organizational functioning, productivity, and performance outcomes. Moreover, the findings from this study should have implications for practice by leading to an increased understanding of the imposter syndrome in the male-dominated workplace, possibly educating female transformational leaders to understand the impact of imposters on the individual and the group as well as on the organization and enhancing efforts to mitigate imposters in such contexts.

Further, the findings can be used by organizations to encourage support networks, support groups, and open and transparent discussions to mitigate imposter syndrome among female staff. Support groups can provide mentorship and training about diversity, equality, and inclusivity of female employees in the organizations. This would contribute to the elimination of inequalities in salary, increase career advancement opportunities, and elevate performance standards persistence by reducing imposter syndrome as representative of a systematic, institutional- and cultural-level phenomenon (Grossman, 2020; Stucky, 2020).

6.3 Recommendations for Future Research

This research concentrated on identifying the causes and effects of imposter syndrome in a subset of traditionally male-dominated industries and exploring the potential solutions and strategies for female transformational leadership to mitigate the imposter syndrome by interviewing a cohort of female leaders and workers. Building upon the responses of the participants and the trends in said responses, there are several additional

avenues that could deepen our understanding of imposter syndrome in traditionally male-dominated industries and inform targeted interventions.

Longitudinal Study on the Efficacy of Intervention Strategies: Conduct a longitudinal study to evaluate the long-term effectiveness of the intervention strategies proposed by the participants in this study, such as support networks, mentorship programs, and training initiatives. Tracking the career trajectories and well-being of participants over time or observing business models where these strategies were employed in the past could provide valuable insights into the sustained impact of these interventions on mitigating imposter syndrome and promoting gender diversity in the workplace.

Intersectionality and Imposter Syndrome: Investigate the intersectional dimensions of imposter syndrome by examining how factors such as race, ethnicity, sexual orientation, and socioeconomic status intersect with gender to influence the experience of imposter syndrome in male-dominated industries. This research could shed light on the unique challenges faced by women from diverse backgrounds and inform more inclusive and encompassing approaches to addressing imposter syndrome.

Leadership Styles and Imposter Syndrome: Explore the relationship between leadership styles and imposter syndrome by examining how different leadership approaches, including transformational, transactional, and laissez-faire styles, impact the prevalence and severity of imposter syndrome among employees. This research could provide insights into the role of organizational culture and leadership practices in perpetuating or mitigating imposter syndrome.

Organizational Culture and Imposter Syndrome: Investigate the influence of organizational culture on the prevalence of imposter syndrome in male-dominated industries. This could involve qualitative studies exploring the cultural norms, values, and

practices that contribute to imposter syndrome, as well as quantitative surveys to assess organizational climate and its impact on employee well-being.

Remote Work and Imposter Syndrome: Examine the impact of remote work arrangements on the experience of imposter syndrome, particularly in male-dominated industries where remote work has become more prevalent. This research could explore how factors such as isolation, communication barriers, and work-life balance contribute to imposter syndrome among women -especially with regards to the traditional roles of women in the home- and identify strategies for mitigating its effects in remote work environments.

Male Allies and Gender Equity Initiatives: Investigate the role of male allies and gender equity initiatives in promoting gender diversity and reducing imposter syndrome in male-dominated industries. This research could assess the effectiveness of allyship programs, diversity training, and policy initiatives in fostering inclusive workplace cultures where women feel valued, supported, and empowered to succeed.

Cross-Cultural Perspectives on Imposter Syndrome: Compare and contrast the experience of imposter syndrome across different cultural contexts and industries to identify common themes and cultural factors that influence its manifestation. This research could inform culturally sensitive approaches to addressing imposter syndrome and promote cross-cultural understanding in diverse work environments.

By exploring these and other avenues for follow-up research, we can continue to advance our understanding of imposter syndrome in traditionally male-dominated industries and develop evidence-based strategies for promoting gender diversity, equity, and inclusion in the workplace.

6.4 Conclusion

Imposter syndrome remains a formidable challenge in traditionally male-dominated industries, hindering the advancement of women into leadership roles and perpetuating a culture of exclusion. This study has delved into the causes, effects, and potential solutions of imposter syndrome among female employees in such environments, employing a multi-case study design and thematic analysis to extract insights from interviews with female leaders and workers.

The findings underscored the pervasive influence of gender imbalance and bias, wherein male dominance across workplace hierarchies fosters feelings of otherness and professional inadequacy among women. The lack of female representation in leadership positions exacerbates this phenomenon, contributing to a self-perpetuating cycle of imposter syndrome. Additionally, a recurring theme emerged regarding the detrimental impact of a lack of confidence and feelings of inadequacy, further inhibiting career progression and perpetuating the cycle of imposter syndrome.

Despite the challenges highlighted, the study participants offered valuable suggestions for mitigating imposter syndrome in male-dominated workplaces. Strategies such as fostering support networks, promoting inclusivity and equality, implementing open-door policies, and providing mentorship emerged as key recommendations. These solutions aim to cultivate environments where women feel valued, supported, and empowered to combat imposter syndrome and pursue leadership roles.

Furthermore, this study underscores the importance of organizational commitment to addressing imposter syndrome through targeted interventions, training programs, and leadership initiatives. By fostering a culture of inclusivity, providing avenues for open communication, and promoting mentorship, organizations can actively work towards mitigating imposter syndrome and fostering diverse and inclusive workplaces.

One notable avenue for addressing the challenges posed by imposter syndrome lies in the adoption of transformational leadership. Transformational leaders inspire and empower their teams through vision, motivation, and mentorship, fostering an inclusive culture where individuals feel valued, supported, and encouraged to realize their full potential. By embodying qualities such as empathy, authenticity, and inclusivity, transformational leaders can play a pivotal role in mitigating imposter syndrome and cultivating environments where women thrive.

Companies can foster transformational leadership opportunities for women through intentional initiatives and strategies. This includes implementing leadership development programs tailored to address the unique challenges faced by women in male-dominated industries, providing mentorship and sponsorship opportunities, and creating pathways for career advancement based on merit and potential rather than traditional gender norms. Moreover, organizations can prioritize diversity and inclusion in their leadership pipelines, actively seeking out and promoting talented women who demonstrate transformative leadership qualities.

In conclusion, this study underscores the critical importance of transformational leadership in addressing the pervasive issue of imposter syndrome in male-dominated workplaces. It contributes to the growing body of literature on imposter syndrome in male-dominated industries, providing valuable insights into its causes, effects, and even offers insights into potential solutions. By addressing systemic barriers and promoting supportive environments, organizations can empower women to overcome imposter syndrome and thrive in leadership roles, ultimately fostering diversity, equity, and inclusion in traditionally male-dominated sectors. This, in turn, strengthens companies as empowered female employees can overcome imposter syndrome and contribute more effectively to organizational success.

APPENDIX A
INTERVIEW PROTOCOL

1. Can you describe any personal experiences or observations of imposter syndrome in your workplace or industry? How do you believe gender dynamics play a role in these experiences?
2. What specific challenges do you think women face in traditionally male-dominated industries that might contribute to feelings of imposter syndrome? How do these challenges differ from those faced by men?
3. In your opinion, what are the potential effects of imposter syndrome on individual female employees and the overall workplace climate? How does it impact career progression and leadership opportunities?
4. Have you noticed any differences in the ways men and women cope with imposter syndrome in your industry? Are there any gender-specific strategies that seem to be more effective in managing or mitigating these feelings?
5. How do you perceive transformational leadership, particularly when exhibited by women, in addressing imposter syndrome in male-dominated industries? Can you share any specific examples of successful leadership strategies?
6. What barriers or biases do you think female leaders may encounter in their efforts to combat imposter syndrome and foster a supportive work environment?
7. How can organizations and leaders create a culture that promotes inclusivity, empowerment, and psychological safety, which are essential for combating imposter syndrome among female employees?
8. From your perspective, how does mentorship or sponsorship play a role in supporting women to overcome imposter syndrome and reach leadership positions in male-dominated industries?

9. What specific actions or policies do you think could be implemented to reduce imposter syndrome in female employees and facilitate their career advancement in your industry?
10. How can male allies or colleagues contribute to creating a more inclusive environment that empowers women to overcome imposter syndrome and thrive in their roles?
11. Are there any training or development programs that you believe would be beneficial in addressing imposter syndrome and building self-confidence among female employees in traditionally male-dominated industries?
12. What steps can female leaders take to ensure their own growth and resilience in the face of imposter syndrome, and how can they inspire and support other women in similar situations?

APPENDIX B

NVIVO ANALYSIS PARAMETERS

Codes			Search Project
Name	Files	References	
⊖ RQ1 Themes	11	36	
⊕ Name	Files	References	
⊖ 10 Theme 1 - Gender stereotypes and male dominance contribute to IS among women	11	23	
⊕ Name	Files	References	
⊖ 10 Gender biases & Stereotypes contribute to IS	6	10	
⊖ 10 Lack of female representation in leadership positions	4	5	
⊖ 10 Male dominance promoting IS	7	8	
⊕ Name	Files	References	
⊖ 10 Theme 2 - Lack of confidence and feelings of professional inadequacy contribute to IS among women	5	13	
⊕ Name	Files	References	
⊖ 10 Feelings of professional inadequacy & meaninglessness in work	3	6	
⊖ 10 Lack of confidence among women	3	6	
⊖ Having a discussion with CEO and COO, who intimidated on going against my values and principles	1	1	

Analysis 1: Themes and Categories for RQ1

Codes			Search Project
Name	Files	References	
⊖ RQ2 Themes	9	18	
⊕ Name	Files	References	
⊖ 10 Theme 3 - Impostor Syndrome contributes to loss of opportunity and promotions thus inhibiting career progress	9	18	
⊕ Name	Files	References	
⊖ 10 Imposter syndrome Effect on Career Progression and Leadership	4	8	
⊖ 10 Women fear going for promotion opportunities due to the feelings of professional inadequacy	7	10	

Analysis 2: Themes and Categories for RQ2

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Quick Access

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Data

Files

File Classifications

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Relationships

Relationship Types

Cases

Notes

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Queries

Visualizations

Reports

File Home Import Create Explore Share Modules

Memo Framework Relationship Code Document Case Case Classification File Static Dynamic Folder

Codes

Name

RQ3 Themes

Name

10 Theme 4 - Support networks and open & transparent discussions on IS can help address IS among women

Name

10 Open & Transparent Discussions on IS

10 Open forums, workshops and conferences

10 Support Groups & Resource Networks

10 Women should be transparent about IS to bolster confidence

Name

10 Theme 5 - Promoting Inclusivity and Equality can help address IS

Name

10 Males should treat their female colleagues with equality

10 Organizations should promote inclusivity & diversity

Name

10 Theme 6 - Open-door policy & a supportive work environment can help address IS

10 Theme 7 - Training & Development programs focusing on both men and women

Name

10 Training and development focusing female victims of IS

10 Training and Development focusing on male counterparts to improve their awareness

Name

10 Theme 8 - Mentorship as way to provide resilience and combat IS

Name

10 Mentorship as way to provide resilience and combat IS

Files

References

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Search Project

Analysis 3: Themes and Categories for RQ3

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