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Do differences in perception exist between men and women in competition for higher- level job positions and does choice architecture in competition play a role in exacerbating or mitigating these differences?

Master of Science in Business – Leadership and Change
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By Nora Nicoline Collett & Victoria McKee Birkeland

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Abstract

In recent years, the global workforce has undergone large transformations leading to an intensified focus on workplace competition and its interplay with gender dynamics. The aim of achieving harmonious and inclusive workforces has become paramount for organizations across all sectors, yet the underrepresentation of women in higher-level managerial positions remains a persistent challenge.

A contemporary study regarding changing the choice architecture from opt-in to opt-out defaults has shown potential to minimize the gender disparities in higher-level managerial positions. However, as the research is novel, the concept is required further investigation to be proven as the preferable option for organizations in attaining potential candidates.

In our thesis, we aim to shed light on the intricacies of gender dynamics within workplace competitions and aim to contribute to the broader venture of building a more egalitarian and diverse workforce. We aim to establish the changes of perceptions between the genders by applying an opt-out framework, to see if the effects can lead to a higher representation of female candidates in higher-level positions. We do this by applying dimensions such as Machiavellianism, Moral Judgement and Willingness to Compete, to examine if an opt-out framework provides positive effects on females and their journey up the corporate ladders.

Our results suggest that an opt-out framework does, to a certain point, indeed reduce gender disparities in workplace competitions, however, our findings also suggest that not all ways of the recruitment of candidates should be done with an opt-out design. Following, our findings are not globally generalizable, as our survey has been distributed within Norway. In addition, socio-cultural factors will vary across the countries, and hence, our research should be tested within other cultures, in other countries to obtain a better understanding of the effects of opting out or passive choice architecture.

The Nobel Prize in Physics has been awarded to only three women till date. The most recent female awardee, Donna Strickland, was serving as an associate professor at the time of her victory. When questioned about her not failure to attain full professorship, she replied: "I never applied" (He et al., 2021 p. 1).

1.0 Introduction

The changing landscape of the global workforce has resulted in increased interest in the understanding of intricacies of workplace competition, particularly in conjunction with gender. The struggle for organizations to access the full pool of talent in higher-level job positions, is often restrained by the underrepresentation of females entering the competitive arena (He et al., 2021). This thesis will examine the differences in perception between men and women as they compete for advanced career roles, with the influence of choice architecture in competitive dynamics. The exploration is driven by an unwavering interest in achieving a more balanced, diverse, and productive workforce, by understanding the complexities of perceptions towards the genders within competitive settings.

The thesis is inspired by Joyce He's comprehensive study from 2021. The study is a crucial addition to the existing body of knowledge and has provided deeper insights into the nuances and dynamics of gender in competition, and the role choice architecture has on shaping these dynamics. In addition, existing literature presents a complex landscape of gender disparity, with evidence suggesting more pronounced competitive orientation among men than women. Men, for instance, are reported to choose a tournament incentive scheme twice as often as their female counterparts (Niederle & Vesterlund, 2007). Furthermore, despite structural actions and strides towards gender equality, women continue to be underrepresented in top management positions (Dezsö & Ross, 2012).

He et al. (2021) cites literature from both economics and psychology suggesting that reasons women are less willing to compete than men are correlated with observed and experienced gender disparity in leadership positions. Researchers have found that women demonstrate less (over)confidence than men (Niederle & Vesterlund, 2007), and are also less likely to self-promote and exaggerate accomplishments (Moss-Racusin & Rudman, 2010). Both Niederle & Vesterlund (2007) and Flory et al. (2015) show significant results that women are less likely to seek out risk and competition. Further, Bosquet et al. (2019) and Exley et al. (2020) support that risk aversion, lack of self-promotion and the likelihood to compete, are reasons women might be less inclined to participate in competitive situations.

He et al. (2021) conducted both field and laboratory experiments to test whether a change in choice architecture could attenuate differences between the genders. By altering the default of having to actively apply for promotions, and hence enter competitions, to a passive default where all relevant applicants are considered eligible, the applicants themselves had to decide whether they want to drop out of the competition or remain as a considered candidate. He et al. (2021) suggests that this change in choice architecture should have a direct impact on the differences between the genders, as studies show that women are reluctant to "lean-in", due to the potential backlash they might receive both socially and economically (Rudman & Glick, 2001). Therefore, the women that are hesitant to apply for higher-level positions, will experience a reversed process of recruitment while still obtaining their freedom of choice to compete or not.

To date, most action taken against gender disparities in recruitment processes have been tied to diversity programs and bias training, with little to no results (Dobbin & Kalev, 2016). While organizations have trained women to "lean in", voice concerns, and engage in women empowerment, the structural actions have brought on backlash in forms of economic and social penalties, as women adopt what is seen as stereotypically *male* characteristics (Moss-Racusin & Rudman, 2010). Furthermore, the lean in approach entitles women to take responsibility for fixing the problem themselves (Kim et al., 2018). Other actions for reducing gender disparities include the implementation of internal organizational systems in which the default is that individuals would be considered for promotions after a certain number of years, and the individual itself must opt out rather than opt in (Bosquet et al., 2019).

For recruitments and the choice to enter a competition (i.e., applying for a position), the choice architecture type is often an opt-in choice, where individuals actively apply for competition, and the default choice is not to apply (He et al., 2021). Out of three experiments, He et al. (2021) found a significant difference in the participation of competition when they changed the choice architecture from opting-in to opting-out. The result showed that around half of the women would opt into competitions, whereas approximately three quarters of the men would choose the same. When the default was altered, results showed that the differences between the genders were eradicated and close to equal. The conclusion of their study follows that while performance and abilities of the genders are mostly

equal, women show tendencies to have a higher aversion in their willingness to compete than men, and that the framing of opting out of competition schemes should eliminate or reduce these aversions (He et al., 2021).

Delving deeper into the perceptions between the genders when entering competitions, we apply and emphasize the concepts of Machiavellianism, Moral Judgement and Willingness to Compete as pivotal variables. Derived from Niccolò Machiavelli's teachings, the concept of Machiavellianism is central in examining how manipulation and deceptions may affect competition, as Machiavellianism is posited to potentially influence an individual's behavior in competitive environments. Further, the study evaluates the role of moral judgment in decision-making processes and how these variables, including an individual's willingness to compete, is influenced by the gender competing in a given scenario. To further investigate if it is possible for organizations to divert from an approach of "fixing the women," we explore whether an automated (i.e., opt-out) application process can potentially increase the number of female applicants and whether this leads to changed observer perceptions towards the female candidates in our experiments, and hence reveal an increased gender parity across higher level positions. This will be compared to the traditional application process, where applicants must opt-in to be eligible for a recruitment process.

With thus, pose the following research question:

Do differences in perception exist between men and women in competition for higher- level job positions and does choice architecture in competition play a role in exacerbating or mitigating these differences?

Our study employs a 2x2 vignette experiment, presenting four different scenarios in evenly spaced intervals. A vignette experiment is a beneficial research method for psychological and sociological experiments where we present a hypothetical situation in which the participants react and show their perceptions, values, norms, and impressions (Steiner et al., 2016). Our survey described four different scenarios for our participants, where two of the scenarios are considered opt-in scenarios and two scenarios are considered opt-out. The protagonist "Kim" was either male or female and competed against a friend in the aims of retaining a higher-level managerial position. We deployed the survey to a mass of 400

respondents, for increased reliability and validity of our study. Our demography is spread across all groups of age, gender, employment level and educational level, and provides detailed insight in understanding the effects of gender and competition with an active or passive approach.

Our thesis is further organized the following way: Chapter two presents the theoretical grounds that build our hypothesis for finding resolutions in the gaps of existing literature. This chapter sets the bases for our moderation model and approach to our analysis by presenting our research model and hypothesis. Furthermore, chapter three is devoted to our research methodology, where we identify our research method, research design and data collection methods. Following, chapter four aims to analyze the data collected, by undertaking a structural approach of checking the validity and reliability of our data. Firstly, we checked the validity and reliability of our data, followed by a between-group analysis, where we aim to identify interaction points between the groups of our study, and identify which interaction is significant. In further investigation, we apply an ANOVA analysis followed by Tukey's HSD Post-Hoc test to investigate where the interaction lies. Lastly, we conducted an interaction analysis by applying the PROCESS macro in SPSS, while looking into how opting-in or opting-out moderates the perceptions towards the competing gender.

The final parts of our thesis are devoted to discussion of our findings, theoretical and managerial implications, limitations, and future research as well as a conclusion of our findings related to our problem statement.

2.0 Theory and Hypothesis Development

In the second section of this master's thesis, we will present a review of the current understanding of gender differences in leadership roles and determine if there are any significant gaps in the literature on this topic. The first part of this section will cover findings of *leadership in modern day society*. This literature has been chosen for its relevance in explaining the gender differences in recruitment schemes, and particularly provides explanations for the gender disparities in work-life today. We believe this literature can explain the underlying mechanisms, and the underlying reasons for conducting change in recruiting females for higher-level positions, in any organization.

The second part of this section will provide a theoretical background on reasons why there might be gender disparities in higher-level positions, accounting for behavior and personality traits such as competitiveness, motivation to lead, followed by the affective motivation to lead which is a more prominent characteristic of females. Lastly, this section will cover leadership characteristics and specifically what entails a successful leader. We have chosen to examine these variables, based on the objective importance in literature.

The third part of this section covers gender stereotypes, where we further introduce the *backlash avoidance model* as a means to explain why women will opt-out of competition. While the fourth part will cover nudging particularly due to the design of our study, including choice architecture to evaluate the gender disparities submitted through our survey. Nudging is particularly interesting, because our study examines whether a nudge in which relevant candidates for a managerial position are chosen with a passive choice architecture. In the following subsections, we cover in detail choice architecture and specifically opting-in versus opting out. Finally, we mention critiques related to nudging, as it is important to portray both the pros and the cons of this action.

Finally, the last part of this section yields space for our research model and hypotheses, including elaborations on the variables included in our model. Hence, this section of our paper represents central theoretical aspects that are important to consider in the context of our research.

2.1 Literature Review

2.1.1 Leadership in Modern Day Society

According to The World Bank Data in 2023, the proportion of women in the overall labor force has shown a consistent upward trend from 1990 to 2022. In Norway, the percentage of female participation has risen from 44.9 percent to 48.8 percent, while in the United States, it has increased from 44.4 percent to 46.4 percent (The World Bank Data, 2023). According to the United Nation's report "*The World's Women"* from 2020, the global gender gap of managerial positions

is more or less the same in 2019 as it was in 1995. The report shows that women held only 28 percent of the global managerial positions in both years, making the progress of gender parity significantly slow (United Nations, 2020).

In 2020, only 18 percent of the enterprises surveyed by the United Nations had a female chief executive officer (CEO), and only 7.4 percent among Fortune 500 corporation's CEO, were women (United Nations, 2020). Narrowed down to Norway, the gender balance showed that 63 percent of leadership positions were covered by males, while 37 percent were covered by females in 2019 (Gram, 2021). The largest companies in Norway exhibit a significant gender gap in the composition of their CEO positions, specifically among the top fifteen companies in Norway, only three have a female CEO, as shown in Table 1 (Næss, 2022).

Table 1

Norwegian Companies and the Gender of the CEO

Company	**CEO Gender**
Equinor (Euqinor, 2020)	Male
Norsk Hydro (Hydro, n.d)	Female
Yara International (Yara, n.d)	Male
KLP (KLP, n.d)	Male
Storebrand (Storebrand, 2023)	Male
Telenor (Telenor, 2020)	Female
NorgesGruppen (Norgesgruppen, 2018)	Male
Statkraft (Statkraft, n.d)	Male
Reitan Retail (Reitanretail, n.d)	Male
DNB Bank (DNB, n.d)	Female
Coop Norge (Coop, n.d)	Male
Vår Energi (Vår Energi, 2022)	Male
Nordea (Nordea Bank, 2023)	Male
Orkla (Orkla, 2023)	Male
Aker BP (Aker BP, 2023)	Male

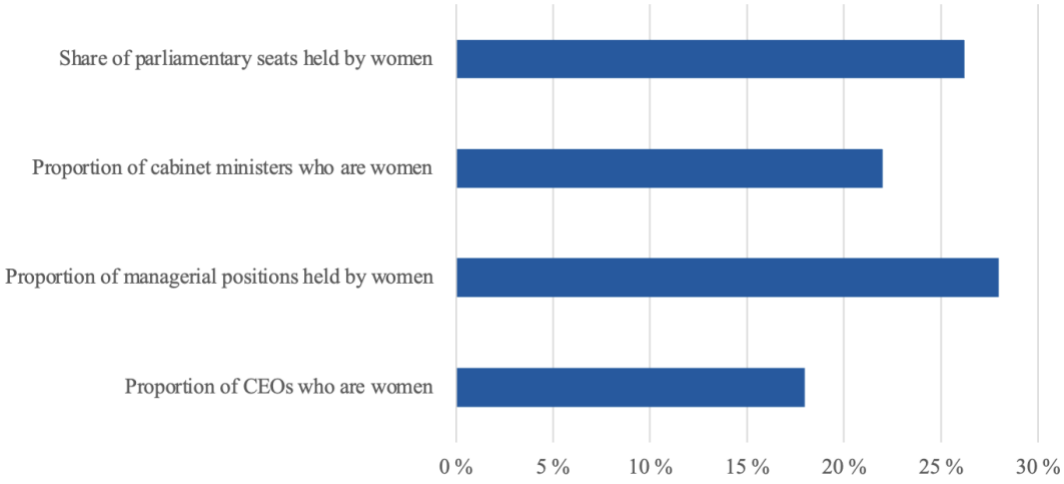
Note. Partially adapted from Kapital, *475 milliarder i skatt fra Norges største bedrifter*, by H. J. Næss, 2022.

Furthermore, despite being a progressive nation, Norway has only ever had two female prime ministers, Gro Harlem Brundtland and Erna Solberg (Regjeringen,

n.d). Globally, the United Nations report *"The World's Women"* shows that women's political representation in parliament has more than doubled, however, at the onset of 2022, the proportion of women in lower and single houses of national parliaments worldwide was 26.2 percent (United Nations, 2020). A similar pattern is applicable to women's representation among cabinet ministers, as these statistics have quadrupled over the last 25 years. Still, the parity remains below 22 percent, indicating a persistent gender imbalance in political leadership roles (United Nations, 2020). United Nations phrases the pace of progress in elevating women to senior leadership roles with decision-making power, as disheartening. At this rate, it would take another four decades for women to attain equal representation alongside men in national parliaments (United Nations, 2022).

Figure 1

Gender Parity Statistics in all Spheres of Public and Political Life



Note. Adapted from The World's Women annual report 2020. Copyright 2020 by The United Nations

Furthermore, the global distribution of women in managerial roles witnessed a marginal increase from 27.2 percent in 2015 to 28.3 percent in 2019. Nevertheless, no modifications were observed between 2019 and 2020, marking the first year since 2013 without any progress (United Nations, 2022). These assertions constitute a contributing factor towards laying the groundwork for the fifth goal of the United Nations' sustainability agenda, which aims to attain gender equality and empower all women and girls (United Nations, 2022).

2.1.1.1 Actions Towards Gender Parity and the Complexity of Structural Challenges

Many companies spend time, money, and good intentions on efforts to build an upwards streamline for females advancing in their career (Ibarra et al., 2013). However, for women, the subtle gender bias that is present in organizations and society tends to disrupt the cycle and willingness to become a leader. Organizational measures with the perspective of “fixing the women" entails that women have lower confidence in pursuing managerial positions (O’Neil & Hopkins, 2015), and initiatives such as mentoring programs, diversity task forces and empowerment groups have deemed ineffective in the pursuit of gender parity in managerial roles (Kalev & Deutch, 2018). Furthermore, quotas have been introduced to equalize gender representation in decision making areas. These quotas led to significant increases in female representation but have not led to cultural changes or decreases in barriers to women’s careers (Wroblewski, 2021).

Other initiatives similar to “fixing the women” have been introduced, aiming towards the male representatives in organizations. These approaches often involve structural or systemic changes that go beyond the focus on women, such as organizational and societal changes through including men as allies and supporters of gender equality (Eagly & Carli, 2007). However, these initiatives have not been effective in changing the systemic and societal disparities that lie between the genders male and female. An explanation provided by Van den Brink & Benschop (2014) proclaims that gender equality strategies that involve changing the processes of power invokes resistance within the affected.

With a significant underrepresentation of females in leadership positions, comes the argument that females often are prone to the “Glass Ceiling Phenomenon”, which refers to an invisible barrier that females face in their careers (Hull & Umansky, 1997). Studies show that structural factors such as social and cultural traits for men and women find their way into organizations and form prejudicial attitudes towards female employees. These attitudes have been found to be a prime cause of delayed career excelling among women (Taparia & Lenka, 2022). The prejudicial attitudes towards women are seen as a result of stereotyping (Eagly & Karau, 2002), where women are expected to be more nurturing and caring, and these stereotypes often serve negative backlash if a female wishes to climb the corporate ladder (Rudman & Phelan, 2008). Furthermore, females often

face reduced career advancements because of motherhood, due to perceptions that motherhood interferes with work commitment (Berggren & Lauster, 2013). Also, Carnes & Radojevich-Kelley (2011) argue that the glass ceiling phenomenon provides a significant barrier for females, due to factors including work-family conflicts, supporting that the glass ceiling also has broader societal implications. Michel et al. (2011) argues that organizations' lack of supporting work-family balance can increase a negative organizational culture, which further leads to female employees feeling dissatisfied or burnt out (Kim et al., 2013, as cited in Taparia & Lenka, 2022). While the concept of "The Glass Ceiling" goes back decades, it has been expanded in contemporary times to include discrimination towards minorities (Kagan, 2022).

There are similarities between the Glass Ceiling and Glass Cliff phenomenon. While the ceiling often refers to an invisible barrier that prevents women and minorities from being promoted to managerial roles, the Glass Cliff refers to women being set up for failure through promotion (Kagan, 2022). Systemic challenges such as the "Glass Cliff Theory" highlights the disparities that women face when engaging in self-promoting actions (Acar & Sümer, 2018). Even when they are assigned leadership positions, women are more likely to be given precarious roles, often in times of crisis or recessions, which evidently sets them up for failure. The effects of the "Glass Cliff Theory" support suggestions from modern research that the gender gap is driven by personality traits and gender differences when looking at competition avoidance and a lower desire to prove oneself.

In conjunction with the effects of the glass ceiling and glass cliff, comes challenges women face in professional environments through backlash when they portray assertive or dominant behaviors, which are often associated with self-promoting actions (Rudman et al., 2012). The effects of violating the traditional gender role beliefs tend to lead to social and economic penalties for females. Research argues that the behavior of self-promotion is a behavior that violates female gender stereotypes, however it is yet necessary for females' professional success (Moss-Racusin et al., 2010). It is unknown to what extent the threat of potential backlash interferes with women's ability to self-promote. By testing a backlash avoidance model, the researchers examined the effects of facing

backlash on women's self-promotion success and was designed to account for disruptions in women's self-promotion attempts.

Following this, the objective of the literature review section is to examine previous research concerning personality traits, and their correlation with females pursuing higher managerial positions.

2.1.2 Behavior and Personality Traits

By navigating through the interconnected grounds of competitiveness, motivation to lead and gender differences in leadership motivation, we aim to offer a comprehensive exploration of the complex dynamics at play in leadership roles. This chapter aims to shed light on how these factors contribute to understanding the nuances of behavioral and personal traits that might assist in explaining why some individuals are deemed more influential and successful in a leadership position than others. The nexus of personality traits, behavior and leadership has consistently captured the attention of scholars and practitioners. Competitiveness has been recognized as an influential personality trait on professional outcomes, particularly in the area of leadership where the competition for advancement and influence can be prominent. Furthermore, the differences in motivation to lead can impact leadership styles, behaviors, and effectiveness, where various factors shape an individual's motivation to lead, from personal ambition and the desire for power and influence, to a sense of duty or desire to enact positive change. In this chapter we aim to provide an understanding for the influence competition has on leadership, in conjunction with understanding the motivations to lead and how these can translate into behaviors.

2.1.2.1a Competitiveness

Van de Vliert (1998) conducted a cross-cultural study comparing masculinity and femininity and found that men generally reported being more competitive, particularly in cultures that ranked highly on the masculinity scale. In fact, in psychological literature competitiveness has traditionally been viewed as a masculine trait and numerous studies have demonstrated that men are generally more competitive than women.

According to a study by He et al. (2021), it was found that women are less likely to engage in competitive situations, which may lead to their underrepresentation

in high-level positions within organizations. In addition, Niederle & Vesterlund (2007) claims that men are more competitive than women, with men selecting a tournament incentive scheme twice as often, despite it being no difference in the performance between the genders. Hence, the gender gap in competition is not necessarily due to performance, but rather to men's overconfidence and women's reluctance to engage in competition through risk aversion. As a result, women are less willing to participate in competition, and even when their performance is equal to men's, they choose to not compete, or choose non-competitive options. Niederle & Vesterlund (2007) found significant differences between the genders in competitive environments and proposed several explanations for these differences; socialization processes such as men's overall confidence in entering competitive settings, differences in risk aversions and stereotypes could contribute to understanding women's lack of participation in competitive environments. Furthermore, the researchers highlighted the importance of understanding the competitive environment itself, the design of the competition and the presence of stereotypes and biases which could influence participants behavior.

These findings are consistent with the results of Healy and Pate (2011), who found that the gender gap in competition is reduced in teams of more than two people compared to individual competition. Additionally, females tend to prefer competing in teams, while males prefer competing as individuals. These preferences are influenced by the gender differences in competitive settings such as risk aversion, feedback aversion, and confidence (Healy & Pate, 2011).

Prentice and Carranza (2002) examine the correlation between stereotypical gender roles and perceptions of success in the workplace. Their findings suggest that traits traditionally associated with masculinity, such as assertiveness and competitiveness, are often viewed as necessary for success in the professional realm. This aligns with Hofstede (1980) who defines competitiveness as a trait associated with cultures that score highly on the masculinity dimension. Conversely, femininity is not typically viewed as being closely related to success in the workplace (Drydakis et. al, 2018). Collison et. al (2021) indicates that women tend to be more conscientious in terms of deliberation and order compared to men, which could suggest that women tend to be more organized, disciplined, and responsible than men.

2.1.2.1b Competition drives Machiavellianism

Further, Collison et. al (2021) argues that men tend to have low levels of agreeableness, which suggests that they may be less cooperative, less sensitive to others' needs, and less inclined to compromise or avoid conflict. This is relatable with the term Machiavellianism, a well-known psychological term seen as part of the "Dark Triad". Machiavellianism is relevant when examining gender differences in perceptions of competition because people who score highly on the Machiavellianism scale are often seen as strategic, calculating, and cold (Christie & Geis, 1970).

In a competitive setting, these traits may be viewed as advantageous, and individuals who exhibit them may be more likely to succeed. If men tend to score higher on the Machiavellianism scale than women, as Collison et al. (2021) suggests, this may contribute to perceptions of gender differences in competition, with men being seen as more competitive or successful in these situations. These findings are further supported by Jonason et. al (2015) who documented that scores on the Dark Triad traits were related to three different workplace climate variables: competitiveness, prestige, and autonomy. Their findings show that men rated their workplace as more competitive than women and showed more Dark Triad traits, in which Machiavellianism was linked to competitiveness, job satisfaction, and thoughts about quitting (Jonason et.al., 2015).

2.1.2.2 Prenatal Competitiveness

The theory surrounding prenatal hormones and behavior were first introduced by Phoenix, Goy, Gerall and Young in 1959. Their study suggested that exposure to sex hormones during prenatal development had played a role in the influence of sex-typical behaviors later in life. They argued that the structural changes persist into adulthood and govern behavioral responses to hormonal signals. While the study on prenatal hormonal influence on behavior is a growing field, it is complex and multifaceted. For instance, a study conducted by Auyeung et al. (2009) links fetal testosterone levels to empathizing tendencies, where higher levels of fetal testosterone were associated with reduced ability to empathize. These findings were often more prevalent in females than males.

Despite the complexity of the area of study, scholars have researched the links between digit ratio and behavior with varying results. Research shows that there may be prenatal reasons for how competing behaviors are shaped. Brañas-Garza et al. (2023) focuses on how competing behavior may be shaped prenatally. In fact, both biological and psychological studies show that differences in fetal exposure to sex hormones (testosterone and estrogens) could have an impact on behavior later in life. According to multiple authors, prenatal testosterone has a significant role in the "masculinization" of a fetus's brain. As male fetuses produce testosterone, they are naturally being exposed to it at a much higher level than females (Brañas-Garza et al., 2023). The measurement for assessing prenatal hormone exposure is referred to as the digit ratio, specifically the second-to-fourth digit ratio (2D:4D). This ratio quantifies the relative length of the index finger in relation to the length of the ring finger.

Brañas-Garza et al. (2023) found that males with low digit ratios and high digit ratios exhibited more aggressive competition, regardless of the type of counterpart they were competing against. In the case of females, the counterpart's type had a greater impact on aggression levels compared to the decision-maker's type. While females with low digit ratios were non-significantly more aggressive, it was observed that everyone displayed increased aggression when competing against individuals with high digit ratios (Brañas-Garza et al., 2022). However, Borraz-Leon et al. (2018) found a negative correlation between testosterone levels and left 2D:4D, and no significant results on the association between digit ratios and intrasexual competition scores. The researchers found that men with higher testosterone levels have higher intrasexual competition scores and lower values on the left digit ratio. Overall, the research on digit ratio and gender differences is mixed. Some researchers find clear indications with clear gender differences that support the hypothesis of a biological or a congenital basis, while others do not find anything at all and are having doubts about these findings, indicating that this is a field of research still under development.

Another line of research has examined competitiveness in women with male co-twins. As these females are exposed to higher levels of testosterone prenatally than females with same-sex co-twins. van Anders et al. (2015), found that women

with male twins exhibited more competitive behavior than those with female twins, which in turn may support the other existing literature surrounding the digit ratio studies. Taken together, this research suggests that while there may be a biological basis for the observed gender disparities in willingness to compete, the literature that the interplay between environment and genetics is complex, and culture and development certainly plays a large part in shaping individual preferences.

2.1.2.3 Understanding the Motivation to Lead

Chan and Drasgow (2001) conducted a study in which they found that an individual's motivation to lead shows validity over other predictors such as cognitive ability, values, personality, and attitudes in measuring leadership potential. A theoretical assumption is that noncognitive abilities such as personalities and values affect the individuals' participation in leadership roles and activities.

There are several proposals that an individual's motivation to lead is a combination of various components such as affection, beliefs surrounding success, and social norms associated with the behavioral acts (Fishbein & Ajzen, 1975; Triandis, 1980). Furthermore, Chan and Drasgrow (2001) propose three components which act as underlying individual differences in regards to individuals motivation to lead. *Affective motivation* to lead explains how individuals prefer to uphold a leadership position, while *social-normative motivation* to lead refers to a sense of responsibility. Lastly, *non-calculative motivation* to lead refers to an individual who might want to lead, but who does not measure the costs and benefits of upholding a leadership position. Further, the study suggests that in addition to the three components, personality, sociocultural values, leadership self-efficiency and past experiences are antecedents to motivation to lead. The study suggests that individuals who enjoy a leadership position often have outgoing personality traits, in addition to them valuing competition and achievements (i.e., vertical individualists). Similar findings have been suggested by Hofstede (1980) and Drydakis et. al (2018). In Hofstede's research of cross-cultures he found that masculine traits were the societal preferences for achievements and assertiveness, traits that were, and still are, associated with male roles. Furthermore, he stated that the masculine traits were

perceived as necessary for professional success, which Drydakis et al. (2018) followed up by examining the influence of masculinity on careers achievements. Traits including competitiveness and ambition were included in their study, and the results implied that the masculine traits considered were valued for career progression across various professional spheres.

Chan and Dasgrow (2001) highlight implications that their findings are dynamic in ways that they can change by social learning. Hence, the findings have implications on typical leadership selection programs and programs designed to develop improved leadership (Chan & Drasgow, 2001).

2.1.2.4 Gender Differences in Leadership Motivation

In understanding the underrepresentation of females in leadership positions, it is important to understand the underlying processes of resource- and deficit-oriented perspectives in order to improve gender equality in leadership positions. Elprana et al. (2015) conducted a study highlighting the relevance of affective motivation to lead (a-MtL) and traditional gender role beliefs, while arguing that affective motivation to lead is a good predictor for leadership emergence, and arguably, relevant for understanding the underrepresentation of women in leadership positions.

The study addresses women's lower a-MtL by building on Eagly and Wood's Social Role Theory (SRT), and exploring the relevance of gender role beliefs, same-sex role models and awareness of gender inequality (Elprana et al., 2015). The explorations of these variables were hence seen as extensions on Chan and Drasgow's (2001) model of individuals' motivation to lead. To increase the understanding of gender differences in affective motivation to lead, the authors explore sociocultural variables that may extend Chan and Drasgow's (2001) model on antecedents of affective motivation to lead. The study focuses on three factors that might explain gender-differentiated extension of sociocultural antecedents introduced by Chan and Drasgow (2001). The first factor relates to *Role Incongruity,* which plays a crucial role in Social Role Theory (Elprana et al., 2015). Role Incongruity is said to be caused by traditional gender role beliefs (TGRB), which differentiates males and females' capabilities. The TGRB can be seen as a catalyst for negative emotions for females considering leadership positions, which in turn mitigates their willingness to fulfill leadership roles. The

authors argue that TGRB has a negative effect on females' affective motivation to lead, and the reverse effect on males a-MtL. Further, the authors state that Social Role Theory and gender role beliefs are produced by our observations on same-sex role models, especially on desirability of career options (Lockwood & Kunda, 1997; Wiese & Freund, 2011). Given that females are underrepresented in leadership positions, they consequently also have fewer same-sex role models (SSRM), further increasing the role incongruity. An interesting belief the authors present is that through gender inequality awareness, women's a-MtL might be reduced or reversed due to questions regarding incongruity between gender roles and leader roles.

The authors conducted three studies to examine the influence of traditional gender role beliefs, same-sex role models and awareness of gender inequality for womens a-MtL. The gender differentiated factors may add to Chan and Drasgow's (2001) model of affective motivation to lead, as well as serving fundamental work for more holistic testing of a gender differentiated affective motivation model. Findings include that traditional women perceive stronger incongruity between their gender roles and leader roles - ultimately reducing the emergence of female leaders (Elprana et al., 2015). Furthermore, an awareness of gender equality was related to a higher affective motivation to lead in women, realizing that their choices can be mitigated by social norms (Elprana et al., 2015).

Another contemporary author who highlights the differences in specifically females' motivation to lead is Sheryl Sandberg, previous COO of Meta (more commonly known as Facebook). She states that women unintentionally hold themselves back in their careers, and with her book "lean in", she challenges women to take the risks and seek the challenges needed to "sit at the table" (i.e., obtain a higher level managerial position). Sandberg states herself women often are relentlessly pleasant in business negotiations, and that females often must accept a lot of criticism for going beyond the traditional gender role beliefs (Sandberg, 2013).

2.1.3 Gender stereotypes

Examining how the gender gap in competition is affected by the gender stereotype of the competition task can provide insight into whether gender differences in competition are due to beliefs about future performance (Halladay & Landsman,

2022). One could define gender stereotypes as cultural beliefs about the psychological traits and behaviors that are thought to be associated with women and men (Halladay & Landsman, 2022). The preference for male leaders over female leaders manifests in different occupational situations, such as the hiring process, where leadership potential is overlooked when ranking female applicants (Player et al., 2019), where men, in the absence of leadership experience, prefer male applicants (Bosak & Sczesny, 2011). Findings from existing literature also suggest that men with low power, rank female applicants worse (Hoover et al., 2019). The inequalities regarding evaluations are frequently seen as the result of gender stereotyping among decision makers (Tremmel & Wahl, 2023).

Previous research suggests that organizations themselves produce gender disparities by moderating and spurring individual dynamics. Women continue to lag in the access for managerial positions, partially due to gender discrimination in organizations (Castano et al., 2019). Continuously, findings imply that one of the main reasons for such discrimination is gender stereotyping and biases, in such that possessions of characteristics have no effect on the likelihood of a woman becoming manager, and that the overall perception of women is that they are less suitable than men. Stereotypes perceive women as inferior, including associations with unsuccessful companies – which is in line with the Glass Cliff phenomenon (Castano et al., 2019). In addition, women are expected to adopt prescriptive stereotypes (masculinity, femininity, and androgyny) in a double bind manner – however, if they adopt them, women would be perceived as worse suited for upper managerial positions (Castano et al., 2019). Lastly, Sheppard et al. (2013) provides empirical evidence that both genders tend to assess conflicts amongst women as more severe than conflicts amongst men, and in the context of women, it might exacerbate the negative consequences of conflict in recruitment procedures.

Acar and Sümer (2018) focus on gender expectations in the 21st century. They note that due to the long-standing association of women with domestic roles and men with provider roles, men and women are often perceived differently in terms of agency and communality, with men seen as possessing agency but lacking communality, and women seen as possessing communality but lacking agency (Acar & Sümer, 2018). This perception is also reflected in societal expectations of

men and women, as Glick and Fiske (2007) note, that men are typically expected to display agency and women are typically expected to display communality (Acar & Sümer, 2018). These societal expectations can be linked to why women are seen to be less competitive in the corporate world compared to men. According to Glick and Fiske (1999), the female communality stereotype, which may be influenced by social-structural causes like gender status differences, men's dependence on women, and changing gender roles, may explain why women are expected to "be nice" (Rudman & Glick, 2001). Furthermore, if female leaders show typical male-dominant characteristics, they are rated less likable, less hireable, and face more prejudice than male leaders displaying the same traits (Williams & Tiedens, 2016; Ferguson, 2018). This could align with the observation that competition and competitive women are viewed more negatively in the business context compared to competition and competitive men (Fülöp & Berkics, 2015).

While research on gender stereotypes tend to focus on females, research suggests that the stereotypes of men may be in fact, at least as rigid as females' (Croft et al., 2015). Eagly & Mladinic (1989) have provided findings suggesting that men are perceived in a more degrading manner than women, with descriptive character traits identified as "aggressive", "arrogant", "egotistical", "individualistic" and "bossy" (Park & Banchefsky, 2018). Whereas female descriptives of stereotypes are "affectionate", "helpful" and "kind" (Koburtay et al., 2019). Arguments by Moss-Racusin (2014) suggest that the negative vortex surrounding men's stereotypes put them at risk towards experiencing difficulties in relations due to the lack of emotional engagement. Furthermore, while the stereotypes of men are often associated with positive characteristics such as power and status, they also have negative aspects such as the perception of "being a man" is an earned status, with a need for defense, and often correlates to being victorious through engaging in competition with others (Bosson et al., 2009).

2.1.4 Nudging

Nudges could be defined as *"any aspects of the choice architecture that alters people's behavior in a predictable way without forbidding any options or significantly changing their economic incentives"* (Thaler & Sunstein, 2021, p. 8).

Thaler & Sunstein (2008) explains that the foundation of nudging is rooted in behavioral economics and the dual process theory, claiming that the arrangement of choices can be leveraged to modify people's actions, positing that choice architecture can assist in reducing decision-making errors (Hummel & Maedche, 2019).

Furthermore, in recent years both private and public institutions (organizations) have shown an increased interest in nudges, defined as interventions that preserve freedom of choice, but also steer people in particular and predictable directions. Sunstein (2022) argues that nudges fall into two separate categories; educational nudges and architectural nudges, where the latter includes automatic enrolment. Following, nudges have been found to serve substantial effects on outcomes and are seen as highly cost-effective (Sunstein, 2022).

Sunstein further argues that while automatic enrolment, within architectural nudges, increases participation rates across the board, there is a certain risk that someone might get hurt - suggesting that a more appropriate approach might be targeting groups with members that likely will benefit from the nudge (Sunstein, 2022). In addition, Mrkva et al. (2021) has found that nudges reduce the barriers that contribute to inequality, in which it can be considered when and whether an employer applies the appropriate choice architecture for decision making for the common good, and amongst employees.

He, et al. (2021) presents evidence that proposes that “nudge” interventions reduce gender differences in competition. There is however needed more research on directly applying opt-out framings for competitive selection processes in organizations.

2.1.4.1 Choice Architecture

People have a strong tendency to go along with the status quo or the default option, referred to as status quo bias. There exists a human tendency to adhere to default choices, even in circumstances where the consequences of deviating from the status quo are of considerable magnitude (Thaler & Sunstein, 2021). Thaler & Sunstein (2021) defines a choice architecture as organizing the context in which people make decisions, and a good architect can make design choices that will have beneficial effects. Given that decision-making is prone to cognitive biases,

such as anchoring, framing, and status quo bias, nudges that manipulate the choice architecture can significantly impact outcomes by steering decisions in the desired direction (Fisher, 2008).

Nudges have demonstrated particular utility for individuals who may lack resources or access to information necessary for making informed decisions, such as those involving complex matters like market investments, retirement funds, and healthcare plans. Fisher (2008) contends that while the government must uphold freedom of choice, modifying choice architecture through subtle nudges can significantly diminish the likelihood of poor decision-making. Numerous prosperous corporations implement user-centric designs in their workplace and customer-facing settings, yielding augmented success in the marketplace. A conspicuous instance of such a success is evident in Apple's iPhone, which exhibits a high degree of user-friendliness and customizable functionality (Thaler & Sunstein, 2021 p. 16). Thaler and Sunstein (2021) explicate that in order to devise an optimal choice architecture, it is imperative to address various critical decisions. Among these, individuals frequently encounter challenges in memory retention, which necessitates the employment of tools such as calendars and to-do lists. Notably, reminders serve as effective nudges for human behavior. Further, the degree of difficulty, knowing what you like, and feedback, are also factors that influence the robustness of the choice architecture.

Mrkva et al. (2021) has conducted research about who gets the most influenced by choice architecture. The researchers found that employing choice architecture techniques can effectively enhance welfare outcomes, in fact, various organizations have already employed the nudging approach, as highlighted by Mrkva et al. (2021), to encourage individuals to save more for retirement and make favorable choices in various consumer contexts. According to Mrkva et al. (2021) individuals with lower socioeconomic status and limited financial knowledge tend to maintain default options, even in situations involving crucial retirement choices. These findings align with other research papers that have also identified stronger effects of automatic enrollment among younger and lower-income individuals compared to their older and higher-income counterparts (Mrkva et al. 2021; Beshears et al. 2016; Choukhmane 2021).

2.1.4.1.1 Opting-in versus Opting-out

Thaler and Sunstein (2021) observe that conversion rates can be substantially augmented, often by as much as 25 percent or more, through the transition from an opt-in to an opt-out system (Thaler & Sunstein, 2021 p. 11). A noteworthy illustration of this phenomenon is evident in a study carried out in Germany, which indicated that the selection of an opt-in versus an opt-out approach had a significant impact on the adoption of green energy measures. Specifically, the opt-in treatment resulted in a mere 7.2 percent purchase rate, whereas the opt-out treatment yielded a striking 69.1 percent purchase rate (Thaler & Sunstein, 2021 p. 306).

Bosquet et al. (2019) suggest that the gender gap in contest participation may be due to women having lower levels of confidence compared to men. To address this issue, the authors propose that organizations implement a system in which individuals are automatically considered for promotions after a certain number of years unless they opt out. This would shift the default from opting in to opting out, potentially encouraging more women to be considered for promotions. This proposed solution aligns with the findings of He et al. (2021), who suggest that opt-out promotion strategies may be effective in mitigating the gender gap in competition and facilitating the advancement of women into leadership roles. Furthermore, Brands et al. (2017) proposes that an explanation for gender differences in competition is due to women's negative recruitment experiences and that this shapes the decision to compete for future positions.

2.1.4.2 Critiques of Nudging

There have been several studies conducted throughout the years, with an increasing trend in nudging publications. However, most studies are conducted in the health context followed by the environment. Hummel & Maedche (2019) have done a quantitative review on the effect sizes and limits of empirical nudging studies with 100 primary publications, and 317 effect sizes, concluding that the overall effectiveness of nudging might be less effective than proclaimed.

Nudges have come under scrutiny from critics who express apprehension about the potential infringement of individual liberty and free choice, advocating for the active choosing approach as a viable alternative choice architecture. This approach involves nudging individuals to make intentional decisions, which has

prompted some critics to question the ethical implications of mandatory decision-making (Thaler & Sunstein, 2021, p. 318). The concerns raised by detractors of nudges are frequently grounded in the recognition that individuals may at times *choose* not to make a decision, and therefore, emphasize the importance of respecting this choice (Thaler & Sunstein, 2021, p. 319).

2.2 Problem Definition and Hypotheses

From our literature review, we have become familiar with the existing research present, and hence we have assessed the limitations within the existing research and identified the gaps in which we intend to fill (Bell et al., 2019). Following, our hypotheses will complement our research model, providing predictions about the relationship between the variables researched. A well-constructed hypothesis will both be testable and falsifiable, meaning that we can test our hypotheses empirically and potentially prove them wrong (Mitra, 2020).

2.2.1 Problem Definition

As our literature explains, there is an underrepresentation of female leaders in top-management positions. The literature review has helped us highlight the differences between the genders when entering competitions. However, we lack an understanding for the perceptions and biases made towards male and female workers entering competitions, and if these perceptions have an influence on the number of female applicants for managerial positions. With our thesis, we wish to identify if there is a relationship between gender differences in the pursuit of leadership positions and existing literature mentioned in our literature review.

Thus, the purpose of our master thesis is to analyze the different perceptions of the variables Willingness to Compete, Moral Judgment, and Machiavellian traits, between the genders in a competition setting, and to see if these traits differentiate when including active or passive choice architecture alternatives. We believe there is an evident connection between perceived stereotypes, biases, gender, and competition, aligned with our chosen variables of research.

2.2.2 Research Question

We are interested in researching if structural changes in promotional or applicational areas influence people's mindset when differing between the genders. We do this by looking at whether perceptions change given a new choice architecture scenario. We have concluded that our research question for the four experiments to be the following:

Do differences in perception exist between men and women in competition for higher- level job positions and does choice architecture in competition play a role in exacerbating or mitigating these differences?

2.2.3 Perceptions on Opting-in or Opting-out

As mentioned, women exhibit a lower tendency to engage in competitive settings compared to their male colleagues. This, in turn, contributes to the emergence of negative perceptions surrounding the societal norms regarding female competition, whereas the same does not hold true for men. According to He et al. (2021) these gender differences may lead to a gender imbalance in leadership positions in organizations. However, by changing the recruitment process from choosing to enter, i.e., choosing to enter a competition, to a default where the applications automatically are enrolled in a competition and rather have to choose to opt out, He. et al (2021) claims the gender gap in leadership positions will reduce. Furthermore, an experiment done by He et al. (2021) shows that changing the default will also affect the perception of prevailing social norms about gender and competitions, but also the perceptions of the performance or ability threshold at which to apply. Based on this, we expect our participants to be influenced by the applicant's choice architecture, specifically being more positive to applying for the job when the applicant is presented with the default choice architecture of opting-out. Further, since there are expectations due to gender stereotypes that men should display agency and women should display communality (Acar & Sümer, 2018), we expect our participants to support men more than women, hence the participants may be more positive to apply for the job when the gender of the applicant is a man.

Therefore, our first hypothesis is the following:
H1) Participants' perceptions of whether or not they would choose to compete will

be affected by the gender of the person they read about, and whether the decision to compete was active or passive.

2.2.4 Moral Evaluation and Opting-in or Opting-out

A possible explanation for the persistent disparities of gender lies within the moral evaluations both peers and decision makers apply during recruitment processes. Nudging and choice architecture have been increasingly recognized as essential in shaping behavior and decision-making (Thaler & Sunstein, 2021), and shifting the choice architecture from an opt-in model to an opt-out model has been suggested to reduce gender disparities when applying for managerial positions (Bosquet et al., 2019). This is particularly relevant when we consider the impact gender has on moral judgment and decision-making in leadership contexts.

The moral evaluations play an important role in people's judgment of others, also in the context of leadership roles (Mullen et al., 2015). Research suggests that female leaders are often held to higher ethical standards than males, leading to a potential gender bias in moral evaluations (Eagly & Karau, 2002). Furthermore, the decision to compete (i.e., opting in or opting out) can impact the moral judgment one receives (Niederle & Vesterlund, 2007). For instance, opting in may be viewed as more aggressive and ambitious, which leads to participants being perceived as less moral, especially when exhibited by women (Moss-Racusin & Rudman, 2010). Implementing a passive application system can potentially counteract biases in moral judgment by reducing the perceived aggressiveness females are given when entering competitions (He et al., 2021)

Building on existing literature on moral evaluations, gender differences in competitions and effects on choice architecture (Niederle & Vesterlund, 2007; He et al., 2021), we expect that the moral evaluation of the applicants will be affected by 1) gender and 2) active or passive engagement in competition. We expect that a shift to an opt-out choice architecture will mitigate the negative moral judgements associated with female participation in competition.

Hence, our second hypothesis is:
H2: The moral evaluation of the applicant will be affected by the applicant's gender and whether or not the decision to compete was an active or passive one.

2.2.5 Machiavellianism and Opting-in or Opting-out

In a competitive setting, it is reasonable to examine the variable of Machiavellianism. Machiavellianism is a psychological term seen as part of the "Dark Triad", which also includes narcissism and psychopathy. People who score high on Machiavellianism care more about personal rewards than ethical behavior, hence, integrity, trustworthiness, and following ethical decisions rules are on the contrary of the traits and behaviors that are associated with Machiavellianism (Dahling et al., 2009). Dahling et al. (2009) have developed two dimensions, amorality, and desire for status, which conceptualizes Machiavellianism. Amorality refers to *"one being willing to deviate from moral standards when the opportunity for gain presents itself"* (Dahling et al., 2009 p. 228). Desire for status refers to Machiavellians as people who desire domination over interpersonal situations, and pursue goals as wealth, power, and status, rather than internal goals (such as self-love) (Dahling et al., 2009). Further, people scoring high on Machiavellianism are likely to embrace environments for the opportunities they provide to secure personal rewards. For example, a theoretical model Ferris et al. (1994) developed demonstrates that Machiavellians are talented at forging meaningful connections and securing their positions (Dahling et al., 2009). Based on the findings from part 2.1.2, that women are less likely than men to participate in a competitive setting, we expect men to support the participants action more than women. We expect men, more than women, to respect the applicant's actions in the sense that men are more likely to support competitive actions, such as Machiavellian actions such as putting yourself first and securing personal rewards.

Based on this, our third hypothesis are:
H3: The perception of Machiavellian traits in the applicant will be affected by the applicant's gender and whether or not the decision to compete was an active or a passive one.

2.2.6 Machiavellianism, Moral Judgment, and WTC, as a Moderator

Drawing from the theoretical background that supports hypothesis one, two, and three, we are interested to see how the three variables separately interact when

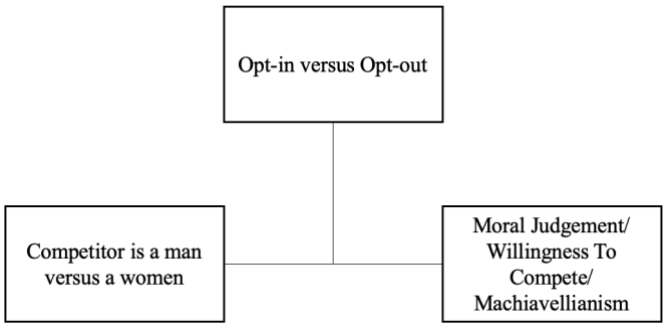
moderated by the type of choice architecture. Our fourth hypothesis is therefore the following:

H4: The competing person's gender will indirectly affect the perception of the participant's level of their Willingness to Compete, Moral Judgement, or Machiavellianism, when moderated by opting-in or opting-out defaults in choice architecture.

We expect to find a direct effect on one or more of the variables. Additionally, we believe that this effect will be indirectly affected by the choice architecture of the competing person. We expect that the choice architecture of the competing person will serve as a moderator in the relationship between the gender and the measurement variables, as illustrated in figure 2.

Figure 2

Moderation Model of Choice Architecture in Competition and the Perceptions of the Participant



3.0 Research Methodology

The third section of this paper aims to discuss the chosen methodology for our research. The purpose of our research is to answer our research questions by applying scientific procedures to portray accurately the characteristics of a particular situation. Our empirical methods take form as a survey in which data-collection is conducted. Our survey also acts as the primary source of data-collection, which further can be supported by literature on one or more variables.

3.1 Research Design

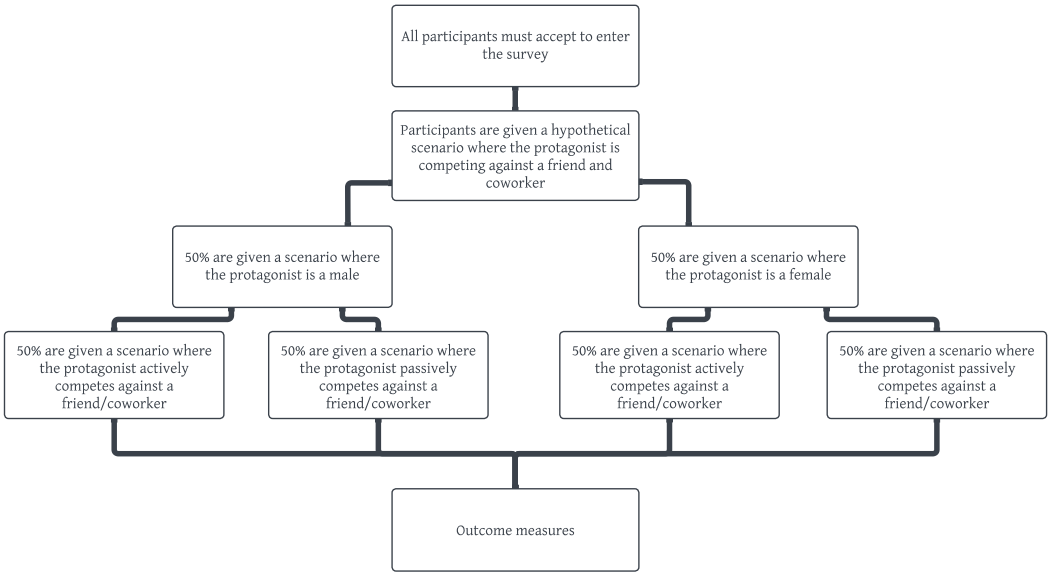
Research design is a "*plan of how you will go about answering your research question*" (Saunders et al., 2015, p.163). Research design is used to answer the research question and to control the possible variance of the data set. The research design for this master thesis aims to answer the research question by testing possible hypotheses. It can be stated that the features of our research design are that it acts as a plan to specify the sources and information relevant to the research question and presents a strategy that specifies the approach that will be used for gathering data.

To identify a suitable research method, it is important to identify the purpose of the research. Our purpose is to test our research hypotheses, and to enhance our knowledge regarding the mechanisms surrounding gender disparities in organizations. We aim to answer our hypotheses through testing of quantitative data obtained through a survey-design containing scales from 1-4 and 1-7. Our survey design is made to ask our respondents to rate their opinions, attitudes and perceptions on different statements and scenarios, and is distributed mainly through acquaintances online. Quantitative research design is designated to discover how a multitude of people think, as opposed to gaining more focused and emotional insight commonly associated with qualitative research (Creswell, J. W., 2014). Through an evenly distributed set of questions, our respondents can answer a set of the same questions, ensuring that our data can be analyzed fairy with statistical methods. We hence created a survey in BI Norwegian Business School's questionnaire-tool "Qualtrics" to test our research hypothesizes.

Based on our literature review, our goal is to explore the topic of gender-based competitions in organizations further, thus we focus on an inductive approach to our research, in which we use our raw data to derive a model through analysis. Our aim is to collect data that will build our theory. Furthermore, our data is based on people, their individual biases, and their interactions in organizations. By conducting quantitative experiments, we will be able to see how individuals approach the given scenarios in our experiment, and their Willingness to Compete, their attitude towards morality and perception of Machiavellian traits regarding whether they would follow the same actions towards the given scenarios (see Figure 3 for breakdown of our research design).

Figure 3

Research Design Flowchart



3.1.1 Measures

In this master thesis, our research builds upon the study conducted by He et al. (2021) regarding gender differences in leadership positions. However, we have chosen to expand the investigation by focusing on measuring three key factors: applicants' personal willingness to compete, participants' perception of the moral judgment of competing individuals, and the presence of Machiavellian traits within the competing individuals.

Moral Judgement

We wanted the items to tap directly into the moral evaluation of the decision to compete. To the best of our knowledge, there are no existing pre-validated scales that measure the moral evaluation of this type of behavior, as such we decided to design our own items. Hence, we had three questions related to moral judgment using a 1-7 scale that we made into a representative variable.

It is reasonable to say that the correlation between moral judgment and the perception of another individual's actions is influenced by personal values, beliefs, and cultural norms. In order to explore the potential gender differences in perception during the competition for higher-level job positions and the influence

of choice architecture on these differences, we have chosen to analyze how the respondents' moral judgment are influenced by the different scenarios given. To look further into the moral judgment of the respondents, we asked three questions tailored to measure the morality of each of the experiments (Appendix 2).

Machiavellianism

As mentioned, in a competitive setting, it is reasonable to examine the variable of Machiavellianism. We utilized the new Machiavellianism scale developed by Dahling et al. (2009), which draws its inspiration from the original Mach-IV scale, which was initially developed by Christie and Geis (1970). The new Machiavellianism scale comprises among others, two subscales: *amorality* and *desire for status*, as briefly mentioned in 2.2.5. Being immoral is a central aspect of being Machiavellian, and the desire for status is also central in the sense that these actions could also be perceived as immoral. Hence, we have utilized Dahling et al. (2009) amorality and desire for status' subscales to examine the variable of Machiavellianism.

We have chosen Machiavellianism as a variable because it can describe several workplace climate factors such as competitiveness, prestige, and autonomy, and can be linked to understanding the perceptions of gender differences in competition. To examine whether our respondents perceive competing for a job with a friend as possessing Machiavellian traits, we asked a series of eight questions which can be found in our Appendix (Appendix 2). The questions were designed with a scale from 1-7 to capture the nuances that can be prominent in examining the degree of Machiavellianism in our given scenarios.

Willingness To Compete (WTC)

The third variable used to measure gender perceptions in competition is our respondents' individual preferences regarding competition in the sense of their own willingness to compete. We asked our respondents if they would engage in competition themselves if they were given the same nudges and possibilities to advance in their position. The individual preference of *Willingness To Compete* is relevant for our study as it intends to discover if the respondents experience alternated perceptions of their own actions given the gender and choice architecture of the competing person in our four scenarios. To accurately capture

respondents' preferences, we opted for a Likert-scale with four options: I am certain I would not apply, I am fairly certain I would not apply, I am fairly certain I would apply, and I am certain I would apply. This approach allows us to directly capture whether respondents are willing, or not willing, to compete.

3.2 Data Collection and sampling

Our research methodology employs a laboratory experiment, which proves advantageous as it allows us to uphold a greater degree of control over the experimental setup. This heightened control enhances the study's internal validity, thereby increasing the likelihood of obtaining accurate and reliable results (Bell et al., 2019). As our study aims to analyze the effects of specific variables, minimizing the impact of external factors is essential, and thus, the laboratory experiment proves to be a suitable choice (Drost, 2011). The experiment is a 2x2 vignette experiment, there are two levels of variation for each of the two factors, leading to a total of four possible combinations of vignettes. Participants are randomly assigned to one of these vignette combinations and are then asked to respond to questions or make judgments about the scenarios presented to them.

As mentioned, we created the experiment in Qualtrics, which is a web-tool for making surveys provided by BI Norwegian Business School (See Appendix 2). Since this thesis was written over a few months, a cross-sectional approach is more appropriate compared to a longitudinal approach. When utilizing a cross-sectional approach, the data is collected at a single point in time, compared to a longitudinal approach where the data is collected over a longer period (Bell et al., 2019).

Dawson (2014) emphasizes the importance of having a large sample size, and states that this is the most significant factor that affects the statistical power in a study. Based on this, we set a target of obtaining responses from over 400 participants (N=400) to complete our questionnaire. As our experiment is a 2x2 experiment, the survey is designed such that each experiment gets 100 respondents (N=100). By conducting a survey that is widely disseminated and accessible, we increase the likelihood of obtaining a representative sample and thereby increase the generalizability of our dataset.

Our conditions look at differences in perceptions of the genders when entering a job-opportunistic competition, where we compare male against female. The normative choice architecture is an active approach (opt-in), and we compare this to the novel method of passively engaging in competition (opt-out).

3.3 Validity and Reliability of the Research

Validity refers to whether a measure of a concept accurately measures what it is intended to measure (Bell et al., 2019). By using the new MACH-IV scale to further understand people's perceptions of Machiavellian traits, the results from our study are further strengthened with being supported by measurement instruments. As the new MACH-IV scale is developed by researchers, we are confident that the measures reflect the concept of the question, and hence having a strong face validity (Bell et al., 2019). The measures for Moral Judgement and Willingness to Compete were made for the study, as there are no validated scales measuring these variables in competition with a friend or coworker, we opted to design our own method. As we have made our own measures, a professional external person has reviewed and approved that the measures reflect the content of the concept in the question, to establish that these measures also have face validity (Bell et al., 2019).

Further, reliability refers to how consistent a methods measurement is. The reliability of a measure is closely linked to its validity, as a lack of reliability indicates that the indicator measures multiple distinct factors, generating the measure invalid (Bell et al., 2019). If the same result is consistently achieved under the same methods and same circumstances, we can consider the measurement to be reliable. We have attempted to make our measurements as reliable as possible, to provide us with nuanced and detailed results for use in our analysis. This is supported by specifically two actions, which alone strengthens the reliability of our measures. First, our measurements can be replicable across our population at any given time which heightens the sampling reliability. Additionally, to prevent response bias and type-set answering, many of the outcome measures had reversed scored items. Applying reversed scored items in the measures enhances the efficiency of assessing their stability over time, which is an important factor when considering whether a measure is reliable (Bell et al.,

2019). We will measure the reliability by checking the measure's Cronbach alpha, which we will introduce further in our data-analysis chapter.

3.4 Description of the Data

For the sake of our research, we believe that a wide-spread survey is the most beneficial, as we aim to look at generalized perceptions between the genders. Hence, a mass-survey on N=400 respondents give us the opportunity to identify perceptions in society. In addition, our secondary sources are theory and research-based, and hence we aim to find correlations between published theory and our conditions.

3.4.1 Novelty of the Research

Novelty of the research refers to if the research leads to any new knowledge (Research Synergi Institute, 2019). We firmly believe that our research contributes to better understanding the underlying mechanisms of competition when comparing the genders, as well as societal perceptions that affect how males and females enter competitive settings.

3.4.2 Delimitations

We aim to receive survey-feedback from a wide range of people in the Norwegian active workforce. We received the majority of our responses by utilizing our own networks through convenience sampling. The participants range from approximately 20 – 70 years of age and are in the active workforce on different levels. In addition, we have identified companies to reach out to. To secure the reach of N=400, we gathered the remaining 100 responses through sending survey request to organization's representatives per e-mail, securing representatives from all major professional sectors in Norway.

3.7 Research Ethics

We have aimed to have a fully ethical survey with a principality approach. A principality approach implies that the consent to participate in our research is freely given, and that participants do not experience any form of coercion to encourage partaking in the research. In addition, our research applies informed consent for the participants, with clear information about what the participants are

partaking in – which evidently gives them the opportunity to decide whether they want to partake or not.

Regarding the duty of confidentiality, our survey is completely anonymous, meaning that it is not possible to identify the individuals' answers during the process of analyzing the data. Additionally, the duty of confidentiality in our research context also means that specific information provided in the process of the survey will not be used at all if the participant requests this.

4.0 Analysis

4.1 Introduction of our Data

Before conducting our analysis, we examined our demographic data such as gender, age, income, sector, and job-position. We checked the frequencies of our demographics to ensure that our respondents were representative, and that our respondents are distributed in a normal manner. The most important frequency we checked were the conditions where the experiment was determined of a male or female opting in or opting out.

Cronbach's alpha is a statistical measure utilized to evaluate the internal consistency of a set of data by assessing its reliability and validity. The assessment of internal consistency is pivotal as it determines the degree to which all items within a dataset are measuring the same construct and should therefore be verified prior to conducting any subsequent analyses (Tavakol & Dennick, 2011). Furthermore, assessing the reliability estimates the amount of measurement error in the questionnaire. As we have employed both Likert-questions and scales in our questionnaire, we will use Cronbach's alpha to ascertain the accuracy of our responses. This metric is represented by a value ranging between 0 and 1, with higher values indicating greater internal consistency. Generally, a Cronbach's alpha value of 0.70 or above is considered acceptable (Taber, 2018). Hence, by using Cronbach's alpha to assess the reliability of our questionnaire, we can determine the extent to which the questions measure the same construct and minimize the potential for measurement error in our analysis. Ensuring internal

consistency and minimizing measurement error is crucial for drawing valid conclusions and making generalizations about the studied population.

After checking the internal consistency of our survey, we wanted to examine whether there were any correlations between the variables to gain a better understanding of the results. We have conducted a correlation analysis and observed the Pearson Correlation Coefficient - in which we check whether the output serves any significant correlations. The correlation measures to which degree two variables are related to each other, and hence we can determine the strength and the direction of the two variables and is measured on a scale from -1 to +1 (Field, 2013). In addition, the Pearson Correlation Coefficient allows us to check the linear relationship between two variables. If there is a strong relationship between the variables, the observed relationship is not likely to have occurred by chance (Field, 2013).

Since the Pearson Correlation Coefficient only examines the strength and direction of the linear relationship between two variables, we also want to examine whether there is a significant difference between the means of two or more groups. To do so, we conducted a one-way ANOVA test. The ANOVA analysis is a method to determine whether the differences observed between the groups in a study are due to chance, or significance (Field, 2013). The ANOVA uses the F-test to compare that the ratio of variance between the groups is significantly greater than the variance within groups. Following, the ANOVA allows us to perform Tukey's HSD Post-Hoc test to identify which specific groups are significantly different from one another. This is particularly important as the ANOVA only tells us that there is a significant difference between the means of at least two groups but does not indicate which specific groups are different (Field, 2013). Tukey's HSD Post-Hoc test calculates the differences between all possible pairs of means and compares them to a critical value. If the difference is greater than the critical value, it indicates that the two means are significantly different from each other (Field, 2013).

The last step of our analysis tests complex models of moderation and our conditions. We apply the PROCESS macro in SPSS to further understand how variables interact and test our theoretical models. We conducted a moderation

analysis, in which we examine the effects of the dependent and independent variables in our Hypothesis 4.

4.2 The Internal Reliability of our Survey

As previously mentioned, we measured our study's reliability by looking at the variables' Cronbach's alpha. For the variable *Moral Judgment,* the Cronbach's alpha is 0.794. As we wanted the Cronbach's alpha to be over 0.7, the value of Moral Judgment is considered to be high, meaning that the questions could be considered reliable. Furthermore, Cronbach's alpha for the variable *Machiavellianism* is 0.910, which is a very strong value, and the questions for this variable are very much reliable. *Willingness To Compete* was measured with a single item, and as such we could not estimate the Cronbach's alpha value of this variable.

The high values of Cronbach's alpha obtained for these variables indicate a high degree of internal consistency within the set of items. This provides evidence for the reliability of the measurement instruments and supports the validity of the study's findings. Therefore, we can confidently consider these variables to be reliable and suitable for further analysis.

4.3 Demographic Data

In retaining data for our thesis, we surveyed a population of N=412 respondents to measure the effects of the variable's Moral Judgement, Machiavellianism, and individual's Willingness to Compete. In addition, we asked the respondents a series of demographic questions to better understand the differences between the respondents. In our data collection, we ended up with a valid response rate of 78.4 percent, totaling 323 responses.

Of the 323 responses that were valid, 195 were females and 120 were males while four respondents chose not to disclose their gender. In addition, we asked our respondents to disclose their highest level of education, annual salary, and whether they worked in the public or private sector in Norway, all of which were

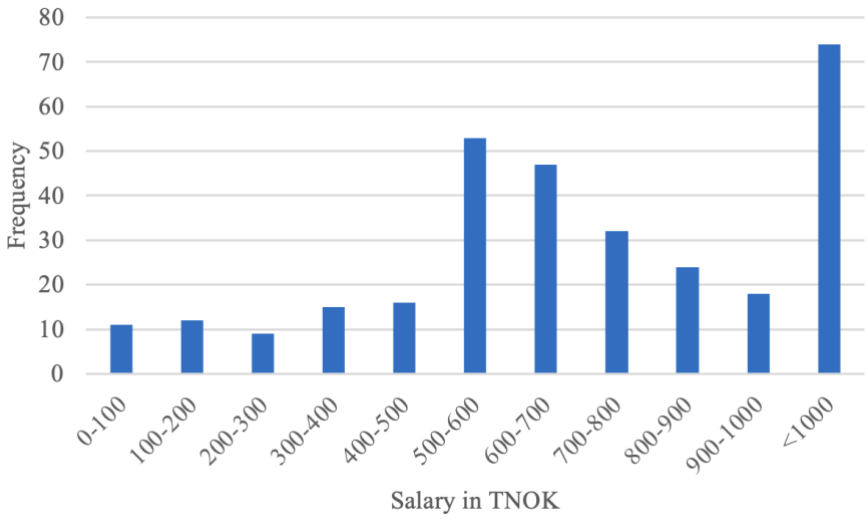
representative for Norwegian society. Lastly, we asked our respondents whether they held a managerial position or not. The demographic data to this study could be considered a strength to this research, as it provides a diverse representation of the population with participants in different ages and genres. This diversity allows for a more comprehensive and generalizable understanding of our respondents' perceptions. However, it is worth noting that we lack specific information regarding the geographic locations of the respondents within Norway, and henceforth if geographical differences are present.

4.3.1 Age and Salary

Our population holds a mean of 46.7 years of age, with the minimum being 22 and maximum being 77. We have a standard deviation of 15.67 percent, indicating that our population is widely spread between the minimum and maximum age. In addition, we asked our respondents about their annual salary in which we received an expected distribution across the salary intervals provided. We have the highest frequency of respondents in the interval consisting of an annual salary of above one million NOK, however, this can be justified as we have not divided this interval more detailed and hence it has accumulated the most respondents of our survey. Besides the >1.000.000 interval, we see that the interval with 500.000-600.000 NOK has the most respondents. The distribution of our population regarding salary is right-skewed, indicating that our respondents are in well-paying jobs.

Figure 4

Annual Salary of Respondents

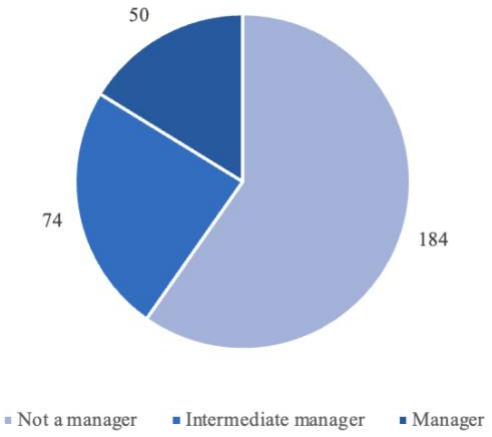


4.3.2 Job Specific Demography

Following obtaining the salary of our respondents, we asked whether they worked in the public or private sector in Norway, or neither. Out of our 323 valid responses, 76 worked in the public sector and 35 people stated they did not work in either or did not work at all. A total of 209 respondents stated that they worked in the private sector, possibly explaining the right-skewness of salary.
In addition to looking at the sectors, we wanted to examine whether the respondents had a managerial position or not, and we asked if our respondents were leaders at their current place of work. We divided this question into three possible categories: not a manager, an intermediate manager, or a manager. This question was asked to see if there were any differences in response to the respondents obtaining a managerial position and their view on work-related Morality, Machiavellianism and the Willingness to Compete. The majority of our respondents did not withhold a specific managerial position; however, our selection does have a significant number of representatives holding managerial positions on different levels, as shown in Figure 5.

Figure 5

Job Specific Demography

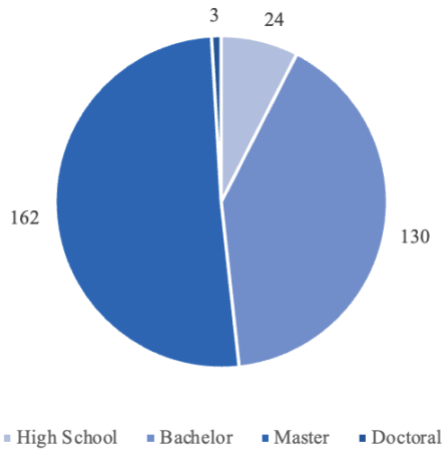


4.3.3 Education

Lastly, we wanted to examine what the highest level of education is for our respondents. We divided the level of education into four different categories; graduated high school, bachelor's degree, master's degree, or doctoral degree. The majority of our respondents have a master's degree indicating that our population is highly educated within their respective fields, which could correlate with the right-skewedness of the demographic variable of salary.

Figure 6

Education among respondents



4.4 Interactions Between Variables

In order to explore the relationship between the different variables in our study, we performed a correlation analysis. The correlation coefficient reflects the strength of the relationship between two variables, but it does not indicate the accuracy of the relationship. It measures the strength of the linear association in our data. We have conducted our correlation analysis with the use of the Pearson r correlation coefficient method. The lower limit of correlations mentioned is at (0.170), any correlation levels lower than this is not commented due to the weakness of the correlation (Table 2).

Table 2

Correlation Analysis Between Three Variables, and Education, Salary and Age

Measure	1	2	3	4	5	6
1. Moral Judgement	1					
2. Machiavellianism	0.449	1				
3. Willingness to compete	-0.529	-0.332	1			
4. Education	-0.046	0.033	-0.066	1		
5. Salary	-0.072	-0.074	0.054	0.259	1	
6. Age	0.170	-0.052	-0.218	-0.008	0.430	1

Results showed a negative correlation between Moral Judgment and Willingness to Compete (r = -0.529), which indicates that individuals with lower moral judgment are more likely to apply for the position themselves. However, the negative correlation may be due to the mild nature of the transgression, which is seen as crossing the line against established rules. Furthermore, the correlation between Willingness to Compete and Machiavellianism is moderately negative (r=-0.332), indicating that if our respondents perceive active engagement in competition with a friend, they perceive the situation as more Machiavellian and were less likely to be willing to engage in the same competition had they been given the opportunity. In contrast, if our respondents did not perceive the competitive situation as Machiavellian, they were likely to be willing to engage in the same competition, had they been given the same opportunity. The correlation between Moral Judgement and Machiavellianism is relatively strong (r=0.449), which indicates that some respondents view active competition with a friend as unethical, but not necessarily Machiavellian. This observation suggests that respondents may perceive the actions as a failure to understand and adhere to the social norms built up by organizational structures, and social norms including gender perceptions and stereotypes.

Between the variables moral judgment and age, we find that there is a slight correlation (r=0.170). This correlation is weak, however present, and explains that with an increase in age, comes an increase in Moral Judgment prior to entering competition. One reason for this result might be that with age and experience, the respondents have a greater understanding of the traits included and needed, when entering job-specific competitions. It is observed that younger individuals are more likely to apply for higher-level job positions, while older individuals tend to be less inclined to do so, with a slight correlation between the variables of (r=-

0.218). This trend may be explained by the fact that older individuals are less inclined to pursue new employment opportunities, whereas younger individuals are more proactive in seeking out new job opportunities and advancing in their careers.

4.5 Between-group Differences

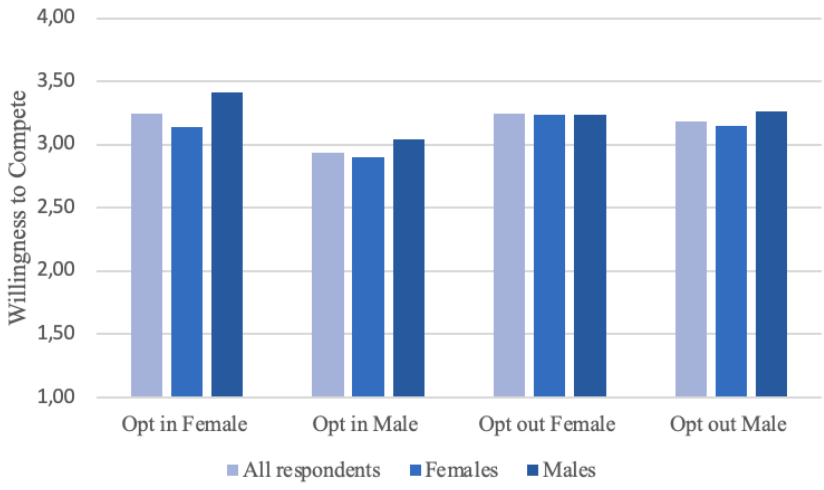
In order to explore our hypotheses, we begin analyzing the between-group differences in our outcome variables. It is essential to examine these differences, as we seek to better understand and quantify the variations that occur across the different groups within our study. The first hypothesis centers around the participants Willingness to Compete, while the second hypothesis revolves around the participants perception of the competitors Moral Judgement. Third hypothesis seeks to investigate the participants' perception of the competitors' Machiavellianism traits. However, the fourth hypothesis, which involves an interaction analysis, is not included in this section and will be covered through a moderation analysis.

4.5.1 Willingness to Compete

Generally, most respondents across most scenarios tend to imagine that they would have chosen to compete with a friend or co-worker. This is evident by the fact that the average level of willingness to compete ranging from 1-4 revolves around 3.0 (Figure 7).

Figure 7

Mean Values for Willingness to Compete



When faced with competing against a friend for a job promotion, people are generally slightly more willing to compete in an opt-out scenario. Furthermore, our respondents are slightly more willing to compete with a female co-worker than a male co-worker. However, this effect seems to be conditional on the gender of the respondent, where male respondents who imagine actively pursuing competition with a female friend or coworker demonstrate the highest willingness to compete. Men who imagine competing against a female or a male in an opt-out scenario demonstrate the second highest level of willingness to compete while having to actively engage in competition with a male rival forms the lowest level of willingness to compete for our male respondents. The findings suggest that men who imagine facing a choice of actively competing with a coworker, tend to choose engagement in said competition. When men see themself actively competing with a female, they are more willing to compete.

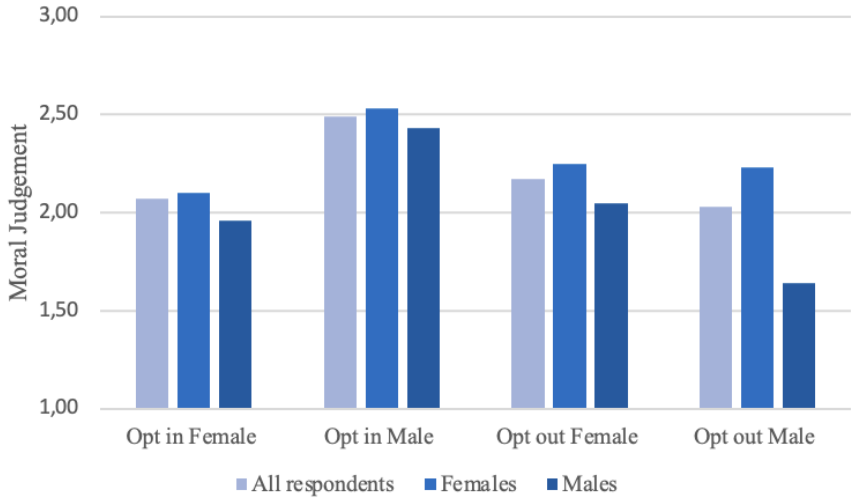
The female respondents generally demonstrate a lower willingness to compete if they imagine competing against a male coworker, however, the willingness to compete seems to be slightly higher if the competition is framed as an opt-out scenario. These findings could also suggest that in scenarios where one competes with another female, the competitor is more willing to engage in said competition, because of the gender of the competition. We will return to this discussion in its respective chapter.

4.5.2 Moral Judgement

Results from our survey regarding the variable Moral Judgement indicates that people, for the most part, find the decision to compete with a friend or a coworker as morally permissible. This is evidenced by our responses, that are centered around 1.5-2.5, indicating that the observed behavior is judged to be generally moral, however, there are some nuances to these results. The mean-values explain how the respondents judge the morality of competing. The scale goes from one to seven, where one equals to the participants very much disagrees (moral) and seven equals to very much agrees (immoral) in terms of how moral it is to opt in or opt out when competing. Hence, when we have a lower means-value, the respondents disagree that the action portrayed in the experiment was immoral.

Figure 8

Mean Values for Moral Judgment



**In order to better visualize the differences, we present the graph ranging from 1-3*

Among all the respondents, the scenario perceived the most immoral is men opting-in to competition ($\bar{y}$ = 2.49). Naturally, the same finding applies for when looking at the respondents' gender separately, as men who chose to opt-in were overall considered to exhibit the most immoral behavior.

When considering only female respondents, the scores of Moral Judgement are slightly increased compared to the overall sample across all scenarios. For both of our opt-in and opt-out conditions, the moral judgement scores range from ($\bar{y}$= 2.10) to ($\bar{y}$ =2.53), indicating that females, on average, find the decision to compete as slightly less moral than their male counterparts ($\bar{y}$ = 1.64) to ($\bar{y}$ =2.43). An interesting finding are the scenarios in which a female actively or passively enters competition, which are deemed to be judged more moral overall, compared to the scenarios where a male actively or passively enters competition. These results are proven despite that opt-out male has a lower score than opt-out female. Yet, when combining our findings, the results show that the female-conditioned scenarios are the scenarios judged to be more moral. This can be explained by existing literature commenting on the contemporary trends of females supporting other females in their career progressions.

Furthermore, findings show that females judge similar despite the gender of the competing person when the competition is in an opt-out scenario. On the contrary, men tend to judge other men passively competing as mostly moral, compared to

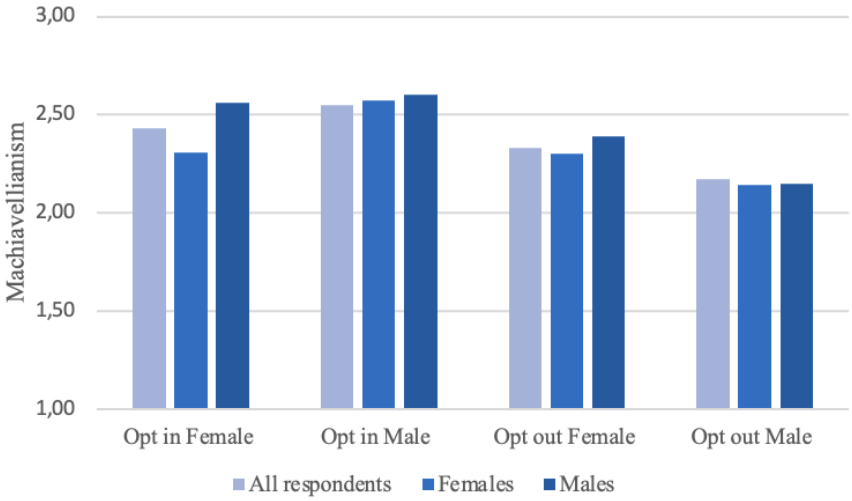
the same judgements of females in the opt-out scenario which lean further towards immorality.

4.5.3 Machiavellianism

The mean values for Machiavellianism shows to what degree the respondents believe the condition denotes cunningness, in the sense that they believe their condition shows signs of trickery. Generally, we see that our respondents seem to not judge our outcome survey as Machiavellian, which indicates that the character is judged to possess lower levels of Machiavellianism traits despite choosing to compete with a friend. This is evident by the fact that the average level of Machiavellianism ranging from 1-7 revolves around 2.0-2.5.

Figure 9

Mean Values for Machiavellianism



**In order to better visualize the differences, we present the graph ranging from 1-3*

When analyzing how all respondents, females, and males, react to Machiavellianism, we see that the respondents do not judge too harshly. However, when considering all respondents, we see that the condition where the male opts in is judged slightly heavier by our respondents then the alternative conditions ($\bar{y}$=2.55). In addition, when considering only females, a similar trend is confirmed ($\bar{y}$=2.57). However, when we analyze the all-male respondents, we see a smaller difference between the conditions opt-in female and opt-in male than the two previous means analyses ($\bar{y}1$=2.56, $\bar{y}2$=2.60). This suggests that men judge females opting into competitions more harshly than the other segments.

An interesting finding from all segments shows that men who opt out of competition are seen as having the least negative traits for entering the competition. However, females, regardless of opting in or out, are judged slightly heavier, which suggests that there is an underlying judgment of females entering the competition.

4.6 ANOVA

Having explored the between-group differences in our outcome variables, we further wanted to test whether or not these differences are statistically significant. In order to do this, we performed an analysis of variance (ANOVA). A one-way ANOVA is used to determine whether or not there is a statistically significant difference between the means of three or more independent groups (Field, 2013). In this experiment, a one-way ANOVA was performed to compare the effect of the dependent variables' *Moral Judgment, Machiavellianism,* and *Willingness to Compete* on our independent variables *opt-in, opt-out, male,* and *female* (Table 3).

A one-way ANOVA is a widely used statistical method to test for differences in the means of three or more independent groups. The null hypothesis (H0) states that all groups are equal, while the alternative hypothesis (H1) assumes that at least one of the means is significantly different from the others. The one-way ANOVA statistical model can be represented as:

$$F=MST/MSE$$

$$MST=\frac{\sum_{i=1}^{k}(T_i^2/n_i)-G^2/n}{k-1},\ MSE=\frac{\sum_{i=1}^{k}\sum_{j=1}^{n_i}Y_{ij}^{\ 2}-\sum_{i=1}^{k}(T_i^2/n_i)}{n-k}$$

MST is the mean square between groups and MSE is the mean square within groups. Y is observation, T is group total, G is the grand total of all observations, n_i is the number in group 1 and n is the total number of observations.

To test the null hypothesis, we compare the variation between the groups, to the variation within the groups, by calculating the F-statistics. Hence, by using the mean sum of squares for both groups, we can use the p-value to determine the statistical significance.

Table 3

One-Way ANOVA

Predictor		Sum of Squares	*df*	Mean Square	F	*p*	η2	η2 95% CI LL	η2 95% CI UL
Moral Evaluation	Between Groups	10.157	3	3.386	2.450	0.063	0.021	0.000	0.053
	Within Groups	465.648	337	1.382					
	Total	475.805	340						
Machiavellianism	Between Groups	5.972	3	1.991	1.738	0.159	0.016	0.000	0.045
	Within Groups	365.286	319	1.145					
	Total	371.258	322						
Willingness to Compete	Between Groups	5.335	3	1.778	3.042	0.029	0.026	0.000	0.061
	Within Groups	198.164	339	0.585					
	Total	203.499	342						

Our first hypothesis was that the willingness to compete indicated by our respondents would vary between gender and between the scenarios. The ANOVA revealed that there was a statistically significant difference in Willingness to Compete with all respondents, between at least two groups at a five percent level ($F(3,339)= 3.042$, $p=0.029$). The statistically significant results provide evidence to reject the null hypothesis and accept the alternative hypothesis. Thus, suggesting that the dependent variables have effects on the independent variables. To pinpoint the specific group differences and explore the underlying reasons behind these differences, we conducted a post-hoc test.

In order to explore this statistically significant result in further detail we performed a Tukey's HSD Post Hoc Test. The Post Hoc Test identified the following significant between group-differences (Table 4, p. 44).

Table 4

Tukey's HSD Post Hoc Test

Dependent Variable	(I)	(J)	Mean Difference (I-J)	Std. Error	Sig.	95% CI LL	95% CI UL
Willingness to Compete	Opt in Female	Opt in Male	0.310*	0.119	0.048	0.00	0.62
		Opt out Female	0.000	0.115	1.000	-0.30	0.30
		Opt out Male	0.071	0.117	0.931	-0.23	0.37
	Opt in Male	Opt in Female	-0.310	0.119	0.048	-0.62	0.00
		Opt out Female	-0.310	0.117	0.041	-0.61	0.01
		Opt out Male	-0.239	0.119	0.188	-0.55	0.07
	Opt out Female	Opt in Female	0.000	0.115	1.000	-0.30	0.30
		Opt in Male	0.310*	0.117	0.041	0.01	0.61
		Opt out Male	0.071	0.115	0.926	-0.23	0.37
	Opt out Male	Opt in Female	-0.071	0.117	0.931	-0.37	0.23
		Opt in Male	0.239	0.119	0.188	-0.07	0.55
		Opt out Female	-0.071	0.115	0.926	-0.37	0.23

**The mean difference is significant at the 0.05 level*

** *See full HSD Post Hoc Test in appendix* (Appendix 1)

The test further revealed a significant difference in the mean value of willingness to compete between the groups opt-in female and opt-in male ($p = 0.048$, 95% C.I. = [0, 0.62]). This result suggests that the willingness to compete is different for the test participants when reading about females or males opting into competition. In addition, Tukey's HSD Test found that there were significant differences between opt-in male and opt-out female ($p = 0.041$, 95% C.I. = [-0.61, -0.01]). This result suggests that there are significant differences in the willingness to compete when survey participants read about a male who opts in, and a female who opts out.

Our second hypothesis Moral Judgement (H2) failed to support at a five percent level ($F(3,337) = 2.450$, $p = 0.063$). The same results apply for Machiavellianism (H3) not being statistically significant ($F(3,319) = 1.738$, $p = 0.159$). Hence, the p-value is greater than the usual significance level of 0.05, which suggests that we do not have enough evidence to claim that there is a meaningful difference based on the tested variables.

4.7 Interaction Analysis Between the Variables

In order to explore the impact of opting in or opting out on the outcome variable in more depth, we deemed it worthwhile to examine whether there exist any moderating effects that influence the independent variables. We wanted to conduct an interaction analysis to determine if there were any explainable patterns in our data set and to graphically illustrate the interaction effects through an interaction plot. A moderation model is helpful for better understanding the nature of the relationship between the variables and identifying the conditions under which the relationship is strongest or weakest. We conduct an analysis on the interaction effects by applying Hayes' moderation model using PROCESS in SPSS. According to Hayes' moderation model, when there is a moderation of a variable (which we call M) on the relationship of two others (X and Y), the effect of X and Y is conditional to the level of the moderating variable M (Ponchio & Correio, 2018 p. 2).

Specifically, our fourth hypothesis suggested that both gender and choice architecture would interact in influencing the moral judgment of the behavior in question. We expected that people would respond differently to a description of a

woman who either passively or actively pursues competition with a friend or coworker, then they would to a description of a man who either passively or actively pursues the same competition.

Table 5

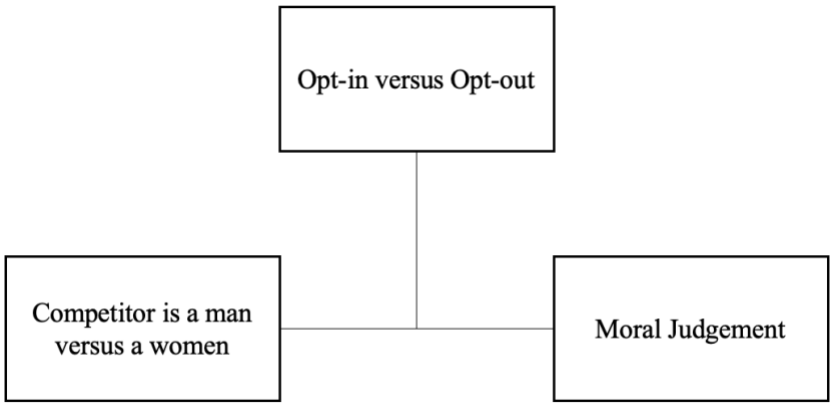
Moderator Analysis: Types of Measurements and Demographics

Effect	Estimate	SE	95% CI		*p*
			LL	UL	
Intercept	0.8611	0.6656	-0.4486	2.1207	0.1967
Male vs Female	1.0628	0.4301	0.2166	1.9090	0.0140
Opt-in vs Opt-out	0.7271	0.4164	-0.0922	1.5464	0.0818
Interaction	-0.6057	0.2696	-1.1361	0.0753	0.0253

In order to test Hypothesis 4, we first entered the gender of the described person (character) in the first step of the regression analysis. In the second step, we entered the interaction term between the different genders (male/female), and different choice architectures (opt-in/opt-out of competition). As expected, the interaction term explained a significant increase in variance in moral judgment.

Figure 10

Moderation Model of the Variables – as presented in Figure 2

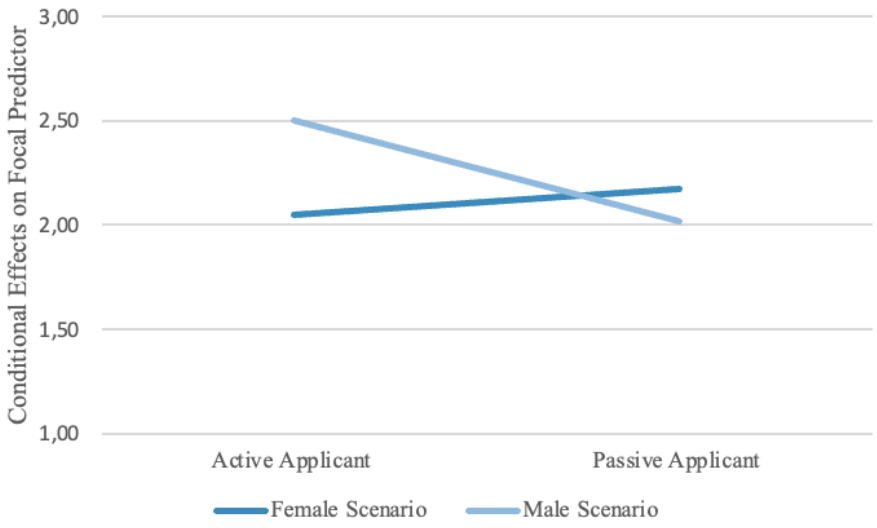


Adjusted R–squared = 0.0240, Beta = -0.6057, *t=-2.2472, p=-0.0253.* The levels of confidence for the interaction term range between the lower LLCI= -1.1361 and ULCI=-0.0753. This means that passively pursuing a competition against a coworker leads to milder moral judgements if the coworker is male. Both men and women seem to subscribe to the idea that it is slightly immoral to engage in competition with a male coworker, but substantially less so against a female coworker. However, this difference is removed and even slightly reversed if the

organization adopts an opt-out promotion scheme. Figure 11 gives a visualization of the described interaction.

Figure 11

Moderating Effects of Opting-in versus Opting-out in Gender-based Competitive Scenarios



As this interaction is significant, opting in or opting out can be said to be a moderator of gender's effect on moral judgment, or that gender and opting in or opting out interact in their influence on moral judgment (Hayes, 2017).

An interesting finding which is illustrated in Figure 11, is that when a candidate is given the passive choice architecture default of opting out, the moderation plot is perceived to lean towards a trend of gender equality within moral perceptions in a simulated recruitment scenario. This entails that an organization changing their recruitment process from opting-in to opting-out might reap benefits of equal moral judgment between the genders, and hence, arguably an even competitive setting.

5.0 Discussion

The results from our hypothesis are weaker than anticipated. This is possibly due to the hypothetical scenario where the emotional component involved such as morality and disloyalty are not manifesting their full effect. Such emotions are challenging to obtain in a hypothetical design; however, we will revisit this topic in the limitations section.

Together with the results of our analysis, we have two separate findings. First of all, our first hypothesis (H1) is significant. This means that the participant's perception of whether they would want to apply for the job themselves were affected by the applicant's gender, but also whether the applicant opted-in or opted-out when applying for the job. Based on previous research, we expected to find that men to a higher degree would engage in competition, while women would be more restrained. In addition, we expected that in the scenarios where the competing person was a male, the respondents would show less interest in engaging in competition as opposed to the scenarios where the competing person was a female. This expectation stems from the widely held belief that men are generally more competitive and assertive, while women tend to be more cooperative and nurturing. Consequently, it is feasible to assume that cultural norms and societal expectations often reinforce this gender stereotype. However, research has shown that these gender differences in competitiveness are not absolute and may vary depending on the context and situation.

We found that the respondents overall were most likely to apply for the job, however, the scenario where there was a male opting out showed lower results than the other scenarios. As previously discussed, these findings could suggest that men who opt out, and females in general, judge other men that actively engage in competition (opting in) more harshly than the other competing scenarios in the sense that they would not apply for the job themselves. These findings are particularly interesting given that men are stereotypically associated with high levels of competitiveness and agency, and are expected to display such traits according to societal norms (Glick & Fiske, 2007; Acar & Sümer, 2018). Furthermore, in the scenarios where the applicant competes with another female, the participants are more likely to apply for the job themselves. This is also an interesting finding, suggesting that when the participants see women competing

against other women, they are more accepting of the competing behavior. It is possible to speculate that this finding may be attributed to gender stereotypes, which often portray women as less competitive. Therefore, when participants witness a woman competing for the job, they may perceive it as an opportunity for themselves to also apply, thinking *"if she can do it, so can I"*.

Another possible reflection to this finding could be that we live in a time with advanced technology, and hence, we have the opportunity to connect with people like never before. Although there have been ongoing efforts to combat gender discrimination, we now have the advantage of flexible communication and networks that allow the message to reach a wider audience, both young and old. In Norway, there is a strong emphasis on promoting women's careers, as demonstrated by initiatives such as the SHE Conference (SHE Conference, 2022), organizations like Women in Finance that support women in leadership positions (Kvinner i Finans, n.d), and even the country's largest bank, DNB, launching a campaign called #huninvisterer (meaning '#sheinvests' in English) (Minsaas, 2021). Based on this, as our participants are Norwegians, we could assume they have an underlying support of women competing for a higher position, and supporting women in their career could be seen as expected.

Given the current emphasis on women's career advancement in Norway, one could speculate that there is an inherent underlying "feminist" perspective shaping the attention given to diversity and women. In terms of society, this perspective could be a norm, as there are contemporary measures implemented to support women and their career advancements. As mentioned, initiatives such as quotas, forums, campaigns, and other strategies, serve to support women's motivation in advancing in their careers and obtaining managerial positions, despite that women show inherently more emotions and feminine traits, such as displaying their affective motivation to lead (a-mtl), rather than masculine traits, and hence competitiveness.

No countries have by far achieved full gender parity, however, looking at the top ten economies in the world, they have closed over 80 percent of their gender gaps. The Scandinavian countries, such as Finland (86 percent, ranked 2nd), Norway (84.5 percent, ranked 3rd), and Sweden (82.2 percent, ranked 5th), have some of

the most closed gender gaps (World Economic Forum, 2022). Therefore, it is plausible to suggest that the findings of participants being more likely to apply for a job when the applicant competes with another female may be attributed to Norway's ranking as one of the top three countries in the world with the most closed gender gap (World Economic Forum, 2022), and its significant investment in helping women climb the career ladder. This could indicate that gender differences in competitive behaviors are not prominent in Norway, however we will come back to this subject in our limitations.

As we know, there are gender differences in attitudes towards competition, with women tending to have a more cooperative and less competitive orientation, while men may exhibit a more individualistic and competitive mindset. Based on these generalizations, we expected that the responses would exhibit a more negative moral judgment towards women participating in competition than towards men participating in competition. Given the expectation that men expect men to be more competitive than women, we expected men to have a negative perception towards women that compete against each other rather than when men compete. However, contrary to our expectations, the statistical analysis revealed that hypothesis (H2) did not yield significant results.

It is possible that the reason why the direct relationship posited in H2 failed to materialize is because this effect is contingent on the moderated variable. Interestingly, our fourth hypothesis (H4) was statistically significant, which indicates results where the competing person's gender will indirectly affect the participant's moral evaluation of said behavior, moderated by opting-in or opting-out defaults in choice architecture. It is possible that the reason why the direct relationship posited in H2 failed to materialize is because this effect is contingent on the moderated variable. In Figure 11, we see that the graph moves towards equality, but this eventually reaches a turning point where the trends seem to reverse. This could, among others, mean that organizations will experience and achieve more gender parity by utilizing a more passive approach in their recruitment processes, however continuing a passive approach beyond a certain threshold might hinder this path. Based on this, it would be applicable to argue that there is a happy medium between active and passive approaches within organizations, which will be perceived as the most effective towards the goal of

accomplishing gender parity, specifically in terms of gender equality in relation to how one is judged by others in competitions.

H4 holds in the sense that we had significant findings that the moderation variable of choice architecture does indeed impact participants' evaluation of behavior and person, in a competitive setting where the choice architecture differs between opting in and opting out. Further, H4 provides additional insights into the complex interplay between gender, competition and moral evaluations that previously were not captured by H2. The findings support our hypothesis that both choice architecture and the gender of the participant competing influences the moral evaluation of the participant competing. This finding, in relation to findings in literature (Acar & Sümer, 2018), support the assumption that the judgment of others is reliant on the gender, and that the evaluation of others is contingent on the choice architecture in competitive settings. Furthermore, our findings counter the existing literature where women face backlash effects given their competitive behaviors (Rudman et al., 2012) and support that these effects might be neutralized when specifically, women engage passively in competitions. The results of our findings may reflect differing societal norms and expectations for male and female behavior in competitive settings. The improved moral evaluation for passive engagement in competition could indicate that women are expected to be less assertive and more cooperative in competition behavior, while men might be expected to be more confrontational in both active and passive competitive settings.

By insinuating a passive choice architecture default, our findings suggest that the judgment of competing individuals between the genders will ambit gender parity. This can further lessen the effects of gender stereotypes presented by Castano et al. (2019) who argue that stereotyping leads to lesser perceptions of females, regardless of their masculine traits.

The last hypothesis to discuss, is our third hypothesis (H3) which investigates the perceptions of Machiavellian traits when competing against a friend. As expressed in our literature review, men tend to have less sensitivity to others' needs, and exhibit often a more competitive nature than women. Given the different scenarios of our experiment, we expected higher levels of Machiavellianism scores in the

scenarios when there are males competing as opposed to when females are competing. However, on the contrary to our expectations, the result of H3 indicates no significant difference between the groups.

There may be several reasons for these statistical results. First, the scale has not been used in experimental research and may not be adapted to nuances in clausal design. Second, the scale is used in a Norwegian context, and nuances therefore cannot be translated either linguistically, culturally, or both. One of the reasons why there are no big differences may be that the selection is very "forgiving" on all measures towards the person who competes against their colleague, regardless of gender and default. Looking at Hofstede's cultural dimensions, Norway scores as a significant feminine country. Being a feminine country implies value and encourages softer aspects of culture such as taking care of the environment, cooperation, consensus-building, and sympathy for the underdog are valued and encouraged (Hofstede Insight, 2023).

Furthermore, Hofstede's femininity dimension includes having an emphasis on collaboration and support, rather than your own individual achievement, hence, competition may be perceived more positively - as long as it aligns with these values of cooperation and sympathy of others. One could therefore perceive it as a way to improve collectively and grow together, rather than an intense competition to surpass one another. Norway's feminine cultural traits could thereby have an impact on the statistical results of Machiavellianism, as this trait values cooperation, solidarity, and personal growth, which influences the perception of competition positively. Based on this, competition may be viewed as a means of improvement, and self-development, rather than a dark personality trait in feminine countries. In addition, Norway has a low score on Hofstede's Power Distance, which indicates preference for independence, equal rights, and accessible superiors (Hofstede Insight, 2023). These preferences could therefore influence the participants' perceptions of Machiavellian traits in terms of competing against a friend, as low power distance culture focuses on equality and collaboration (Hofstede Insight, 2023). Based on the fact that cultures with low power distance values to maintain positive relationships even in competitive situations, it is realistic to presume that engaging in competition against a friend

would not be regarded as exhibiting Machiavellian traits within such cultural contexts.

5.1 Theoretical Implications

Even though there are stereotypical public perceptions about how each gender should act, our findings indicate that there are restricted gender differences. In general, women care less about gender roles than men, so it would be feasible to consider this as an implication for our study, where women are more equal in their assessment of gender roles. From a theoretical standpoint, these findings could have significant implications for the study of gender and gender roles. Our results may suggest that traditional gender stereotypes may not accurately reflect the attitudes and behaviors of men and women in a modern, contemporary society. In addition, the fact that women are less concerned with gender roles than men, challenges the assumption that women are inherently more conforming and less competitive than men. This could and should lead to a reevaluation of existing gender theories and a shift towards more nuanced understandings of gender and its social construction. Furthermore, the finding that women are more equal in their assessment of gender roles could indicate a trend towards greater gender equality and a rejection of traditional gender norms and traditional gender role beliefs.

Looking at the variable *Willingness To Compete*, we found that there are existing gender differences, however, we do not know what causes these differences, but it would be plausible to assume that there are many factors. Looking specifically at the social dimension, and others' perception of one joining a competition, it is feasible to say that these gender differences are probably to some extent due to impression management concerns. We know from our literature review that men are more confident than women when it comes to competition, and hence men likely do not have the same fear of social evaluations as women when they enter a competition. However, it is worth mentioning that amongst women, trends are leaning more towards an increased willingness to compete, which deviates with the traditional gender role beliefs in society.

Women and their lower levels of Willingness to Compete, might be explained by the fear of backlash from extending beyond the traditional gender role beliefs in society and gender stereotypes towards females who enter competitions. However, as our findings do have some support, we have yet to retain purely significant results in this manner. Other factors such as “fear of failure” or Glass Cliff/Ceiling Phenomenon might serve frightening towards females when facing high-risk situations with uncertain outcomes. This complex and intertwined discussion can base the grounds for understanding the mechanisms in why females are in general less competitive than men. Although our analysis failed to gain significant results regarding Machiavellianism, it does not necessarily mean that women do not experience backlash when entering competitions, or the chase for higher-level managerial positions. However, the backlash women face might be different and in other ways than Machiavellianism or defined and determined with other known measures of the Dark Triad.

5.2 Managerial Implications

We have learned from theory that managers, on a general basis, are facing issues when recruiting or hiring females for managerial positions for different reasons. These issues include phenomena such as the glass ceiling or glass cliff phenomenon, as well as gender biases and stereotypes. This is not only a moral problem, but it also leads to systemic organizational challenges when organizations, or hiring managers, fall short in addressing the issues associated with gender disparities.

Existing research shows that organizational performance increases when men and women work alongside in organizations, indicating that leaders could acquire benefits from looking at the default from an active opting-in perspective to a passive opting-out perspective. And that the change in said perspective, might serve solutions in obtaining an increased number of females in managerial, or higher-level positions. However, this is an uncertain strategy, as present studies give this solution hope, but also some doubts. This is not unusual, because small actions are often combined with small effects, regardless, the investment cost might be worth the outcome of the change. Other strategies to increase the female representation in higher-level positions include quotas or special considerations. While these actions might be effective, risks are not mitigated in the sense that

quotas are potent but are also deemed unfair. They have a positive impact by facilitating increased evaluation of women, as corporations implement “reserved places” for women, thus more women are included in the evaluation process compared to what could have occurred without quotas. Based on this, it would be realistic to say that quotas contribute to a higher number of women being evaluated for positions, thereby enhancing their prospects of getting the positions they have applied for.
In summary, quotas might be deemed unfair towards women as they can perceive it as “structural sympathy”, and therefore, women might feel that they got the higher position due to this specific reason. Further, quotas might be deemed unfair towards men, if the quotas lead to a woman with less competence and skills getting the higher positions due to quotas instead of a man applying for the same position.

Considering obtaining more diversity in organizations, Mrkva et al. (2021) state that choice architecture might have a larger impact on individuals in society obtaining a lower socio-economic scale. As the Glass Ceiling Phenomenon refers to an invisible barrier preventing certain groups, also minorities, from reaching their full potential, an opting-out default setting perhaps can circumvent the limitations posed by an organizational glass ceiling. Furthermore, Mrkva et al. (2021) state that by inducing choice architecture designed to capture minorities in society, one might be able to source individuals that have not considered their options. By including passive choice architecture, organizations might be able to recruit talent that would not have had similar opportunities without passive designed choice architecture. Hence, these actions can lead to individuals climbing the socio-economic scale and increase value generation in societies by enabling more people in the active workforce. This is especially interesting, indicating that choice architecture design might expand beyond the construct of obtaining more females in managerial positions, and benefit society far more than expected. Lastly, passive choice architecture can further help reduce stereotype threats that pose anxiety on minorities when aware of the negative stereotypes associated with their group. By changing the architecture of choice, effects might include an increase of self-empowerment and determination while combatting the stereotype-threats perceived by the minority-group.

Furthermore, another reason why organizations should try to attain and increase the number of females in managerial positions, is due to the proclamation of being concerned with diversity and inclusivity. As tomorrow's talents include at least 50 percent women, the risks of these women feeling alienated if not represented are high, which evidently leads to increased structural challenges. Hence, to minimize the risks of being categorized as hypocritical or as an organization with double standards, organizations should work structured towards increasing the number of females in managerial positions. There are however nuances to these actions, as it is important for organizational operations that the right candidate upholds its position. However, actions towards presenting gender parity in organizations could be considered as good employer branding strategies.

By utilizing a passive default in recruitment processes, it would be plausible to presume that there still would be gender biases in organizations top management. However, this method could be a strategy to not be perceived as very influential. When writing this thesis, we are at an interesting crossroad where we have a tentative solution for a gender bias problem - where the research has come short. Based on this, corporations, big and small, should therefore consider utilizing a passive default as a field-experiment in their own organization. By doing such, organizations are doing the job that researchers have not, and they can get insight on the real effect of the measure in their organization. These types of field-experiments would be extremely valuable for organizations as they can compare differences from different years, thereby acquiring invaluable data that confers a competitive advantage in its own right.

5.3 Limitations & Future Research

As previously noted, this experiment is a hypothetical scenario which could lead to some limitations. One such limitation is the challenge of familiarizing yourself with the situation, potentially resulting in a diminished arousal of emotions. It would be reasonable to infer that emotions are stronger in real-life situations, and therefore, future research should conduct triangulation with multiple research methods such as field experiments and qualitative studies.

Furthermore, the experiment takes place in a Norwegian context with Norwegian respondents. As we know from previous literature, Norway is unique with its gender egalitarian stances being ranked as the 3rd country closing its gender gap. Therefore, our participants may perceive gender differences in competitive behaviors as not prominent. Additionally, there are different stances to the perceptions of competition due to cultural differences. As Norway being a feminine country, as well as having moderate levels of power distance (Hofstede Insight, 2023) it would be applicable to reflect that it is more taboo to compete against a friend in other countries with distinct cultural norms. Countries such as the US, China, Japan, France, and Germany, have both significantly lower levels of femininity (hence, they are so-called masculine countries), but also higher levels of power distance, than Norway (Hofstede Insight, 2023), and hence, actively competing against a friend may be more frowned upon. Based on these cultural differences, it would be interesting to take the research further to other countries with opposite cultural norms and actions.

Based on these limitations, we cannot simply generalize these results. However, it would be highly relevant to internationalize and attempt to generalize the findings. Furthermore, attitudes towards women and career are still evolving. Therefore, capturing a current overview of the situation for women holds significant validity. However, it is important to acknowledge that future generations may adopt different approaches and perspectives.
Hence, it is crucial to continue investigating this topic to understand how attitudes may change for forthcoming generations.

6.0 Conclusion

The purpose of this study was to explore the effects and possible side effects of changing the choice architecture sounding recruitment decisions and how these interplays with individual's perception of different genders decision to compete in the workplace. In recent years, the global workforce has undergone large transformations leading to an intensified focus on workplace competition and its interplay with gender dynamics. The aim of achieving a harmonious and inclusive workforce has become paramount for organizations across all sectors, yet the underrepresentation of women in higher-level managerial positions remains a persistent challenge. Our study confirms that there are structural biases and stereotypes towards competing individuals, and that these stereotypes might especially lead to social and economic penalties for women, further driving structural challenges such as the Backlash Avoidance Model and Glass Cliff/Glass Ceiling phenomena.

Our research question was to look further into whether if *"differences in perception exist between men and women in competition for higher- level job positions and does choice architecture in competition play a role in exacerbating or mitigating these differences?"* we found a significant relationship between our participants' Willingness to Compete, and the gender of the person in our competing scenario and whether he/she opted-in or opted-out. Furthermore, we found that opting-in and opting-out moderates the relationship between the competing persons' gender, and the judgement of morality of the competing person. Lastly, we saw that through an opting-out scheme, we were able to mitigate or exacerbate the gender disparities within the perception of others.

A contemporary study regarding changing the choice architecture from opt-in to opt-out defaults has shown potential to minimize the gender disparities in higher-level managerial positions. However, as the research is novel, the concept is required further investigation to be proven as the preferable option for organizations in attaining potential candidates. To make our findings generalizable, the study should be internationalized across the globe, due to the differences of socio-cultural factors which vary across countries. However, our

thesis can and should be tested by organizations in field experiments, as they arguably may benefit on the talent that they now attract.

References

Acar, & Sümer, H. C. (2018). Another Test of Gender Differences in Assignments to Precarious Leadership Positions: Examining the Moderating Role of Ambivalent Sexism. *Applied Psychology*, 67(3), 498–522. https://doi.org/10.1111/apps.12142

Aker BP. (2023). Ledelsen. *Aker BP*. https://akerbp.com/ledelsen/

Alden, J. (2007). Surverying Attitudes: Questionnaires versus opinionnaires. *International Society for Performance Improvement.* https://doi.org/10.1002/pfi.141

Auyeung, B., Baron-Cohen, S., Ashwin, E., Knickmeyer, R., Taylor, K., Hackett, G., & Hines, M. (2009). Fetal Testosterone Predicts Sexually Differentiated Childhood Behavior in Girls and Boys. *Psychological Science.* 40(2), pp. 144-148.

Bell, E., Bryman, A., & Harley, B. (2019). *Business research methods* (Fifth edition.). Oxford University Press.

Berggren, C., & Lauster, N. (2014). The motherhood penalty and the professional credential: inequality in career development for those with professional degrees. *International Studies in Sociology of Education*, *24*(1), 44–64. https://doi.org/10.1080/09620214.2014.895135

Blaustein, J. D., & McCarthy, M. M. (2009). Phoenix, Goy, Gerall, and Young, Endocrinology, 1959: 50 Years Young and Going Strong. *Endocrinology*, *150*(6), 2501. https://doi.org/10.1210/en.2009-0414

Bogg, T. & Roberts, B.W. The Case for Conscientiousness: Evidence and Implications for a Personality Trait Marker of Health and Longevity. *Annals of Behavioral Medicine,* Vol. 45(3), 278–288. https://doi.org/10.1007/s12160-012-9454-6

Borráz-León, J.I., Cerda-Molina, A.L., Choi, D., et al. (2018). Testosterone and intrasexual competition in men: is there any relation with digit ratio (2D:4D)? *Acta Ethol,* 21, 137–140. https://doi.org/10.1007/s10211-018-0284-9

Bosson J. K., Vandello J. A., Burnaford R. M., Weaver J. R., Arzu Wasti S. (2009). Precarious manhood and displays of physical aggression. Personality and Social Psychology Bulletin, 35, 623-634.

Bosquet, C., Combes, P. P., & García-Peñalosa, C. (2019). Gender and promotions: Evidence from academic economists in France. *The Scandinavian Journal of Economics*, *121*(3), 1020–1053. https://doi.org/10.1111/sjoe.12300

Brañas-Garza, P., Chowdhury, S. M., Espín, A. M., & Nieboer, J. (2023). 'Born this Way'? Prenatal exposure to testosterone may determine behavior in competition and conflict. *Journal of Economic Psychology*, 96, 102623. https://doi.org/10.1016/j.joep.2023.102623

Brands, R. A. & Fernandez-Mateo, I. (2017). Leaning out: How Negative Recruitment Experiences Shape Women's Devisions to Compete for Executive Roles. *Administrative Science Quarterly.* Vol. 62(3), 405-442.

Carnes, W. J., & Radojevich-Kelley, N. (2011). THE EFFECTS OF THE GLASSCEILING ON WOMEN IN THE WORKFORCE: WHERE ARE THEY AND WHERE ARE THEY GOING? Review of Management Innovation & Creativity, 4(10), 70–79.

Castano, A. M., Fontanil, Y., García-Izquierdo, A. L. (2019). "Why Can't I Become a Manager?" – A Systematic Review of Gender Stereotypes and Organizational Discrimination. *International Journal of Environmental Research and Public Health, 16(10), 1813.* https://doi.org/10.3390/ijerph16101813

Chan, K., & Drasgow, F. (2001). Toward a theory of individual differences and leadership: Understanding the motivation to lead. *Journal of Applied Psychology*, *86*(3), 481–498. https://doi.org/10.1037/0021-9010.86.3.481

Creswell, J. W. (2014). Research Design: Qualitative, Quantitative and Mixed Methods Approaches (4th ed.). Thousand Oaks, CA: Sage Publications

Croft A., Schmader T., Block K. (2015). An underexamined inequality: Cultural and psychological barriers to men's engagement with communal roles. Personality and Social Psychology Review, 19, 343-370

Christie, R., & Geis, F. (1970). Studies in Machiavellianism. New York, NY: Academic Press, Inc.

Coop. (n.d). Ledelsen i Coop Norge SA. *Coop Norge SA.* https://coop.no/om-coop/virksomheten/coop-norge-sa/ledelsen/#

Cotter, D., Hermsen, J. M., Vanneman, R. (2011). The end of the Gender Revolution? Gender Role Attitudes from 1977 to 2008. *American Journal of Sociology*. Vol. 117, 259-289. https://doi.org/10.1086/658853

Dahling, J. J., Whitaker, B. G., & Levy, P. E. (2009). The development and validation of a new Machiavellianism scale. Journal of Management, 35(2), 219–257. https://doi.org/10.1177/0149206308318618

Dawson, J. F. (2014). Moderation in management research: What, why, when, and how. *Journal of Business and Psychology, 29*(1), 1-19.

DNB. (n.d). The DNB Group Management. *DNB.* https://www.dnb.no/en/about-us/about-dnb/group-management.html

Drost, E. (2011). Validity and Reliability in Social Science Research. *Education Research and Perspectives*, 38, 105–124.

Drydakis, N., Sidiropoulou, K., Sidiropoulou, V., Sidiropoulou, S., & Patnaik, S. (2017). Masculine vs feminine personality traits and women's employment outcomes in Britain. *International Journal of Manpower*, Vol. 39(4), 621-630. https://doi.org/10.1108/IJM-09-2017-0255

Eagly, A., & Carli, L. (2007). Women and the labyrinth of leadership. *Harvard Business Review*, *85*(9), 62–71. https://doi.org/10.1037/e664062007-001

Eagly, A. H., & Karau, S. J. (2002). Role congruity theory of prejudice toward female leaders. *Psychological Review, 109*(3), 573–598. https://doi.org/10.1037/0033-295X.109.3.573

Eagly, A. H., & Mladinic, A. (1989). Gender Stereotypes and Attitudes Toward Women and Men. *Personality and Social Psychology Bulletin*, *15*(4), 543–558. https://doi.org/10.1177/0146167289154008

Elprana, G., Felfe, J., Stiehl, S., & Gatzka, M. (2015). Exploring the Sex Difference in

Affective Motivation to Lead. *Journal of Personnel Psychology*, *14*(3), 142–152. https://doi.org/10.1027/1866-5888/a000137

Equinor (2020). Anders Opedal taking over as president and CEO of Equinor from 2 November 2020. *Equinor*. https://www.equinor.com/news/archive/20200810-management

Exley, C. L., Niederlie, M., & Vesterlund, L. (2020). Knowing when to ask: The cost of leaning in. *J. Polit. Econ.*, 128, 816–854

Field, A. (2013). *Discovering Statistics Using IBM SPSS Statistics*. SAGE Publications Limited.

Fishbein, M. & Ajzen, I. (1975). Belief, Attitude, Intention and Behavior; An Introduction to Theory and Research. Reading, MA: Addison-Wesley.

Fisher. (2010). Richard H. Thaler and Cass R. Sunstein: Nudge: Improving Decisions About Health, Wealth, and Happiness. *Environmental & Resource Economics*, 47(1), 149–150. https://doi.org/10.1007/s10640-010-9363-8

Fülöp, M., Berkics, M. (2015). Perception of Gender Differences in Competition in the Post-Socialist Hungary. In: Safdar, S., Kosakowska-Berezecka, N. (eds) Psychology of Gender Through the Lens of Culture. Springer, Cham. https://doi.org/10.1007/978-3-319-14005-6_10

Glick, P., & Fiske, S.T. (2007). Sex discrimination: The psychological approach. In F.J. Crosby, M.S. Stockdale, & S.A. Ropp (Eds.), Sex discrimination in the workplace, 155–187. Malden, MA: Blackwell.

Glick, P., & Fiske, S. T. (1999). Sexism and other "isms": Independence, status, and the ambivalent content of stereotypes. In *American Psychological Association eBooks* (pp. 193–221). https://doi.org/10.1037/10277-008

Gram, K. H. (2021). Stadig flere kvinner blant ledere. *SSB.* https://www.ssb.no/befolkning/artikler-og-publikasjoner/stadig-flere-kvinner-blant-ledere

Hinchliffe, E. (2022). Female CEOs run just 4.8% of the world's largest businesses on the Global 500. *Fortune*. Female CEOs run just 4.8% of the world's largest businesses on the Global 500 | Fortune

Hox, J. J., Moerbeek, M., & Van De Schoot, R. (2017). Multilevel Analysis. In *Routledge eBooks*. https://doi.org/10.4324/9781315650982

Hull, R. P., & Umansky, P. H. (1997). An examination of gender stereotyping as an explanation for vertical job segregation in public accounting. *Accounting Organizations and Society*, *22*(6), 507–528. https://doi.org/10.1016/s0361-3682(96)00028-1

Halladay, Brianna & Landsman, Rachel. (2022). "Perception matters: The role of task gender stereotype on confidence and tournament selection," *Journal of Economic Behavior & Organization, Elsevier*, vol. 199(C), 35-43. https://doi.org/10.1016/j.jebo.2022.04.018

He, J. C., Kang, S. K., & Lacetera, N. (2021). Opt-out choice framing attenuates gender differences in the decision to compete in the laboratory and in the field. *Proceedings of the National Academy of Sciences*, *118*(42). https://doi.org/10.1073/pnas.2108337118

Healy, A., & Pate, J. (2011). CAN TEAMS HELP TO CLOSE THE GENDER COMPETITION GAP? The Economic Journal, 121(555), 1192–1204. http://www.jstor.org/stable/41237028

Hofstede Insights. (2023). Country comparison tool. *Hofstede Insights*. https://www.hofstede-insights.com/country-comparison-tool?countries=norway

Hummel, D., & Maedche, A. (2019). How effective is nudging? A quantitative review on the effect sizes and limits of empirical nudging studies. Journal of Behavioral and Experimental Economics, 80, 47-58. https://doi.org/10.1016/j.socec.2019.03.005

Ibarra, H., J. Ely, R., & M. Kolb, D. (2019, August 23). *Women Rising: The Unseen Barriers*. Harvard Business Review. https://hbr.org/2013/09/women-rising-the-unseen-barriers

Flory J. A., Leibbrandt A., List J. A. (2015). Do competitive workplaces deter female workers? A large-scale natural field experiment on job entry decisions. *Rev. Econ. Stud*. 82, 122–155

Kalev, A., & Deutsch, G. (2018). Gender Inequality and Workplace Organizations: Understanding Reproduction and Change. In *Handbooks of sociology and social research* (pp. 257–269). Springer Nature (Netherlands). https://doi.org/10.1007/978-3-319-76333-0_19

Kagan, J. (2022). The Glass Ceiling: Definition, History, Effects and Examples. *Investopedia.* https://www.investopedia.com/terms/g/glass-ceiling.asp

Kagan, J. (2022). Glass Cliff: Definition, Research, Examples vs. Glass Ceiling. *Investopedia.* https://www.investopedia.com/terms/g/glass-cliff.asp

Kim, J. Y., Fitzsimons, G. M., & Kay, A. C. (2018). Lean in messages increase attributions of women's responsibility for gender inequality. *Journal of Personality and Social Psychology, 115*(6), 974–1001. https://doi.org/10.1037/pspa0000129

KLP. (n.d). Konsernledelsen. *KLP*. https://www.klp.no/om-klp/organisasjon-og-ledelse/ledelsen

Koburtay T., Syed J., Haloub R. (2019). *Congruity between the female gender role and the leader role: a literature review.* Eur. Bus. Rev. 31, 831–848. doi: 10.1108/EBR-05-2018-0095

Kvinner i Finans. (n.d). *Our purpose.* https://www.kvinnerifinans.com/english

Lockwood, P., & Kunda, Z. (1997). Superstars and me: Predicting the impact of role models on the self. *Journal of Personality and Social Psychology, 73*(1), 91–103. https://doi.org/10.1037/0022-3514.73.1.91

Michel, J. S., Kotrba, L. M., Mitchelson, J. K., Clark, M. A., & Baltes, B. B. (2010). Antecedents of work-family conflict: A meta-analytic review. *Journal of Organizational Behavior*, *32*(5), 689–725. https://doi.org/10.1002/job.695

Moss-Racusin, C. A., & Rudman, L. A. (2010). Disruptions in Women's Self- Promotion: The Backlash Avoidance Model. *Psychology of Women Quarterly*, *34*(2), 186–202. https://doi.org/10.1111/j.1471-6402.2010.01561.x

Mitra, S. (2020). An Analysis of the Falsification Criterion of Karl Popper: A Critical Review. *Tattva-Journal of Psychology*, *12*(1), 1–18. https://doi.org/10.12726/tjp.23.1

Minsaas, K. (2021, March 5th). Kvinner eier verden mer enn aldri før. *DNB.* https://www.dnb.no/dnbnyheter/no/samfunn/kvinnedagen-2021-huninvesterer

Mullen, E. J., & Riordan, C. M. (2015). The Role of Moral Judgemnets in Workplace Decision Making: A Theoretical Framework. *Organizational Psyhcology Review.* 5(2), 96-118.

Niederle, M., & Vesterlund, L. (2007). Do women shy away from competition? Do men compete too much? *Q.J. Econ*, (112), 1067–1101. https://doi.org/10.3386/w11474

Nordea Bank. (2023). Vår Ledelse. *Nordea Bank.* https://www.nordea.com/no/om-oss/hvem-er-vi/var-ledelse

NorgesGruppen. (2018). Disse leder NorgesGruppen. *NorgesGruppen*. https://www.norgesgruppen.no/om-oss/om-oss-hjem/ledelse/

Norsk Hydro. Hilde Merete Aasheim President & CEO. (n.d). *Hydro*. https://www.hydro.com/no-NO/om-hydro/management-and-organization/Konsernledelsen/hilde-merete-aasheim/

Næss, J.H. (2022). 475 milliarder i skatt fra Norges største bedrifter. *Kapital*. https://www.kapital.no/reportasjer/naeringsliv/2022/06/24/7888535/norges-500-storste-bedrifter?zephr_sso_ott=68Z7XV

O'Neil, D. A., & Hopkins, M. M. (2015). The impact of gendered organizational systems on women's career advancement. *Frontiers in Psychology*, *6*. https://doi.org/10.3389/fpsyg.2015.00905

Orkla. (2023). Nøkkelpersoner. *Orkla*. https://www.orkla.no/nokkelpersoner/

Park, B., & Banchefsky, S. (2018). Leveraging the Social Role of *Dad* to Change Gender Stereotypes of Men. *Personality and Social Psychology Bulletin*, *44*(9), 1380–1394. https://doi.org/10.1177/0146167218768794

Ponchio, M. C. & Correio, A. S. (2018). Research Methods. The simple moderation model and its use in business research. *Review of International Business.* https://doi.org/10.18568/1980-4865.131I-IX

Player A., Randsley de Moura G., Leite A. C., Abrams D., Tresh F. (2019). Overlooked leadership potential: the preference for leadership potential in job candidates who are men vs. women. Front. Psychol. 10:755. doi: 10.3389/fpsyg.2019.00755

Prentice, D.A. and Carranza, E. (2002), “What women should be, shouldn’t be, are allowed to be, and don’t have to be: the contents of prescriptive gender stereotypes”, *Psychology of Women Quarterly*, Vol. 26(4), 269-281

Rudman, L. A., & Glick, P. (1999). Feminized management and backlash toward agentic women: The hidden costs to women of a kinder, gentler image of middle- managers. *Journal of Personality and Social Psychology*. Vol.77, 1004–1010.

Rudman, L. A., & Phelan, J. E. (2008). Backlash effects for disconfirming gender stereotypes in organizations. *Research in Organizational Behavior*, *28*, 61–79. https://doi.org/10.1016/j.riob.2008.04.003

Rudman, & Glick, P. (2001). Prescriptive Gender Stereotypes and Backlash Toward Agentic Women. Journal of Social Issues, 57(4), 743–762. https://doi.org/10.1111/0022-4537.00239

Rudman, L., Moss-Racusin C. A., Phelan, J., & Nauts, S. (2012). Status incongrinuity and backlash effects: Defending the gender hierarchy motivates prejudice against female leaders. *Journal of Experimental Social Psychology.* Vol. 48, 165-179. https://doi.org/10.1016/j.jesp.2011.10.008

Ryan, M.K., & Haslam, S.A. (2007). The glass cliff: Exploring the dynamics surrounding womens appointment to precarious leadership positions. *Academy of Management Review.* Vol. 32, 549–572.

Sandberg, S. (2013). Lean In: Women, Work and the Will to Lead. Knopf, New York, 240 pp. ISBN: 976-0385349949

Saunders, M., Thornhill, A., & Lewis, P. (2015). *Research methods for business students* (Seventh edition.). Pearson Education.

SHE Conference. (2022). About. *SHE Conference*. https://www.sheconference.no/about

Sheppard, L.D., Aquino, K. (2013) Much Ado about Nothing? Observers’ Problematization of Women’s Same-Sex Conflict at Work. *Acad. Manag. Perspect. 27*, 52–62.

StatsDirect. (2022). One Way Analysis of Variance. https://www.statsdirect.com/help/Default.htm#analysis_of_variance/one_way.htm

Statkraft. (n.d). Group management. *Statkraft*. https://www.statkraft.com/about-statkraft/organisation/group-management/

Steiner, P. M., Antzmüller, C., Su, D. (2016). Designing Valid and Reliable Vignette Experiments for Survey Research: A Case Study on the Fair Gender Income Gap. *Journal of Methods and Measurement in the Social Sciences*, 7(2), 52-94.

Storebrand. (2023). Executive Management. *Storebrand*. https://www.storebrand.no/en/investor-relations/corporate-governance/executive-management

Taber, K. S. (2018). The Use of Cronbach's Alpha When Developing and Reporting Research Instruments in Science Education. *Research in Science Education*, 48(6), 1273–1296. https://doi.org/10.1007/s11165-016-9602-2

Taparia, M. and Lenka, U. (2022), "An integrated conceptual framework of the glass ceiling effect", *Journal of Organizational Effectiveness: People and Performance*, Vol. 9 No. 3, pp. 372-400. https://doi.org/10.1108/JOEPP-06-2020-0098

Tavakol, M., & Dennick, R. (2011). Making sense of Cronbach's alpha. *International Journal of Medical Education*, 2, 53–55. https://doi.org/10.5116/ijme.4dfb.8dfd

Telenor. (2020). CEOs in our Business Units. *Telenor*. https://www.telenor.com/about/corporate-governance/ceos-in-our-business-units/

Thaler, R. H., Sunstein, C. R. (2021). *Nudge : improving decisions about health, wealth and happiness* (Final edition.). Yale University Press.

The World Bank Data. (2023). Labor force, female (% of total labor force) — Norway, United States | Data. https://data.worldbank.org/indicator/SL.TLF.TOTL.FE.ZS?locations=NO-US

Tremmel, M., & Wahl, I. (2023). Gender stereotypes in leadership: Analyzing the content and evaluation of stereotypes about typical, male, and female leaders. *Frontiers in Psychology*, *14*. https://doi.org/10.3389/fpsyg.2023.1034258

Triandis, H.C. (1980) Values, Attitudes, and Interpersonal Behavior. Nebraska Symposium on Motivation, University of Nebraska Press, Lincoln.

United Nations. (2022). *The Sustainable Development Goals Report 2022.* https://unstats.un.org/sdgs/report/2022/

United Nations (2020). *The World's Women Annual Report 2020*. https://worlds-women-2020-data-undesa.hub.arcgis.com

Van Anders, S. M., Steiger, J., & Goldey, K. L. (2015). Effects of gendered behavior on testosterone in women and men. *Proceedings of the National Academy of Sciences*, *112*(45), 13805–13810. https://doi.org/10.1073/pnas.1509591112

Van Den Brink, M., & Benschop, Y. (2014). Gender in Academic Networking: The Role of Gatekeepers in Professorial Recruitment. *Journal of Management Studies*, *51*(3), 460–492. https://doi.org/10.1111/joms.12060

Van de Vliert, E. (1998). Gender role gaps, competitiveness and temperature. In G. Hofstede (Ed.), Masculinity and femininity. The taboo dimension of national cultures. 117-129.

Vår Energi. (2022). Ledergruppen. *Vår Energi.* https://varenergi.no/no/om-oss/ledelse/

Wiese, B. S., & Freund, A. M. (2011). Parents as role models: Parental behavior affects adolescents' plans for work involvement. *International Journal of Behavioral Development*, *35*(3), 218–224. https://doi.org/10.1177/0165025411398182

World Economic Forum. (2022). Global Gender Gap Report 2022. *World Economic Forum.* https://www3.weforum.org/docs/WEF_GGGR_2022.pdf

Wroblewski, A. (2021). Quotas and Gender Competence: Independent or Complementary Approaches to Gender Equality? *Frontiers in Sociology*, *6*. https://doi.org/10.3389/fsoc.2021.740462

Yara International. (n.d). Svein Tore Holsether President and Chief Executive Officer. *Yara*. https://www.yara.com/this-is-yara/management-and-board/management-team/holsether/

Appendix

Appendix 1 *Full Tukey's HSD Post Hoc Test*

Dependent Variable	(I)	(J)	Mean Difference (I-J)	Std. Error	Sig.	95% CI LL	95% CI UL
Willingness to Compete	Opt in Female	Opt in Male	0.310*	0.119	0.048	0.00	0.62
		Opt out Female	0.000	0.115	1.000	-0.30	0.30
		Opt out Male	0.071	0.117	0.931	-0.23	0.37
	Opt in Male	Opt in Female	-0.310	0.119	0.048	-0.62	0.00
		Opt out Female	-0.310	0.117	0.041	-0.61	0.01
		Opt out Male	-0.239	0.119	0.188	-0.55	0.07
	Opt out Female	Opt in Female	0.000	0.115	1.000	-0.30	0.30
		Opt in Male	0.310*	0.117	0.041	0.01	0.61
		Opt out Male	0.071	0.115	0.926	-0.23	0.37
	Opt out Male	Opt in Female	-0.071	0.117	0.931	-0.37	0.23
		Opt in Male	0.239	0.119	0.188	-0.07	0.55
		Opt out Female	-0.071	0.115	0.926	-0.37	0.23
Machiavellianism	Opt in Female	Opt in Male	-0.12625	0.17219	0.884	-0.5710	0.3185
		Opt out Female	0.09627	0.16336	0.935	-0.3256	0.5182
		Opt out Male	0.25696	0.16925	0.428	-0.1801	0.6941
	Opt in Male	Opt in Female	0.12625	0.17219	0.884	-0.3185	0.5710
		Opt out Female	0.22253	0.16855	0.551	-0.2128	0.6578
		Opt out Male	0.38321	0.17426	0.126	-0.0668	0.8333
	Opt out Female	Opt in Female	-0.09627	0.16336	0.935	-0.5182	0.3256
		Opt in Male	-0.22253	0.16855	0.551	-0.6578	0.2128
		Opt out Male	0.16068	0.16554	0.766	-0.2668	0.5882
	Opt out Male	Opt in Female	-0.25696	0.16925	0.428	-0.6941	0.1801
		Opt in Male	-0.38321	0.17426	0.126	-0.8333	0.0668
		Opt out Female	-0.16068	0.16554	0.776	-0.5882	0.2668
Moral Evaluation	Opt in Female	Opt in Male	-0.41072	0.18370	0.116	-0.8850	0.0636
		Opt out Female	-0.09395	0.17639	0.951	-0.5494	0.3615
		Opt out Male	0.04276	0.18085	0.995	-0.4242	0.5097
	Opt in Male	Opt in Female	0.41072	0.18370	0.116	-0.0636	0.8850
		Opt out Female	0.31677	0.17986	0.294	-0.1476	0.7811
		Opt out Male	0.45349	0.18423	0.068	-0.0222	0.9291
	Opt out Female	Opt in Female	0.09395	0.17639	0.951	-0.3615	0.5494
		Opt in Male	-0.31677	0.17986	0.294	-0.7811	0.1476
		Opt out Male	0.13671	0.17694	0.867	-0.3201	0.5935
	Opt out Male	Opt in Female	-0.04276	0.18085	0.995	-0.5097	0.4242
		Opt in Male	-0.45349	0.18423	0.068	-0.9291	0.0222
		Opt out Female	-0.13671	0.17219	0.867	-0.5935	0.3201

Appendix 2

Variable Results

Item list	Cronbach's Alpha	Mean	Standard Deviation
Moral Judgement	0.794	2.1848	1.18297
It is morally unacceptable to compete this way			
It is morally acceptable to compete this way			
It is unethical to compete with a friend or a colleague this way			
It is wrong of Kim to compete towards this position			
Machiavellianism	0.910	2.3665	1.07377
You are willing to be unethical if it would help you to become successfull			
You are willing to sabotage for others if they threaten you with their own goals			
You are willing to cheat if the probability of being caught is low			
You think it is necessary to lie to upkeep a small competitive advantage over others			
You believe the only reason to speak to others, is to obtain information used to better yourself			
You believe status is a good sign of success in life			
You focus solely on gaining wealth			
You wish to become wealthy and powerful			
Willingness to Compete	1	2.4936	1.11371
What would you do if you were in the same situation as Kim?			