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The Relationship Between Gender and Career Advancement in Product Management

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This is to certify that the doctoral dissertation by

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has been found to be complete and satisfactory in all respects,
and that any and all revisions required by
the review committee have been made.

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Walden University
2024

Abstract

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Blair Channing Presley Bone

MPhil, Walden University, 2022

MBA, New York Institute of Technology, 2009

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Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Management

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Abstract

Gender-based career advancement disparities are well-documented as an issue for employees and organizations in various fields; however, little is known about its prevalence in the product management profession. This study addressed career advancement disparities through the lens of gender for full-time, salaried product managers and senior product managers based in the United States. The quantitative correlational study compared the relationship between gender and the perceived barriers to career advancement in the product management profession using a survey of 173 product managers and senior product managers. The perceived barriers to career advancement factors included lack of culture fit, exclusion from informal networks, lack of mentoring, poor organizational career management processes, difficulty getting developmental assignments, and difficulty obtaining opportunities for geographic mobility. Organizational justice theory and the glass ceiling metaphor were used in this study to frame this study, along with a Mann-Whitney *U* test to analyze the data. The results indicated a statistically significant relationship between gender and lack of culture fit as a perceived barrier to career advancement in the product management profession. The results contribute to the broader, gender-based career advancement disparities body of research while providing a research foundation for the intersectionality of gender, career advancement, and the product management profession. This study's findings may contribute to positive social change by enabling product management professionals and organizational leaders to make meaningful career development decisions to advance gender-based career equity.

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Dedication

To Joe and Wanda Presley. This work is the manifestation of your prayers, sacrifices, love, and dedication to me; a physical manifestation of “starting out like I can hold out” and “no turtle-box syndrome” as a mindset. Thank you for your intentionality in your rearing and continuous support.

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Chapter 1: Introduction to the Study

The glass ceiling phenomenon, coined as a metaphor by Loden in 1987, has a long history of driving gender-based career advancement disparities (Grangeiro et al., 2022). Scholars have described the glass ceiling phenomenon as an invisible barrier limiting women's ability to advance into senior-level positions (Block et al., 2021; Tripathi et al., 2021). Some glass ceiling researchers attribute the career advancement disparity to women, noting that women were less productive than men (Showkat, 2021) or personality traits (Bassir et al., 2022; Collischon, 2021). Some glass ceiling scholars have posited that patriarchal social constructs influence individuals to associate leadership positions with men (Moorthy et al., 2022; Taparia & Lenka, 2022). Nonetheless, despite 5 decades of research on the glass ceiling phenomenon, metaphorical glass ceilings and gender-based career advancement disparities still persist (Grangeiro et al., 2022).

Product management is an emerging profession that involves partnering with various internal and external stakeholders to develop, launch, and manage products (Gemino & Reich, 2023). The product management profession evolved from the brand management profession and includes a broad range of solutions, including tangible products, software, and services (Shulamn et al., 2023). Given the profession's nascency, there is a lack of scholarly literature on the field (Dash, 2022; Hyryansalmi et al., 2021). Professionals of other disciplines benefit from knowing how gender-based career advancement disparities impact their professions; product management professionals deserve the same knowledge.

The topic of this study is the perceived barriers to career advancement in the product management profession in a gendered context. Academics have a wealth of available data informing how gender-based career advancement disparities may impact their professional growth (Helga et al., 201; Veelen & Derks, 2022). Accounting professionals have contextual knowledge about the glass ceiling phenomenon specific to their industry (Cohen, 2020). Hospitality professionals have data on gender-based career advancement disparities (Tam et al., 2022). While a large body of glass ceiling and career advancement literature is available, the specific populations leveraged in extant literature impede the ability to generalize findings in the product management profession. To date, there is no known scholarly literature on the perceived barriers to career advancement in the product management profession in a gendered context.

Eliminating gender disparities in the workplace is deeply connected to positive social change because it promotes a fair society in which all individuals have equal access to opportunities (Cislaghi & Heise, 2020). Showkat (2021) supported this view and asserts that gender equality is essential to an ideal societal structure. This study has the potential to promote positive social change by arming practitioners with reliable data with practical implications to mitigate gender-based career advancement disparities.

Chapter 1 includes the background of the study, problem statement, purpose of the study, research questions and hypotheses, theoretical foundation, nature of the study, pertinent definitions, assumptions, scope and delimitations, and limitations. The significance of the study is also included with three foci: (a) significance of the study to

gender-based career advancement research, (b) significance to the product management profession, and (c) significance to positive social change.

Background of the Study

Extant gender inequity research has been focused on organizational justice, gender bias, and glass ceiling constructs supports disparate career advancement between genders (Bloch et al., 2021; Cohen et al., 2020; Hoang et al., 2022). A study on career advancement in the hospitality industry indicated that only men were able to advance to mid-level management positions before 30 years of age, and only men were able to advance to top-level management positions after 50 years of age (Tam et al., 2022). Falco et al. (2023) discovered a statistically significant relationship between gender and career advancement in academia. Tabo et al. (2021) found a relationship between gender and career advancement in the healthcare industry. Despite evidence of gender disparities in career advancement in several industries, little is known about the relationship between gender and career advancement in the product management profession.

Product management is an emerging profession in the engineering and technology field in which the job responsibilities and challenges vary amongst teams within an organization and across differing organizations (Springer & Miler, 2022; Kelly, 2019). Historically, product management was considered an extension of brand management, having been popularized in the 1930s by McElroy at Proctor and Gamble, a large consumer packaged goods firm (Hyrynsalmi et al., 2021). Modern product management has since become an integral aspect of an organization, particularly software companies,

and is focused on driving profitability and viability for products and, ultimately, the organization (Springer & Miler, 2022; Sverrisdottir et al., 2014).

Product managers are responsible for a broad set of activities. These activities include collaboratively creating, launching, and iterating products to ensure that their product(s) aligns with customer, market, and/or organizational needs (Sverrisdottir et al., 2014; Tkalich et al., 2022). The specific responsibilities vary depending on the teams' or organizations' needs (Kelly, 2019; Springer & Miler, 2022). Product manager responsibilities also vary depending on the team hierarchy or title nomenclature. Tenured product managers are considered senior product managers (Kelly, 2019). In contrast, an entry-level product position is often considered an associate product manager, and a mid-career product professional is typically considered a product manager (Kelly, 2019).

Given the nascency of the product management profession, shared knowledge of career advancement trends are not yet widespread (Hyrynsalmi et al., 2021). The volume of scholarly literature focused on product management has grown in the last two decades (Donthu et al., 2022; Hyrynsalmi et al., 2021); however, there is a relatively small group of scholars researching the profession (Hyrynsalmi et al., 2021). Existing product management literature includes broad topic areas, including green product development (Candrianto et al., 2023), supply chain product development (Gress et al., 2021), and blockchain product development (Musamih et al., 2022); however, information related to the product management career path is also important to address.

Despite its long history and awareness, the glass ceiling phenomenon in the workplace persists across many industries. These industries include healthcare and

automotive (Brown et al., 2021; Müldür & Karaca, 2022; Üstgörül, 2022). Loden is attributed to popularizing the metaphor ‘glass ceiling’ to describe gender-based promotion disparities favoring men (Loden, 1987; Tripathi et al., 2021). In a 1987 article, Loden described the female career trajectory and the relative underrepresentation of women in senior management as a plateau. Loden asserted that despite women entering the workforce *en masse* in the 1960s, leadership had not yet valued women's performance and potential.

Gender imbalance has continued to permeate more recent research. Benson et al. (2022) researched how management perceptions of employee potential performance across genders impacted promotions into senior positions and discovered a variance in the perception of employee potential performance between men and women. Benson et al. (2022) discovered that women were more likely to be perceived as having lower potential performance than men despite having higher actual performance ratings, which was a factor in explaining the gender-based promotion gap. Extant research suggests that managers may inappropriately assess the future potential of female employees based on subjective data despite recorded performance ratings.

The gender inequity also spans organizational levels. Bloch et al. (2021) examined the glass ceiling phenomenon through the lens of both gender and race. They discovered an underrepresentation of Black men and Black women in middle- and senior-management positions compared to White men and White women. The authors’ findings suggested that the glass ceiling phenomenon may have a racial basis, not just gender (Bloch et al., 2021).

Promotions is one key area. Cohen et al. (2020) analyzed the perceptions of gender-based promotion disparities in the accounting profession. They found that accounting professionals perceive biases against women relative to promotions to senior-level positions, lacking mentorship and advocacy from men within the organization (Cohen et al., 2020). Extant research supports the existence of the glass ceiling phenomenon as an explanation for the underrepresentation of women in senior-level management positions despite no difference in performance (Benson et al., 2022) and job readiness for senior-level positions (Tripathi et al., 2021).

Along with promotions, perceptions of fairness brings in the idea of organizational justice. Greenberg (1990) studied employees' perceptions of fairness in decision-making and practices within an organizational context and popularized the concept as the organizational justice theory. Organizational justice theory has been leveraged as the theoretical foundation for research topics, including favoritism in the hospitality industry (Arici et al., 2021; Shapoval, 2019) and performance evaluations in the manufacturing industry (SeTin et al., 2022). It is important to understand how the organizational justice theory can be used to understand the distribution of promotions in the product management profession. Organizational justice theory includes four categories: distributive, informational, procedural, and interactional (Hoang et al., 2022; Russen et al., 2021; Shapoval, 2019). Extant research has leveraged the distributive justice component of organizational justice theory to explore equity in promotions (Harris et al., 2004; Wang et al., 2019) and identified the importance of transparency and equity in promotion processes for well-functioning organizations.

The gap in this current research is based on research by Kim (2022), who researched gender-based disparities and career advancement into senior-level positions in a software company. My research could fill a meaningful gap by studying the perceived barriers to career advancement, specifically in the product management profession. Kim (2022) suggested future gender-based disparities and career advancement research in the engineering and technologies fields and indicated that using primary data in said future research would be ideal, given the dearth of scholarly literature available on the topic. Product management is an emerging profession within the engineering and technology fields (Hyrynsalmi et al., 2021; Springer & Miler, 2022; Tkalich et al., 2022). Further, Hyrynsalmi et al., 2021 explored extant product management research and highlighted a need for more product management literature. While the general requirements for a product manager role are documented (Nemec & Wroblowská, 2018), and the prevalence of the glass ceiling phenomenon and its impact on gender-based career advancement disparities is also well-known (Benson et al., 2022; Kim, 2022; Socratous, 2020), the question of whether there is a relationship between gender and the perceived barriers to career advancement in the product management profession requires an answer. Conducting this study is imperative to filling a gap in the literature that provides evidence-based data on potential gender-based career advancement disparities in the product management profession.

This study is needed to build on existing gender-based career advancement research for advancing the product management profession. The existing scholarly product management literature discusses optimal product management processes (Wilson

& Goffnett, 2022) and the importance of product management as a discipline (Robbins & O'Connor, 2023), yet little research exists on the intersectionality of product management, the perceived barriers to career advancement, and gender (Hyrynsalmi et al., 2021). This study could serve as foundational literature and enable future researchers to expand on the limited body of knowledge focused on product management and career advancement.

Problem Statement

The general research problem is that patriarchal systems often inhibit equitable career advancement opportunities for women in the workplace, which can lead to increased organizational turnover (Alobaid et al., 2020; Dwivedi et al., 2023; Moorthy et al., 2022). The specific research problem that will be addressed through this study is that it is not known whether there is a relationship between gender and the perceived barriers to career advancement in the product management profession. Ramezani et al. (2021) conducted a quantitative study on gender-based career advancement disparities and found that the glass ceiling phenomenon significantly influenced the limited promotion of women to managerial positions. They discovered that the glass ceiling phenomenon could predict 48% of the variance of career advancement for women in a university setting (Ramezani et al., 2021). Nathan and Chandrasekhar (2023) found gender-based career advancement disparities in the otolaryngology field, as only 5.1% of chair positions in the otolaryngology field are held by women. Mahat and Aithal (2022) conducted a quantitative study on women and career advancement. They found that despite organizational policies and optimism, women perceived the necessity to perform better

than men to advance their careers (Mahat & Aithal, 2022). Paradoxically, Kim (2022) researched gender-based career advancement disparities and found that women are less likely to be promoted when performance is controlled for. Kim (2022) recommended future research on gender-based career advancement, specifically in the engineering and technology field, as this knowledge base is lacking.

This study could address a meaningful gap in the current research scholarly literature. This study may provide organizational leaders with insights to effectively address perceived barriers to career advancement, understand gender-based disparities, and enable women to advance to leadership positions. Extant research has established the influence of gender diversity on positive organizational outcomes (Delivering Through Diversity, 2018; Gomez & Bernet, 2019; Wu et al., 2021). Wu et al. (2021) conducted a quantitative study supporting a positive correlation between women in senior management and innovation compared to men. This research complements existing literature that supports that gender diversity can positively impact innovation and financial performance within organizations (Delivering Through Diversity, 2018; Gomez & Bernet, 2019).

Purpose of the Study

The purpose of this quantitative, correlational study was to compare the relationship between gender and the perceived barriers to career advancement in the product management profession. The independent variable, gender, was defined as a dichotomous variable (i.e., female and male). The dependent variables cumulatively represented the perceived barriers to career advancement and are defined as six factors in

the Perceived Barriers to Career Advancement survey (Lyness & Thompson, 2000) (Appendix A). These six factors and dependent variables were the perception of lack of culture fit, the perception of exclusion from informal networks, the perception of lack of mentoring, the perception of poor organizational career management processes, the perception of difficulty getting developmental assignments, and the perception of difficulty obtaining opportunities for geographic mobility. Although extant literature explored gender biases in relation to organizational justice theory and the glass ceiling phenomenon, it is important to understand this problem in the product management profession, too.

Research Question(s) and Hypotheses

There are six research questions designed to address the research problem and align with the study's purpose.

Research Question 1: What is the relationship between gender and the perception of lack of culture fit in the product management profession for product managers and senior product managers based in the United States?

$H_0$1: There is no significant relationship between gender and the perception of lack of culture fit in the product management profession for product managers and senior product managers based in the United States.

H_a1: There is a significant relationship between gender and perception of the lack of culture fit in the product management profession for product managers and senior product managers based in the United States.

Research Question 2: What is the relationship between gender and the perception of exclusion from informal networks in the product management profession for product managers and senior product managers based in the United States?

$H_0$2: There is no significant relationship between gender and the perception of exclusion from informal networks in the product management profession for product managers and senior product managers based in the United States.

H_a2: There is a significant relationship between gender and the perception of exclusion from informal networks in the product management profession for product managers and senior product managers based in the United States.

Research Question 3: What is the relationship between gender and the perception of lack of mentoring in the product management profession for product managers and senior product managers based in the United States?

$H_0$3: There is no significant relationship between gender and the perception of lack of mentoring in the product management profession for product managers and senior product managers based in the United States.

H_a3: There is a significant relationship between gender and the perception of lack of mentoring in the product management profession for product managers and senior product managers based in the United States.

Research Question 4: What is the relationship between gender and the perception of poor organizational career management processes in the product management profession for product managers and senior product managers based in the United States?

$H_0$4: There is no significant relationship between gender and the perception of poor organizational career management processes in the product management profession for product managers and senior product managers based in the United States.

H_a4: There is a significant relationship between gender and the perception of poor organizational career management processes in the product management profession for product managers and senior product managers based in the United States.

Research Question 5: What is the relationship between gender and the perception of difficulty getting developmental assignments in the product management profession for product managers and senior product managers based in the United States?

$H_0$5: There is no significant relationship between gender and the perception of difficulty getting developmental assignments in the product management profession for product managers and senior product managers based in the United States.

H_a5: There is a significant relationship between gender and the perception of difficulty getting developmental assignments in the product management profession for product managers and senior product managers based in the United States.

Research Question 6: What is the relationship between gender and the perception of difficulty obtaining opportunities for geographic mobility in the product management profession for product managers and senior product managers based in the United States?

$H_0$6: There is no significant relationship between gender and the perception of difficulty obtaining opportunities for geographic mobility in the product management profession for product managers and senior product managers based in the United States.

H_a6: There is a significant relationship between gender and the perception of difficulty obtaining opportunities for geographic mobility in the product management profession for product managers and senior product managers based in the United States.

Theoretical Foundation

In this study, I used a theoretical model that included two components. Varpio et al. (2020) defined a theoretical framework as one or more theories or concepts that ground a research study in logical thought and serve as the framing for which to understand the research approach. The theories that ground this study include the glass ceiling phenomenon popularized by Loden (Tripathi et al. 2021), and Greenberg's (1990) organizational justice theory. The logical connections between the theoretical framework and the nature of my study include the glass ceiling phenomenon, which refers to gender bias that traditionally impedes women from career advancement (Bloch et al., 2021; Cotter et al., 2001; Hospido et al., 2022). The glass ceiling phenomenon is related to the research problem because it is well-established that women are less likely to be promoted than men. Powell and Butterfield (2015) conducted a systematic review of glass ceiling literature and found evidence of gender-based career advancement disparities over a 30-year-period. Naguib and Madeeha (2023) found evidence of gender-based career advancement disparities based on a preference for male managers. Taparia and Lenka's (2022) research supported the existence of glass ceilings favoring men and suggested that organizational policies and laws can perpetuate the glass ceiling effect.

Despite decades of research and general awareness, contemporary research suggests that the glass ceiling phenomenon persists (see Bloch et al., 2021; Brown et al.,

2021; Powell & Butterfield, 2015). The glass ceiling phenomenon is also related to the study's purpose because the glass ceiling phenomenon and the study's purpose are aligned in examining the relationship between gender and the perceived barriers to career advancement. The glass ceiling phenomenon is related to the nature of the study because the quantitative methodology can be used to measure gender and the perceived barriers to career advancement to create new knowledge within the product management profession. It is also related to the correlational research design because understanding the relationship between gender and the perceived barriers to career advancement is accomplished through a non-experimental correlational research design.

Organizational justice theory describes how employees perceive fairness within a workplace (Greenberg, 1990; Hoang et al., 2022; Russen et al., 2021). Organizational justice theory includes four subdimensions, distributive justice, procedural justice, interactional justice, and informational justice, which helps researchers and practitioners to dissect perceived fairness at a granular level as opposed to at a general, macro level (Greenberg, 1990). Organizational justice theory has been widely used to understand the relationship between gender and career advancement (Cohen et al., 2020; Hoang et al., 2022; Russen et al., 2021). Organizational justice theory is related to the research problem because the study will explore whether the perceived barriers to career advancement can be predicted by gender. This theory is also related to the study's purpose because the results could promote high organizational justice within the product management profession by developing new knowledge of the relationship between gender and the perceived barriers to career advancement. Finally, organizational justice

theory is related to the nature of the study because the quantitative methodology is used to observe phenomena and objectively understand data; this study leveraged quantifiable data to understand the relationship between gender and the perceived barriers to career advancement in the product management profession. It is also related to the correlational research design because the approach the study examined the strength of the relationship between gender and the perceived barriers to career advancement in the product management profession, aligned with high organizational justice.

Nature of the Study

To address the research questions in this quantitative study, the specific research design included a non-experimental, correlational research design with the intent of understanding the relationship between gender and the perceived barriers to career advancement in the product management profession for product managers and senior product managers. A correlative research design is used in quantitative research when the researcher aims to understand relationships between variables without manipulating variables (Walker, 2005). Further, an experimental research design is used when the research purpose intends to elucidate causal relationships between variables (Frankfort-Nachmias et al., 2021; Seeram, 2019; Sekaran & Bougie, 2010; Walker, 2005). Given that the research purpose was not to elucidate causality, a non-experimental research design was selected. To adequately address the research problem, current product managers and senior product managers based in the United States responded to survey questions detailing their perceptions six perceived barriers to career advancement. The six dependent variables leveraged in the study were: perception of lack of culture fit, the

perception of exclusion from informal networks, the perception of lack of mentoring, the perception of poor organizational career management processes, the perception of difficulty getting developmental assignments, and the perception of difficulty obtaining opportunities for geographic mobility. The independent variable in this study was gender in a binary sense (i.e., female, male).

I identified product managers and senior product managers based on their LinkedIn profiles and sent them direct messages to make the potential participants aware of the study. The direct messages used was approved by Walden University's Institutional Review Board, and included the purpose, eligibility, and potential impact of the study. The message also detailed that the survey was anonymous whereby their names, email addresses, company name, or any other identifying information would be recorded. Lyness and Thompson (2000) authored the research instrument, *Perceived Barriers to Career Advancement Scales*, that was leveraged for this study and granted permission to use the instrument for non-commercial research and educational purposes without written consent. This study's quantitative analysis was intended to help determine whether gender is a predictor variable for the outcome variables: the perceived barriers to career advancement in the product management profession for product managers and senior product managers.

Definitions

The intention of the definition section is to enable readers to comprehend the operational vocabulary employed within this study. Given the relative nascency of the product management profession, nuances germane to the profession may not be widely

familiar. The vocabulary leveraged in this study was validated by its use in peer-reviewed sources.

Dependent variables: perceived barriers to career advancement.

Glass ceiling: Loden (1987) defined the glass ceiling as a metaphor describing invisible and substantial barriers to career advancement that groups of people. *Product manager*: a middle-management professional responsible for collaborating with technical teams to develop and launch solutions that address the needs of an organization and customers (Nemec & Wroblowská, 2018; Hyrynsalmi et al., 2021; Kelly, 2019).

Independent variable: gender (female, male).

Product management professionals: includes product managers and senior product managers.

Senior product manager: a senior-level management professional with similar responsibilities to that of a product manager with additional tenure; may include mentorship or line-management responsibility of associate product managers or product managers (Kelly, 2019).

Assumptions

In this study, I made several assumptions. Leedy and Ormrod (2015) asserted that assumptions are inherent in research and identifies, to the reader, what the research assumes to be true. As such, one core assumption is that the research instrument will be used to elicit truthful and reliable information from participants. Schonegger (2023) researched the Bayesian truth serum, which describes a scoring system designed to mitigate untruthful survey responses. Given that the research instrument leveraged for my

survey was not manipulated to include the Bayesian truth serum scoring framework, truthfulness was only assumed.

It was assumed that the participants are product managers and senior product managers and are not in other levels of product management (e.g., associate product manager, vice president of product management), or external to the profession (e.g., project management, software engineering). Stevens and Bernstein (2023) discussed the prevalence and implications of lying about one's career. It stands to reason that one could, in theory, misrepresent their job title for participation in this study. It was also assumed that participants are providing their perspective based on their current employment status and their personal experience, not the experience of friends, family members, or other employees. It was assumed that participants do so based on their own volition and are not coerced to participate in the questionnaire. This assumption was necessary to assume because coercive language may impact the reliability of the study and inhibit the ability to reproduce study findings (Frankfort-Nachmias et al., 2021).

Scope and Delimitations

I also set several delimitations to define the scope of this study. Scope and delimitations define the boundaries of a study (Leedy & Ormrod, 2015). These boundaries included the theoretical framework, variables, and research problem, which is intended to help readers focus on concepts and context relevant to the research. The scope of this research is limited to product management and senior product management careers (e.g., project management is not within scope; career progression from associate or junior level product management into product management roles is not within the

scope of this research. The product managers and senior product managers studied were full-time, salaried employees and were not performing in a part-time or voluntary capacity. This study does not include populations in adjacent professions (e.g., project management, software engineering, etc.).

Generalizability refers to the extent to which research findings can be applied to a broader population (Degtiar & Rose, 2023). The population included in this study consisted of full-time, salaried product managers and senior product managers based in the United States, which may lead to generalizability for a broader population of product management professionals. Some factors inherently challenge generalizability, which include organizational culture, company size, and career management processes.

Limitations

There are also several limitations to this study. Research limitations are commonplace in scholarly research and are important for researchers to acknowledge potential weaknesses outside the researcher's control (Leedy & Ormrod, 2015). The data collection process included self-reported information, so job performance data is not considered for this study. While performance was assumed as a factor for career advancement, accurate data was not collected at the employee level without company-level data. An additional challenge may have been if the sample did not represent the larger population. I addressed this potential limitation by including participants from multiple companies.

Given my gender and career experience in the product management profession, confirmation bias is plausible. Confirmation bias exists when a researcher has prior

knowledge on a topic which may lead the research to favor their existing beliefs, which negatively influence the study outcomes (Frankfort-Nachmias et al., 2021). The research design, as a quantitative study, was intended to mitigate the possibility of leading questions in an interview setting. Given that the research instrument was established and was not manipulated, research reliability and validity were strengthened.

Significance of the Study

This study is significant because it fills a gap in the glass ceiling knowledge base in the product management profession. The research findings could promote positive social change by enabling organizational leaders, including product team leads, human resources leaders, and employee resource group leaders, to make intentional career advancement policies and decisions that do not exasperate gender-based disparities. This research has the potential to positively impact social change by providing insight into gender-based career advancement disparities in an emerging field, which may have implications for long-term equities for future generations of senior product managers. This research can potentially advance the organizational justice theory and the glass ceiling concept by overlaying context to the product management profession.

Significance to Gender-Based Career Advancement Research

Despite decades of examination, there is an abundance of scholarly research that provides evidence for statistically significant differences in gender-based career advancement disparities (Brown et al., 2021; Zakaras et al., 2021). This study is significant to the body of gender-based career advancement because it allows for continued curiosity about the topic. Despite the lack of a concrete solution to the gender-

based career advancement disparity problem, further research is required to converge upon solutions. Most studies have focused on career advancement disparities in professions not related to product management. This study is significant to the body of career advancement research because it expands the breadth of knowledge into new professional domains, which serves to evolve the science.

Significance to the Product Management Profession

While career advancement research is available in healthcare (Tabo et al., 2020), academia (Nikunen & Lempiäinen, 2020; Prozesky & Beaudry, 2019), and other professions, little is known about career advancement in the product management profession. Insights from this study may provide product management researchers with data from which to extend further product management literature. Product management scholarly literature to data typically focused on operational practices (Kittlaus & Clough, 2009; Wilson & Goffnett, 2022) and systematic literature reviews (Gemino & Reich, 2023; Hyrynsalmi et al., 2021). This study may provide researchers with a new lens through which to evaluate the product management profession. Product management scholarly literature is scant when compared to academic literature available in other disciplines (Hyrynsalmi et al., 2021). This research has the potential to add to a limited body of research, giving other researchers a foundation from which to build.

The study has the potential to advance the product management practice and provide practitioners with data-driven decision-making tools. This study may help to enable equitable career advancement opportunities regardless of gender. Organizational leaders may be able to create career advancement opportunities and solutions that

intentionally consider the perceptions of their diverse teams so that blind ignorance may not be leveraged as an explanation for gender-based career advancement disparities. Extant research suggests that mentorship (Mcilongo & Strydom, 2021), training, job rotations, and career counseling (Bagdadli & Gianecchini, 2019) can be career advancement tools; however, it is not yet known how this may be relevant for product managers and senior product managers. The findings in this study may enable organizational leaders to understand which tools may be most impactful in a product management context.

Significance to Social Change

The study has the potential to foster positive social change because it can help organizational leaders create equitable hiring and promotion practices that are well-aligned with ideal social constructs. Equal access to opportunities is embedded in the societal ideals within the United States. It is explicitly stated in the 14th Amendment to the United States Constitution, which indicates that all persons are entitled to equal protection of the laws. Further, the Civil Rights Act of 1964 is intended to guarantee social equality for employees by mandating equal access to employment opportunities and prohibiting discrimination on the basis of race, color, religion, sex, and natural origin. The findings of this study have the potential to arm organizational leaders with the guidance that will mitigate gender-based career advancement disparities, drawing closer to social ideals. The study has the potential to realize a lesser gap between federal regulations and constitutional laws that explicitly prohibit inequity and perceptions of inequity.

Positive social change effort can be beneficial to organizations as well. del-Castillo-Feito et al. (2022) posited that socially responsible human resource management practices are socially desired and positively contribute to perceived organizational legitimacy. Of the five identified elements of socially responsible human resource management practices, diversity, job opportunities, and no discrimination were the most statistically significant factors contributing to perceived organizational legitimacy (del-Castillo-Feito et al., 2022). This study has the potential to positively impact organizational behavior by providing organizational leaders with guidance to eliminate discriminatory practices and/or gender-based career advancement disparities.

Summary and Transition

The perceived barriers to career advancement in a gendered context have been a complex issue to resolve, given the multi-dimensionality of its underlying causes. Researchers have attributed the disparities to patriarchal social structures and deeply entrenched gender-based stereotypes (Taparia & Lenka, 2022). Other researchers have considered inadvertent organizational processes correlated to gender-based career advancement barriers (Feeney et al., 2017; Villamor et al., 2023). Despite legislative advancements designed to promote gender equity, this is not consistent globally. Ensour et al. (2017) studied gender-based career advancement disparities in Jordan and discussed national legislation that imposed labor restrictions on women that did not apply to men. Women have attempted to compensate for gender-based career advancement issues by overperforming (Maha & Aithal, 2022) or forming psychologically safe social networks (Horak & Suseno, 2022). Nonetheless, evidence suggests gender-based career

advancement disparities that favor men in various industries; however, there is no known evidence of this phenomenon in the product management literature.

This study builds on the myriad of existing literature on the glass ceiling and organizational justice theory research by adding new context in the product management profession. This quantitative correlational study addressed the research problem by understanding the perceived barriers to career advancement by gender, and subsequently understanding whether there is a substantial difference between the genders. Lyness and Thompson (2000) presented a validated research instrument that was used for this study and define the perceived barriers to career advancement: (a) lack of culture fit, (b) excluded from informal networks, (c) lack of mentoring, (d) poor organizational career management processes, (e) difficulty getting development assignments, and (f) difficulty obtaining opportunities for geographic mobility.

Chapter 2 presents a detailed synthesis of extant scholarly literature related to the topic of the study. Previous scholarly research focused on the glass ceiling phenomenon, organizational justice theory, and career advancement. Chapter 2 also contextualizes the existing literature in the product management profession.

Chapter 2: Literature Review

The general research problem is that patriarchal systems often inhibit equitable career advancement opportunities for women in the workplace, which can lead to increased organizational turnover (Alobaid et al., 2020; Dwivedi et al., 2023; Moorthy et al., 2022). The specific research problem that was addressed through this study is that it is not known whether there is a relationship between gender and the perceived barriers to career advancement in the product management profession. The purpose of this quantitative correlational study was to compare the relationship between gender and the perceived barriers to career advancement in the product management profession.

Organizational justice theory extends the equity theory and describes how employees perceive fairness within a workplace (Greenberg, 1990; Hoang et al., 2022; Russen et al., 2021). Organizational justice theory includes four distinctive dimensions that can help explain how employees rationalize fairness: distributive justice refers to the perceived fairness of how resources and rewards are allocated; procedural justice refers to the processes and decision-making related to allocating resources and rewards; interactional justice refers to the perceived fairness of relationships and treatment of people after a decision has been made; and, informational justice refers to the perceived fairness in access to information after a decision has been made (Greenberg, 1990). Organizational justice theory provides researchers with a lens through which to evaluate perceived fairness in a workplace setting.

The glass ceiling phenomenon is the metaphorical description of the invisible barrier that limits equitable career advancement for women (Bloch et al., 2021; Powell &

Butterfield, 2015). The glass ceiling phenomenon has been referenced in over 1,200 scholarly articles over five decades of research (Grangeiro et al., 2022). There is a wide range of explanations for the glass ceiling phenomenon, including personality traits (Bassir et al., 2022), self-efficacy disparities between men and women (Batool et al., 2021), and patriarchal norms (Moorthy et al., 2022).

Chapter 2 includes a description of the literature search strategy, a review of the theoretical framework, and a review of product management literature. The theoretical framework is based on the organizational justice theory and the glass ceiling phenomenon. The immediate subsequent content is the literature search strategy, which outlines the approach used to find relevant literature.

Literature Search Strategy

The Walden University Library database served as the foundation for my literature search, as I was able to search multiple databases and keywords to find pertinent literature. An electronic search was conducted using Boolean keywords or phrases such as *gender inequality, gender discrimination, glass ceiling, organizational justice theory, gender promotion gap, gender bias, diversity management, women's career planning, women in male-dominated industries, career advancement, gender-based career advancement disparities, career trajectory, twice as hard, perceptions of barriers to career advancement, product management, women in technology, cultural fit within organizations, informal networks, organizational mentorship, career promotion, perceived fairness in promotions, geographic mobility, career management processes*, and *developmental assignments*. The databases leveraged for this literature review

included Academic Search Complete, APA PsycTests, Business Search Complete, and Gale Academic OneFile Select.

Google Scholar and the University of Tennessee online library also served as resources to locate scholarly literature inaccessible in the Walden University library. In Google Scholar, I was able to find similar articles based on who cited a base article and by finding other works from the same author. The University of Tennessee online library database was helpful in finding full-text scholarly articles when the Walden University library and Google Scholar only offered abstracts.

The scope of literature included scholarly articles from 1965 to 2024. The themes in the searched literature included gender-based career advancement disparities, organizational career management processes, organizational justice theory, and the glass ceiling phenomenon. The scholarly articles included in the literature review included seminal works and current research available in peer-reviewed journals.

Theoretical Foundation

The perception of fairness in an organizational context is nuanced. Early known scholarly research on organizational fairness centered on how employees perceived fairness between compensation and effort (Adams, 1965). The perception of fairness in an organizational context has evolved to include a four-part framework of organization justice theory: the distribution of outcomes, how information is shared, interpersonal treatment, and the perception of fair processes (Greenberg, 1990). Further, the glass ceiling phenomenon is a metaphor often used to describe gender-based career

advancement disparities favoring men (Loden, 1987). What follows is a description of the glass ceiling phenomenon and the organizational justice theory.

Glass Ceiling Phenomenon

A considerable amount of research has been published on the glass ceiling phenomenon. This literature has been focused on examining the existence of organizational barriers and how these barriers restrict the career progression of women (Bloch et al., 2021; Cohen et al., 2020; Powell & Butterfield, 2015;). While the concept primarily focuses on discrimination against women, the glass ceiling research has expanded to include racial constructs (Bloch et al., 2021; Cotter et al., 2001) and the potential for reverse discrimination against men (Russen et al., 2021).

The glass ceiling phenomenon has been documented in scholarly literature for over 30 years after its acknowledgment and popularization (see Bloch et al., 2021; Powell & Butterfield, 2015; Tripathi et al., 2021). Loden is widely attributed to coining the glass ceiling term as a metaphor describing an invisible barrier within an organization that impedes a woman's ability to progress into senior-level positions (Tripathi et al., 2021). In 1987, Loden published the inaugural glass ceiling article describing workplace discrimination against women and indicated remedying effects to mitigate its prevalence, including increasing the presence of women on corporate boards, tracking the careers of high-performing women, and rectifying salary discrepancies (Loden, 1987). Despite these suggestions over 30 years ago and the volume of scholarly research conducted since Powell and Butterfield (2015) indicated that the glass ceiling phenomenon in

organizations remained consistent. The researchers asserted that the organizational implications have been broadly ignored, particularly in the public sector.

There have been several major works in this area. In an effort to organize and summarize relevant research and metaphors on gender inequality in organizations, Grangeiro et al. (2022) conducted a systematic literature review of 1.269 papers in 688 journals by 2,441 authors spanning five decades of research. The glass ceiling phenomenon emerged as the most prominent metaphor describing gender inequalities in organizations. The authors also identified more than 20 perceived barriers to career advancement, including those noted in this study's research questions (i.e., exclusion from informal networks, lack of cultural fit, difficulty getting developmental assignments, and geographic mobility opportunities).

Similarly, Liff and Ward (2001) highlighted that early glass ceiling research asserted that gender discrimination in management hiring was due to female personality traits and other challenges that placed women at fault. While some modern research has shifted to examining the organizational and societal constructs that could explain the phenomenon, research curiosities still investigate what place women have in the glass ceiling phenomenon (Enid Kiaye & Maniraj, 2013). Enid Kiaye and Maniraj (2013) explored the perception of the glass ceiling phenomenon through a quantitative research study including female employees at various organizations in Durban, South Africa. They found clear evidence of workplace discrimination against women, partly due to a lack of respect for women. Enid Kiaye and Maniraj added that the female employees were deemed confident and emotionally adept, which may highlight the proclivity of

researchers to explore whether workplace discrimination against women is, in part, self-imposed. Helga et al. (2019) examined the relationship between gender and the time to promotion into full professor roles and acknowledged extant controversial research (e.g., Ceci et al., 2014; Leahey, 2007) that indicated that the lack of gender equity in promotions is due to women exhibiting lower productivity. Helga et al. (2019) indicated that this extant research often lacked the contextual information necessary to support the research validity.

Researchers have also studied how perseverance as a personality trait impacts the perception of the glass ceiling phenomenon in their organization Popoola and Karadas (2022). put forward that grit, or the personality trait associated with one's ability to persevere, correlates to a woman's perception of a glass ceiling. Popoola and Karadas' interpretation overlooked much of the extant research that found evidence of the glass ceiling phenomenon as a barrier to career advancement. The authors offer no explanation for systemic societal beliefs that may elucidate the existence of glass ceilings within organizations as evidence-based rather than based on a woman's personality. This view is similar to Kholiq's (2022) work, which suggested that early glass ceiling research focused on the individual as the unit of analysis (e.g., examining the relationship between the employee and the glass ceiling phenomenon). Kholiq (2022) indicated that additional work is necessary to understand the degree to which the organization (e.g., norms and processes) influences the glass ceiling phenomenon.

Several studies have argued that the glass ceiling phenomenon exists due to patriarchal norms, whereby historical social systems that value male dominance reinforce

the position of men as leaders more than women (see Alobaid et al., 2020; Bassir et al., 2022; Moorthy et al., 2022). Walby (1989) described patriarchy as a social and cross-cultural construct in which men hold power and women are excluded from equal power. To understand how patriarchy may have been prevalent in the workplace, Moorthy et al. (2022) conducted quantitative research to develop knowledge about gender inequity and female career progression. More specifically, the researchers examined the relationship between patriarchy, gender-based stereotypes, familial considerations, individual factors, and organizational culture.

As a theoretical foundation, Moorthy et al. (2022) cited existing research, Bombuwela and Chamaru's 2013 study, that found a positive correlation between glass ceiling factors and women's career progression, particularly in the private sector and women in executive-level positions (Bombuwela & Chamaru, 2013). Moorthy et al. (2022) found a negative, insignificant relationship between individual factors such as performance, skills, age, or hard work and women's career progression. Further, the research suggested a negative and insignificant relationship between the existence of gender stereotypes and women's career progression. The researchers found a strong relationship between organizational culture, family factors, and women's career progression; the researchers noted that patriarchy is a factor in inhibiting career progression for women. Moorthy et al. explicitly stated that some organizations designate department leadership jobs with high decision-making responsibilities to men and designate department leadership jobs with support functions to women, supporting the

aforementioned definition of patriarchy whereby decision-making power is reserved for men.

The intersectionality of personality traits and career advancement for women has been the focus of scholarly research. Bassir et al. (2022) examined the glass ceiling phenomenon while contrasting the four of the big five personality traits (i.e., extroversion, neuroticism, openness, and conscientiousness) as contributing factors to career achievement. Despite acknowledging patriarchy as a social construct and that discrimination against women in the workplace exists, the research largely ignored the impact of patriarchal ideals as a limitation of career achievement for women. Instead, the research findings indicated a strong relationship between openness to experience and career achievement only, while no statistically significant relationship between career achievement and extroversion, neuroticism, and conscientiousness. The research findings nullify the idea that women should exhibit extroversion to attain career advancement. That said, the researcher discussed the need for women to simply exhibit openness to attain career advancement and shatter glass ceilings without also acknowledging the systemic constructs as a confounding variable.

In contrast, Alobaid et al. (2020) explored glass ceiling factors as relevant for female paramedics in Saudi Arabia, citing the country's goal of employing more women despite its long history of patriarchal and oppressive constructs. Alobaid et al. focused on organizational processes (i.e., equal wages, equal focus on specificity of job descriptions for both men and women) and cultural changes to promote gender equality in career advancement within the paramedical profession in Saudi Arabia. They did not imply that

women should attempt to combat discriminatory social constructs that they do not control.

Gender-based career advancement disparities are a global problem. While much glass ceiling research has been focused on the United States, there are several studies that explore the phenomenon in a global context, including South African (Enid Kiaye & Maniraj, 2013), Indonesian (Kholiq et al., 2022), and Malaysian (Moorthy et al., 2022) contexts. In a qualitative study examining the glass ceiling phenomenon, career advancement, and gender bias in the Qatar public sector, Naguib and Madeeha (2023) found that while both men and women interviewed expressed that they did not believe that women faced any barriers to career advancement, they expressed a preference for male managers over female managers. This sentiment alludes to indirect barriers to career advancement, given the conscious biased preference for male managers, notably expressed by both men and women. Participants in the study also noted disparities in work-life balance between genders, whereby women tend to have more demands outside of work than men. To that end, some men in the study attributed women's challenges in balancing work-life responsibilities to a perceived deficiency in women’s skills rather than acknowledging systemic gender inequality as a factor. Further, Naguib and Madeeha specified that the male participants believed that the work-life balance challenges were a female issue; however, both men and women participants preferred male managers. This possibly indicates that gender biases or beliefs contributing to gender inequities in career advancement may not be held by men only. The main weakness of this study is that it includes 45 participants and a disproportionate ratio of women (30) to men (15). The

authors leveraged a snowball sampling method, which relies on referrals to other research participants. While a snowball sampling method allows researchers to access participants relatively easily, it is difficult to make generalizations about the broader population (Bhardwaj, 2019). Further research with a larger sample size and sampling strategy (e.g., cluster sampling, simple randomized sampling, stratified sampling) that allows researchers to make connections to a broader population would be helpful.

Taparia and Lenka (2022) conducted a systematic review of glass ceiling research. They uncovered several recurring themes, including the challenges of work-life balance that typically impact women more than men and policies and laws that either perpetuate or counter the glass ceiling phenomenon in practice. The authors posit that society tends to view men as more acceptable managers than women. Taparia and Lenka (2022) referred to this concept as *think manager think male*, which is believed to affect women's career advancement. This finding is similar to the findings in Naguib and Madeeha's (2023) study, which described the research participants' preference for male managers.

While typically associated with gender, the glass ceiling phenomenon has been the focus of several studies that reveal its impact on ethnic minorities relative to career advancement (see Adamovic & Leibbrandt, 2023; Cook & Glass, 2014; Welch et al., 2021). Adamovic and Leibbrandt (2023) studied whether the glass ceiling affected ethnic minorities entering leadership positions in the United States. Adamovic and Leibbrandt submitted over 12,000 resumes to over 4,000 job applications and found that resumes with English-sounding names were more likely to receive a positive response even with

otherwise identical resumes. The response was relatively consistent between middle-management and senior-level positions. The authors leveraged the implicit leadership theory as the framework for their study, which suggests that people create preconceived perceptions of what leadership is and use these beliefs to interpret reality (Offermann et al., 1994).

To that end, Adamovic and Leibbrandt (2023) posited that ethnic minorities are not viewed as prototypical leaders, which may, in part, explain the barriers to career advancement. This view is supported by Cook and Glass (2014), who found that white men were likelier to have longer tenure in CEO positions than occupational minorities, defined as white women and men and women of color. The authors found that occupational minorities were promoted to CEO positions in weakly performing organizations and replaced by white men. Adamovic and Leibbrandt referred to this as the "savior effect", in which white men were perceived as saving the organization after the minority CEO navigated the organization throughout its weakest periods. These studies are relevant to my study because they provide recent evidence for the existence of the gender-based career advancement disparities. Further, these studies underscore the wide-ranging nature of the glass ceiling phenomenon.

The perspective that glass ceilings can include implications for race or ethnicity is inconclusive. Cotter et al. (2001) put forth evidence that the glass ceiling is a barrier to career advancement for women but not relevant in a racial context for men and, as such, is a characteristically gender-based issue. Cotter et al. (2001) explicitly defined the glass ceiling phenomenon as "the magnitude of inequality increases and accelerates as one

moves up the hierarchy" (p. 671). Cotter et al. (2001) found a relationship between gender and barriers to career advancement and earning potential for both African American and white women compared to men but did not find the same pattern for African American men. The authors found that while African American men have lower chances than white men of achieving equitable earnings throughout their careers, their earning trajectory is likely to increase in parallel (i.e., at a similar rate) to white men. Thus, given that there is evidence of career advancement inequities without a corresponding increase in magnitude, Cotter et al. (2001) indicated that race is a disqualifying factor for the glass ceiling phenomenon. This finding has been adopted in subsequent research and generalized as glass ceilings are irrelevant in racial contexts (Grangeiro et al., 2022), which fails to represent the essence of inequity and career advancement research. While race is not a construct within the scope of this study, future research to examine the glass ceiling phenomenon in that context may be of value to practitioners.

A considerable number of literature has been published exploring the concepts of bias and discrimination-blindness. While intended as a well-meaning salve for discrimination, this actually perpetuates inequity (see Fiarman, 2016; Sapon-Shevin, 2017; Tatem et al., 2017). According to Kholiq (2022), gender-blindness can be described as the assumption among organizational leaders that if leaders do perceive a difference between female and male employees, then there is not a difference in career procedures. The central problem with this argument is that people are able to visibly distinguish race and gender, notwithstanding their personal desire to refrain from doing

so. Kholiq (2022) furthered this research by exploring the glass ceiling phenomenon's existence in Indonesia's Islamic judicial system. The researcher conducted a case study by interviewing 20 judges consisting of both men and women and found that gender blindness perpetuates the glass ceiling phenomenon. Despite equitable processes designed to mitigate the glass ceiling phenomenon, women represented less than 25% of judges in the first-instance courts, less than 9% at the appellate level, and at the highest levels, there were no women serving as judges. Given the equitable processes related to career advancement, the women interviewed could not identify whether explicit bias impacted career advancement. This research is essential to my study because it supports the relationship between gender and barriers to career advancement, and the presence of the glass ceiling phenomenon, despite organizational processes.

Historically, career advancement has followed a conventional model in which candidates are expected to express interest in a promotion. This may take place in the form of applying for an internal role or expressing interest to a manager or mentor. In either scenario, the onus is on the candidate to opt-in to a promotion opportunity. These examples exclude the scenario in which candidates are urged to participate by a leader or mentor.

In a notable departure from convention, Erkal et al. (2022) conducted a study to understand the glass ceiling phenomenon by removing one barrier to career advancement. Their study involved changing the conventional internal job application process, whereby all qualified candidates were automatically included in a candidate pool by default, and uninterested candidates could opt-out. This resulted in more women being considered for

career advancement opportunities in the opt-out process compared to the opt-in process, reducing gender gaps in leadership selection processes. The researchers modeled their design after similar models, including organ donation processes in which more people are likely to become organ donors in an opt-out model when compared to an opt-in approach. This research supports the relationship between gender and barriers to career advancement and experimented with removing a potential barrier: voluntary participation. While voluntary participation in expressing interest in career advancement opportunities is not a variable in my study, it supports the notion that gender and barriers to career advancement are complex topics and not rooted in a single issue. This research is supported by Brown et al. (2020), who explored gender gaps and career advancement in the male-dominated automotive industry. Brown et al. (2020) study's most statistically significant relationship revolves around women not being considered for promotions when larger opportunities arise as a perceived barrier to career advancement. Erkal et al. (2022) research supports that an opt-out model may help increase the number of women being considered for promotions and reduce gender-based barriers to career advancement.

While a considerable number of glass ceiling research articles have focused on women's experiences trying to achieve leadership positions, fewer studies have focused on the experiences of women who crossed the chasm into leadership positions despite career advancement barriers. Amakye et al. (2022) conducted a qualitative phenomenological study aimed at delving into the experiences of women in leadership roles. One of the prominent themes that emerged from the research pertained to

discrimination, sexism, and prejudice. Some of the participants reported that they perceived that they faced discrimination during their promotion or that it took them longer to attain leadership positions when compared to their male counterparts. That said, two participants did not believe they faced any prejudice in the career advancement process because several other women were in leadership positions. One of these participants explicitly noted that she believed she would feel differently in a male-dominated environment.

Glass ceiling researchers have also hypothesized that structural quotas may mitigate the glass ceiling phenomenon; however, findings suggest that systems designed to mandate a particular number of women in leadership are ineffective (Geys & Sørensen, 2019; Spaziani, 2022). Spaziani (2022) studied the effect of gender quotas in three systems in an Italian public service context. The hypothesis was that a gender-based quota introduced at the lower level of government would increase female participation in government and would, in turn, lead to more women in higher levels of government. This assumption is akin to a trickle-down approach whereby increasing the number on one level would benefit the next. While the quota increased participation at the lower levels of government, the increased participation did not translate to higher participation of women at higher levels in any of the three models. This recent research suggests that the glass ceiling phenomenon persists and that further research is necessary to understand how to mitigate it, given that quotas are ineffective.

Organizational Justice

Organizational justice theory describes how employees perceive fairness within a workplace (Greenberg, 1990; Hoang et al., 2022; Russen et al., 2021). Organizational justice theory includes four distinctive dimensions that can help explain how employees rationalize fairness: distributive justice refers to the perceived fairness of how resources and rewards are allocated; procedural justice refers to the processes and decision-making related to allocating resources and rewards; interactional justice refers to the perceived fairness of relationships and treatment of people after a decision has been made; and, informational justice refers to the perceived fairness in access to information after a decision has been made (Greenberg, 1990). The four dimensions help researchers and practitioners dissect perceived fairness at a granular level instead of at a general, macro-level which may yield misleading results (Greenberg, 1990).

Equity theory is often seen as a preceding theoretical construct, given that the equity theory suggests that employees are motivated to maintain equality or fairness in the workplace (Adams, 1965). Organizational justice theory extends the equity theory by distinguishing between specific dimensions by which employees may rationalize fairness. To that end, while the equity theory indicates a strong relationship between how employees perceive the fairness of an outcome and their motivation to work hard on the job, the equity theory does not indicate how fairness is enacted.

The four dimensions that support organizational justice theory indicates that fairness is perceived through the lens of the result of decision-making processes, outcomes, how people are treated, and how and what communication is provided; equity

theory does not suggest such detail. The breadth of topics and industries for which organizational justice theory has been leveraged is notable as the theory has been used to explain perceived equity in compensation, promotions, and job satisfaction in industries ranging from automotive to accounting to hospitality. That said, the connection between organizational justice theory and the perceived barriers to career advancement in the product management profession is not well reported.

While some researchers have explored organizational justice through a dimensional lens, extant research has leveraged an overarching view of organizational justice. Abbas and Wu (2021) explored the relationships between organizational justice, innovative behavior of employees, and leader humility in a quantitative study. They found a strong positive relationship between perceived fairness and employees' innovative behaviors, in that employees who deem organizational decision-making to be fair will reciprocate innovative behavior. Further, the perceived humility of leadership (e.g., openness to experimentation, openness to discuss new ideas, etc.) served as a positive moderating variable between the independent variable, perceived fairness, and the dependent variable, innovative behavior of employees (Abbas & Wu, 2021). Yeni et al. (2022) explored the effect of employee-organizational fit, quality of work-life, and organizational justice, as a broad concept, on job satisfaction and employee performance in a quantitative study. Consistent with extant research, the authors found a positive effectual relationship between job satisfaction and performance (Loan, 2020; Roberts & David, 2020). The researchers also found that job satisfaction influenced the impact of employee-organizational fit, quality of work-life, and organizational justice on employee

performance. When isolating satisfaction and employee performance, the researchers found a positive effect of each independent variable (i.e., employee-organizational fit, quality of work-life, and organizational justice) on job satisfaction and a negative effect of each independent variable on performance. Demonstrating the power of satisfaction as a mediating variable, the researchers found a positive effect of each independent variable on performance when satisfaction serves as a mediator. While new information may be gleaned at a macro-level, understanding the specific dimensions of organizational justice can help leaders understand what levers they can adjust to create desired outcomes.

Scholars have implied that it may be unnecessary to dissect organizational justice into separate dimensions, given the high correlation between each of the dimensions (Le & Pan, 2021; Rupp et al., 2017). Le and Pan (2021) argue that the proliferation of sub-dimensions with organizational justice theory can be problematic because it can lead to confusing outcomes with little benefit, and this occurs when the dimensions are described so similarly that they are not distinct or when the distinctions are not validated with data. The authors furthered this point and suggested that the proliferation of the theory into subcategories or dimension hinder scientific progress by limiting future researchers to glean meaningful information (Le & Pan, 2021). Rupp et al. (2017) shared this view and posited that the dimensionality of the organizational justice theory had not cleared defined norms within each dimension that can be built upon for future research, in that it is possible for the perception of career advancement to be researched through a distributive justice lens or a procedural justice lens, thus diluting the impact of distributive justice and procedural justice, and possibly organizational justice as a whole.

In essence, Rupp et al. (2017) and Le and Pan (2021) suggested that the proliferation of organizational justice theory, while well-meaning, has not been a helpful or sustainable way to examine fairness and justice within an organization due to inconsistencies in how it is classified. Enoksen et al. (2015) acknowledged the fragmented research findings of dimensionality of organizational justice theory, hypothesized that the diverging results may be due to varying contexts, yet fell short of suggesting a departure from a dimensional lens in future research. As it relates to this study, given that the purpose is to examine the relationship between gender and the perceived barriers to career advancement in the product management profession, the specific dimension is immaterial to understanding whether there is a difference between males and females and their perceived barriers to career advancement.

Distributive Justice

The perceived fairness in the distribution of resources describes the distributive justice dimension of the organizational justice theory (Greenberg, 1990). The distributive justice dimension does not relate to how said resources are distributed, the treatment of people when said resources are distributed, nor the communication or justification of how said resources were distributed, as other dimensions explain these factors. Distributive justice refers to the outcome of allocated resources. Two common ways for organizational leaders and employees to assess fairness are through compensation and promotion (Greenberg, 1990); this study aims to explore the latter. Distributive justice in this context could indicate whether the promotions are fairly allocated across a construct (e.g., gender, race, educational level, etc.). Scholars have leveraged the distributive

justice construct to explain the relationships between organizational justice and commitment. Jang et al. (2019) found that perceived fairness of distributive justice and procedural justice could positively impact organizational commitment in the public sector, whereby employees feel an attachment and loyalty toward the organization. Similarly, Jameel et al. (2020) explored the impact of organizational justice and organizational commitment in education and found a high positive correlation between organizational commitment and distributive justice.

Distributive justice is also leveraged to explore the relationship between emotional intelligence and work outcomes. Researchers studied 556 employees in the Malaysian service sector and found that distributive justice mediated the relationship between emotional intelligence and turnover intentions, whereby emotionally intelligent employees were more likely to express the intention to withdraw from organizations than others (Mustafa et al., 2022). Distributive justice has been widely leveraged to conceptualize perceived fairness in career advancement (Nurse, 2007; Peltokorpi & Michel, 2021). Given this study's focus on distributing career advancement opportunities as a resource for employee growth, distributive justice is the sub-dimension within focus.

Procedural Justice

The perceived fairness of the process that supports how resources are allocated describes the procedural justice dimension of organizational justice theory (Greenberg, 1990). Extant research has indicated a positive relationship between perceived procedural fairness and job satisfaction, organizational commitment, and lower barriers to career advancement (Wan et al., 2011). Procedural justice is based on an employee's ability to

assess fairness in processes, procedures, and decision-making. Examples include how two employees' performance is assessed or the perceived fairness of an appeal process within an organization. When employees perceive that the decisions or processes that impact an outcome are fair, high procedural justice is noted.

While extant research supports a positive relationship between high procedural justice and high organizational commitment and satisfaction, recent research trends toward examining procedural justice as a mediating variable, further explaining the impact of procedural justice on organizational citizenship behavior (Gupta et al., 2022; Qiu & Dooley, 2022). One of the research questions central to this study is related to the perception of career management processes, directly related to the procedural justice subdimension of the organizational justice theory. Much ado in the organizational behavior and career advancement literature debates the responsibility of career management processes, whether the responsibility is that of the organization (DeVos & Dries, 2013; Baruch & Rousseau, 2019) or that of the employee (Baruch, 2006; Clarke, 2013). While an ideological consensus is still unclear, this study draws upon extant research suggesting that career management processes positively correlate to career advancement (Bagdadli & Gianecchini, 2019).

Interactional Justice

In the organizational context, interactional justice refers to the perceived fairness in the interpersonal treatment of employees typically, but not exclusively, by higher-ranking employees (Greenberg, 1990). Janssen et al. (2015) conducted a literature review on informal mentoring and acknowledged a dearth of research relative to interactional

research and mentorship. Ye et al. (2023) conducted a quantitative study on the correlation between organizational justice and employees' innovative behaviors. Their findings indicate that employee perceptions of high distributive justice and interactional justice significantly impacted innovative activities. This finding is relevant to my study because product management is inherently innovation driven. It stands to reason that practitioners would be curious to know whether an employee's perceived barriers to career advancement are rooted in perceived interactional injustice dimensions because it may impact innovative behavior.

Interactional justice has been studied in the educational context, as Froman and Cochran (2022) studied the role of interactional justice in student advising. The findings indicate that student success is, in part, driven by perceived fair interactions with academic advisors. Researchers discussed themes of trust, resolving conflicts, and providing student feedback as related to student perspectives.

Informational Justice

The adequacy of the justification or explanation of how and why a decision is made describes informational justice (Zapata et al., 2013). Saragih et al. (2020) posited that organizational justice dimensions, specifically interactional, informational, and distributive justice, explain the positive relationship between leader mindfulness and leader-member exchange. In essence, there is a positive relationship between the expressed mindfulness of a leader and the positive relationship between said leader and their members. Saragih et al. (2020) theorized that when leaders exhibit practices associated with high interactional justice (e.g., taking the feelings of others into

consideration, honest communication, etc.), members perceived these behaviors as fair, resulting in positive relationships between leader and member. Lane and Aplin-Houzz (2022) aimed to understand employee perceptions of the four organizational justice dimensions in a virtual work context, specifically due to the COVID-19 pandemic. Participants expressed dismay with how information was shared in a virtual environment. Participants described confusing, inconsistent, or disparate work directives, which impact their perspective of informational justice.

Literature Review

Perceived Barriers to Career Advancement

A considerable amount of research has been published on career advancement, defined as the progression of one's career through a hierarchical lens, with each promotion growing in responsibility and pay (Stroh et al., 1992; Tharenou, 1997). The topic has been explored through the prism of predictors for (Heimler et al., 2012), equity in (Angervall & Hammarfelt, 2023), and barriers to career advancement (Zakaras et al., 2021). Much of the literature has focused on women's career advancement barriers (Ferrari et al., 2022; Naseviciute & Juceviciene, 2023; Zaidi, 2022). Though out of scope for this study, it is worth noting that barriers to career advancement have been studied in a racial context (Webb, 2022), a socio-cultural context (Anita, 2022), and an intersectional context of race and gender (Grotti, 2022).

Caremeli et al. (2007) conducted a study focused on the factors that drive career advancement while excluding gender as a construct. The researchers collected data from a broad swathe of employees, including individuals in service and non-service settings

and individuals in the communications, electronics, banking, software, and advertisement industries. This increased the researchers' ability to generalize the results to a broader population. In this quantitative correlational study of 215 employees, Caremeli et al. (2007) found that tardiness and absenteeism, a commitment to overtime work, and job performance were statistically significant in relation to career advancement. The primary issue with this research is that this finding may not have practical implications for both genders. The notion that if an employee maintains a consistent and timely presence, overtime work, and high job performance, then a promotion opportunity is imminent is incomplete. The researchers also acknowledged the existence of vague interpretations of why some employees are considered for promotional opportunities as a call for future research to strive to define career advancement in more specific terms.

Lack of Cultural Fit

The concept of lack of cultural fit in this study is a derivative of the sentiment of not fitting in a male-dominated culture (Lyness et al., 2000; Tabassum & Nayak, 2020). From a broader historical context, as female participation in the professional work environment has grown, inherently, females have needed to fit into traditionally male-dominated workplaces more often than the inverse (Schmader, 2023). Cultural fit is also viewed in a non-gendered way; it can be defined as a social construct within an organization based on beliefs, values, and behaviors (Lu et al., 2023). While evaluating job role fitness has been explicitly stated as a part of job interviews, recent research highlights the problematic nature of cultural fit, as evaluating job fitness with the intent of judging a candidate's homogeneity can be inherently biased (Consul et al., 2021; Hora,

2020). Cultural fit hiring practices can hinder job candidates during initial hiring and promotion consideration (Graham et al., 2016; Wallrich, 2022). Progressive organizational leaders have acknowledged this challenge and, as a mediative approach, have leveraged concepts such as cultural addition to acknowledge their present culture (Wallrich, 2022). They intentionally seek candidates who contribute to the organizational organization instead of evaluating similar candidates (Wallrich, 2022).

Lyness and Thompson (2000) detailed seven dimensions through which a lack of cultural fit may be measured: "feeling pressure to fit in or adapt to the culture; few role models; feeling like you are an outsider; not feeling comfortable asserting your views because of possible consequences; feeling that you can't make mistakes and learn from them without threatening your job or your future; feeling like you are held to a higher standard than others; people tend to recommend and select people like themselves" (p. 1). Extant literature supports the prevalence of this phenomenon in technology professions (Chavez, 2017; Ly-Le, 2022). Whether it is the *tech bro culture* that purports an aggressive, hard-working, masculine, and fraternal environment (Crandall et al., 2021), or the propensity to hire individuals with ivy league education (Kim, 2023), the signals of and potential for disparities in career advancement persists (Kovaleva et al., 2023; Rivera, 2012).

A considerable amount of research has been conducted to understand the disparities between gender in leadership positions, whereby some findings suggest that women do not advocate for career advancement in leadership positions at the same rate as men (Bowles et al., 2019; Wade, 2001). The lack of fit theory (Heilman, 1983) suggests

that women may limit their own opportunities for career advancement by assuming that there is a misalignment between their own characteristics and what the role requires. Hentschel et al. (2021) built on this research by conducting a quantitative correlational study to understand how the gender of the team members promoting programs designed for career advancement and the language used to promote the career advancement programs related to self-stereotyping behaviors derived from their perceived sense of belonging. The findings suggest that the perceived wording of promotional materials for career advancement programs impacted the program application intention for women, yet there was no significant impact for men.

Extant gender-based organizational literature supports the pervasiveness of cultural assimilation to avoid the feeling of being an outsider due to fear of retribution or career advancement limitations (Cho et al., 2021; Tabassum & Nayak, 2020). Female employees have received feedback about their assertiveness, being told they are too bossy or perceived as aggressive more than their male counterparts (Zuckerman, 2019). Women are also told that they are too ambitious when positioning themselves for career advancement (Josefsson, 2020) or feel they need to perform significantly better than their male counterparts to receive similar rewards (Maha & Aithal, 2022).

Schein and Bennis (1965) popularized the concept of psychological safety in an organizational change context. They defined it as the degree to which individuals experience security and confidence in their capacity to manage change. Subsequent researchers have described psychological safety as the shared belief that taking risks is acceptable, expressing ideas and questions, and making mistakes without fearing negative

consequences (Edmondson & Bransby, 2023; Nguyen, 2021). Potential negative consequences in an organizational context may resemble the casting of shame from peers or managerial leaders, distrust among peers or managerial leaders, job demotions, job promotion limitations, or even firing (Edmondson & Bransby, 2023). Brown (2023) conducted a summary analysis on the influence of psychological safety and argues that organizations with high psychological safety embedded in their culture experience improved team interaction and high-performance outcomes. Dwivedi et al. (2023) discussed the implications of psychological safety and gender-based career advancement disparities. They examined the correlation between chief executive officer (CEO) behavior that demonstrated regard for diversity and employees' psychological safety in a gendered context. The findings suggest a positive relationship between female employees who experienced psychological safety and the perception that the CEO valued diversity. Dwivedi et al. (2023) findings suggest a negative relationship between female employees who experienced psychological safety and turnover intention, while no such evidence was found for male employees.

Excluded From Informal Networks

Other studies have considered the relationship between organizational networks and career advancement (Briggs et al., 2012; Horak & Suseno, 2022). The main weakness of much of the literature is the lack of practical, effective, and academically researched recommendations, notwithstanding the socio-cultural factors that, to some extent, are external to the locus of control for the organization. Horak and Suseno (2022) discussed a connection between societal constructs and institutional informal networks,

whereby the social exclusion of women from informal networks may be related to the social exclusion of women in a broader societal context. Nonetheless, no clear guidance on how to potentially overcome this challenge was presented. The issue of forming gender-equitable opportunities networking opportunities looms in scholarly literature.

The idea that a limited professional network or exclusion from networking opportunities in the workplace is a barrier to career advancement is not novel. Briggs et al. (2012) conducted a quantitative study to understand the relationship between perceived barriers to career advancement and organizational commitment for sales professionals in the television broadcasting industry. They found three barriers to career advancement: exclusion from informal networks, lack of cultural fit, and lack of mentoring. They also discussed the managerial implications of these findings, which included planning socialization events that accommodated sales professionals' schedules so they could reasonably attend. Briggs et al. (2012) suggested that these events could be in-person training events, allowing networking. The researchers heavily referenced the work of Lyness and Thompson (2000) as they used the same research instrument leveraged in my study.

It has been demonstrated that social exclusion from informal networks affects women in the workplace despite existing legislation against gender discrimination. Horak and Suseno (2022) conducted a qualitative study to understand the connections between informal networks, information institutions, and social exclusion and how they affect women in the workplace in Korea. They found that women experience difficulty being accepted into traditional networks, especially if the network is male dominated. As a

strategy to find community, women are more likely to form their own typically women-only networks (e.g., women in finance groups, women in technology groups, etc.). The researchers assert that the interplay of the three issues negatively impacts career advancement for women. Horak and Suseno (2022) put forth additional context that the Korean government launched legislation (i.e., the Equal Employment Act) in 1987 with the goal of engendering equality in the workplace, yet gender-based career advancement disparities still exist.

Given the sweeping transition to virtual work during and after the COVID-19 pandemic (Henry et al., 2021; Mitchell, 2023), one may assume that virtual work may benefit women in the inherent flexibility and historical work-life balance challenges (Bjärntoft et al., 2020; Hill et al., 2006). In contrast, it has been suggested that virtual work has disadvantages for women that should be considered (Villamor et al., 2023). Villamor et al. (2023) conducted a literature review of over 100 articles and suggested that virtual work environments may undermine women's careers. The research suggests that social exclusion can be exacerbated in a virtual environment, potentially becoming a barrier to women's career advancement, yet less so for men. Villamor et al. (2023) also found that virtual work has the potential to create barriers for women's career advancement due to exclusion from informal networks. The authors suggested that it may be easier to create closed networks leveraging asynchronous social communication tools often leveraged in virtual work settings.

Metz (2022) conducted a qualitative study on understanding the feelings of inclusion and exclusion in the organizational context. The author leveraged a professional

association as the population and learned that participants did not view the concepts of inclusion and exclusion as separate, in that one may be included yet excluded simultaneously. Metz (2022) also found a connection between human capital and the willingness to immerse in the association fully. The author put forth the following analogy: a member may feel equal footing with the broader group given equal educational attainment. However, if this member obtained education from a less prestigious institution, they may be less likely to fully participate in group interactions, ultimately leading to a feeling of exclusion.

Metz's (2022) finding aligns with extant self-efficacy research, which suggests that the glass ceiling phenomenon impacts self-efficacy for women (Bartool et al., 2021). Bartool et al. (2021) conducted a quantitative study in Pakistan to understand the relationship between glass ceiling perceptions, interpersonal conflict, and self-efficacy. The findings implicate a significant connection between the perception of the glass ceiling phenomenon as a career advancement barrier and interpersonal conflict in the workplace, whereby feelings of gender-based career advancement barriers are highly connected to discord with other team members. Further, self-efficacy mediates the relationship between glass ceiling perceptions and interpersonal conflict (Metz, 2022). The connection between Metz's (2022) and Bartool et al.'s (2021) work is the common theme of self-efficacy as a barrier to social inclusion. Neither study explained the underlying feelings of self-efficacy in women, which is inherently complex.

Smith et al. (2022) extended the gender-based career advancement disparity literature by evaluating the factors that influenced engineers to leave the profession. In a

quantitative study, the researchers found a significant and inverse relationship between support in developing influential relationships within the organization and intent to leave the profession for women. The findings did not show a similar significant relationship for men (Smith et al., 2022).

To counter the lack of informal networks challenge, some organizations have adopted employee resource groups, which are voluntary, internal communities based on a shared identity or commonality to supplement internal networking opportunities (Sisco & Collins, 2018). Dutton (2018) asserts that employee resource groups (ERGs) create inclusive work environments and reduce employee turnover. Even so, extant research supports that while ERGs exist to engender informal networks for marginalized communities, the impact of ERGs on the organization and career advancement is not yet elucidated (Sisco & Collins, 2018; Welbourne et al., 2015).

Lack of Mentoring

Mentorship in a career setting refers to the relationship between more senior employees and junior employees in which the senior employee models desired behaviors that are often affiliated with success and career advancement. Examples include providing feedback on the junior employee's strengths and weaknesses, making connections within the organization, or providing direction for future career opportunities. Extant literature supports the positive relationship between mentorship and career advancement (Mcilongo & Strydom, 2021; Swan Dagen et al., 2022). Mcilongo and Strydom (2021) recommended formal and informal mentoring programs for women after finding statistically significant and positive relationship between mentorship

programs and higher levels of career advancement. Swan Dagen et al. (2022) researched the impact of networking and mentoring on leadership development for women. They supported the idea that women need examples of women in leadership to conceptualize what is possible for their career advancement. This view is supported by Wrigley-Asante et al.'s (2022) research, which argued that mentorship programs could influence the actualization of career aspirations for women in technology fields. Mentorship has been cited as a component of effective professional development across professions (Cabrera-Muffly, 2021; Creta & Gross, 2020; Randel et al., 2021).

Veelen and Derks (2022) conducted a quantitative study on perceived barriers to academic career advancement. They approached the entire population of Dutch professors, including men and women, to participate in the study and yielded a sample size of 3,978. Veelen and Derks (2022) found that early-career female professors perceive a higher misalignment with the successful academic archetype when compared to men. These findings support the existing body of gender-based career advancement literature yet fail to explore the underlying causality of the perception of the archetypal professor.

Nduta (2020) conducted a mixed-methods study comparing the gender and career aspirations of school-aged children in Nairobi, Kenya. The results indicated that gender stereotypes had a notable influence on career aspiration, whereby a higher proportion of girls indicated interest in service-based professions when compared to boys (Nduta, 2020). Conversely, a higher proportion of boys indicated an interest in technical professions or roles that were perceived as traditionally masculine (Nduta, 2020). The

author discussed that women often pursue professions where there is customarily lower male representation. Nduta (2020) recommended exposing school-aged children to men and women in diverse professional fields to broaden their perspective on the breadth of careers available.

Hartman and Barber (2020) conducted a quantitative correlational study on the relationship between gender, occupational self-efficacy, work engagement, and career aspirations. They found that men expressed higher career aspirations when compared to women and that self-efficacy was positively related to career aspirations. While men expressed higher career aspirations when compared to women, there was no statistically significant difference in mean scores. Hartman and Barber (2020) recommended mentorship for women to strengthen beliefs about occupational self-efficacy, which may mitigate gender-based career advancement disparities.

Tabassum and Nayak's (2020) conceptual research supported the implications of gender stereotypes as barriers to career advancement for women. Their findings indicate that the factors that influence gender-based stereotypes in an organization are individual-based, familial, socio-cultural, and organizational in nature and perpetuate barriers to career advancement for women.

Organizational Career Management Processes

Career management processes are recognized as the activities that organizations execute to support employee's career development (Baruch & Peiperl, 2000). These activities may include but are not limited to performance appraisal, formal mentoring, career counseling, succession, planning, postings regarding internal job openings,

organization-sponsored formal education, and lateral career opportunities (Baruch & Peiperl, 2000). Baruch and Peiperl's (2000) contribution to the organizational career management literature suggests that companies included in the study were less likely to use some of the most effective career management processes (i.e., succession planning, peer and leadership feedback mechanisms). Xie et al. (2023) extended Baruch and Peiperl's (2000) research and supported the effectiveness of organizational career management processes for career advancement.

The topic of who should be responsible for career management processes is also laid bare in the literature (DeVos & Dries, 2013; Baruch & Rousseau, 2019). Wilheim and Hirschi (2019) explored the dimensionality of career management, in which the organization and the employee are responsible for leading. Kost et al. (2019) extended this idea as especially relevant for organizations that drive gig-based roles. They described gig-based roles as flexible, contract employment roles that allow workers to have autonomy in where and how they work, typically with a three-part relationship: end-user/client, gig worker, and platform company (e.g., Uber, Airbnb, etc.). Kost et al. (2019) suggested that the contractual relationship between the platform company and the gig worker, and the addition of the end-user/client, creates a layer of complexity not present in other organizational contexts. To that end, given the flexibility in the gig economy, gig workers share responsibility for career advancement (Kost et al., 2019). This study assumed that the organizational career management process responsibility is inherent to the organization, not solely the employee.

Bagdadli and Gianecchini (2019) created a theoretical and practical framework to examine organizational career management processes. The authors suggested observing organizational career management processes through a three-part lens: informational, competence, and relationship. The researchers assert informational practices include "assessment and development center, performance appraisal, training, career paths, international assignment, job posting, and succession planning" (Bagdadli & Gianecchini, 2019). Competence-building practices include "training, external seminars, developmental assignment, lateral moves, job rotation, international assignment, and job enrichment" (Bagdadli & Gianecchini, 2019, p. 367). Relationship practices include mentoring, networking, career counseling, developmental assignment, international assignments, and career workshops (Bagdadli & Gianecchini, 2019, p. 367). This framework was intended to provide a theoretical foundation to support future research and practical guidance for organizational leaders. Further, Bagdadli and Gianecchini (2019) argued that individual performance moderates the relationship between organizational career management processes and career success.

Difficulty Getting Developmental Assignments

Contemporary studies validate the positive relationship between developmental assignments and career advancement (Cao et al., 2023; Kamran et al., 2023; Zhu et al., 2023). Ketchiwou and Lineo's (2023) research supported much of the extant literature on gender-based career advancement disparities that underscore women's sluggish career advancement compared to men. The researchers contended that women's skills are not being developed sufficiently. They also implied that organizations were not engaging

women in developmental assignments, which would provide competency-building opportunities.

Ensour et al. (2017) shared this perspective in their qualitative study, which focused on the barriers to career advancement for Arab women in academia given controversial laws. The authors referenced several regulations that drove gender disparities, including legislation that indicated that women are allowed to work fear hours than men. They posited that a combination of masculine culture, socio-economic attitudes, and religious perspectives inhibit equitable career advancement for women as they create formal and informal structures designed to isolate women from networks and developmental assignments (Ensour et al., 2017).

Cansino et al. (2021) urged practitioners to leverage metrics to track career development key performance indicators and eliminate career advancement disparities for traditionally marginalized employees. Cansino et al. (2021) offered a few examples of traditionally marginalized employees, including women, African Americans, and the compounded intersection of African American women. The researchers developed a framework that outlines five constructs, one of which was designed to address issues related to lack of access or support for traditionally marginalized employees. Further, the researchers suggested qualitative feedback on the impact of development assignments as a key measure as an example. This research validates the impact of developmental assignment as a proponent for career advancement while simultaneously validating its absence as a barrier for marginalized employees, including women.

Khan et al. (2019) supported the idea of developmental assignments being instrumental for career advancement. They explored the instances of gender discrimination against women in the technology and engineering fields despite legislation designed to eradicate workplace discrimination (i.e., the Civil Rights Act of 1964, the Equal Pay Act of 1963, etc.). Khan et al. (2019) conducted a literature review of gender discrimination and suggested seven areas for future research. They cited Estevez-Abe's (2005) work, which supported the idea that women are excluded from developmental assignments because some organizational leaders believe that the return on investment of said development assignments will yield lesser value from women compared to men due to family obligations. Given this research, it is essential to continue exploring ways to drive gender equity in career development opportunities.

Difficulty Obtaining Opportunities for Geographic Mobility

Prozesky and Beaudry's (2019) research supported the connection between career mobility and career advancement for African academic scientists through a gendered lens. Their research indicated that women were more likely to find geographic mobility as an important factor for career advancement compared to men.

Qualitative and quantitative studies have highlighted the complexities and gender-based disparities related to perspectives and experiences associated with geographic mobility opportunities. Nikunen and Lempiäinen (2020) explored the sentiments of European academics on geographic mobility and career advancement. The qualitative research surfaced perceived difficulties in pursuing international assignments, typically due to parenthood and/or intimate relationships. Notably, in some interviews, both men

and women noted difficulties related to geographic mobility assignment (Nikunen & Lempiäinen, 2020). McLean et al. (2013) conducted quantitative research to understand whether geographic mobility positively correlates to career advancement for women in medical schools entering mid to senior-level positions. They found a strongly positive statistically significant relationship between openness to relocating and promotion. Brown et al. (2021) researched the perceived barriers to career advancement for women in the male-dominated automotive industry—one of the research questions aimed at understanding the relationship between issues securing geographic mobility opportunities. Brown et al. (2021) found sufficient evidence to suggest a positive relationship, whereby problems securing a geographic mobility opportunity are perceived barriers to career advancement.

Women in Technology

Extant research focused on women in technology careers include the challenges related to working in male dominated work environments (Makarem & Wang, 2019). Makarem and Wang (2019) conducted a systematic review of 28 studies with foci on women in technology careers with the purpose of understanding more about the careers of women, particularly those working in male-dominated industries. The researchers found consistent challenges related to gender-driven stereotypes, work-life balance conflicts, and lacking mentorship. To counter these challenges, the researchers discovered that women in the reviewed studies focused on controlling their own behavior through conforming to the majority culture and adopting proactive behavior.

Varma et al. (2023) studied the challenges and opportunities of Asian women in science, technology, engineering, and mathematics (STEM) fields. They supported that while women have historically been underrepresented in technology fields, recent trends indicate that more women are entering STEM careers. Women in senior leadership positions (i.e., C-suite or chief levels) are woefully lower than their male counterparts, with only 3% of women in Chief Executive Officer (CEO) positions and 20% of women in Chief Financial Officer (CFO) positions at technology companies.

Avoilo et al. (2020) conducted a systematic literature review on the representation of women in technology careers over a six-decade period to understand the root of historically low representation. The researchers found that the relatively low representation of women in technology careers is not due to a lack of skill or intelligence, nor is it a singularly rooted issue. Researchers could not converge on a clear explanation given the divergent nature of findings in extant literature.

Makarem and Wang (2020) also conducted a systematic literature review of 28 studies on the career experiences of women in STEM careers, including a balance of qualitative and quantitative methodologies. They found that women faced various challenges ranging from discrimination and gender-based stereotypes. Makarem and Wang (2020) also noted three coping strategies that female participants leveraged to navigate their challenges which included conforming to organizational norms in male-dominated environments, being proactive in work assignments, and managing their outward perceptions. This behavior may be ineffective, given that Benson et al. (2022)

produced research that suggested that women are less likely to be promoted when compared to men despite higher performance ratings.

While much of the extant literature largely and inherently excludes Generation Z as research participants, it is essential to understand the implications of gender and the perceived barriers to career advancement for the present generation of employees. This perspective is supported by Barhtae and Dirani's (2022) study, a systematic literature review focused on the career aspirations of Generation Z employees; the authors put forth that further research on Generation Z is necessary. In this systematic literature review, the work of Grow and Yang (2018) is included in which the authors explored the expectations of Generation Z as they enter the advertising industry and workplace. In a qualitative study including 98 participants, Grow and Yang (2018) concluded that both men and women are aware of the historical relationship between gender and career advancement and the possibility of how it may impede or create privilege for future promotions.

The onus of overcoming gender inequality in the workplace is inconclusive in scholarly research, whereby some researchers suggest that societal evolutions are necessary (Powell & Butterfield, 2015); other researchers suggest that organizations are responsible for creating policy and/or cultural changes to address gender inequities (Van Miegroet et al., 2019; Hospido et al., 2019, Carneiro et al., 2019); while other researchers imply that women can overcome glass ceiling barriers by being open to experience (Bassir et al., 2022). Powell and Butterfield (2015) aimed to understand the current state of the glass ceiling phenomenon after multiple decades of gender inequality research, and

postulated that, not only was the glass ceiling effect constant, but the organizational implications had also been largely ignored.

Product Management

Embedded in an article about program management in a project management journal lays context about software-as-a-service (SaaS) product manager (Gemino & Reich, 2023). The authors described SaaS product management as a relatively new role necessary to create and control the value of software products in an organization. Before product managers, the development, release, and management of products may have been the responsibility of an informational technology (IT) department (Gemino & Reich, 2023) or marketing department (Calantone et al., 1995), depending on the product and organization. While Gemino and Reich (2023) contributed to scholarly product management literature as a byproduct of examining program management with a digital transformation context, they also suggested future research in the product management space.

In a scholarly editorial, Shulamn et al. (2023) defined product management as a function within organizations responsible for partnering with internal and external stakeholders to develop, launch, and manage valuable products or services. They described the senior product manager as the team member who is typically responsible for driving the strategy and vision of the product and communicating that vision in a strategy roadmap. They continue to describe the product manager as the team member who is slightly less strategic in nature when compared to senior product managers, as they are responsible for identifying and prioritizing what needs to be built.

Software product management is a relatively new profession, with millions of product management professionals worldwide (Dash, 2022). Yet, given its nascency, there is a dearth of scholarly literature on product management (Dash, 2022). Extant literature may focus on discovering optimal organizational practices for product management teams, such as increasing effectiveness (Murphy & Gorchels, 1996), software product pricing (Kittlaus & Clough, 2009), or end-of-life product management (Wilson & Goffnett, 2022). Researchers have selected to explore the profession of product management through the lens of various industries, including pharmaceutical product management (Anusha et al., 2017), retail product management (Lydekaityte & Tambo, 2020), journalism and academia product management (Royal et al., 2020), or manufacturing product management (Xu et al., 2019). Much of the scholarly literature has not yet explored the product management profession at the intersection of career advancement and gender.

Robbins and O'Connor (2023) published literature in the Journal of Product Innovation Management that attested to the overlap between innovation management and product management as a profession. The authors also suggested innovation management as a discipline that should now be recognized as a non-niche profession in that marketing and human resources are recognized across organizations and industries (Robbins & O'Connor, 2023). They also proposed the benefit of additional and enhanced scholarly research in the profession.

Springer and Miler (2022) aimed to provide a detailed overview of the challenges germane to the software product management industry. The mixed-method study began

with interviews to understand practitioners' perspectives relative to software product management. Oddly, the authors did not indicate their sample size for interviews. Each of the eight questions in the interview guide was related to the mechanics of doing the job, not their perception of their career or career advancement. The eight questions were as follows:

1. What areas of software product management have you found as the most problematic?
2. What problems have you experienced/observed related to Requirements Engineering? (Prompts: requirements management. Prioritisations, stakeholders management, product roadmap, user involvement, etc.)
3. What problems have you experienced/observed related to the Software development process? (Prompts: technical debt, continuous integration, release cycle speed/time to market, software quality, system architecture, split testing, data collection, etc.)
4. What problems have you experienced/observed related to the Team? (Prompts: unqualified people, motivation, communication, etc.)
5. What problems have you experienced/observed related to Product knowledge management? (Prompts: product description, documentation, etc.)
6. What problems have you experienced/observed related to Organizational – strategic? (Prompts: strategy, business model, market research, price management, trust in team, partnership management, etc.)

7. What problems have you experienced/observed related to Organizational – operational? (Prompts: tools, responsibilities, distributed teams, continuous experimentation, decision-making process, agile, time, budget, etc.)
8. What problems have you experienced/observed related to User research? (Prompts: user-centered design, customer feedback, continuous feedback, usability work, user behavioral data, business intelligence, product design, etc.)

Springer and Miler (2022) leveraged the interview findings to create an exhaustive list of 95 problems in the software product management profession, which they were able to test the perceived frequency and perceived severity of said problems. Though irrelevant from a career advancement perspective, the most frequent and severe problems were related to assessing product value and navigating shifting priorities in the role. The method of diverging on problems through interviews and converging on the most frequent and severe problems is relevant to this study only in that it underscores the need for research in the product management profession, given that such early-stage research is recent.

Amidst limited scholarly literature about the product management profession, Sverrisdottir et al. (2014) researched the roles and processes through the lens of the scrum, a common software product development methodology. The authors placed a distinct emphasis on the function of the product owner, which is unique to the scrum methodology. The product owner role fuses the responsibilities of the project manager

and product managers (Sverrisdottir et al., 2014; Tkalich et al., 2022) and, despite its role in the product manager profession, is out of scope for this study.

One consistent theme of the research is the call for more product management scholarly literature (Gemino & Reich, 2023; Hyrynsalmi et al., 2021; Springer & Miler, 2022). Hyrynsalmi et al. (2021) conducted a bibliographic study on the evolution of product management literature and noted that not only is product management scholarly literature scant but also scattered. It is important to note that Hyrynsalmi et al.'s (2021) research focus is specific to software product management, not general product management, which may include context to physical products. The existing body of scholarly research highlights progress in the product management field and reveals gaps in the literature, justifying the need for additional research.

Ebert and Brinkkemper (2014) described product management as a discipline that drives organizational success through software products. In an evaluation study, Ebert and Brinkkemper (2014) explained that product manager professionals require technical and business acumen to communicate requirements to technical teams to build products that yield value to customers and the organization. The researchers described the work in scope for product managers, which, at a high level, includes strategy, product development, product launch, and continuous product improvement. Product management professionals may be responsible for managing one or multiple products throughout the duration of the product's life (Ebert & Brinkkemper, 2014). They also described the heterogeneity of specific job responsibilities and competencies in the product management profession, especially when compared to more established roles

(e.g., sales manager, project manager) (Ebert & Brinkkemper, 2014), a belief shared by Dash, 2022. Despite Ebert and Brinkkemper's (2014) significant contribution to foundational product management research, the study does not consider career advancement in the product management profession.

Context on Forbes Cloud 100

Forbes, a leading business magazine, has published a list of leading private companies for eight years. Each Spring, Forbes opens for nominations and welcomes submissions for which any private company with cloud-based products is eligible. Companies are ranked by market leadership, valuation, operating metrics, and people and culture. Market leadership is accessed qualitatively given the perspective of seasoned CEOs of public sector companies. Third-party providers estimate valuation and operating metrics are assessed by quantitative figures such as revenue and growth rate. People and culture attributes are accessed by third-party providers based on employee count and their diversity and inclusion efforts. Many world-renowned products are cloud-based software-as-a-service products including OpenAI, Stripe, Grammarly, and Airtable.

Summary and Conclusions

The glass ceiling phenomenon has been observed as a barrier to career advancement for women (Bloch et al., 2021; Grangeiro et al., 2022). Moorthy et al. (2022) illustrated the extent to which organizational decisions explicitly impede career advancement for women. They found that some organizational leaders reserve department leadership roles that require a high degree of decision-making to men, and leadership roles that are more service oriented to women. Alobaid et al. (2020) found that

the glass ceiling phenomenon explained the sluggish career advancement for female Saudi Arabian paramedics, in part, due to organizational career management processes (e.g., unequal pay). The potential impact of the glass ceiling phenomenon is not well-known in the product management profession.

Chapter 2 provided a detailed description of related existing literature. There is detailed evidence of gender-based career advancement disparities in various industries and professions. The organizational justice theory is identified and elucidated as a theoretical framework for the study. Chapter 3 details the research methodology including the research design and rationale, data collection, and data analysis plan.

Chapter 3: Research Method

The purpose of this quantitative correlational study was to compare the relationship between gender and the perceived barriers to career advancement in the product management profession. Chapter 3 includes a detailed description of the methodological approach to the study, including (a) population; (b) sampling procedures; (c) procedures for recruitment, participation, and data collection; (d) instrumentation and operationalization of constructs; (e) data analysis plan, (f) threats to internal and external validity and statistical conclusions; and (g) ethical procedures. Chapter 3 culminates with a summary.

Research Design and Rationale

To address the research questions in this quantitative study, the specific research design was a non-experimental correlational research design. A correlative research design is used in quantitative research when the researcher aims to understand relationships between variables without manipulating variables (Walker, 2005). Further, experimental research design is used when the research purpose intends to elucidate causal relationships between variables (Burkholder et al., 2020). An example of a causal relationship may include the relationship between smoking cigarettes and lung cancer, whereby data suggests that smoking cigarettes causes lung cancer. Given that the research purpose is not to elucidate causality, an experimental research design was not selected. I leveraged a correlational design to measure the relationship between gender and the perceived barriers to career advancement in the product management profession

for product managers and senior product managers, as each of the variables cannot be altered by the researcher.

To adequately address the research problem, full-time, salaried product managers and senior product managers based in the United States responded to survey questions detailing their perceptions related to culture fit, informal networks, lack of mentoring, organizational career management processes, the degree of difficulty obtaining developmental assignments, and the degree of difficulty for obtaining opportunities for geographic mobility. The research instrument, Perceived Barriers to Career Advancement Scales, was created by Lyness and Thompson (2000), who gave permission to use it for non-commercial research and educational purposes without written agreement as indicated in Appendix A. This quantitative analysis helped determine the scenarios in which gender was a predictor variable for the outcome: the perceived barriers to career advancement in the product management profession for product managers and senior product managers.

The variables included in this study were as follows: independent variable, IV = gender (male, female); dependent variables, DV1 = the perception of lack of culture fit in the product management profession; DV2 = the perception of exclusion from informal networks in the product management profession; DV3 = the perception of lack of mentoring in the product management profession; DV4 = the perception of poor organizational career management processes in the product management profession; DV5 = the perception of difficulty getting developmental assignments in the product

management profession; DV6 = the perception of difficulty obtaining opportunities for geographic mobility in the product management profession.

The scales of measurement relevant to this study are as follows: Independent Variable = Categorical; Dependent Variables = Continuous. The research analysis approach in this study was originally intended to be an independent samples t-test, as extant scholarly literature supports independent samples t-tests as appropriate for use when there is one dichotomous independent variable and one continuous dependent variable and the intent to compare the means of two groups (Burkholder et al., 2019; Ross & Wilson, 2017). Ultimately, a Mann-Whitney U test was leveraged as a non-parametric alternative.

There is a dearth of quantitative research of scholarly product management literature in general, and more specifically, the relationship between gender and the perceived barriers to career advancement in the product management profession. While there is a myriad of research relating to glass ceilings, and the connection between gender and the perceived barriers to career advancement in other professions, little is known about the connection in product management (Hyrynsalmi et al., 2021). The research questions and research design are intended to create new knowledge in the profession.

Methodology

Population

The population for this study was full-time, salaried product managers and senior product managers based in the United States. While the precise number of product

managers and senior product managers is unknown given that employee data is not publicly available.

Sampling and Sampling Procedures

The sampling strategy selected for this research was stratified sampling. Frankfort-Nachmias et al. (2021) affirmed that stratified sampling allows researchers to capture a representative sample from a population and divide that representative sample into subgroups called strata. The research sample is created using a simple randomized sampling approach after the strata have been determined. In this study, there were four, mutually exclusive strata: female product managers, female senior product managers, male product managers, and male senior product managers. The stratified sampling strategy was intended to ensure diversity of data, for instance, preventing an overwhelming number of one gender over another, thus helping to enhance research reliability.

A sampling frame describes a specific list of criteria for whom will be included a research study (Frankfort-Nachmias et al., 2021). While the population included product managers and senior product managers based in the United States, the criteria for the sampling frame includes employees who self-identify as product managers or senior product managers and are full-time, salaried employees. Excluded were associate-level, director-level, staff product managers, group product managers, vice president-level, and head of product management employees. Participants needed to be currently employed as product manager or senior product managers, not previously employed as product managers or senior product managers who desired to share their experience.

G*Power is a statistical software that quantitative researchers use to conduct an a priori sample size analysis (Faul et al., 2009). A power analysis, using G*Power version 3.1.9.6 software, was conducted to determine the appropriate sample size for the study. An a priori power analysis considering the following statistical parameters of (a) medium effect size =0.50, (b) alpha level = .05 (two-tailed test), and (c) statistical power = 0.90, identified a minimum sample size of $N = 172$.

Procedures for Recruitment, Participation, and Data Collection (Primary Data)

Given the original research population, I first, recruited product managers and senior product managers employed at Forbes Cloud 100 product-based software companies via LinkedIn and other online product management communities (e.g., Women in Product Facebook group, Black Product Managers Slack channel) to participate in an online questionnaire. I shared public-facing posts on my LinkedIn profile, utilizing pertinent hashtags (i.e., #productmanagement, #productmanager #seniorproductmanager #research #feedback), which is intended maximize reach to the targeted population. The posts indicated that participants must be currently employed as product managers and senior product managers at Forbes Cloud 100 companies, and that the intent was to understand their perspective regarding career advancement in the product management profession. Similar messages, excluding the hashtag strategy, were posted in multiple Slack communities to drive interested participants to send an email for participation in the study. The language used in the recruitment messages avoided scholarly jargon and specified that a questionnaire would be used and not an interview. In addition, it was intentionally concise in nature with the intent to maximize responses

from eligible potential participants. To pique the attention of the targeted audience and encourage as many responses as possible from qualified potential participants, the posts also included an image and a clear headline. Given the low response rate likely attributed to the narrow sample population, I pivoted to study full-time, salaried product managers and senior product managers based in the United States, in lieu of product managers and senior product managers employed at 2023 Forbes Cloud 100 companies. After receiving Walden University Institutional Review Board (IRB) approval to broad the research population, I followed the same recruitment process noted above.

Participants were required to read and acknowledge the informed consent form prior to proceeding with the questionnaire. The informed consent form was reviewed and approved by the Walden University Institutional Review Board on March 28, 2024, and underscored that participation in the survey is voluntary, and related risks and benefits of participating in the study. The Walden University Institutional Review Board (IRB) approval number is 03-28-24-1060664. The informed consent form detailed the privacy policy which indicated that I would not use their personal information for any purpose outside of the purposes for this research study, and that while the data will be kept for a 5-year period, the dataset would not include personal identifiers.

The data collection process included the informed consent form and the demographic questionnaire which will include gender and job title (i.e., product manager, senior product manager), and a binary indication of whether they were based in the United States. The self-administered questionnaire included the Perceived Barriers to Career Advancement Scales (Lyness & Thompson, 2000). The participants were able to

save and restart the questionnaire if the participant was not able to finish submitting their responses in one sitting.

The Walden University Institutional Review Board (IRB) is responsible for validating that all Walden University research is conducted in a manner that complies with the university's ethical process and aligns with United States federal regulatory standards. The Walden University IRB process mandates that review and approval must be provided prior to participant recruitment or data collection processes, without exception. This process also indicates that an informed consent form accompanies the research questionnaire so that participants are clear and agree to the research process prior to agreeing to participate in the study. Institutional Review Board are commonplace in the scholarly research community and are designed to ensure that ethical standards are met, including informed consent and the voluntary participation in research (Josephson & Smale, 2020). After reviewing the informed consent material, participants had the option to exit the survey without providing any additional personal information by selecting the survey question option indicating that they did not consent and/or by closing their browser window.

Instrumentation and Operationalization of Constructs

I selected an existing research instrument to measure the dependent variables as it correlates to gender. Lyness and Thompson (2000) authored the Perceived Barriers to Career Advancement Scales research instrument which measures the degree to which a variety of factors represent barriers to career advancement. The items included in the survey were based on information from extant literature (Thompson, Morrison, & Iwata,

1994). The instrument type was a rating scale and the authors of these scales provided permission to use in a research setting without a fee, as noted in Appendix A.

The Perceived Barriers to Career Advancement Scales (Lyness & Thompson, 2000) provided the ability to measure the extent to which each of the 26 factors has been problematic to career advancement on scale ranging from 1 (no problem at all) to 5 (a very serious problem). The Perceived Barriers to Career Advancement Scales included six scales (a) lack of culture fit, (b) excluded from informal networks, (c) lack of mentoring, (d) poor organizational career management processes (e) difficulty getting developmental assignments, (f) difficulty obtaining opportunities for geographic mobility. The Perceived Barriers to Career Advancement Scales was appropriate for this study because the scales measured the perception of employees' barriers to career advancement and the population was limited to product managers and senior product managers. Lyness and Thompson (2000) indicated coefficient alphas for the scales ranging from .69 for difficulty getting geographic mobility opportunities to. 84 for difficulty getting developmental assignments. No validity or factor analyses were indicated. The Perceived Barriers to Career Advancement Scales (Lyness & Thompson, 2000) research instrument was previously used for a quantitative correlational study in the automotive industry (Brown et al., 2021); there were adequate levels of internal reliability were found in this study. In this study, gender was defined in a binary manner (i.e., female, male) and was not manipulated in any way.

The Perceived Barriers to Career Advancement Scales (Lyness & Thompson, 2000) allows participants to indicate their perception relative to the degree each factor

has been problematic to them in their current career using a 5-point Likert scale ranging from 1 – *no problem at all* to 5 = *a very serious problem*.

Lack of Culture Fit Scale

1. Feeling pressure to fit in or adapt to the culture
2. Few role models
3. Feeling like you are an outsider
4. Not feeling comfortable asserting your views because of possible consequences
5. Feeling that you can't make mistakes and learn from them without threatening your job or your future
6. Feeling like you are held to a higher standard than others
7. People tend to recommend and select people like themselves

Excluded From Informal Networks Scale

8. Being excluded from social events and informal interactions with colleagues, either on or off the job
9. Limited access to informal networks

Lack of Mentoring Scale

10. Not enough mentoring (e.g., counseling about career opportunities)
11. Not having a senior manager who facilitates your career progress
12. Not getting access to the right people (or not knowing the right people)
13. Not receiving enough meaningful feedback about your strengths and weaknesses

Poor Organizational Career Management Processes Scale

14. Poor career development and planning processes

15. Not knowing what the criteria are for advancement
16. Being unsure about how to initiate a job change

Difficulty Getting Developmental Assignments Scale

17. Not getting the right jobs early in your career (that you need for later advancement)
18. Lack of opportunities to move across functions or businesses
19. Difficulty getting access to critical developmental assignments (e.g., serving on highly visible task forces or committees)
20. Not being considered when promotions for bigger jobs arise
21. Difficulty getting access to opportunities
22. Difficulty getting access to job assignments with bottom line responsibility
23. Not being offered stretch assignments

Difficulty Obtaining Opportunities for Geographic Mobility Scale

24. Needing to gain international experience in order to advance
25. Not being considered for jobs that require relocation (domestic)
26. Difficulty getting international assignments

Data Analysis Plan

I collected data for 11 days, at which point, I reviewed the demographic information provided to ensure that participation is appropriate for the study. In addition, it was checked whether there are enough responses in each of the four strata (i.e., men, women, product managers, and senior product managers) for subsequent simple

randomized sampling. Questionnaires with missing responses were excluded from the dataset.

SPSS was utilized to perform a Mann-Whitney U test for comparing the sample means between the two unrelated groups, namely females and males. While a cross-section of the strata was intended to validate that the study included an adequate number of responses from product managers and senior product managers, the Mann-Whitney U test did not include job titles as separate groups. There were two groups (i.e., females, males) each with six scores (i.e., (a) lack of culture fit, (b) excluded from informal networks, (c) lack of mentoring, (d) poor organizational career management processes (e) difficulty getting developmental assignments, (f) difficulty obtaining opportunities for geographic mobility).

There were six research questions that were used to address the research problem and align with the study's purpose. I leveraged a Mann-Whitney U test to examine the correlation between gender and the perceived barriers to career advancement in the product management profession. Extant scholarly literature supports the use of Mann-Whitney U test when there is one dichotomous independent variable and one continuous dependent variable and the intent to compare the means of two groups, and the non-normal distribution is assumed (Burkholder et al., 2019; Ross & Wilson, 2017).

Research Question 1: What is the relationship between gender and the perception of lack of culture fit in the product management profession for product managers and senior product managers based in the United States?

$H_0$1: There is no significant relationship between gender and the perception of lack of culture fit in the product management profession for product managers and senior product managers based in the United States.

H_a1: There is a significant relationship between gender and perception of the lack of culture fit in the product management profession for product managers and senior product managers based in the United States.

Research Question 2: What is the relationship between gender and the perception of exclusion from informal networks in the product management profession for product managers and senior product managers based in the United States?

$H_0$2: There is no significant relationship between gender and the perception of exclusion from informal networks in the product management profession for product managers and senior product based in the United States.

H_a2: There is a significant relationship between gender and the perception of exclusion from informal networks in the product management profession for product managers and senior product managers based in the United States.

Research Question 3: What is the relationship between gender and the perception of lack of mentoring in the product management profession for product managers and senior product managers based in the United States?

$H_0$3: There is no significant relationship between gender and the perception of lack of mentoring in the product management profession for product managers and senior product managers based in the United States.

H_a3: There is a significant relationship between gender and the perception of lack of mentoring in the product management profession for product managers and senior product managers based in the United States.

Research Question 4: What is the relationship between gender and the perception of poor organizational career management processes in the product management profession for product managers and senior product based in the United States?

H_04: There is no significant relationship between gender and the perception of poor organizational career management processes in the product management profession for product managers and senior product managers based in the United States.

H_a4: There is a significant relationship between gender and the perception of poor organizational career management processes in the product management profession for product managers and senior product managers based in the United States.

Research Question 5: What is the relationship between gender and the perception of difficulty getting developmental assignments in the product management profession for product managers and senior product managers based in the United States?

H_05: There is no significant relationship between gender and the perception of difficulty getting developmental assignments in the product management profession for product managers and senior product managers based in the United States.

H_a5: There is a significant relationship between gender and the perception of difficulty getting developmental assignments in the product management profession for product managers and senior product managers based in the United States.

Research Question 6: What is the relationship between gender and the perception of difficulty obtaining opportunities for geographic mobility in the product management profession for product managers and senior product managers based in the United States?

$H_0$6: There is no significant relationship between gender and the perception of difficulty obtaining opportunities for geographic mobility in the product management profession for product managers and senior product managers based in the United States.

H_a6: There is a significant relationship between gender and the perception of difficulty obtaining opportunities for geographic mobility in the product management profession for product managers and senior product managers based in the United States.

The results were interpreted by evaluating the difference in mean ranks of the two independent variables (i.e., females and males). I observed the standard significance level of 0.05. For p-values is equal to or less than 0.05, I rejected the null hypotheses, suggesting that there was a statistically significant difference in perceived barriers to career advancement between females and males. For p-values greater than 0.05, I accepted the null hypothesis, supporting that there was no statistically significant difference in perceived barriers to career advancement between females and males.

Threats to Validity

External Validity

External validity refers to the degree to which conclusions can be generalized to a wider population beyond the sample (Findley et al., 2021). A study with strong external validity may be described as one in which the results can be generalized to other populations. A low response rate is noted as a potential threat to external validity which

has been countered with the stratified sampling method to ensure that there is an adequate number of responses from product managers and senior product managers, and females and males. A study with an overwhelming number of product managers when compared to senior product managers may skew the external validity of the research. Further, a study with an overwhelming number of responses from females when compared to males may also skew the external validity of the research. An additional threat to external validity may be the self-reported nature of the data. Given that the study does not collect information direct from companies, the accuracy of the responses inherently relies on the trustworthiness of the participant. For instance, it is possible for a participant to indicate that they are a product manager when, in fact, they are a customer success manager.

Internal Validity

Internal validity pertains to the extent to which researchers can assert the changes to the dependent variable are directly related to changes in the independent variable (Cahit, 2015). One common threat to internal validity is if participants are hesitant to respond truthfully due to concerns on anonymity. To overcome this potential threat, it was clearly communicated that all responses will be anonymous via the informed consent form. No names, email addresses, company names, or IP addresses were recorded.

Statistical Conclusion Validity

Statistical conclusion validity occurs when research findings are based on statistical data and can logically address the research question (Garcia-Pérez, 2012). To counter potential threats to statistical conclusion validity a quantitative correlational design was leveraged and is appropriate for the study. The study was intended to measure

the variance and mean ranks between two groups, which a Mann-Whitney U test is designed to measure. Further, additional inferences outside of the scope of the research design and the data analysis tool were not made. Lastly, sufficient data was collected as indicated by the power analysis, using G*Power version 3.1.9.6 software, which yielded the following statistical parameters of (a) medium effect size =0.50, (b) alpha level = .05 (two-tailed test), and (c) statistical power = 0.90, identified a minimum sample size of N = 172.

Ethical Procedures

Ethical procedures are vital to any research study as they help protect the information and experience of participants and help to ensure that future research participation is deemed safe (Ritchie, 2021). I pursued permission to move forward with the study via the Walden University Institutional Review Board (IRB). I submitted the appropriate documentation, including the Perceived Barriers to Career Advancement research instrument and consent form. Data collection only began after IRB approval. I submitted three modification of procedure requests to allow for a clearer recruitment message to be leveraged, to broaden the research population, and to be able to send direct messages with an approved recruitment message.

Artal and Rubenfeld (2017) discussed the ethical responsibilities of researchers and highlighted that the benefits of conducting research should supersede the potential negative implications. As such, research participants were informed that their participation in the study was voluntary, and that they may withdraw from the study at any time.

To ensure the protection of participants and the integrity of the research, ethical issues regarding recruitment procedures and materials are crucial (Artal & Rubenfeld, 2017). Addressing these concerns required a meticulous plan that upholds ethical standards and promotes transparency throughout the study. The recruitment materials appropriately conveyed the goals and methods of the study. To ensure that potential participants have complete knowledge of their involvement, recruitment materials included language that was clear, succinct, and free from any improper influence. To mitigate any potential data privacy concerns, the results of the data collection was password-protected and will not be shared with the public. The files will be maintained for of 5 years, at which point, the files will be destroyed.

Summary

Chapter 3 included insight into the research design and methodology that underpin the study. The purpose of this quantitative correlational study was to compare the relationship between gender and the perceived barriers to career advancement in the product management profession. In this quantitative correlational study, Mann-Whitney U test was used to compare the sample mean ranks in each of the six perceived barriers to career advancement to understand whether there was a statistically significant difference between men and women. A minimum of 172 product managers and senior product managers based in the United States participated in a questionnaire to collect data relative to their career advancement experiences. A stratified sampling methodology was leveraged to divide the population into four mutually exclusive strata. The various sections of Chapter 3 included details of the sampling population, data collection process,

and strategies to protect research participants' identity as aligned with the Walden University Institutional Review Board (IRB) process. Chapter 4 includes a comprehensive explanation of the data collection process and study results.

Chapter 4: Results

The purpose of this quantitative, correlational study was to compare the relationship between gender and the perceived barriers to career advancement in the product management profession. While there is a myriad of research relating to the glass ceiling phenomenon and the connection between gender and the perceived barriers to career advancement in other professions, little is known about the intersectionality of the glass ceiling phenomenon and product management (Hyrynsalmi et al., 2021). The desired outcome was to increase understanding of gender-based career advancement disparities in the product management profession.

The independent variable was gender, dichotomously represented as either female or male. Perceived barriers to career advancement were categorized into six dimensions, each representing a dependent variable. The six dependent variables were (a) lack of culture fit, (b) exclusion from informal networks, (c) lack of mentoring, (d) poor organizational career management processes, (e) difficulty getting developmental assignments, and (f) difficulty obtaining opportunities for geographic mobility. There were six research questions designed to address the research problem and align with the study's purpose.

Research Question 1: What is the relationship between gender and the perception of lack of culture fit in the product management profession for product managers and senior product managers based in the United States.

$H_0$1: There is no significant relationship between gender and the perception of lack of culture fit in the product management profession for product managers and senior product managers based in the United States.

H_a1: There is a significant relationship between gender and perception of the lack of culture fit in the product management profession for product managers and senior product managers based in the United States.

Research Question 2: What is the relationship between gender and the perception of exclusion from informal networks in the product management profession for product managers and senior product managers based in the United States?

$H_0$2: There is no significant relationship between gender and the perception of exclusion from informal networks in the product management profession for product managers and senior product managers based in the United States.

H_a2: There is a significant relationship between gender and the perception of exclusion from informal networks in the product management profession for product managers and senior product managers based in the United States.

Research Question 3: What is the relationship between gender and the perception of lack of mentoring in the product management profession for product managers and senior product managers based in the United States?

$H_0$3: There is no significant relationship between gender and the perception of lack of mentoring in the product management profession for product managers and senior product managers based in the United States.

H_a3: There is a significant relationship between gender and the perception of lack of mentoring in the product management profession for product managers and senior product managers based in the United States.

Research Question 4: What is the relationship between gender and the perception of poor organizational career management processes in the product management profession for product managers and senior product managers based in the United States?

$H_0 4$: There is no significant relationship between gender and the perception of poor organizational career management processes in the product management profession for product managers and senior product managers based in the United States.

$H_a 4$: There is a significant relationship between gender and the perception of poor organizational career management processes in the product management profession for product managers and senior product managers based in the United States.

Research Question 5: What is the relationship between gender and the perception of difficulty getting developmental assignments in the product management profession for product managers and senior product managers based in the United States?

$H_0 5$: There is no significant relationship between gender and the perception of difficulty getting developmental assignments in the product management profession for product managers and senior product managers based in the United States.

$H_a 5$: There is a significant relationship between gender and the perception of difficulty getting developmental assignments in the product management profession for product managers and senior product managers based in the United States.

Research Question 6: What is the relationship between gender and the perception of difficulty obtaining opportunities for geographic mobility in the product management profession for product managers and senior product managers based in the United States?

$H_0$6: There is no significant relationship between gender and the perception of difficulty obtaining opportunities for geographic mobility in the product management profession for product managers and senior product managers based in the United States.

H_a6: There is a significant relationship between gender and the perception of difficulty obtaining opportunities for geographic mobility in the product management profession for product managers and senior product managers based in the United States.

Chapter 4 includes a description of the data collection process and the study results. The data collection process includes information regarding timeframes, recruitment strategy, and response rates. The results of each of the six research questions are addressed, including effect size. The results provided insight into the participants' perception of barriers to career advancement, specifically in the product management profession.

Data Collection

The study's data collection was launched on March 28, 2024, after Walden University Institutional Review Board approval, with the original intent of studying product managers and senior product managers at 2023 Forbes Cloud 100 companies. After 75 days of a live Qualtrics questionnaire, only 36 responses were received, of which only 11 were valid. The original questionnaire closed on June 12, 2024. After receiving approval from Walden University's Institutional Review Board, I expanded the

population to include full-time, salaried product managers and senior product managers who reside in the United States. Based on the statistical parameters of (a) statistical power = 0.90, (b) effect size = 0.50, (c) alpha level = 0.05 (two-tailed test), which indicates a 90% confidence interval and measures the level of error permitted in the data. The ideal sample size was $N = 172$.

The questionnaire was live for 11 days, opening June 12, 2024 and closing June 23, 2024, with 212 product managers and senior product managers attempting the questionnaire. Only 173 participants answered all of the questions, exceeding the number required to adequately test each hypothesis. Of the 173 sample size, 104 identified as female and 69 identified as male; 74 identified as product managers, and 99 identified as senior product managers. Participation in the survey was anonymous as it did not request participants to indicate their email, employer, or state of residence. IP addresses were not recorded or saved as a part of data collection.

I leveraged social media posts to recruit potential participants on platforms including LinkedIn, the Women in Product Facebook Group, and the Black Product Managers Slack channels. The social media posts were also reposted by others, exponentially increasing awareness of the study. I also leveraged LinkedIn's direct messaging feature to identify product managers and senior product managers based in the United States and shared the recruitment message directly. The recruitment messages included a link to the questionnaire in Qualtrics.

Results

Table 1 displays the frequency counts for the selected variables. There was a total of 104 female participants and 69 male participants. A total of 74 product managers and 99 senior product managers participated in the study.

Table 1

Frequency Counts for Selected Variables (N = 173)

Job title	Females	Males	Sum
Product manager	46	28	74
Senior product manager	58	41	99
Sum	104	69	173

Independent Samples *T*-Test Assumptions

The independent samples *t* test compares the overall means of two distinct groups to determine if there is a significant difference between the means of the two groups (Meyers et al., 2013). Meyers et al. (2013) suggested that there are three assumptions related to the independent samples *t* test, whereby the data is quantitative and approximately normally distributed, homogeneity of variances, and independent observation both between and within groups. The dependent variables in this study were measured on a continuous scale (i.e., Likert scale). The independent variable consisted of two independent categories (i.e., female, male). The independence of observations is another core assumption for independent samples *t* tests, and it was valid for this study's data set. It was not reasonable for a single participant to be a product manager and a

senior product manager, or a male and female. Table 2 displays the results of the Shapiro-Wilk test of normality using SPSS Statistics. The results of the Shapiro-Wilk test indicated that the data deviated from a normal distribution, and as such, an independent samples t test could not be leveraged to test this study's assumptions.

Table 2

Shapiro-Wilk Test Results for Normality

Variable	Gender	*df*	Sig.
Lack of culture fit	Female	104	.107
	Male	69	.757
Exclusion from informal networks	Female	104	<.001
	Male	69	<.001
Lack of mentoring	Female	104	.002
	Male	69	.005
Poor organizational career management processes	Female	104	.003
	Male	69	.007
Difficulty getting developmental assignments	Female	104	.171
	Male	69	.092
Difficulty obtaining opportunities for geographic mobility	Female	104	<.001
	Male	69	<.001

Mann-Whitney *U*-Test Assumptions

Home (2016) indicated that the Mann-Whitney *U* test is considered a non-parametric equivalent test to the independent samples *t* test, used when non-normal distribution is assumed to be true. The Mann-Whitney *U* test is used to test whether the distribution of scores (i.e., mean ranking) of one group differs from the distribution of score differs from another group. Home (2016) confirmed that there are two primary assumptions that must be satisfied to leverage the Mann-Whitney *U* test, whereby independent observation both between and within groups and that while the distribution can be non-normal, they must be similar in shape. If the distribution shapes are statistically significantly different, the test may not accurately compare the mean ranks of the two groups. The independence of observations is another core assumption for independent samples t-tests, and it was valid for this study's data set. It was not reasonable for a single participant to be a product manager and a senior product manager, or a female and male. I leveraged the Levene's test to statistically check for similar distribution. Table 3 displays the Levene's Test for non-parametric homogeneity of variance, which shows significance levels above 0.05 for each variable. Given that the p-value is greater than $p = 0.05$, I rejected the null hypothesis, suggesting that the variances are equal.

Table 3

Levene's Test for Non-Parametric Homogeneity of Variance

Variable	Measure of dispersion	Levene statistic	Sig.
Lack of culture fit	Based on Mean	1.876	.173
	Based on Median	1.961	.163
Exclusion from informal networks	Based on Mean	.009	.926
	Based on Median	.024	.877
Lack of mentoring	Based on Mean	.396	.530
	Based on Median	.130	.719
Poor organizational career management	Based on Mean	.106	.746
processes	Based on Median	.156	.693
Difficulty getting developmental assignments	Based on Mean	.493	.483
	Based on Median	.489	.485
Difficulty obtaining opportunities for	Based on Mean	.000	.999
geographic mobility	Based on Median	.011	.918

Statistical Analysis Findings

This section details the results of the statistical analysis for each research question. I leveraged the Mann-Whitney *U* test to compare the mean rank differences between the independent variable and each dependent variable. The study's results demonstrate a statistically significant relationship between the independent variable and only one of the dependent variables (i.e., lack of culture fit).

Research Question 1

To address the first research question, I aimed to understand the relationship between gender and the perceived barrier to career advancement related to lack of culture fit. Research Question 1 was: What is the relationship between gender and the perception of lack of culture fit in the product management profession for product managers and senior product managers based in the United States? The related null hypothesis was $H_0 1$: There is no significant relationship between gender and the perception of lack of culture fit in the product management profession for product managers and senior product managers based in the United States. Table 4 displays the Mann-Whitney U test statistics comparing the mean rank differences between gender and the perception of lack of culture fit. The relationship was statistically significant ($p = .006$), providing support to reject the null hypothesis for Research Question 1. The effect size was relatively small at a value of .21.

Table 4

Mann-Whitney U-Test Statistics

Variable	Gender	*N*	Mean rank	Sig.	Effect size *r*
Lack of culture fit	Female	104	95.53	.006	.21
	Male	69	74.14		
Exclusion from informal networks	Female	104	90.70	.229	.09
	Male	69	81.43		
Lack of mentoring	Female	104	90.45	.264	.08
	Male	69	81.80		
Poor organizational career management processes	Female	104	85.12	.541	.05
	Male	69	89.84		
Difficulty getting developmental assignments	Female	104	90.24	.295	.08
	Male	69	82.12		
Difficulty obtaining opportunities for geographic mobility	Female Male	104 69	87.28 86.58	.926	.01

Research Question 2

To address the second research question, I aimed to understand the relationship between gender and the perceived barrier to career advancement related to exclusion from informal networks. Research Question 2 was: What is the relationship between gender and the perception of exclusion from informal networks in the product management profession for product managers and senior product managers based in the United States? The null hypothesis was $H_0$2: There is no significant relationship between gender and the perception of exclusion from informal networks in the product management profession for product managers and senior product managers based in the United States. Table 4 displays the Mann-Whitney *U* test statistics comparing the mean rank differences between gender and the perception of exclusion from informal networks. The relationship was not significant (p = .229), providing no support to reject the null hypothesis for Research Question 2. The effect size was small at a value of .09.

Research Question 3

To address the third research question, I aimed to understand the relationship between gender and the perceived barrier to career advancement related to lack of mentoring. Research Question 3 was: What is the relationship between gender and the perception of lack of mentoring in the product management profession for product managers and senior product managers based in the United States? The null hypothesis was $H_0$3: There is no significant relationship between gender and the perception of lack of mentoring in the product management profession for product managers and senior product managers based in the United States. Table 4 displays the Mann-Whitney *U* test

statistics comparing the mean rank differences between gender and the perception of lack of mentoring. The relationship was not significant (p = .264), providing no support to reject the null hypothesis for Research Question 3. The effect size was small at a value of .08.

Research Question 4

To address the fourth research question, I aimed to understand the relationship between gender and the perceived barrier to career advancement related to poor organizational career management processes. Research Question 4 was: What is the relationship between gender and the perception of poor organizational career management processes in the product management profession for product managers and senior product managers based in the United States? The null hypothesis was $H_0$4: There is no significant relationship between gender and the perception of poor organizational career management processes in the product management profession for product managers and senior product managers based in the United States. Table 4 displays the Mann-Whitney U test statistics comparing the mean rank differences between gender and the perception of poor organizational career management processes. The relationship was not significant (p = .541), providing no support to reject the null hypothesis for Research Question 4. The effect size was small at a value of .05.

Research Question 5

To address the fifth research question, I aimed to understand the relationship between gender and the perceived barrier to career advancement related to difficulty getting developmental assignments. Research Question 5 was: What is the relationship

between gender and the perception of difficulty getting developmental assignments in the product management profession for product managers and senior product managers based in the United States? The null hypothesis was $H_0$5: There is no significant relationship between gender and the perception of difficulty getting developmental assignments in the product management profession for product managers and senior product managers based in the United States. Table 4 displays the Mann-Whitney *U* test statistics comparing the mean rank differences between gender and the perception of difficulty getting developmental assignments. The relationship was not significant ($p = .295$), providing no support to reject the null hypothesis for Research Question 5. The effect size was small at a value of .08.

Research Question 6

To address the final research question, I aimed to understand the relationship between gender and the perceived barrier to career advancement related to difficulty obtaining opportunities for geographic mobility. Research Question 6 was: What is the relationship between gender and the perception of difficulty obtaining opportunities for geographic mobility in the product management profession for product managers and senior product managers based in the United States? The null hypothesis was $H_0$6: There is no significant relationship between gender and the perception of difficulty obtaining opportunities for geographic mobility in the product management profession for product managers and senior product managers based in the United States. Table 4 displays the Mann-Whitney *U* test statistics comparing the mean rank differences between gender and the perception of difficulty obtaining opportunities for geographic mobility. The

relationship was not significant (p = .926), providing no support to reject the null hypothesis for Research Question 6. The effect size was small at a value of .01.

Summary

This study used primary data from 74 full-time, salaried product managers and 99 full-time, salaried senior product managers based in the United States to compare the relationship between gender and the perceived barrier to career advancement in the product management profession. The only research hypothesis that was supported was Research Question 1, which provided evidence that gender is a predictor variable for lack of culture fit and is a perceived barrier to career advancement in the product management profession. There was no statistically significant evidence for gender as a predictor variable for the perceived barriers to career advancement in the product management profession for any of the other five dependent variables (i.e., exclusion from informal networks, lack of mentoring, poor organizational career management processes, difficulty getting developmental assignments, difficulty obtaining opportunities for geographic mobility).In Chapter 5, these findings will be compared to the literature. In additon, conclusions, implications, and recommendations will follow.

Chapter 5: Discussion, Conclusions, and Recommendations

Despite the range of extant scholarly literature on gender-based career advancement disparities in a variety of fields (Grangeiro et al., 2022), little is known about the intersectionality of product management, perceived barriers to career advancement, and gender (Hyrynsalmi et al., 2021). Kim (2022) conducted a gender-based career advancement disparity study at a single software company by leveraging secondary data and found that female employees typically exhibit a significantly lower probability of being promoted when performance is controlled for. The author suggested conducting additional research in the engineering and technology fields, utilizing primary data sources, which influenced the direction of this study.

Existing research has attributed gender-based career advancement disparities to personality traits (Bassir et al., 2022), a history of patriarchal constructs (Alobaid et al., 2020; Naguib and Madeeha, 2023), and organizational culture (Moorthy et al., 2022). This study's purpose aligns more closely with the latter, given that the research questions include inquiries related to lack of culture fit and exclusion from informal networks. Deeper connections to the perceptions of patriarchal or personality traits were out of the scope of this study.

The purpose of this quantitative, correlational study was to compare the relationship between gender and the perceived barriers to career advancement in the product management profession. The independent variable was gender, given that extant research suggests that women may experience barriers that restrict career advancement more than men (Bloch et al., 2021; Powell & Butterfield, 2015). To address the research

questions in this quantitative study, the specific research design included a non-experimental correlational research design.

To adequately address the research problem, full-time, salaried product managers and senior product managers based in the United States responded to survey questions detailing their perceptions related to culture fit, informal networks, lack of mentoring, organizational career management processes, the degree of difficulty obtaining developmental assignments, and the degree of difficulty for obtaining opportunities for geographic mobility. Lyness and Thompson (2000) authored the research instrument, Perceived Barriers to Career Advancement Scales, that was leveraged for this study and granted permission to use the instrument for non-commercial research and educational purposes without written consent. The results of this study suggested gender as a predictor variable for the perception of lack of culture fit as a barrier to career advancement in the product management profession. The results did not support gender as a predictor variable for the other five barriers to career advancement (i.e., exclusion from informal networks, lack of mentoring, poor organizational career management processes, difficulty getting developmental assignments, and difficulty obtaining opportunities for geographic mobility).

Interpretation of Findings

The statistically significant relationship between gender and the perception of a lack of culture fit supports previous research, which suggests that a lack of candidate-organization homogeneity can hinder initial hiring and promotion consideration (Graham et al., 2016; Wallrich, 2022). Prior research suggests that cultural fit is not relegated to

gender homogeneity, whereby candidate values, beliefs, and behaviors contribute to the perception of cultural fit (Lu et al., 2023). The scope of this study did not include understanding the underlying reasons for the participants' perspectives or the ways in which the participants defined culture.

It is also worth noting that the results of this study did not indicate statistically significant disparities between genders relative to the perception of exclusion from informal networks, lack of mentoring, poor organizational career management processes, difficulty getting developmental assignments, and difficulty obtaining opportunities for geographic mobility. While there was not enough statistical evidence to reject the null hypothesis, the results do not support that these are all nominal issues. The significance value in probability statistics (e.g., *p* value, Sig.) ranges from 0 to 1. Probability values close to 0 indicate that an observation is less likely to be explained by chance (Meyers et al., 2013). Probability values close to 1 indicate that an observation is more likely to be a random occurrence and not necessarily a true effect. In essence, where the probability value (e.g., *p* value, Sig.) is .30, it indicates that there is a 30% chance that the observation is due to some random occurrence. Table 4: Mann-Whitney *U*-Test Statistics displays the probability values for each observation. The results suggest that the relationship between gender and difficulty obtaining opportunities for geographic mobility is a random observation, given the probability value of .926. I interpret this to indicate that females and males are less likely to perceive difficulties in obtaining opportunities for geographic mobility differently. Similarly, the probability value of .541 for the observed relationship between gender and poor organizational career management

processes indicates that there is a ~54% chance that females and males perceive this differently. While not statistically significant, the probability values for exclusion from informal networks, lack of mentoring, and difficulty getting developmental assignments are notably less random than the random occurrences in the two aforementioned observations.

Briggs et al. (2012) found evidence to support the exclusion from informal networks as a perceived barrier to career advancement in the sales field, agnostic of gender. Horak and Suseno (2022) extended that research and found support for the exclusion from informal networks as a perceived barrier to career advancement for women, especially if the network is male dominated. This study did not find statistically significant support for gender as the predictor variable for this barrier to career advancement. The study was not positioned to fully confirm or disconfirm Horak and Suseno's (2022) research, as the descriptors of their informal networks were not measured.

This study did not find significant support for gender as a predictor variable for the perceived lack of mentoring as a perceived barrier to career advancement, specifically lack of mentoring. That said, the results do not indicate that lack of mentoring is not perceived as a barrier to career advancement. Extant literature indicates that there is a positive relationship between mentorship and career advancement (Mcilongo & Strydom, 2021; Swan Dagen et al., 2022). Mcilongo and Strydom's (2021) quantitative study supported a strong relationship between mentorship and career advancement, and recommended mentorship training to prepare senior-level employees for mentorship

responsibilities. Further, Wrigley-Asante et al.'s (2022) research argued that mentorship programs could influence the actualization of career aspirations for women in technology fields. Given that this study's results did not find support gender as a predictor variable, the findings do not disconfirm the impact and importance of mentorship for career advancement in general.

Organizational career management processes as a perceived barrier to career advancement was the only dependent variable that showed a higher mean rank for males than females (see Table 4: Mann-Whitney *U*-Test Statistics). Typically, scholarly research on gender-based career advancement disparities tend to find that women perceive more barriers than men. This result, despite not being statistically significant, is remarkable as it defies researched trends. Future research may explore this phenomenon with the intent of disconfirming this result or confirming it with additional context. Possible hypotheses may include that females may be facing more significant barriers to career advancement, thus overshadowing this factor, or how females perceive organizational career management process responsibilities. Extant research has considered that the career management processes were the responsibility of either organizational leaders and systems, employees, or both (Baruch & Peiperl, 2000). Further research to either confirm or disconfirm this belief in the product management field would be valuable in investigating how employees view these processes through a gendered lens.

Ketchiwou and Lineo's (2023) gender-based career advancement disparity research addressed an important aspect of glass ceiling research. Their findings indicated

that women's skills were not being developed at the same rate as men's. The authors found that managers were less likely to provide high-visibility project opportunities and challenging assignments to women because they perceived that the output would not be of the same fidelity as it would be for men. This study did not support Ketchiwou and Lineo's (2023) research. This study did not find statistically significant differences between gender and the perception of difficulty getting developmental assignments.

Nikunen and Lempiäinen (2020) conducted a qualitative study to understand how females and males in academia perceived difficulties in obtaining opportunities for geographic mobility and found that both genders experienced difficulty. This study confirms that finding, despite the varied context. Given the significance value of .926, this study did not find any support for gender as a predictor variable for perceived barriers to career advancement relative to difficulties in obtaining opportunities for geographic mobility.

Table 4: Mann-Whitney *U*-Test Statistics displays the observed effect sizes, which each indicate a small effect size, given that the values ~ <0.20. Small effect sizes typically suggest trivial practical impacts. Carey et al. (2023) asserted that while report effect sizes are standard practice, the interpretation of effect sizes can be misleading. The authors provided evidence that a relatively small shift in mean values shifted effect sizes from notably small to large, which may indicate that effect sizes may not be a reliable indicator for practical purposes. Paterson et al. (2016) aggregated research from more than 250 studies over a 30-year period, specifically in the human resources and organizational behavior literature, and found that effect sizes were not appropriate or

practical for human resources and organizational behavior research. The authors asserted that effect size in management literature was traditionally underpowered. Given the context of my study, I interpret that this suggests that it is worth considering that the seemingly low effect size should not be practically disregarded as organizational non-issues. Despite the effect sizes for each of the observations reported in this study, I interpret the results as having greater implications than effect sizes indicate.

Limitations of the Study

While initial limitations were detailed in the opening chapter, the research process revealed additional limitations as the study progressed. One of the limitations of the study included that the study included product managers and senior product managers, agnostic of industry. While the sample population was based in the United States, the findings do not provide specific guidance for specific industries. Consequently, it remains unclear whether the results are generalizable to the entire product management population or if certain industries would exhibit varying outcomes given similarly structured research questions. Additionally, this study did not include company size as a confounding variable, and as such, I am unable to ascertain how the results may vary across organizations of different sizes. The impact of organizational scale or depth of the product management department warrants further inquiry to provide more nuanced and focused insights.

It is also worth noting that the study's exploration of gender was limited to a binary approach, excluding a full spectrum of gender identities. This limitation reduced the diversity of the participant pool. Future research should adopt a more inclusive

approach that recognizes gender-fluid and non-binary identities to better understand the perceived barriers to career advancement.

Given the dearth of scholarly research in the product management profession, an estimate of the number of product managers, regardless of level, is not well understood. Although professional platforms (e.g., LinkedIn) have indicated thousands of individuals who identify as product management professionals, there is a scarcity of validated scholarly research to support these estimates. This highlights a need for more comprehensive data to establish a reliable demographic profile of the product management profession.

The research instrument does not consider modern opportunities, including remote work or geographic flexibility in addition to geographic mobility. When the research instrument was published in 2000, remote work was not as popular as it was at the time this study was published. As such, the study does not examine the remote work impacts on the perceived barriers to career advancement in product management.

Recommendations

This study found a statistically significant difference between gender and the perceived barriers to career advancement, specifically relative to lack of culture fit. The results did not support a statistically significant difference between gender and exclusion from informal networks, lack of mentoring, poor organizational career management processes, difficulty getting developmental assignments, and difficulty obtaining opportunities for geographic mobility. I recommend further research to understand the underlying reasons that influence the perception of lack of culture fit as a barrier to career

advancement, specifically in the product management field. Culture fit research has been conducted in technology fields (Chavez, 2017; Ly-Le, 2022); however, it is worth further investigation in the product management profession specifically, including, but not limited to, qualitative study.

Extant research provides evidence for fit heterogeneity across genders, whether females are perceived as more bossy or aggressive than their male counterparts (Zuckerman, 2019) or females are told they are too ambitious when vying for promotions (Josefsson, 2020). Given the context of the management perception of cultural fit in the product management profession, further research is needed to understand the connection between how females are perceived relative to males.

Additional studies may include parameters that include how remote work may or may not be a factor in perceived barriers to career advancement. The original research instrument was developed in 2000 when remote work was not as prevalent as it was when the questionnaire was conducted. Further research may include the remote work environment as a factor.

While this study leveraged a quantitative design, further qualitative study is recommended. We do not understand the underlying rationale behind participant perceptions and what specific experiences influenced their assessment. I find it noteworthy that the only perceived barrier to career advancement factor in which the mean rank was higher for males than females was related to poor organizational career management processes. Do women truly find this to be a less of a barrier? Were the other

factors viewed as more important? What experiences are males facing that influenced a higher mean rank in that area? These questions warrant further inquiry.

How we study gender relative to career advancement is also worth further research. It recommended for additional studies to include the evolving spectrum of gender for inclusion purposes. To that end, we do not yet know the relationship between gender and the perceived barriers to career advancement in the product management profession for those who identify as non-binary and/or gender fluid. The results of this study are only relevant to individuals who affirm a binary gender identity. Those who do not ascribe to traditional, binary gender identities are inherently excluded from this study but deserve representation, too.

While this study focused on product management given the dearth of scholarly literature available on the profession, future research may consider the broader technology professions, too. Adjacent professions including project management and software engineering may benefit from similar inquiry. Comparing and potentially contrasting the findings between adjacent professions may help organizational leaders to make meaningful career support decisions. Similarly, other nuances may influence future research, including leveling (e.g., associate product managers, director of product management, etc.) and location (e.g., the relationship between gender and perceived barriers to career advancement in Europe or West Africa).

Implications

As indicated in Chapter 1, the results of this study have the potential to fill gaps that exist in the product management and glass ceiling knowledge bases. The results of

this study could promote positive social change by enabling organizational leaders, including managers of product management teams, talent strategists, and human resources directors, to intentionally support their gender-diverse teams to career advancement with equity. The results of this study may also arm product managers and senior product managers with the validation of their lived experiences. Product managers and senior product managers may use this research to identify areas to address or discuss with appropriate organizational stakeholders to positively influence their career advancement, where feasible. Employees may develop communities in the form of employee resource groups to provide support and tangible resources that foster equitable career advancement. Where employee resource groups exist, this research may shape the direction of their foci.

Extant scholarly literature explored discrimination-blindness as a phenomenon that may explain gender-based career advancement disparities (Fiarman, 2016; Sapon-Shevin, 2017). This study has the potential to continue to raise awareness of potential disparities and perceptions of disparities that may exist within the product management field. This study's findings may enable organizational leaders to curiously explore the perceived barriers to career advancement within their respective teams with specific areas to investigate (e.g., culture fit, informal networks, mentorship, career management processes, developmental assignments, and geographic mobility).

The glass ceiling phenomenon was popularized in 1987 and has been researched in various contexts, including the connection between glass ceilings and female personality traits (Bassir et al., 2022) and the antecedents of the glass ceiling construct

(Alobaid et al., 2020). This addition to the body of literature allows the research to continue. Future research may uncover new forms of barriers that have emerged since the concept was popularized. Loden (1987) asserted that the proverbial glass ceiling represented an invisible barrier that limited women from achieving career advancement. Since then, glass ceiling research has involved to included race as a potential barrier (Webb, 2022). This study enables future researchers to explore the intersectionality of other social identities, such as race, age, socioeconomic status, and perceived barriers to career advancement in product management.

This study adds to the body of knowledge about career development and the product management field. Scholarly practitioners are able to leverage this study to investigate a bevy of inquiries related to product management careers, including the role of organizational cultures and policies perpetuating or dismantling glass ceiling constructs, the psychological effects of the gender-based career advancement disparities to mental health, and the impact of technological progression and the advancement of remote work impacts glass ceiling constructs.

Given the significance of gender as a predictor variable to perceived lack of culture fit as a barrier to career advancement, this study may provide an adequate scholarly lattice to study strategies for and implications of embracing culture add versus culture fit within a product management team. Extant research has explored the impacts of less than inclusive culture in technology professions, including the *tech bro culture* that fosters an aggressive, fraternal environment (Crandall et al., 2021) or the practice of prioritizing hiring individuals with Ivy League education (Kim, 2023). These practices

can perpetuate gender-based career advancement disparities in the workplace. Future research could explore how solving culture fit barriers impacts team performance, employee satisfaction, and employee retention in the product management profession.

Conclusions

This quantitative, correlational study compared the relationship between gender and the perceived barrier to career advancement in the product management profession. While the study explored six factors previously validated to influence perceived barriers to career advancement, the results only found a statistically significant effect in one of those six factors, which was the lack of culture fit. This result underscores the exigent role that organizational culture and the perception of said culture play in influencing career advancement, especially through a gendered lens. The significance of culture fit as a career advancement may suggest that the product management profession grapples with culture awareness and culture inclusivity that disproportionately affect females more than males. This insight provides a starting point for organizational leaders to address cultural constructs that may influence gender-based career advancement disparities.

The absence of statistically significant effects in the other five variables may offer valuable insights as well. It may suggest that the barriers to career advancement may be evolving toward a more equitable reality. Further research is necessary to continue to track the dynamic nature of gender-based career advancement disparities, which may provide valuable insights for other professions.

It is also worth noting that the essence of this research is rooted in exploring and finding paths to gender equality to ultimately create more inclusive workplaces. Given the lack of gender inclusion in the study, I strongly recommend for a full spectrum of gender inclusion and representation in future research. Each study that aims to understand gender without also aiming to understand the evolving spectrum of gender commits a disservice to positive social change by creating less inclusive research. In an effort to cultivate deeper understanding, agnostic of a researcher's personal belief and current level of understanding, is inherent in research and one of my personal core takeaways from this study.

This study contributes to the broader discussion of gender-based career advancement disparities in technology fields and highlights the importance of regular inquiries into profession-specific career advancement barriers. As society progresses and the product management field continues to evolve, so too must our knowledge base of the contemporary factors that influence career advancement. These findings suggest a need for continued inquiry into gender-based career advancement disparity research. To assume that because law and regulations prohibit gender-based discrimination and equality does not represent the realities of human behavior and organizational support. Through continued research, organizational leaders may be equipped with insights and guidance to make meaningful changes that are mutually beneficial for the employee, organization, and positive societal change at large.

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Appendix A: Perceived Barriers to Career Advancement Scales

Instructions: Respondents rate the extent to which each of the 26 factors has been a problem to career advancement within the organization on a scale ranging from 1 (no problem at all) to 5 (a very serious problem).

Lack of Culture Fit

Feeling pressure to fit in or adapt to the culture

Few role models

Feeling like you are an outsider

Not feeling comfortable asserting your views because of possible consequences

Feeling that you can't make mistakes and learn from them without threatening your job or your future

Feeling like you are held to a higher standard than others

People tend to recommend and select people like themselves

Excluded From Informal Networks

Being excluded from social events and informal interactions with colleagues, either on or off the job

Limited access to informal networks

Lack of Mentoring

Not enough mentoring (e.g., counseling about career opportunities)

Not having a senior manager who facilitates your career progress

Not getting access to the right people (or not knowing the right people)

Not receiving enough meaningful feedback about your strengths and weaknesses

Poor Organizational Career Management Processes

Poor career development and planning processes

Not knowing what the criteria are for advancement

Being unsure about how to initiate a job change

Difficulty Getting Developmental Assignments

Not getting the right jobs early in your career (that you need for later advancement)

Lack of opportunities to move across functions or businesses

Difficulty getting access to critical developmental assignments (e.g., serving on highly visible task forces or committees)

Not being considered when promotions for bigger jobs arise

Difficulty getting access to opportunities

Difficulty getting access to job assignments with bottom line responsibility

Not being offered stretch assignments

Difficulty Obtaining Opportunities for Geographic Mobility

Needing to gain international experience in order to advance

Not being considered for jobs that require relocation (domestic)

Difficulty getting international assignments

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Appendix B: 2023 Forbes Cloud 100 Companies, sorted by list ranking

1. Open AI
2. Databricks
3. Stripe
4. Canva
5. ServiceTitan
6. Klaviyo
7. Grammarly
8. Talkdesk
9. Rubrik
10. Miro
11. Navan
12. Netskope
13. Tanium
14. Attentive
15. Wiz
16. Carta
17. Celonis
18. Grafana Labs
19. Snyk
20. Benchling
21. OneTrust

22. Checkr
23. Gong
24. Zapier
25. Dialpad
26. Gusto
27. AppsFlyer
28. Airtable
29. Arctic Wolf
30. OutSystems
31. Guild
32. Motive
33. Scale AI
34. Calendly
35. Notion
36. Plaid
37. Automation Anywhere
38. Deel
39. HighRadius
40. Seismic
41. Zoho
42. Postman
43. Workato

44. Dataiku

45. Cohesity

46. Algolia

47. Collibra

48. Icertis

49. Druva

50. 1Password

51. Yardi

52. Fivetran

53. Checkout.com

54. Rippling

55. HiBob

56. Komodo Health

57. Outreach

58. BrowserStack

59. Webflow

60. Pendo

61. Lucid

62. LaunchDarkly

63. ClickUp

64. Retool

65. Razorpay

66. Contentsquare

67. 6sense

68. Automattic

69. Papaya Global

70. Yotpo

71. Highspot

72. OwnBackup

73. Anthropic

74. Sentry

75. Chainanalysis

76. Forter

77. Intercom

78. Contentful

79. Claroty

80. Abnormal Security

81. Cloudinary

82. Vanta

83. DbtLabs

84. ActiveCampaign

85. Midjourney

86. Brightwheel

87. Tekion

88. Personio

89. Axonius

90. Harness

91. Kong Inc.

92. Moveworks

93. Front

94. Mambu

95. Orca Security

96. Cribl

97. Cockroach Labs

98. Hugging Face

99. MessageBird

100. DeepL