

A Work Project, presented as part of the requirements for the Award of a Master's degree in
Management from the Nova School of Business and Economics.

A Deep Dive into Women's Leadership Development Programs (WLDPs):
A Study on the Effect of WLDP Framing on Early Career Women's Leadership Outcomes

ANNE PRZYBILLA

Work project carried out under the supervision of:

Professor Jenny M. Hoobler

31/01/2025

Abstract

This thesis examines the impact of different framing strategies in women's leadership development programs (WLDPs) on early career women's leadership outcomes using a between-subjects experimental design ($n=144$). By manipulating motivational, scarcity, and neutral framing, the study explores their influence on career ambitions, intentions to apply, leadership self-efficacy and self-identity (LSI), and motivation to lead. Although no statistically significant differences were found, the findings hint at complementary benefits of motivational and neutral framing, suggesting their combined use may balance optimism with realism. The study contributes to the growing body of research on WLDPs, offering insights for future interventions and program design.

Keywords

Leadership, women's leadership development programs, motivation to lead, leadership self-efficacy, leadership self-identity, career aspirations, leadership aspirations, intention to apply, early career women, emerging women leaders, leadership outcomes

This work used infrastructure and resources funded by Fundação para a Ciência e a Tecnologia (UID/ECO/00124/2013, UID/ECO/00124/2019 and Social Sciences DataLab, Project 22209), POR Lisboa (LISBOA-01-0145-FEDER-007722 and Social Sciences DataLab, Project 22209) and POR Norte (Social Sciences DataLab, Project 22209).

Table of Contents

Table of Contents	2
List of Tables	4
List of Abbreviations	4
1 Introduction	5
2 Literature Review and Conceptual Foundation	6
2.1 Women’s Unique Leadership Landscape.....	6
2.2 Leadership Development Programs in Organizations.....	9
2.2.1 The Rationale for Women-only Leadership Development Programs.....	10
2.2.2 Exploration of Framing Approaches in WLDP.....	12
2.3 Leadership Outcomes	14
3 Methodology	14
3.1 Experimental Manipulations	15
3.2 Pilot Testing	16
3.3 Main Study	17
3.3.1 Procedure & Sampling	17
3.3.2 Measures.....	18
4 Results	20
5 Discussion	23
5.1 Practical Implications.....	26
5.2 Findings of Directly Related Studies	26
5.3 Limitations and Recommendations for Future Research	27
6 Conclusion.....	29
References.....	30
Appendix.....	38

I Manipulation Videos.....	38
I.I Video Scripts.....	38
I.II Slide Decks	41
I.III Comparability Data	49
II Questionnaires	50
III Experiment Manipulation Check.....	62
IV Statistical Analysis of Pilot Data.....	63

List of Tables

Table 1. Means, Standard Deviations, and Correlations	20
Table 2. One-Way ANOVA	22
Table 3. Descriptive Statistics by Leadership Outcome.....	22
Appendix Table 1. Script Wordcount & Video Length	49
Appendix Table 2. Descriptive Statistics for Manipulation Check.....	62
Appendix Table 3. Descriptive Statistics for Pilot	63
Appendix Table 4. ANOVA.....	63

List of Abbreviations

CA	<i>Career Aspirations</i>
DV	<i>Dependent Variable</i>
ItA	<i>Intentions to Apply</i>
IV	<i>Independent Variable</i>
LDP	<i>Leadership Development Program</i>
LSE	<i>Leadership Self-Efficacy</i>
LSI.....	<i>Leadership Self-Identity</i>
MtL	<i>Motivation to Lead</i>
PANAS	<i>Positive and Negative Affect Schedule</i>
RQ.....	<i>Research Question</i>
SDG.....	<i>Sustainable Development Goal</i>
WLDP	<i>Women's Leadership Development Program</i>

1 Introduction

One of the targets on the United Nations' 2030 Global Sustainable Development Agenda is to “[e]nsure women’s full and effective participation and equal opportunities for leadership at all levels of decision-making in political, economic and public life” (UN DESA, n.d.). While progress has been made, it remains at such a concerningly slow pace, that “it will take an estimated [...] 140 years for women to be represented equally in positions of power and leadership in the workplace” (UN DESA 2023, 22).

Hence, action is needed. Various research has highlighted the importance and impact of women’s leadership development programs (WLDPs) in achieving gender parity, i.e. equal representation in leadership (e.g., Martínez-Martínez et al. 2021; Stead and Elliott 2019; Ely, Ibarra, and Kolb 2011). Such tailored programs hold the potential to offer a more dynamic, safe, and impactful learning environment, that considers women’s unique experiences and needs, empowering them to take agency over their career paths and leadership journey (Debebe 2011; Debebe et al. 2016). Nonetheless, the effectiveness of such existing WLDPs varies significantly, raising concerns regarding their realism in addressing practical leadership challenges, their focus on fostering individuality rather than excessive conformity, and their ability to tackle foundational structural and systematic barriers (Debebe 2011).

To address this social issue, this research project dives deeper into how companies may frame WLDPs to successfully empower women to pursue leadership, building on the umbrella field lab’s proposed division of WLDP framing into three approaches: motivational, scarcity, and neutral. While the first aims to provide optimistic encouragement, the second focuses on the unique challenges and barriers women face on their path to leadership. Ultimately, both are combined in the neutral approach, which conveys information in a motivational but realistic way. In line with Davies, Spencer, and Steele’s documentation (2005) of the identity-safe phrasing of a leadership task restoring women’s interest in leadership, we began with the

assumption that motivationally framed WLDPs would most positively relate to leadership outcomes when compared to scarcity and neutral framing. Accordingly, through an experimental study of early career women (ECW), this project aims to examine whether this assumption is true and if the framing of WLDPs does in fact differentially affect women's different leadership outcomes, including their career aspirations (CA), their intentions to apply for leadership positions (ItA), their leadership self-efficacy (LSE) and leadership self-identity (LSI), and their motivation to lead (MtL).

2 Literature Review and Conceptual Foundation

The following chapter summarizes the conceptual and theoretical fundamentals of this research project, current research findings on women's leadership and its unique landscape, leadership development programs and the rationale for WLDPs, and ultimately, the interplay and implications of the latter regarding leadership outcomes.

2.1 Women's Unique Leadership Landscape

Despite evidence of women's competence and success in leadership, they continue to remain underrepresented and face significant barriers at individual psychological, institutionalized structural, and systematic societal levels. Building upon traditional gender roles, gender bias and stereotypes manifest in these interconnected obstacles, limiting women's opportunities, undermining their confidence, and perpetuating inequities in the workplace (Galsanjimed and Sekiguchi 2023). To understand and break this vicious circle, one needs to be aware of the various biases surrounding leadership from a gendered perspective and understand the aforementioned multiple levels and their interplay. While the following paragraphs are by no means exhaustive, they touch upon some of the most commonly researched theories and concepts about women in leadership.

In the context of women's leadership development, *gender bias* encompasses personal attitudes and perceptions leading to unequal and unfair treatment based on gender, such as

prejudice and discrimination. *Second-generation gender bias*, also referred to as conscious or explicit and subconscious or implicit (Galsanjigmed and Sekiguchi 2023) is often subtle, unintentional, and pervasive, yet deeply implanted into both societal and workplace culture, impacting women's leadership aspirations and experiences (Ely, Ibarra, and Kolb 2011). These biases are often linked to *gender stereotypes* – (culturally shared) beliefs, expectations, and restrictions regarding a gender – that cause *lack of fit*. In traditional corporate environments, such lack of fit may leave women feeling less successful or ambitious (Knipfer et al. 2017), ultimately undermining their leadership potential. Moreover, some stereotypes are so embedded that women may unwittingly impose them on themselves (Galsanjigmed and Sekiguchi 2023), reinforcing self-limiting behaviors. One example of a very ubiquitous stereotype is the *think manager – think male* effect, which extends to the *think follower – think female* association, linking masculine traits with the leader role and feminine traits with the follower role, thus perpetuating the underrepresentation of women in leadership further (Braun et al. 2017).

Social role theory helps explain these gendered expectations suggesting that traditional divisions of labor—men in roles requiring strength and provision and women in caregiving roles—are internalized over time, shaping both self-concept and perceptions of others (Eagly and Wood 2012; Wood and Eagly 2009). Grounded in this theory, Eagly and Karau's *role congruity theory* (2002) goes one step further by highlighting that the perceived mismatch between women's roles and the masculine nature of leadership expectations leads to two types of prejudice: women being seen as less suited for leadership, and behaviors typically associated with leadership being judged more negatively when performed by women. As a result, many times women may find themselves caught in a *double bind*, where they are deemed weak or unfit when displaying stereotypically feminine characteristics, yet perceived as aggressive when exhibiting stereotypically masculine traits, such as assertiveness, self-confidence, or competitiveness (Debebe et al. 2016; Ely, Ibarra, and Kolb 2011; Eagly and Johnson 1990).

Beyond this, such negative performance expectations pose a so-called *stereotype threat*, a phenomenon in which women (or other minorities) exposed to negative stereotypes experience anxiety that can impair their performance (Steele 1997). This is further accompanied by more subtle, everyday forms of discrimination in the shape of *microaggressions*. These small, verbal, behavioral, or environmental actions – while often unintentional – convey derogatory or dismissive attitudes towards marginalized groups (Sue et al. 2007), including women, that undermine authority and erode confidence, which in turn can significantly hinder women’s professional success and advancement.

These individual challenges are reinforced and magnified by structural barriers that further embed stereotypes and biases into workplace norms and systems. Some of the most known concepts are the *tournament career model* and the *pipeline argument*. The tournament career model is closely related to another traditional metaphor, the career ladder, where career advancement is seen as linear and hierarchical progression, though it further includes the way one advances their career generally through ‘winning’ progressive competitions. However, this model fails to take into account that many women tend to define career success more holistically beyond professional achievements like position and salary, to include personal growth and overall sense of purpose and satisfaction (O’Leary 1997; Rosenbaum 1979; Hopkins et al. 2008). The pipeline explanations build on the assumption that when equal numbers of men and women enter the pipeline, gender parity in senior management will eventually be achieved. Yet, even in balanced fields, such as education, this assumption has not become reality (Hoobler, Lemmon, and Wayne 2014), showcasing another deep-rooted barrier to female career advancement.

Finally, the cumulative impact of psychological and structural barriers results in systemic challenges, such as the *glass ceiling* and *glass cliff*. The glass ceiling symbolizes the invisible but persistent barriers that prevent women from reaching top leadership positions, whereas the

glass cliff goes one step further by pointing out that women are often promoted to precarious leadership roles. These positions, typically in times of organizational crisis, carry higher risks of failure, thus undervaluing women's potential and reinforcing negative stereotypes when they are unable to 'save' struggling companies or teams (Zenger and Folkman 2020).

Overall, women's barriers to leadership are deeply ingrained and interconnected, creating a self-reinforcing dynamic: women's underrepresentation in leadership roles validates entrenched systems and beliefs that favor and support men's leadership bids, thereby perpetuating the status quo and ensuring the path to leadership remains anything but linear (Ely, Ibarra, and Kolb 2011). Even for entry-level positions, women already fall behind their male counterparts (Krivkovich et al. 2024). The metaphor of the *leadership labyrinth* (Carli and Eagly 2016) highlights the ongoing challenges and opportunities women face and the various more or less complex paths that may or may not lead to advancement, making leadership a process, which requires patience, effort, and resilience. The systemic manifestations are both causes and consequences of psychological and structural barriers. They perpetuate a cycle where women are undervalued, underrepresented, and overburdened in leadership, limiting progress toward true gender parity. In line with Galsanjigmed and Sekiguchi's recommendations (2023) to turn this vicious circle into a virtuous one and disrupt the self-sealing dynamic, it is essential for organizations to provide learning and training opportunities, such as WLDPs.

2.2 Leadership Development Programs in Organizations

Before diving into the rationale for WLDPs, one needs to understand current practices and trends in mixed-gender, Leadership Development Programs (LDPs). Traditionally, LDPs merely included one-time lecture-like events at business schools, which were exclusively reserved for selected future senior executives (Fulmer 1997). To meet the needs of today's larger-scale, complex, and dynamic leadership context, modern LDPs on the other hand have

adopted a more integrated approach featuring ongoing interactive learning experiences tailored to meet the needs of individuals and the social and organizational context they operate in alike (Fulmer 1997; Day 2000; Ardichvili, Natt och Dag, and Manderscheid 2016). Day (2000) highlights that “[e]ffective leadership development is less about which specific practices are endorsed than about consistent and intentional implementation” (606), underscoring that LDPs do not have a one-size-fits-all approach. Instead, LDPs benefit from thorough planning and design based on needs analysis, feedback, various delivery methods, and spaced face-to-face training sessions (Lacerenza et al. 2017).

As seen above, the success of organizational training depends on several factors, with the trainer playing a pivotal role in shaping its outcomes (Ghosh et al. 2012). Especially the trainer’s delivery style significantly influences the quality of the training experience (Grohmann, Beller, and Kauffeld 2014). *Trainer expressiveness*, characterized by dynamic vocal intonation and verbal clarity (Rangel et al. 2015), has been shown to impact trainees’ willingness to apply learned skills, often surpassing their assessment of the trainer’s competence. According to the *New World Kirkpatrick Model* (Kirkpatrick and Kirkpatrick 2022), training effectiveness is measured across four dimensions—trainee reactions, learning, behavior change, and organizational results. Training satisfaction, a crucial aspect of the trainee reactions, is shaped not only by individual and contextual factors but heavily by the trainer’s expressiveness, underscoring the impact of trainer enthusiasm and communication style on perceptions of course material as well as engagement and learning outcomes (Mathieu, Tannenbaum, and Salas 1992; Towler 2009). While this trainer expressiveness has not yet been researched in the context of WLDPs, it plays a significant role in conveying the framing of a training, as seen later in the experimental study.

2.2.1 The Rationale for Women-only Leadership Development Programs

While mixed-gender LDPs undoubtedly do entail benefits, research “suggests that [LDPs]

are still drawing on more masculine ways of leading” (Sugiyama et al. 2016, 272) and are neglecting the distinct needs and challenges faced by women, as well as the unique experiences they bring to leadership roles (Stead and Elliott 2019; Hopkins et al. 2008). As women make up more than half of today’s workforce, yet remain underrepresented in leadership, the importance of complementing mixed-gender LDPs with women-tailored initiatives, especially WLDPs, is evident (Ely, Ibarra, and Kolb 2011). Accordingly, WLDPs are purposefully designed to empower women by strengthening their self-confidence, self-efficacy, and sense of agency, while equipping them to navigate and challenge gendered workplace dynamics (Debebe et al. 2016). Central to their effectiveness is the creation of psychologically safe environments, where women can explore their leadership identity, share their lived experiences, and work through challenges without fear of judgment or dismissal. This *psychological safety* is crucial for *transformational learning*, as it allows participants to lower their defenses, reflect deeply, and engage with new perspectives (Debebe et al. 2016; Ely, Ibarra, and Kolb 2011). In these supportive contexts, women can embrace relational and performance-oriented leadership strategies (Sugiyama et al. 2016), which align well with Eagly and Johnson’s (1990) finding that women tend to employ a more *participative, democratic leadership* style. Additionally, in line with their high behavioral competencies and interpersonal skills, fostering a positive and caring work environment and supportive team dynamics (Hopkins et al. 2008), women have been found to often adapt *transformational leadership*, emphasizing close leader-follower relationships through mentoring, empowerment, and clear goal-setting (Eagly, Johannesen-Schmidt, and Van Engen 2003; Eagly and Johnson 1990).

By combining safe and supportive spaces with tailored content, WLDPs empower women to lead authentically and effectively, simultaneously balancing their leader identity with their gender identity (Kimball, Reichard, and Chan 2021). Regarding said content, Hopkins et al. (2008) recommend a comprehensive framework that includes “assessment, training and

education, coaching, mentoring, networking, experiential learning [...], and career planning” (352). Madsen, Longman, and Daniels (2012) further highlight the importance of tailoring the curriculum to focus on critical topics such as self-confidence, career planning, work-life balance, and navigating organizational or academic politics.

Among all women, those in early career stages are often overlooked and denied access to leadership development opportunities due to a lack of experience or financial resources (Kimball, Reichard, and Chan 2021). Nonetheless, leadership development is an ongoing process throughout all career stages, and early training is not only considered more effective (Kimball, Reichard, and Chan 2021; Lacerenza et al. 2017), but also essential in the quest to close the gender leadership gap (Kimball, Reichard, and Chan 2021). By supporting future women leaders from the beginning, WLDPs equip them with the awareness, confidence, and tools necessary to step into and sustain leadership positions (Brue and Brue 2018).

However, beyond the scope of this research project, it needs to be noted that “prioritizing gender over other identities [...] may unwittingly limit women’s leadership development” (Debebe et al. 2016, 237). Such identities span from more deeply embedded social identity categories such as race and class to those of sexuality, nationality, or religion (Acker 2006; Debebe et al. 2016), which at times may even leave women in a dilemma, trying to accommodate both enabling and restrictive identities (Debebe et al. 2016; Plantenga 2004). To address this challenge, Debebe et al. (2016) highlight the importance of recognizing this intersectionality within WLDPs and empowering women across all of their – potentially conflicting – identities.

2.2.2 Exploration of Framing Approaches in WLDP

There has been no previous research on WLDP framing as defined for the scope of this project that the umbrella field lab’s research team is aware of. Thus, based on related literature, the three distinct approaches discussed in this project were newly developed and defined.

Motivational framing is aimed at empowering and encouraging women to pursue leadership by positioning leadership as rewarding and highlighting positive trends among recent developments, as well as the most significant advantages and support networks available to them. These opportunities include important feminine skills in leadership and additional research in favor of gender parity, as well as unique learning experiences, such as educational programs or initiatives aimed at females, and beneficial regulations and goals, such as the UN's SDG5 and other national and international targets and guidelines. In line with the *expectancy-value theory* (Wigfield and Eccles 2000), which suggests that motivation is influenced by one's confidence in their ability to succeed in a task (expectancy) and the task's perceived significance, interest, or usefulness (value), it is assumed that the presentation of such optimistic information not only promotes an inclusive and supportive learning environment but also enhances confidence in taking on leadership roles.

Contrarily, *scarcity framing* emphasizes the prevalent challenges and barriers women face in leadership (see Chapter 2.1), positioning training as providing solutions and strategies to overcome them. This approach instills a sense of urgency by highlighting the scarcity of opportunities for women compared to men and the competitive dynamics of leadership advancement that favor men. Similar to the motivation fostered in competitive environments such as that of dynamic tournaments, where interconnected rounds emphasize the importance of consistent effort (Tong and Leung 2002), scarcity framing draws attention to the limited leadership opportunities available and the according risk of missing out or falling behind, presumably still motivating participants to some extent to engage fully and persistently in their pursuit of leadership roles.

Lastly, *neutral framing* acts as somewhat of a control approach in our theorizing, combining the contents presented in both the motivational and scarcity framing to deliver a realistic and informative learning experience. It focuses on the presentation of facts about the

positive and negative aspects of leadership pursuit for women.

2.3 Leadership Outcomes

To understand whether women may feel encouraged or dissuaded from pursuing leadership roles, we examined CA, ItA, LSE, LSI, and most importantly MtL – together, for this project’s purpose, referred to as leadership outcomes. These outcomes provide insights into the extent to which participants identify with the leader role, and the efforts and goals tied to their career advancement. For this project we tested whether these outcomes are influenced by how WLDPs are framed. Specifically, we assumed that motivationally framed WLDPs are positively related to leadership outcomes, whereas scarcity and neutrally framed WLDPs are less positively related to leadership outcomes, although due to the lack of existing research it is unclear to what extent, and in which order (most to least) these framings impact outcomes. Accordingly, the following research questions (RQs) will be explored through an experimental study:

RQ 1: *Does the framing of WLDPs differentially affect early career women’s career, more specifically leadership aspirations?*

RQ 2: *Does the framing of WLDPs differentially affect early career women’s intentions to apply for leadership outcomes?*

RQ 3: *Does the framing of WLDPs differentially affect early career women’s leadership self-efficacy?*

RQ 4: *Does the framing of WLDPs differentially affect early career women’s leadership self-identity?*

RQ 5: *Does the framing of WLDPs differentially affect early career women’s affective-identity motivation to learn?*

3 Methodology

To gather insights and data regarding WLDPs necessary for answering the RQs, we

conducted an experimental study using a between-subjects design¹ for which participants were randomly assigned to one of three treatment groups exposed to one of three distinct manipulations.

3.1 Experimental Manipulations

The three manipulations each encompassed a distinct video² introducing them to an imaginary WLDP. While following the same structure of introduction, current situation, and future outlook, the content and script differed as to either provide a rather optimistic and encouraging approach (motivational framing), a rather pessimistic and obstacle-focused approach (scarcity framing), and ultimately a more informative approach (neutral framing) combining both motivational and scarcity framing. Moreover, the videos were visually supported with complementary slide decks (see Appendix I.II) showcasing a selection of statistics and findings discussed by a fictitious trainer (me). The fourth slide across all treatments presented two statistics showcasing the number of female CEOs among Fortune Global 500 companies as well as employee-valued leadership traits commonly found in women, while their interpretation and focus differed. For example, the motivational approach stated “Let’s explore the incredible rise of women in leadership. In 2024, 27 companies in the Fortune Global 500 are led by women—a 52% jump since 2015. This is more than just progress; it’s a powerful reminder of the unique strengths women bring to leadership.”, whereas the scarcity approach framed the data presented as follows: “The numbers speak for themselves - progress for women in leadership remains very slow. In 2024, only 27 companies in the Fortune Global 500 are led by women. That’s only 5% of the total.”. Neutral framing however balanced both perspectives by stating “Let’s look at the current landscape of women in leadership. In 2024, 27 companies in the Fortune Global 500 are led by women, reflecting a 52% increase since

¹ A within-subjects design would have allowed for more rigorous testing yet was beyond the scope and time frame of this project (Chapter 5.3) and likely would have alerted the participants to the purpose of the research.

² The videos can be accessed through the links provided in Appendix I.

2015. However, this still represents only 5% of the total, highlighting the slow pace of change.” Slide five included the future outlook, summarizing either opportunities such as equal levels of ambition, strong interpersonal skills, and beneficiary incentives and regulations (motivationally framed approach), challenges like gender biases and the pipeline representation gap (scarcity-framed approach), or a mix of both (neutral approach).

For all manipulations, trainer expressiveness (see Chapter 2.2), including both the verbal language used in the script as well as vocal intonation was adapted to match the manipulation and further emphasize the information presented (Rangel et al. 2015). For appropriate comparability, all scripts had a similar word count ($M = 381$, $SD = 5.25$) and videos were of similar length ($M = 146.33s$, $SD = 6.24s$) (see Appendix I.III). Slide design and video recording were done using Microsoft PowerPoint, while for the final manipulation videos sound quality was further enhanced through Audacity.

3.2 Pilot Testing

Prior to the main experiment, a pilot test was performed to gather insights as to whether the manipulations are in line with the objectives of the research project, guarantee comparability in extent and quality of the videos, and identify potential issues. To evaluate the quality of the videos, established scales were adopted, assessing the *likability of the video narrator* (Reysen 2005), *clarity of message* (Chesebro and McCroskey 1998; Schnackenberg, Tomlinson, and Coen 2021), and *self-report engagement* (Chen and Thomas 2020). To check for manipulation, i.e., differences in outcomes across treatments, respondents’ feelings and emotions were measured using a *short version of the PANAS* (Thompson 2007) as well as a list of eight additional items proposed by the researchers. All items were ranked by participants on a 5-point Likert scale (1= Strongly disagree to 5 = Strongly agree) and are provided in Appendix II.II.

A first round of testing showed a lack of differentiation between the three videos, thus the scripts were modified and shortened to be more concise. The second round then not only

highlighted minor technical issues with the sound quality (that were subsequently fixed), but also showed improved manipulation check results (see Appendix IV) in line with the project's assumption: the mean values of the PANAS indicated more positive outcomes for the motivational framing, yet no significant results were found in the pilot which we attributed to the small sample size. Both pilot rounds used a convenience sample ($n_{P1} = 24$; $n_{P2} = 45$) accessed through the researchers' social networks.

3.3 Main Study

3.3.1 Procedure & Sampling

The main experiment's questionnaire was filled out by participants in a single session through Qualtrics XM. The study used a convenience sample of 143 females and one non-binary respondent aged 18 to 34 ($M = 23.03$, $SD = 2.45$), of which 57 were Portuguese, 49 German, 11 Italian, and 27 of other nationalities. 116 participants expressed clear interest in a leadership position in the future, while 61 indicated already having some type of previous leadership experience. 30 participants had previously participated in leadership training, eight of whom underwent women-only training.

It needs to be mentioned that the survey originally collected 196 responses, yet only those described above, who passed the screening against the predefined exclusion criteria ($n = 144$), were considered for further analysis and evaluation. As the target group to be addressed is ECW, male participants and respondents stating they had at least six years of work experience or more than three years of leadership experience were deemed ineligible. Beyond, to ensure data quality, participants who failed at least one of the two attention checks or provided straight-line answers were excluded. The same applied when responses seemed unreasonable or contradictory e.g., age, occupation, and level of seniority (i.e. 21-year-old Master's student with 0-1 year work experience selecting senior-level leadership responsibilities).

Respondents were reached mainly through Nova SBE's behavioral lab ($n = 125$), where

participation resulted in extra credit for specified courses. Further, the researchers within the umbrella field lab shared the survey link with their personal networks through a variety of social media and network platforms, namely LinkedIn and WhatsApp ($n = 19$).

Before being exposed to the respective manipulations, participants were asked for informed consent and then were asked a variety of demographic and personality-related questions. As the latter are only relevant for the scope of the co-researcher Caroline Céard's project, they will not be described in detail but are included in Appendix II.I for reference. After watching their randomly assigned video, participants were then asked to reflect on the video and rate a list of statements on a 5-point Likert scale (1 = Strongly agree to 5 = Strongly disagree). These statements were identical for all three experimental groups and included a manipulation check (see results in Appendix III) as well as a variety of measures based on the below scales. Additionally, as the survey was quite extensive, two attention checks instructing participants to select a specified answer, one before and one after the video, were included.

3.3.2 Measures

The experiment featured five post-video scales, two of which consisted of two subscales each, adding up to 38 items in total. To assess scale reliability, i.e., how closely the items measure the same construct, once data collection was finished, Cronbach's Alpha was calculated for each scale and, if applicable, respective subscales. All scales showed appropriate reliability ($\alpha > .7$) and were thus considered for analysis. A complete overview of all measured items and their respective scoring is provided in Appendix II.I.

Career Aspirations (CA). Participants' long-term professional ambitions were measured through Gregor and O'Brien's scale (2016), though only using the items the authors had classified within the *leadership aspiration* subscale rather than including also the proposed educational or achievement aspiration statements ($\alpha = .91$). Among the eight items, including statements such as "When I am established in my career, I would like to manage other

employees”, were three items, such as “Becoming a leader in my job is not at all important to me”, which were reverse-coded.

Intentions to Apply (ItA). To assess whether participants would actively seek leadership roles, a total of three items were used ($\alpha = .79$). Two items were based on Collins’ statements (2007), which had originally been adapted from Taylor and Bergmann (1987). Additionally, the highest-loading item proposed in Highhouse, Lievens, and Sinar’s assessment of intentions toward companies (2003) was used. For all three items the wording was adapted to replace “organization” or “company” with “leadership position”, e.g. “If I were searching for a job, I would apply to a [leadership position]” (Collins 2007), or “I would exert a great deal of effort to work in a [leadership position]” (Highhouse, Lievens, and Sinar 2003).

Leadership Self-Efficacy (LSE). A total of seven items were adapted from Bobbio and Manganelli (2009). Divided into two subscales they measure how participants perceive their ability of *starting and leading change processes in groups (LSE_c)* ($\alpha = .61$), i.e. “I am able to change things in a group even if they are not completely under my control”, as well as *choosing effective followers and delegating responsibilities (LSE_f)* ($\alpha = .73$), i.e. “I am usually able to understand to whom, within a group, it is better to delegate specific tasks” – two key indicators for an individual’s confidence in their ability to perform leadership tasks. Using both subscales together, the scale shows acceptable reliability ($\alpha = .71$).

Leadership Self-Identity (LSI). To assess respondents’ perceptions and leadership beliefs about themselves, the first two subscales of Hiller’s leadership self-identity scale (2005) were applied ($\alpha = .92$). Among the eleven items used, the first subscale assessing *leadership perceptions about self (LSI_p)* ($\alpha = .84$) included four statements such as “I am a leader”, while the second subscale consisted of seven items focusing on *leadership beliefs about self (LSI_b)* ($\alpha = .93$), e.g. “I am confident that I can lead others effectively” or “I am confident of my ability to gain commitment from others”.

Motivation to Lead (MtL). Lastly, MtL was evaluated using Chan and Drasgow’s Affective-Identity MTL Scale (2001) ($\alpha = .81$). For the scope of this research project, their scales for non-calculative and social-normative MtL were omitted. *Affective-identity MtL*, on the other hand, is defined as liking to lead others; the proposed scale includes nine items, e.g. “Most of the time, I prefer being a leader rather than a follower when working in a group”, with four of which are reverse-coded, such as “I am definitely not a leader by nature”.

4 Results

Statistical analysis was conducted using IBM SPSS Statistics. Before testing, scores were averaged among each participant for respective scales and subscales, if applicable. The three different manipulations were further dummy coded with 1 being group membership and 0 equaling not having been exposed to the respective manipulation. Beyond the reliability analysis previously described, a *Pearson product-moment correlation* was run to assess the bivariate relationships among all pairs of dependent variables (DVs) and independent variables (IVs) (see Table 1)³.

Table 1. Means, Standard Deviations, and Correlations

	Mean	SD	1	2	3	4	5	6a	6b	6	7a	7b	7	8
1 Motivational	.31	.47	--											
2 Scarcity	.33	.47	-.477**	--										
3 Neutral	.35	.48	-.492**	-.516**	--									
4 CA	4.13	.70	.080	-.013	-.083	--								
5 ItA	3.38	.92	.030	-.081	.046	.489**	--							
6a LSE_c	3.77	.61	.084	-.192*	.078	.355**	.366**	--						
6b LSE_f	4.14	.53	-.035	-.032	.043	.337**	.264**	.321**	--					
6 LSE	3.98	.46	.025	-.130	.073	.425**	.382**	.780**	.844**	--				
7a LSI_p	3.20	.86	.009	-.088	.047	.493**	.483**	.552**	.225**	.462**	--			
7b LSI_b	3.97	.65	.028	-.103	.051	.566**	.402**	.481**	.440**	.564**	.666**	--		
7 LSI	3.69	.66	.022	-.105	.054	.584**	.478**	.559**	.380**	.568**	.885**	.937**	--	
8 MtL	3.58	.64	.067	-.151	.067	.666**	.465**	.491**	.246**	.442**	.639**	.685**	.727**	--

n = 144.

**.

*.

As seen in the correlation matrix (Table 1), all DVs showed statistically significant correlations with one another, at the .01 level. Considering the dummy coding and mutual

³ Typically, but beyond the scope of a thesis project, a confirmatory factor analysis would be best practice to validate the distinctiveness between the measures or scales used.

exclusiveness, the correlations between the IVs merely reflect the slight imbalance between the group sizes and will thus be neglected for analysis.

Regarding the LSE and LSI scales, which are both composed of two subscales each, the strong positive correlations of each subscale with their main scale were to be expected in line with the previously calculated Cronbach's alpha. Yet again, this confirms that the main variables are well-constructed and capture their concepts effectively. Beyond that, the weaker positive correlations of the subscales among each other imply that they are related while still measuring distinct aspects of their respective concepts.

As for the relationship among the DVs, it is important to highlight that all correlations were both positive and significant at .01 level, ranging from coefficients between .382 (.225, when considering subscales) to .727. The strongest positive correlation is to be noted between MtL and LSE ($r = .727, n = 144, p = .01$), which is also reflected in the moderate correlation identified between MtL and both LSE_c and LSE_f subscales ($r = .639, n = 144, p = .01$; $r = .685, n = 144, p = .01$). MtL was further moderately positively correlated with CA ($r = .666, n = 144, p = .01$) as was LSI with CA ($r = .584, n = 144, p = .01$). Lastly, LSI and LSE showcased a moderate positive correlation ($r = .568, n = 144, p = .01$). Taken together, all leadership outcomes seem interrelated, reflecting cohesiveness of the applied framework for understanding leadership outcomes. Nevertheless, when looking at the correlation between each of the three manipulations (IVs) with the DVs, almost no significant relationships can be identified. The exception is the negative correlation between the group exposed to the scarcity-framed manipulation and the LSE_c subscale ($r = -.192, n = 144, p = .01$). However, when also considering statistically nonsignificant data, the scarcity manipulation shows negative, correlations with all DVs, whereas the motivationally and neutrally framed manipulation only show one negative, still nonsignificant correlation each, i.e. motivational with LSE_f ($r = -.035, n = 144, p > .05$) and neutral with CA ($r = -.083, n = 144, p > .05$).

Finally, the data were tested through a one-way ANOVA (see Table 2), assessing whether or not there are any significant differences among the three different manipulations regarding their effect on the various leadership outcomes.

Table 2. One-Way ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
CA	Between Groups	.797	2	.398	.803	.450
	Within Groups	69.949	141	.496		
	Total	70.746	143			
ItA	Between Groups	.785	2	.392	.465	.629
	Within Groups	118.986	141	.844		
	Total	119.771	143			
LSE_c	Between Groups	1.976	2	.988	2.733	.068
	Within Groups	50.974	141	.362		
	Total	52.951	143			
LSE_f	Between Groups	.080	2	.040	.140	.870
	Within Groups	40.392	141	.286		
	Total	40.472	143			
LSE	Between Groups	.513	2	.257	1.217	.299
	Within Groups	29.716	141	.211		
	Total	30.229	143			
LSI_p	Between Groups	.808	2	.404	.547	.580
	Within Groups	104.139	141	.739		
	Total	104.947	143			
LSI_b	Between Groups	.640	2	.320	.751	.474
	Within Groups	60.094	141	.426		
	Total	60.734	143			
LSI	Between Groups	.698	2	.349	.789	.456
	Within Groups	62.371	141	.442		
	Total	63.070	143			
MtL	Between Groups	1.352	2	.676	1.647	.196
	Within Groups	57.855	141	.410		
	Total	59.207	143			

As seen in Table 2, the one-way ANOVA revealed that there are no statistically significant differences in any of the leadership outcomes between the three manipulations. Accordingly, no further post hoc testing was conducted. Nonetheless, more detailed descriptive statistics showing the means and standard deviations of each leadership outcome grouped by each of the three manipulation groups uncovered tendencies close to the initial assumptions (Table 3).

Table 3. Descriptive Statistics by Leadership Outcome

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
CA	Motivational	46	4.23	.612	.090	4.05	4.41	3	5
	Scarcity	48	4.12	.692	.100	3.92	4.32	2	5
	Neutral	50	4.05	.791	.112	3.83	4.27	2	5
	Total	144	4.13	.703	.059	4.01	4.25	2	5
ItA	Motivational	46	3.43	.958	.141	3.14	3.71	1	5

	Scarcity	48	3.28	.773	.112	3.05	3.50	2	5
	Neutral	50	3.44	1.007	.142	3.15	3.73	1	5
	Total	144	3.38	.915	.076	3.23	3.53	1	5
LSE_c	Motivational	46	3.87	.551	.081	3.71	4.03	2	5
	Scarcity	48	3.60	.614	.089	3.43	3.78	2	5
	Neutral	50	3.83	.633	.089	3.65	4.01	2	5
	Total	144	3.77	.609	.051	3.67	3.87	2	5
LSE_f	Motivational	46	4.13	.474	.070	3.99	4.27	3	5
	Scarcity	48	4.11	.583	.084	3.95	4.28	3	5
	Neutral	50	4.17	.540	.076	4.02	4.32	3	5
	Total	144	4.14	.532	.044	4.05	4.23	3	5
LSE	Motivational	46	4.02	.392	.058	3.90	4.14	3	5
	Scarcity	48	3.90	.495	.071	3.75	4.04	3	5
	Neutral	50	4.03	.480	.068	3.89	4.16	3	5
	Total	144	3.98	.460	.038	3.90	4.06	3	5
LSI_p	Motivational	46	3.25	.782	.115	3.02	3.48	2	5
	Scarcity	48	3.09	.821	.119	2.86	3.33	1	5
	Neutral	50	3.26	.958	.135	2.98	3.53	1	5
	Total	144	3.20	.857	.071	3.06	3.34	1	5
LSI_b	Motivational	46	4.02	.562	.083	3.85	4.18	2	5
	Scarcity	48	3.87	.578	.083	3.70	4.04	2	5
	Neutral	50	4.01	.785	.111	3.79	4.23	2	5
	Total	144	3.97	.652	.054	3.86	4.07	2	5
LSI	Motivational	46	3.74	.587	.087	3.56	3.91	2	5
	Scarcity	48	3.59	.602	.087	3.41	3.76	2	5
	Neutral	50	3.74	.780	.110	3.51	3.96	2	5
	Total	144	3.69	.664	.055	3.58	3.80	2	5
MtL	Motivational	46	3.66	.622	.092	3.47	3.84	2	5
	Scarcity	48	3.44	.610	.088	3.26	3.62	2	5
	Neutral	50	3.64	.684	.097	3.44	3.83	2	5
	Total	144	3.58	.643	.054	3.47	3.68	2	5

More precisely, as expected, the mean of the motivational framing lies above the mean of all respondents taken together for all five leadership outcomes and was highest among all three groups for the CA, LSI (tied with neutral framing, and MtL scale. Interestingly, the neutral framing also showed means above average for all scales, except CA, even averaging highest in ItA, LSE, and LSI (tied with motivational framing). Conversely, scarcity framing consistently scored lowest and below average considering all scale's means. Taken together, since these results are not significant, they may not be interpreted. However, these results suggest motivational and neutral framings, if studied in larger samples, may affect leadership outcomes more positively as opposed to scarcity-framing.

5 Discussion

The data analysis did not find statistical differences in the impact of WLDP framing on early career women's leadership outcomes, meaning that no evidence was found to support any

of the five RQs. This implies that, contrary to our initial assumption, the framing approaches used in the case of this experiment's manipulations did not differentially impact any of the assessed leadership outcomes. Nevertheless, when also considering the overall high mean scores of the DVs among all conditions (Table 3), this is consistent with the finding of Lacerenza et al. (2017), who based on a meta-analysis concluded, that "leadership training likely improves outcomes, regardless of its design, delivery, and implementation elements". Thus, the promising trends uncovered through the analysis of the correlations and mean values can be highly valuable in guiding further research. Accordingly, rather than the testing of the RQs, below, this collected data will be discussed and other future ideas suggested.

First, all leadership outcomes, i.e. DVs, were significantly and positively correlated (Table 1), suggesting that these constructs are interrelated, which in turn reflects the cohesiveness of the applied framework for understanding leadership outcomes. Notably, the strong correlation between MtL and LSE suggests that women's confidence in their ability to perform leadership may be closely tied to their desire to lead, which again seems to be going hand in hand with their leadership ambitions considering the correlation between MtL and CA. Similarly, the relationship between LSI and CA indicates that those who see themselves as more of a leader also aspire to reach leadership positions. Overall, increased levels of either one of the dependent measures seem to be associated with increased levels of all other measures. This multidimensional relationship is particularly important as it underscores the importance and effectiveness of empowering and encouraging ECW through WLDPs.

Second, though no statistically significant differences between the three framings were detected, the consistent negative correlations, though non-significant, of the scarcity framing with any of the leadership outcomes (Table 1) may emphasize the need for caution when presenting the many barriers and challenges ECW will face on their leadership journey. The lower means for all DVs under the scarcity condition (Table 3) underscore this potential to

impact leadership outcomes less strongly or even negatively as scarcity framing may actually be a deterrent and reinforce gender roles. In line with the previously discussed role congruity theory, where the masculine-dominated, competitive leadership landscape clashes with women's gender expectations, this may convey hopelessness, and generate internal conflict, thus potentially evoke stress and anxiety for women (Eagly and Karau 2002).

Third, the findings regarding the DVs' mean results of the neutral framing (Table 3) are noteworthy. Unexpectedly, neutral framing performed comparably to motivational framing in some outcomes, while even surpassing it for measures such as ItA and LSE. Nonetheless, it scored below average for CA, which taken together might imply that an unbiased and factual approach (sharing both the positive and negatives of leadership) resonates well with participants but may require caution to not negatively affect leadership ambitions.

Finally, the consistent trend of above-average mean scores for all leadership outcomes (DV's) under motivational framing (Table 3) may hint at a potential to foster leadership development among ECW. This potential can be understood through Self-Determination Theory, which emphasizes the fulfillment of three core psychological needs—autonomy, competence, and relatedness—as critical drivers of autonomous motivation (Deci, Olafsen, and Ryan 2017). Motivational framing aligns closely with these principles by empowering ECW to see leadership as an attainable and self-directed goal (autonomy), highlighting evidence of women's strengths and successes in leadership roles (competence), and fostering a sense of belonging among emerging women leaders (relatedness). This creates a supportive environment that encourages ECW to internalize leadership aspirations as meaningful and achievable. Additionally, following Kimball, Reichard, and Chan (2021), motivational framing can help ECW anchor their leadership in their unique values and passions (“why” of leadership) while also aligning leadership concepts with feminine gender roles (“how” women lead), thus strengthening their leadership identity in an authentic and empowering way.

5.1 Practical Implications

Considering this study's results, though the relations in the main research questions were statistically non-significant, one might argue that looking at the zero-order correlations in the study, more research should explore whether WLDPs should emphasize motivationally framed messaging to enhance leadership outcomes. The motivational approach includes highlighting promising developments such as the rise of women's participation in leadership, up-to-date research findings on e.g., leadership styles and skills women tend to excel at, and supporting initiatives like governmental guidelines and targets. Yet even with the motivational approach, organizations should balance such optimistic information with caution to avoid over-promising outcomes or making women's path to leadership look easier than it is. When e.g. a glass ceiling experience is then encountered, this might in turn lead to more negative emotions and psychological issues, such as frustration (Soumya and Sathiyaseelan 2021). Similarly, scarcity-framed messages should also be used with caution. Instead, as the surprising results of neutral framing suggest, rather "demotivating" data and developments should be presented in a more factual and non-judgmental manner, recognizing their existence, and spreading awareness of the challenges and barriers while also providing a solution-oriented framework.

5.2 Findings of Directly Related Studies

So far, essentially no other existing literature on the framing of WLDPs and its effect on leadership outcomes could be identified. While showing promising tendencies, the observed differences need to be reconciled through more concomitant research. Within the umbrella field lab, two other projects were conducted:

Using the same study and sample, while including a set of measures before participants were exposed to their respective manipulations, co-researcher Caroline Céard took a closer look at how personality traits might moderate the impact of WLDP framing on the same leadership outcomes from the present study. Her findings support the argument that individual differences

do in fact moderate the impact of framing on outcomes in certain cases, highlighting that more adaptable and tailored WLDP approaches might enhance training effectiveness and thus support efforts to reach gender parity in leadership. Based on her and DeRue et al.'s (2011) findings, one might consider looking at other possible moderators, such as demographic, socio-economic, cultural, or educational background. Debebe et al. (2016) also highlight the importance of accounting for WLDP participants' other social identities aside from their female gender identity. Lastly, I propose that industry-focused studies, such as for academia, corporate, or social sector might provide inspiration as to how to tailor WLDPs for maximum impact.

In the other project, my co-researcher Lavinia Haas conducted interviews with current real-world WLDP administrators to gather insights into how companies position and frame their WLDPs. Her findings suggest that motivational and scarcity framing do not exist in isolation, but rather current WLDPs adopt a mixed-framing approach, somewhat similar to the neutral framing. Nevertheless, her findings also indicate that within this mixed approach, motivational aspects are dominant, which aligns well with this project's findings. Her results also raise the question whether participants in our experimental study were able to distinguish between motivational and scarcity framing as discourse normally would accentuate both.

5.3 Limitations and Recommendations for Future Research

Various limitations might have affected the outcomes of this experimental study and need to be considered regarding the interpretation of results. First and foremost, it needs to be assumed that the manipulations did not have strong enough conditions to elicit measurable differences potentially due to their limited length and presentation of similar data. Though pilot testing and manipulation checks showcased our expected trend among the mean values, the manipulations did not yield statistically significant differences in the full sample. Thus, new and different manipulations with stronger differentiation, enhanced delivery style and revised content, as well as further and more thorough pilot testing are recommended for future studies.

Moreover, the intervention at hand only included short introductory videos, and the outcomes of an actual training program wholly designed for each approach might differ. It also needs to be taken into consideration that the manipulations simulated the introduction session of a WLDP, meaning that to be exposed to such a scenario in real life, women would already need to have shown interest or even applied for such a program, which would require a baseline level of aspirations towards leadership. Thus, the manipulation might be happening “too late” to be of genuine impact—the women are already interested in leadership. For future research, peers might consider applying similar approaches for preceding contexts, such as the advertising and recruitment phase of WLDPs.

Aside from this, for the scope of this project, a between-subjects experimental design was agreed upon. For more rigorous testing, a within-subjects design could be implemented in future research projects, allowing for a deeper understanding of the effects of the different WLDP framings on individuals’ leadership self-perceptions, aspirations, and extrinsic as well as intrinsic motivation. Beyond experimental design, this topic would further benefit from longitudinal field studies to understand whether the proposed interventions and their respective leadership outcomes also translate into long-term leadership effectiveness and success (Ardichvili, Natt och Dag, and Manderscheid 2016). Additionally, even though statements were carefully selected, responses to the Likert scales used in this experiment may have been subject to central tendency, agreement, or social desirability bias, potentially causing distortion of the results. Consequently, future studies may make use of different assessment types and carefully review the questions and statements used.

Another limitation to take into consideration is that the final sample size of 144 is slightly below the recommended size for a medium effect of approximately 159⁴. Smaller effects might become visible when using a larger and equally balanced sample across treatment groups.

⁴ Statistics Kingdom’s online sample size calculator (www.statskingdom.com/sample_size_regression.html)

While our sample depicts an important part of the target group for early career WLDPs, it should be mentioned that the sample is quite homogenous. More precisely, the majority of participants are attending a renowned business school, Nova SBE, where one may assume that most students likely already have pre-existing leadership tendencies, potentially masking the framing effects and skewing generalizability. As described at the end of Chapter 2.2.1, the interplay with other social identity categories cannot be neglected either; thus, it is recommended that similar studies in the future also consider this intersectionality and compare different identity compositions and their impact on WLDP outcomes (Debebe et al. 2016). A focus on different genders and sexual orientations may be important, as little research has been conducted in this area and much of the women's leadership literature is predicated on cisgender, binary approaches that may not be relevant to all.

Taken together, WLDPs hold the potential to empower and encourage women to strive for equal participation in leadership. Nevertheless, WLDPs alone are not the solution to the issues behind SDG 5 and should be complemented by other formal and informal self-help and developmental activities (Northouse 2012).

6 Conclusion

This analysis highlights both the potential and limitations of different framings of WLDPs. While the main RQs were not supported due to a lack of significant findings through statistical testing, trends observed in these data suggest that strategies including motivational and neutral framings may hold promise in encouraging early career women to pursue leadership positions. Considering both framings' complementary benefits, i.e., increased levels of leadership outcomes compared to scarcity framing, optimism may well be balanced with realism to ensure high leadership outcomes throughout. However, to optimize impact, future research should continue to explore the nuanced effects of framing and how best to design WLDPs that foster meaningful and sustained leadership development, in line with the recommendations made.

References

- Acker, Joan. 2006. "Inequality Regimes." *Gender & Society* 20 (4): 441–64.
<https://doi.org/10.1177/0891243206289499>.
- Ardichvili, Alexandre, Kristina Natt och Dag, and Steven Manderscheid. 2016. "Leadership Development: Current and Emerging Models and Practices." *Advances in Developing Human Resources* 18 (3): 275–85. <https://doi.org/10.1177/1523422316645506>.
- Bobbio, Andrea, and Anna Maria Manganelli. 2009. "Leadership Self-Efficacy Scale. A New Multidimensional Instrument." *TPM-Testing, Psychometrics, Methodology in Applied Psychology* 16 (1): 3–24. <https://www.tpmmap.org/wp-content/uploads/2014/11/16.1.1.pdf>.
- Braun, Stephan, Sebastian Stegmann, Alina S. Hernandez Bark, Nina M. Junker, and Rolf van Dick. 2017. "Think Manager—Think Male, Think Follower—Think Female: Gender Bias in Implicit Followership Theories." *Journal of Applied Social Psychology* 47 (7): 377–88. <https://doi.org/10.1111/JASP.12445>.
- Brue, Krystal L., and Shawn A. Brue. 2018. "Leadership Role Identity Construction in Women's Leadership Development Programs." *Journal of Leadership Education* 17 (1): 7–27. <https://doi.org/10.12806/v17/i1/c2>.
- Carli, Linda L., and Alice H. Eagly. 2016. "Women Face a Labyrinth: An Examination of Metaphors for Women Leaders." *Gender in Management: An International Journal* 31 (8): 514–27. <https://doi.org/10.1108/GM-02-2015-0007>.
- Chan, Kim-Yin, and Fritz Drasgow. 2001. "Toward a Theory of Individual Differences and Leadership: Understanding the Motivation to Lead." *Journal of Applied Psychology* 86 (3): 481–98. <https://doi.org/10.1037/0021-9010.86.3.481>.
- Chen, Hung Tao M., and Megan Thomas. 2020. "Effects of Lecture Video Styles on Engagement and Learning." *Educational Technology Research and Development* 68

- (October):2147–64. <https://doi.org/10.1007/S11423-020-09757-6>.
- Chesebro, Joseph L., and James C. McCroskey. 1998. “The Development of the Teacher Clarity Short Inventory (TCSI) to Measure Clear Teaching in the Classroom.” *Communication Research Reports* 15 (3): 262–66. <https://doi.org/10.1080/08824099809362122>.
- Collins, Christopher J. 2007. “The Interactive Effects of Recruitment Practices and Product Awareness on Job Seekers’ Employer Knowledge and Application Behaviors.” *Journal of Applied Psychology* 92 (1): 180–90. <https://doi.org/10.1037/0021-9010.92.1.180>.
- Davies, Paul G., Steven J. Spencer, and Claude M. Steele. 2005. “Clearing the Air: Identity Safety Moderates the Effects of Stereotype Threat on Women’s Leadership Aspirations.” *Journal of Personality and Social Psychology* 88 (2): 276–87. <https://doi.org/10.1037/0022-3514.88.2.276>.
- Day, David V. 2000. “Leadership Development: A Review in Context.” *Leadership Quarterly* 11 (4): 581–613. [https://doi.org/10.1016/S1048-9843\(00\)00061-8](https://doi.org/10.1016/S1048-9843(00)00061-8).
- Debebe, Gelaye. 2011. “Creating a Safe Environment for Women’s Leadership Transformation.” *Journal of Management Education* 35 (5): 679–712. <https://doi.org/10.1177/1052562910397501>.
- Debebe, Gelaye, Deirdre Anderson, Diana Bilimoria, and Susan M. Vinnicombe. 2016. “Women’s Leadership Development Programs: Lessons Learned and New Frontiers.” *Journal of Management Education* 40 (3): 231–52. <https://doi.org/10.1177/1052562916639079>.
- Deci, Edward L., Anja H. Olafsen, and Richard M. Ryan. 2017. “Self-Determination Theory in Work Organizations: The State of a Science.” *Annual Review of Organizational Psychology and Organizational Behavior* 4 (March):19–43. <https://doi.org/10.1146/annurev-orgpsych-032516-113108>.

- DeRue, D. Scott, Jennifer D. Nahrgang, Ned Wellman, and Stephen E. Humphrey. 2011. "Trait and Behavioral Theories of Leadership: An Integration and Meta-Analytic Test of Their Relative Validity." *Personnel Psychology* 64 (1): 7–52. <https://doi.org/10.1111/J.1744-6570.2010.01201.X>.
- Eagly, Alice H., Mary C. Johannesen-Schmidt, and Marloes L. Van Engen. 2003. "Transformational, Transactional, and Laissez-Faire Leadership Styles: A Meta-Analysis Comparing Women and Men." *Psychological Bulletin* 129 (4): 569–91. <https://doi.org/10.1037/0033-2909.129.4.569>.
- Eagly, Alice H., and Blair T. Johnson. 1990. "Gender and Leadership Style: A Meta-Analysis." *Psychological Bulletin* 108 (2): 233–56. <https://doi.org/10.1037/0033-2909.108.2.233>.
- Eagly, Alice H., and Steven J. Karau. 2002. "Role Congruity Theory of Prejudice toward Female Leaders." *Psychological Review* 109 (3): 573–98. <https://doi.org/10.1037/0033-295X.109.3.573>.
- Eagly, Alice H., and Wendy Wood. 2012. "Social Role Theory." In *Handbook of Theories of Social Psychology*, edited by Paul A. M. Van Lange, E. Tory Higgins, and Arie W. Kruglanski, 458–76. London: SAGE Publications Inc. <https://doi.org/10.4135/9781446249222.n49>.
- Ely, Robin J., Herminia Ibarra, and Deborah M. Kolb. 2011. "Taking Gender into Account: Theory and Design for Women's Leadership Development Programs." *Academy of Management Learning and Education* 10 (3): 474–93. <https://doi.org/10.5465/amle.2010.0046>.
- Fulmer, Robert M. 1997. "The Evolving Paradigm of Leadership Development." *Organizational Dynamics* 25 (4): 59–72. [https://doi.org/10.1016/S0090-2616\(97\)90037-1](https://doi.org/10.1016/S0090-2616(97)90037-1).

- Galsanjigmed, Enkhzul, and Tomoki Sekiguchi. 2023. "Challenges Women Experience in Leadership Careers: An Integrative Review." *Merits* 3 (May):366–89.
<https://doi.org/10.3390/merits3020021>.
- Ghosh, Piyali, Rachita Satyawadi, Jagdamba Prasad Joshi, Rashmi Ranjan, and Priya Singh. 2012. "Towards More Effective Training Programmes: A Study of Trainer Attributes." *Industrial and Commercial Training* 44 (4): 194–202.
<https://doi.org/10.1108/00197851211231469>.
- Gregor, Margo A., and Karen M. O'Brien. 2016. "Understanding Career Aspirations Among Young Women: Improving Instrumentation." *Journal of Career Assessment* 24 (3): 559–72. <https://doi.org/10.1177/1069072715599537>.
- Grohmann, Anna, Johannes Beller, and Simone Kauffeld. 2014. "Exploring the Critical Role of Motivation to Transfer in the Training Transfer Process." *International Journal of Training and Development* 18 (2): 84–103. <https://doi.org/10.1111/ijtd.12030>.
- Highhouse, Scott, Filip Lievens, and Evan F. Sinar. 2003. "Measuring Attraction to Organizations." *Educational and Psychological Measurement* 63 (6): 986–1001.
<https://doi.org/10.1177/0013164403258403>.
- Hiller, Nathan J. 2005. "An Examination of Leadership Beliefs and Leadership Self-Identity: Constructs, Correlates, and Outcomes." The Pennsylvania State University.
<https://etda.libraries.psu.edu/catalog/6836>.
- Hoobler, Jenny M., Grace Lemmon, and Sandy J. Wayne. 2014. "Women's Managerial Aspirations." *Journal of Management* 40 (3): 703–30.
<https://doi.org/10.1177/0149206311426911>.
- Hopkins, Margaret M., Deborah A. O'Neil, Angela Passarelli, and Diana Bilimoria. 2008. "Women's Leadership Development Strategic Practices for Women and Organizations." *Consulting Psychology Journal: Practice and Research* 60 (4): 348–65.

<https://doi.org/10.1037/a0014093>.

Kimball, Taylor D, Rebecca J Reichard, and Emily L Chan. 2021. “Women’s Leader Development Programs: Current Landscape and Recommendations for Future Programs.” *Journal of Business Diversity* 21 (4).

Kirkpatrick, Dr. Jim, and Wendy Kayser Kirkpatrick. 2022. “An Introduction to The New World Kirkpatrick® Model.” Kirkpatrick Partners, LLC.

Knipfer, Kristin, Brooke Shaughnessy, Tanja Hentschel, and Ellen Schmid. 2017. “Unlocking Women’s Leadership Potential: A Curricular Example for Developing Female Leaders in Academia.” *Journal of Management Education* 41 (2): 272–302.

<https://doi.org/10.1177/1052562916673863>.

Krivkovich, Alexis, Emily Field, Lareina Yee, Megan McConnell, and Hannah Smith. 2024.

“Women in the Workplace 2024: The 10th Anniversary Report.”

<https://www.mckinsey.com/featured-insights/diversity-and-inclusion/women-in-the-workplace>.

Lacerenza, Christina N., Denise L. Reyes, Shannon L. Marlow, Dana L. Joseph, and Eduardo Salas. 2017. “Leadership Training Design, Delivery, and Implementation: A Meta-Analysis.” *Journal of Applied Psychology* 102 (12): 1686–1718.

<https://doi.org/10.1037/apl0000241>.

Madsen, Susan R., Karen A. Longman, and Jessica R. Daniels. 2012. “Women’s Leadership Development in Higher Education: Conclusion and Implications for HRD.” *Advances in Developing Human Resources* 14 (1): 113–28.

<https://doi.org/10.1177/1523422311429734>.

Martínez-Martínez, Miryam, Manuel M. Molina-López, Ruth Mateos de Cabo, Patricia Gabaldón, Susana González-Pérez, and Gregorio Izquierdo. 2021. “Awakenings: An Authentic Leadership Development Program to Break the Glass Ceiling.” *Sustainability*

- 13 (7476). <https://doi.org/10.3390/su13137476>.
- Mathieu, John E., Scott I. Tannenbaum, and Eduardo Salas. 1992. "Influences of Individual and Situational Characteristics on Measures of Training Effectiveness." *Academy of Management Journal* 35 (4): 828–47. <https://doi.org/10.5465/256317>.
- Northouse, Peter G. 2012. *Leadership: Theory and Practice*. SAGE Publications Ltd (CA). 6th ed. SAGE Publications.
- O’Leary, Jane. 1997. "Developing a New Mindset: The ‘Career Ambitious’ Individual." *Women in Management Review* 12 (3): 91–99. <https://doi.org/10.1108/09649429710171127>.
- Plantenga, Dorine. 2004. "Gender, Identity, and Diversity: Learning from Insights Gained in Transformative Gender Training." *Gender & Development* 12 (1): 40–46. <https://doi.org/10.1080/13552070410001726506>.
- Rangel, Bertha, Wonjoon Chung, T. Brad Harris, Nichelle C. Carpenter, Dan S. Chiaburu, and Jenna L. Moore. 2015. "Rules of Engagement: The Joint Influence of Trainer Expressiveness and Trainee Experiential Learning Style on Engagement and Training Transfer." *International Journal of Training and Development* 19 (1): 18–31. <https://doi.org/10.1111/ijtd.12045>.
- Reysen, Stephen. 2005. "Construction of a New Scale: The Reysen Likability Scale." *Social Behavior and Personality* 33 (2): 201–8. <https://doi.org/10.2224/SBP.2005.33.2.201>.
- Rosenbaum, James E. 1979. "Tournament Mobility: Career Patterns in a Corporation." *Administrative Science Quarterly* 24 (2): 220–41. <https://doi.org/10.2307/2392495>.
- Schnackenberg, Andrew K., Edward Tomlinson, and Corinne Coen. 2021. "The Dimensional Structure of Transparency: A Construct Validation of Transparency as Disclosure, Clarity, and Accuracy in Organizations." *Human Relations* 74 (10): 1628–60. <https://doi.org/10.1177/0018726720933317>.

- Soumya, R. R., and Anuradha Sathiyaseelan. 2021. "Mindfulness: An Emotional Aid to the Glass Ceiling Experiences." *Cogent Psychology* 8 (1).
<https://doi.org/10.1080/23311908.2021.1907911>.
- Stead, Valerie, and Carole Elliott. 2019. "Pedagogies of Power: Media Artefacts as Public Pedagogy for Women's Leadership Development." *Management Learning* 50 (2): 171–88. <https://doi.org/10.1177/1350507618806793>.
- Steele, Claude M. 1997. "A Threat in the Air: How Stereotypes Shape Intellectual Identity and Performance." *American Psychologist* 52 (6): 613–29. <https://doi.org/10.1037/0003-066X.52.6.613>.
- Sue, Derald Wing, Christina M. Capodilupo, Gina C. Torino, Jennifer M. Bucceri, Aisha M.B. Holder, Kevin L. Nadal, and Marta Esquilin. 2007. "Racial Microaggressions in Everyday Life: Implications for Clinical Practice." *American Psychologist* 62 (4): 271–86. <https://doi.org/10.1037/0003-066X.62.4.271>.
- Sugiyama, Keimei, Kevin V. Cavanagh, Chantal van Esch, Diana Bilimoria, and Cara Brown. 2016. "Inclusive Leadership Development: Drawing From Pedagogies of Women's and General Leadership Development Programs." *Journal of Management Education* 40 (3): 253–92. <https://doi.org/10.1177/1052562916632553>.
- Taylor, M. Susan, and Thomas J. Bergmann. 1987. "Organizational Recruitment Activities and Applicants' Reactions at Different Stages of the Recruitment Process." *Personnel Psychology* 40 (2): 261–85. <https://doi.org/10.1111/j.1744-6570.1987.TB00604.x>.
- Thompson, Edmund R. 2007. "Development and Validation of an Internationally Reliable Short-Form of the Positive and Negative Affect Schedule (PANAS)." *Journal of Cross-Cultural Psychology* 38 (2): 227–42. <https://doi.org/10.1177/0022022106297301>.
- Tong, Kwok kit, and Kwok Leung. 2002. "Tournament as a Motivational Strategy: Extension to Dynamic Situations with Uncertain Duration." *Journal of Economic Psychology* 23

(3): 399–420. [https://doi.org/10.1016/S0167-4870\(02\)00083-1](https://doi.org/10.1016/S0167-4870(02)00083-1).

Towler, Annette. 2009. “Effects of Trainer Expressiveness, Seductive Details, and Trainee Goal Orientation on Training Outcomes.” *Human Resource Development Quarterly* 20 (1): 65–84. <https://doi.org/10.1002/HRDQ.20008>.

UN DESA. 2023. “The Sustainable Development Goals Report 2023: Special Edition.” New York, USA. <https://unstats.un.org/sdgs/report/2023/>.

———. n.d. “Goal 5 | Department of Economic and Social Affairs.” Accessed November 20, 2024. https://sdgs.un.org/goals/goal5#targets_and_indicators.

Wigfield, Allan, and Jacquelynne S. Eccles. 2000. “Expectancy-Value Theory of Achievement Motivation.” *Contemporary Educational Psychology* 25 (1): 68–81. <https://doi.org/10.1006/ceps.1999.1015>.

Wood, Wendy, and Alice H Eagly. 2009. “Gender Identity.” In *Handbook of Individual Differences in Social Behavior*, edited by Mark R Leary and Rick H Hoyle, 109–25. New York: Guilford Press.

Zenger, Jack, and Joseph Folkman. 2020. “Research: Women Are Better Leaders During a Crisis.” *Harvard Business Review*. December 30, 2020. <https://hbr.org/2020/12/research-women-are-better-leaders-during-a-crisis>.

Appendix

I Manipulation Videos

The videos used for manipulation purposes in our experiment were made available to participants through YouTube (unlisted) and can be accessed through the following links:

- Motivational framing: <https://youtu.be/XXrv3ay9fvI>
- Scarcity framing: <https://youtu.be/w9ln2DH56Nk>
- Neutral framing: <https://youtu.be/lk1SHgsSfmE>

I.I Video Scripts

Slide	Script
1M	Dear Future Women Leaders, Welcome to EmpowHer Academy and our “Rising Women Leaders Program”. It is truly an honor to be here with you today and guide you on this transformative journey to become the best empow(h)ered version of yourselves. Today we’ll briefly dive into who we are, why we do what we do, and how we aim to empow(h)er you. Are you ready? Let’s go!
1N	Dear Future Women Leaders, Welcome to EmpowHer Academy and our “Rising Women Leaders Program”. It is an honor to be here with you today and guide you on this journey to become the best empow(h)ered version of yourselves. Today we’ll briefly dive into who we are, why we do what we do, and how we aim to empow(h)er you. Are you ready? Let’s go!
1S	Dear Future Women Leaders, Welcome to EmpowHer Academy and our “Rising Women Leaders Program.” As we gather today, it's essential to recognize that the journey to becoming your empowered self can be challenging. In this session, we’ll introduce ourselves, explain our purpose, and outline how we can offer support as you navigate this complex path.
2M/N/S	Who are we at EmpowHer Academy?
3M	We at EmpowHer Academy are on a mission to reshape the future of leadership – one empow(h)ered women at a time. Whether you’ve just started your career or already gathered experience, our rapidly expanding network of like-minded and aspiring women from around the world is excited to have you on board. Through a variety of programs, workshops, and events, we aim to encourage each and every one of you to connect, support and learn from another – why? Because we want to see you thrive; in every aspect of your life.
3N	We at EmpowHer Academy aim to shape the future of leadership by focusing on women's empowerment. Whether you’ve just started your career or already gathered experience, our rapidly expanding network of like-minded and aspiring women from around the world is ready to support you. Through a variety of programs, workshops, and events, we create spaces for connection, support, and mutual learning, as we recognize the

	importance of these interactions for your overall growth.
3S	<p>We at EmpowHer Academy acknowledge the difficulties women face in advancing into leadership roles.</p> <p>Whether you've just started your career or already gathered experience, our rapidly expanding network of like-minded and aspiring women from around the world will support you in your challenging journey ahead. Through a variety of programs, workshops, and events, we hope to foster connections and encourage learning from one another, recognizing that leadership development can be a complex and demanding process.</p>
4 M	Why is a female-only leadership program so important to us?
4N	Why is a female-only leadership program important to us?
4S	Why is a female-only leadership program necessary?
5M	<p>Let's explore the incredible rise of women in leadership. In 2024, 27 companies in the Fortune Global 500 are led by women—a 52% jump since 2015. This is more than just progress; it's a powerful reminder of the unique strengths women bring to leadership. A Harvard Business Review study shows women excel in 13 out of 19 key skills, like initiative, integrity, and impactful communication—proving they lead with confidence and vision. By 2026, EU companies must ensure 40% of non-executive directors are women. The future of female leadership is brighter than ever, and the world is ready!</p>
5N	<p>Let's look at the current landscape of women in leadership.</p> <p>In 2024, 27 companies in the Fortune Global 500 are led by women, reflecting a 52% increase since 2015. However, this still represents only 5% of the total, highlighting the slow pace of change.</p> <p>While the path to leadership can be challenging, women bring important strengths to leadership. A Harvard Business Review study found that women excel in 13 out of 19 key leadership skills, including the nine shown in the second table such as taking initiatives, displaying high integrity and honesty, and communicating powerfully.</p> <p>The message is clear: women are playing a vital role in shaping the future of leadership, and their contributions are increasingly gaining recognition.</p>
5S	<p>The numbers speak for themselves - progress for women in leadership remains very slow.</p> <p>In 2024, only 27 companies in the Fortune Global 500 are led by women. That's only 5% of the total. Despite excelling in 13 out of 19 critical leadership skills and earning similar ratings to men in initiative, integrity, and communication, women can be sidelined.</p> <p>In male-dominated sectors like technology and energy, the situation is worse, with women holding only 24% and 20% of leadership roles. In just a few industries, such as education and NGOs, women have made meaningful progress toward gender parity.</p> <p>The truth is, fewer women than men make it into leadership. Women face glass ceilings getting to the top positions, and the pace of improvement is very slow.</p>
6M	<p>Having women in leadership isn't just about diversity—it should be an essential goal for every organization. Companies with women in leadership roles consistently outperform others—financially, competitively, and creatively, due to women's unique leadership styles and exceptional interpersonal skills.</p> <p>Women are ambitious achievers, equally driven to advance their careers seeking challenging and fulfilling roles.</p> <p>Opportunities are abundant for emerging women leaders like you, and globally</p>

	<p>organizations are putting in place measures to pave the way for women to rise faster and achieve the success they deserve. The future of leadership is yours to claim.</p>
6N	<p>The corporate world offers both opportunities and challenges for women. Companies with women in leadership roles outperform others—financially, competitively, and creatively. Women are ambitious achievers, equally driven to advance their careers seeking challenging and fulfilling roles. Nevertheless, they face significant obstacles in leadership, often navigating a double bind where they're either deemed too feminine or too aggressive. These judgments and pressure to conform to outdated leadership molds undermine their effectiveness, block career advancement, and leave many feeling they must “fix” themselves.</p> <p>While women can tackle these barriers, persistence, hard work, and ongoing change in organizational mindsets is required.</p>
6S	<p>As we've seen, women face significant obstacles in leadership, often navigating a double bind where they're either deemed too feminine or too aggressive. These judgments and pressures to conform to outdated leadership models undermine their effectiveness, block career advancement, and leave many feeling they must “fix” themselves.</p> <p>The lack of women in mid-level leadership positions means fewer opportunities for ascension to senior roles, perpetuating a cycle of underrepresentation. The reality is that most women will struggle to find a place at the top, and those who do must exert considerable effort to attain the top jobs.</p>
7M	<p>We are ready - are you? Let's reshape the future of leadership - one empow(H)ered woman at a time!</p>
7N	<p>We are ready - are you? Let's reshape the future of leadership - one empow(H)ered woman at a time!</p>
7S	<p>We're prepared, but are you? Reshaping leadership isn't easy; it's a process that takes time, one empowered woman at a time.</p>

I.II Slide Decks

Appendix Figure 1. Motivational Framing



1



3



5



7



2



4



6

Appendix Figure 2. Scarcity Framing



1



3



5



7



2



4



6

Appendix Figure 3. Neutral Framing



1



3



5



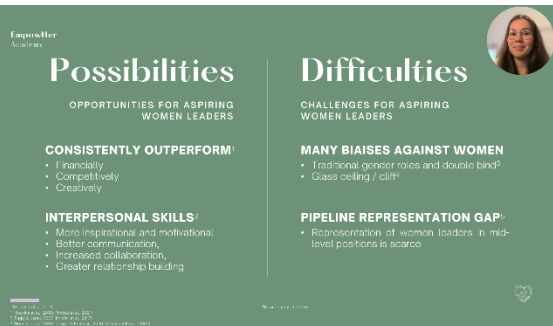
7



2



4



6

Additional References for Slide Decks

Motivational Framing

EIGE. 2023. ‘Gender Balance in Business and Finance: December 2022 | European Institute for Gender Equality’. 26 April 2023. https://eige.europa.eu/publications-resources/publications/gender-balance-business-and-finance-december-2022?language_content_entity=en.

European Parliament. 2022. ‘Parliament Approves Landmark Rules to Boost Gender Equality on Corporate Boards | News | European Parliament’. 22 November 2022. <https://www.europarl.europa.eu/news/en/press-room/20221118IPR55706/parliament-approves-landmark-rules-to-boost-gender-equality-on-corporate-boards>.

Field, Emily, Alexis Krivkovich, Sandra Kügele, Nicole Robinson, and Lareina Yee. 2023. ‘Women in the Workplace 2023 Report | McKinsey’. https://www.mckinsey.com/featured-insights/diversity-and-inclusion/women-in-the-workplace#./

Fortune. 2024. ‘Fortune Global 500 – The Largest Companies in the World by Revenue’. Fortune. 2024. <https://fortune.com/ranking/global500/2024/search/>.

Hoobler, Jenny M., Courtney R. Masterson, Stella M. Nkomo, and Eric J. Michel. 2018. ‘The Business Case for Women Leaders: Meta-Analysis, Research Critique, and Path Forward’. *Journal of Management* 44 (6): 2473–99. <https://doi.org/10.1177/0149206316628643>.

Hopkins, Margaret M., Deborah A. O’Neil, Angela Passarelli, and Diana Bilimoria. 2008. ‘Women’s Leadership Development Strategic Practices for Women and Organizations’. *Consulting Psychology Journal: Practice and Research* 60 (4): 348–65. <https://doi.org/10.1037/a0014093>.

Kimball, Taylor D., Rebecca J. Reichard, and Emily L. Chan. 2021. 'Women's Leader Development Programs: Current Landscape and Recommendations for Future Programs'. *Journal of Business Diversity* 21 (4).

<https://articlearchives.co/index.php/JBD/article/view/1899>.

Ministère du travail, de la santé et des solidarités. 2022. 'La loi Rixain : Accélérer la participation des femmes à la vie économique et professionnelle'. Ministère du travail, de la santé et des solidarités. 17 May 2022. <https://travail-emploi.gouv.fr/actualites/l-actualite-du-ministere/article/la-loi-rixain-accelerer-la-participation-des-femmes-a-la-vie-economique-et>.

O'Leary, Jane. 1997. 'Developing a New Mindset: The "Career Ambitious" Individual'.

Women in Management Review 12 (3): 91–99.

<https://doi.org/10.1108/09649429710171127>.

United Nations. 2015. 'United Nations: Gender Equality and Women's Empowerment'.

United Nations Sustainable Development. 2015.

<https://www.un.org/sustainabledevelopment/gender-equality/>.

Zenger, Jack, and Joseph Folkman. 2020. 'Research: Women Are Better Leaders During a

Crisis'. *Harvard Business Review*, 30 December 2020. <https://hbr.org/2020/12/research-women-are-better-leaders-during-a-crisis>.

Scarcity Framing

Eagly, Alice H., and Steven J. Karau. 2002. 'Role Congruity Theory of Prejudice toward

Female Leaders'. *Psychological Review* 109 (3): 573–98. <https://doi.org/10.1037/0033-295X.109.3.573>.

Field, Emily, Alexis Krivkovich, Sandra Kügele, Nicole Robinson, and Lareina Yee. 2023.

‘Women in the Workplace 2023 Report | McKinsey’.

<https://www.mckinsey.com/featured-insights/diversity-and-inclusion/women-in-the-workplace#/>.

Fortune. 2024. ‘Fortune Global 500 – The Largest Companies in the World by Revenue’.

Fortune. 2024. <https://fortune.com/ranking/global500/2024/search/>.

Gorman, Elizabeth H., and Julie A. Kmec. 2007. ‘We (Have to) Try Harder: Gender and

Required Work Effort in Britain and the United States’. *Gender & Society* 21 (6): 828–56. <https://doi.org/10.1177/0891243207309900>.

Grant Thornton. 2024. ‘Women in Business: The Global Picture’.

<https://www.grantthornton.global/en/insights/women-in-business/the-global-picture/>.

Hoobler, Jenny M., Sandy J. Wayne, and Grace Lemmon. 2009. ‘Bosses’ Perceptions of

Family-Work Conflict and Women’s Promotability: Glass Ceiling Effects’. *Academy of Management Journal* 52 (5): 939–57. <https://doi.org/10.5465/amj.2009.44633700>.

Novotney, Amy. 2024. ‘Women Leaders Make Work Better. Here’s the Science behind How to Promote Them’. American Psychological Association (APA). 8 July 2024.

<https://www.apa.org/topics/women-girls/female-leaders-make-work-better>.

World Economic Forum. 2022. ‘Global Gender Gap Report 2022’.

<https://www.weforum.org/publications/global-gender-gap-report-2022/in-full/2-4-gender-gaps-in-leadership-by-industry-and-cohort/>.

Zenger, Jack, and Joseph Folkman. 2020. ‘Research: Women Are Better Leaders During a

Crisis’. *Harvard Business Review*, 30 December 2020. <https://hbr.org/2020/12/research-women-are-better-leaders-during-a-crisis>.

Neutral Framing

- Eagly, Alice H., and Steven J. Karau. 2002. 'Role Congruity Theory of Prejudice toward Female Leaders'. *Psychological Review* 109 (3): 573–98. <https://doi.org/10.1037/0033-295X.109.3.573>.
- European Parliament. 2022. 'Parliament Approves Landmark Rules to Boost Gender Equality on Corporate Boards | News | European Parliament'. 22 November 2022. <https://www.europarl.europa.eu/news/en/press-room/20221118IPR55706/parliament-approves-landmark-rules-to-boost-gender-equality-on-corporate-boards>.
- Fortune. 2024. 'Fortune Global 500 – The Largest Companies in the World by Revenue'. Fortune. 2024. <https://fortune.com/ranking/global500/2024/search/>.
- Gorman, Elizabeth H., and Julie A. Kmec. 2007. 'We (Have to) Try Harder: Gender and Required Work Effort in Britain and the United States'. *Gender & Society* 21 (6): 828–56. <https://doi.org/10.1177/0891243207309900>.
- Hopkins, Margaret M., Deborah A. O'Neil, Angela Passarelli, and Diana Bilimoria. 2008. 'Women's Leadership Development Strategic Practices for Women and Organizations'. *Consulting Psychology Journal: Practice and Research* 60 (4): 348–65. <https://doi.org/10.1037/a0014093>.
- Kimball, Taylor D., Rebecca J. Reichard, and Emily L. Chan. 2021. 'Women's Leader Development Programs: Current Landscape and Recommendations for Future Programs'. *Journal of Business Diversity* 21 (4). <https://articlearchives.co/index.php/JBD/article/view/1899>.
- Knipfer, Kristin, Brooke Shaughnessy, Tanja Hentschel, and Ellen Schmid. 2017. 'Unlocking Women's Leadership Potential: A Curricular Example for Developing Female Leaders in

Academia'. *Journal of Management Education* 41 (2): 272–302.

<https://doi.org/10.1177/1052562916673863>.

Ministère du travail, de la santé et des solidarités. 2022. 'La loi Rixain : Accélérer la participation des femmes à la vie économique et professionnelle'. Ministère du travail, de la santé et des solidarités. 17 May 2022. <https://travail-emploi.gouv.fr/actualites/l-actualite-du-ministere/article/la-loi-rixain-accelerer-la-participation-des-femmes-a-la-vie-economique-et>.

O'Leary, Jane. 1997. 'Developing a New Mindset: The "Career Ambitious" Individual'.

Women in Management Review 12 (3): 91–99.

<https://doi.org/10.1108/09649429710171127>.

Rosenbaum, James E. 1979. 'Tournament Mobility: Career Patterns in a Corporation'.

Administrative Science Quarterly 24 (2): 220–41. <https://doi.org/10.2307/2392495>.

United Nations. 2015. 'United Nations: Gender Equality and Women's Empowerment'.

United Nations Sustainable Development. 2015.

<https://www.un.org/sustainabledevelopment/gender-equality/>.

Zenger, Jack, and Joseph Folkman. 2020. 'Research: Women Are Better Leaders During a

Crisis'. *Harvard Business Review*, 30 December 2020. [https://hbr.org/2020/12/research-](https://hbr.org/2020/12/research-women-are-better-leaders-during-a-crisis)

[women-are-better-leaders-during-a-crisis](https://hbr.org/2020/12/research-women-are-better-leaders-during-a-crisis).

I.III Comparability Data

Appendix Table 1. Script Wordcount & Video Length

	Script Wordcount	Video Length
Motivational	374	138 s
Neutral	384	153 s
Scarcity	386	148 s
Mean	381.33	6.33

II Questionnaires

The final survey questionnaires used in the experiment are provided below. Question titles and scale names are included for clarification but were not shown to participants while they underwent the study. Items that were reverse-coded for the subsequent analysis are marked with an asterisk (*). To access the questionnaires, respondents first had to agree to the university's standardized informed consent form stating that they both want to and are eligible to participate.

Pilot Questionnaire

Demographic Questions

D1 | What gender do you identify with most?

- Woman
- Man
- Non-binary / third gender
- Prefer not to say
- Other (please specify)

D2 | Do you identify as transgender?

- Yes
- No
- Prefer not to say

D3 | How old are you?

D4 | What is your nationality?

D5 | What country do you currently reside in?

D6 | What is the highest level of education you have completed?

- High School or equivalent
- Professional/Vocational Training
- Bachelor's Degree (B.A./B.Sc.)
- Master's Degree (M.A./M.Sc.)
- Doctorate (PhD, EdD, etc.)
- Other (please specify)

D7 | What is your current employment status?

- Employed full-time
 - Employed part-time
 - Self-employed
 - Unemployed and looking for work
 - Unemployed and unable to work
 - Student
 - Retired
 - Other (please specify)
-

D8 | What is your current or most recent occupational role?

D9 | What is the level of seniority in your current or most recent role, and do you have any leadership responsibilities?

- Entry-level (no leadership responsibilities)
- Mid-level (some leadership responsibilities, such as leading projects or teams)
- Senior-level (significant leadership responsibilities, such as managing departments or large teams)
- Executive-level (top management responsibilities, such as C-suite or director-level)
- Other (please specify)

D10 | In which sector or industry do you currently / did you most recently work?

- Technology
- Healthcare
- Education
- Finance
- Government/Public Sector
- Non-profit/NGO
- Retail
- Manufacturing
- Hospitality
- Other (please specify)

D11 | What type of organization do you currently / did you most recently work for?

- Startup/Scaleup
- Small business (fewer than 50 employees)
- Medium-sized business (50-500 employees)
- Large corporate (500+ employees)
- Non-profit organization
- Governmental organization
- Educational institution
- Other (please specify)

D12 | How many years of professional work experience do you have?

- 0-1 years
- 2-5 years
- 6-10 years
- 11-15 years
- 16+ years

D13 | Are you interested in a leadership position in the future?

- Yes
- Maybe
- No

D14.1 | Do you have any leadership experience?

- Yes
-

-
- No

D14.2 | How many years of leadership experience do you have?

- < 1 year
- 1-3 years
- 4-5 years
- 6+ years

D15.1 | Have you received any leadership training?

- Yes
- No

D15.2 | If yes, please specify the type of training you have received. (i.e. program name or institution)

D16.1 | Have you participated in women-only leadership training?

- Yes
- No

D16.2 | If yes, please specify the type of women-only training you have received. (i.e. program name or institution)

Video Manipulation

Please watch the following video carefully - we recommend activating full-screen mode on the bottom right corner of the video. The video is approximately 2,5 minutes long. The continue button will only pop up a few seconds after the end of the video. Please don't click continue until you finish watching the video as you will not be able to come back to it once you move onto the next page.

--- RANDOMLY ASSIGNED VIDEO ---

Quality Measures

The following statements will ask you about the video you just watched. There are no right or wrong answers.

Trainer Likability | Please indicate to which degree you agree with the following statements.

(1 - Strongly disagree, 2 - Somewhat disagree, 3 - Neither agree nor disagree, 4 - Somewhat agree, 5 - Strongly agree)

- The trainer in this video is friendly.
- This trainer is likable.
- This trainer is warm.
- This trainer is approachable.
- This trainer is knowledgeable.

Clarity of Message | Please indicate to which degree you agree with the following statements.

(1 - Strongly disagree, 2 - Somewhat disagree, 3 - Neither agree nor disagree, 4 - Somewhat agree, 5 - Strongly agree)

- This video was clear.
 - This video was straightforward.
 - This video made sense.
 - This video was easy to understand.
 - This video was easy to follow.
 - The information from the video appears to be true.
 - This video provided relevant information for introducing a leadership training program.
 - The information I received from the video encompasses what I would want to know about a leadership training program.
-

Self-Report Engagement | Please indicate to which degree you agree with the following statements.

(1 - Strongly disagree, 2 - Somewhat disagree, 3 - Neither agree nor disagree, 4 - Somewhat agree, 5 - Strongly agree)

- During viewing, I was fully concentrating on the video.
- When I was viewing the video, my thoughts were only with the video.
- The video helped me to have a better understanding of the principles of women's leadership.
- The audio was sufficient for me to comprehend the video.
- During viewing, I was hardly aware of the space around me.
- The video part (not the audio part) of the video was unnecessary.*
- The video was interesting.
- The ideas presented in the video were clear.
- The video was presented at a pace that allowed me to understand the content
- The pace of the video was slower than necessary.*

Manipulation Check

Short PANAS | The trainer in the video conveyed a message that was...

(1 - Very slightly or not at all, 2 - A little, 3 - Moderately, 4 - Quite a bit, 5 - Extremely)

- Determined
- Attentive
- Alert
- Inspired
- Active
- Afraid*
- Nervous*
- Upset*
- Ashamed*
- Hostile*

Additional Items | While watching the video, I felt...

(1 - Strongly disagree, 2 - Somewhat disagree, 3 - Neither agree nor disagree, 4 - Somewhat agree, 5 - Strongly agree)

- Motivated
 - Empowered
 - Hopeful
 - Optimistic
 - Demotivated*
 - Intimidated*
 - Hopeless*
 - Pessimistic*
-

Main Study Questionnaire

Demographic Questions

D1 | What gender do you identify with most?

- Woman
- Man
- Non-binary / third gender
- Prefer not to say
- Other (please specify)

D2 | Do you identify as transgender?

- Yes
- No
- Prefer not to say

D3 | How old are you?

D4 | What is your nationality?

D5 | What country do you currently reside in?

D6 | What is the highest level of education you have completed?

- High School or equivalent
- Professional/Vocational Training
- Bachelor's Degree (B.A./B.Sc.)
- Master's Degree (M.A./M.Sc.)
- Doctorate (PhD, EdD, etc.)
- Other (please specify)

D7 | What is your current employment status?

- Employed full-time
- Employed part-time
- Self-employed
- Unemployed and looking for work
- Unemployed and unable to work
- Student
- Retired
- Other (please specify)

D8 | What is your current or most recent occupational role?

D9 | What is the level of seniority in your current or most recent role, and do you have any leadership responsibilities?

- Entry-level (no leadership responsibilities)
 - Mid-level (some leadership responsibilities, such as leading projects or teams)
 - Senior-level (significant leadership responsibilities, such as managing departments or large teams)
 - Executive-level (top management responsibilities, such as C-suite or director-level)
-

-
- Other (please specify)

D10 | In which sector or industry do you currently / did you most recently work?

- Technology
- Healthcare
- Education
- Finance
- Government/Public Sector
- Non-profit/NGO
- Retail
- Manufacturing
- Hospitality
- Other (please specify)

D11 | What type of organization do you currently / did you most recently work for?

- Startup/Scaleup
- Small business (fewer than 50 employees)
- Medium-sized business (50-500 employees)
- Large corporate (500+ employees)
- Non-profit organization
- Governmental organization
- Educational institution
- Other (please specify)

D12 | How many years of professional work experience do you have?

- 0-1 years
- 2-5 years
- 6-10 years
- 11-15 years
- 16+ years

D13 | Are you interested in a leadership position in the future?

- Yes
- Maybe
- No

D14.1 | Do you have any leadership experience?

- Yes
- No

D14.2 | How many years of leadership experience do you have?

- < 1 year
- 1-3 years
- 4-5 years
- 6+ years

D15.1 | Have you received any leadership training?

- Yes
- No

D15.2 | If yes, please specify the type of training you have received. (i.e. program name or institution)

D16.1 | Have you participated in women-only leadership training?

- Yes
- No

D16.2 | If yes, please specify the type of women-only training you have received. (i.e. program name or institution)

Personality-Related Questions

On the following pages, you will be asked to reflect on a variety of statements about yourself and your opinions in general. There are no right or wrong answers. Please respond to all of the items; do not leave any blank. Please be as accurate and honest as you can be.

Big Five 40-Mini Marker | Please use this list of common human traits to describe yourself as accurately as possible. Describe yourself as you see yourself at the present time, not as you wish to be in the future. Describe yourself as you are generally or typically, as compared with other persons you know of the same sex and of roughly your same age. Please rate each trait indicating how accurately that trait describes you.

(1 - Not accurately at all, 2 - Slightly accurately, 3 - Moderately accurately, 4 - Very accurately, 5 - Extremely accurately)

- Bashful*
 - Bold
 - Careless*
 - Cold*
 - Complex
 - Cooperative
 - Creative
 - Deep
 - Disorganized*
 - Efficient
 - Energetic
 - Envious*
 - Extraverted
 - Fretful*
 - Harsh*
 - Imaginative
 - Inefficient*
 - Intellectual
 - Jealous*
 - Kind
 - Moody*
 - Organized
 - Philosophical
 - Practical
 - Quiet*
 - Relaxed
 - Rude*
 - Shy*
 - Sloppy*
 - Sympathetic
 - Systematic
 - Talkative
 - Temperamental*
-

-
- Touchy*
 - Uncreative*
 - Unenvious
 - Unintellectual*
 - Unsympathetic*
 - Warm
 - Withdrawn*

Core Self-Evaluation | Please indicate to which degree you agree with the following statements.

(1 - Strongly disagree, 2 - Somewhat disagree, 3 - Neither agree nor disagree, 4 - Somewhat agree, 5 - Strongly agree)

- I am confident I get the success I deserve in life.
- Sometimes I feel depressed.*
- When I try, I generally succeed.
- Sometimes when I fail I feel worthless.*
- I complete tasks successfully.
- Sometimes, I do not feel in control of my work.*
- Overall, I am satisfied with myself.
- I am filled with doubts about my competence.*
- I determine what will happen in my life.
- I do not feel in control of my success in my career.*
- I am capable of coping with most of my problems.
- There are times when things look pretty bleak and hopeless to me.*

Growth vs. Fixed Mindset | Please indicate to which degree you agree with the following statements.

(1 - Strongly disagree, 2 - Somewhat disagree, 3 - Neither agree nor disagree, 4 - Somewhat agree, 5 - Strongly agree)

- You have a certain amount of intelligence, and you can't really do much to change it.*
- Your intelligence is something about you that you can't change very much.*
- No matter who you are, you can significantly change your intelligence level.
- To be honest, you can't really change how intelligent you are.*
- You can always substantially change how intelligent you are.
- You can learn new things, but you can't really change your basic intelligence.*
- No matter how much intelligence you have, you can always change it quite a bit.
- You can change even your basic intelligence level considerably.

Regulatory Focus I | This set of statements asks you about specific events in your life. Please rate each trait indicating how frequently each statement applies to you.

(1 - Never, 2 - Sometimes, 3 - About half the time, 4 - Most of the time, 5 - Always)

- Compared to most people, are you typically unable to get what you want out of life?*
 - Growing up, would you ever "cross the line" by doing things that your parents would not tolerate?*
 - How often have you accomplished things that got you "psyched" to work even harder?
 - Did you get on your parents' nerves often when you were growing up?*
 - How often did you obey rules and regulations that were established by your parents?
-

-
- Growing up, did you ever act in ways that your parents thought were objectionable?*
 - Do you often do well at different things that you try?
 - Not being careful enough has gotten me into trouble at times.*

Regulatory Focus II | Please rate each trait indicating how accurately each statement applies to you.

(1 - Certainly untrue, 2 - Somewhat untrue, 3 - Neither true nor untrue, 4 - Somewhat true, 5 - Certainly true)

- When it comes to achieving things that are important to me, I find that I don't perform as well as I ideally would like to do.*
- I feel like I have made progress toward being successful in my life.
- I have found very few hobbies or activities in my life that capture my interest or motivate me to put effort into them.*

Achievement Motives | Please indicate to which degree you agree with the following statements.

(1 - Strongly disagree, 2 - Somewhat disagree, 3 - Neither agree nor disagree, 4 - Somewhat agree, 5 - Strongly agree)

- I like situations, in which I can find out how capable I am.
- When I am confronted with a problem, which I can possibly solve, I am enticed to start working on it immediately.
- I enjoy situations, in which I can make use of my abilities.
- I am appealed by situations allowing me to test my abilities.
- I am attracted by tasks, in which I can test my abilities.
- I am afraid of failing in somewhat difficult situations, when a lot depends on me.
- I feel uneasy to do something if I am not sure of succeeding.
- Even if nobody would notice my failure, I'm afraid of tasks, which I'm not able to solve.
- Even if nobody is watching, I feel quite anxious in new situations.
- If I do not understand a problem immediately I start feeling anxious.

Video Manipulation

On the following page you will be shown a video. Please make sure that the sound of your device is enabled and you're in a quiet environment. For the best experience, we recommend you to use headphones.

Please watch the following video carefully - we recommend activating full-screen mode on the bottom right corner of the video. The video is approximately 2,5 minutes long. The continue button will only pop up a few seconds after the end of the video. Please don't click continue until you finish watching the video.

--- RANDOMLY ASSIGNED VIDEO ---

Manipulation Check

Now, think back to the video you just watched as you reflect on the following statements. Again, there are no right or wrong answers.

Please indicate to which degree you agree with the following statements.

(1 - Strongly disagree, 2 - Somewhat disagree, 3 - Neither agree nor disagree, 4 - Somewhat agree, 5 - Strongly agree)

- It is particularly difficult for women to break into leadership roles.
 - Only a few women manage to attain leadership positions in today's workforce.
 - I feel confident and inspired to pursue leadership opportunities.
-

-
- The prospect of becoming a leader makes me feel empowered and motivated.
-

Leadership Outcome Measures

Career Aspirations | Please indicate to which degree you agree with the following statements.

(1 - Strongly disagree, 2 - Somewhat disagree, 3 - Neither agree nor disagree, 4 - Somewhat agree, 5 - Strongly agree)

- I hope to become a leader in my career field.
- I do not plan to devote energy to getting promoted to a leadership position in the organization or business in which I am working.*
- Becoming a leader in my job is not at all important to me.*
- When I am established in my career, I would like to manage other employees.
- I want to have responsibility for the future direction of my organization or business.
- Attaining leadership status in my career is not that important to me.*
- I hope to move up to a leadership position in my organization or business.
- I plan to rise to the top leadership position of my organization or business.

Intention to Apply | Please indicate to which degree the following statements apply to you.

(1 - Strongly disagree, 2 - Somewhat disagree, 3 - Neither agree nor disagree, 4 - Somewhat agree, 5 - Strongly agree)

- If I saw a job opening for a leadership position, I would apply for it.
- If I were searching for a job, I would apply to a leadership position.
- I would exert a great deal of effort to work in a leadership position.

Leadership Self-Efficacy | Please indicate to which degree you agree with the following statements.

(1 - Strongly disagree, 2 - Somewhat disagree, 3 - Neither agree nor disagree, 4 - Somewhat agree, 5 - Strongly agree)

- I would be able to set a new direction for a group, if the one currently taken doesn't seem correct to me.
- I am sure I can usually change the attitudes and behaviors of group members if they don't meet group objectives.
- I am able to change things in a group even if they are not completely under my control.
- I am confident in my ability to choose group members in order to build up an effective and efficient team.
- I am able to optimally share out the work between the members of a group to get the best results.
- I would be able to delegate the task of accomplishing specific goals to other group members.
- I am usually able to understand to whom, within a group, it is better to delegate specific tasks.

Leadership Self-Identity | Please indicate to which degree you agree with the following statements.

(1 - Strongly disagree, 2 - Somewhat disagree, 3 - Neither agree nor disagree, 4 - Somewhat agree, 5 - Strongly agree)

- I am a leader.
 - I see myself as a leader.
 - If I had to describe myself to others, I would include the word 'leader'.
 - I prefer being seen by others as a leader.
 - I feel confident that I can be a leader in most situations.
 - I am confident that I can lead others effectively.
 - I am confident that I can lead a group to perform effectively.
 - I am confident of my ability to influence a group I lead.
-

-
- I am confident that I can help group overcome obstacles.
 - I am confident of my ability to set a direction for the group.
 - I am confident of my ability to gain commitment from others.

Motivation to Lead | Please indicate to which degree you agree with the following statements.
(1 - Strongly disagree, 2 - Somewhat disagree, 3 - Neither agree nor disagree, 4 - Somewhat agree, 5 - Strongly agree)

- Most of the time, I prefer being a leader rather than a follower when working in a group.
- I am the type of person who is not interested to lead others.*
- I am definitely not a leader by nature.*
- I am the type of person who likes to be in charge of others.
- I believe I can contribute more to a group if I am a follower rather than a leader.*
- I usually want to be the leader in the groups that I work in.
- I am the type who would actively support a leader but prefers not to be appointed as leader.*
- I have a tendency to take charge in most groups or teams that I work in.
- I am seldom reluctant to be the leader of a group.

Debrief & Final Comments

As part of our Master's theses, we are working to understand how leadership training can better support and inspire women to pursue leadership roles, considering women currently make up only one in four leaders globally. Our research explores how three different approaches to leadership development can (positively) impact women's motivation and whether tailoring these programs to individual personality types can enhance their effectiveness. For the survey you just took, you were randomly assigned to one of three different video interventions: (1) the first presenting rather empowering and motivating recent trends and opportunities, such as supporting landmarks and guidelines; (2) the second focusing on the many obstacles and challenges, such as the glass ceiling and cliff, women face as opposed to their male counterparts; and (3) the third being rather neutral and informative, including both opportunities and challenges. We hypothesize that the first approach is most positively related to women's motivation to lead, followed by the second and lastly third approach. We further are seeking to verify whether this might differ amongst different personality types. Your input is helping us identify ways to create more empowering leadership opportunities for women. Thank you for participating!

Researching Students: Anne Przybilla, Caroline Céard

Supervision: Professor Jenny Hoobler

Do you have any comments?

Additional References for Pre-Video Measures in Main Experiment

Note: For more detailed information on the pre-video measures used, please refer to co-researcher Caroline Céard's project.

Dahme, Gisela, Dietmar Jungnickel, and Hermann Rathje. 1993. 'Güteeigenschaften Der Achievement Motives Scale (AMS) von Gjesme Und Nygard (1970) in Der Deutschen Übersetzung von Göttert Und Kuhl—Vergleich Der Kennwerte Norwegischer Und Deutscher Stichproben. [Psychometric Properties of a German Translation of the Achievement Motives Scale (AMS): Comparison of Results from Norwegian and German Samples.]'. *Diagnostica* 39 (3): 257–70.

Dweck, Carol S. 2000. *Self-Theories: Their Role in Motivation, Personality, and Development*. Psychology Press.

Higgins, E. Tory, Ronald S. Friedman, Robert E. Harlow, Lorraine Chen Idson, Ozlem N. Ayduk, and Amy Taylor. 2001. 'Achievement Orientations from Subjective Histories of Success: Promotion Pride versus Prevention Pride'. *European Journal of Social Psychology* 31 (1): 3–23. <https://doi.org/10.1002/ejsp.27>.

Judge, Timothy A., Amir Erez, Joyce E. Bono, and Carl J. Thoresen. 2003. 'The Core Self-Evaluations Scale: Development of a Measure'. *Personnel Psychology* 56 (2): 303–31. <https://doi.org/10.1111/j.1744-6570.2003.tb00152.x>.

Lang, Jonas W.B., and Stefan Fries. 2006. 'A Revised 10-Item Version of the Achievement Motives Scale'. *European Journal of Psychological Assessment* 22 (3): 216–24. <https://doi.org/10.1027/1015-5759.22.3.216>.

Saucier, Gerard. 1994. 'Mini-Markers: A Brief Version of Goldberg's Unipolar Big-Five Markers'. *Journal of Personality Assessment* 63 (3): 506–16. https://doi.org/10.1207/s15327752jpa6303_8.

III Experiment Manipulation Check

To be complete, below, we provide the descriptive statistics results of the manipulation check for the main study grouped by each of the three conditions.

Appendix Table 2. Descriptive Statistics for Manipulation Check

		N	Mean	Std. Deviation	Minimum	Maximum
mancheck_scarcity	Motivational	46	3.40	.800	1.50	5.00
	Scarcity	48	4.10	.743	2.00	5.00
	Neutral	50	3.60	.857	1.00	5.00
	Total	144	3.70	.850	1.00	5.00
mancheck_motivational	Motivational	46	4.49	.553	3.50	5.00
	Scarcity	48	4.13	.740	2.50	5.00
	Neutral	50	4.25	.764	2.50	5.00
	Total	144	4.28	.706	2.50	5.00
mancheck ^a	Motivational	46	3.54	.381	2.75	4.50
	Scarcity	48	3.01	.579	2.00	4.50
	Neutral	50	3.33	.653	2.00	5.00
	Total	144	3.29	.591	2.00	5.00

a. Descriptive data of the combined mancheck variable were computed using reverse-coded mancheck_scarcity values.

IV Statistical Analysis of Pilot Data

Appendix Table 3. Descriptive Statistics for Pilot

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
Pos.PANAS	Motivational	16	3.49	.580	.145	3.179	3.796	2.60	4.40
	Neutral	12	3.37	.830	.240	2.839	3.894	2.40	4.60
	Scarcity	17	3.29	.840	.204	2.862	3.726	2.20	4.60
	Total	45	3.38	.742	.111	3.159	3.605	2.20	4.60
Neg.PANAS	Motivational	16	1.28	.623	.156	.943	1.607	1.00	3.20
	Neutral	12	1.52	.624	.180	1.120	1.913	1.00	3.00
	Scarcity	17	1.74	.845	.205	1.307	2.176	1.00	3.60
	Total	45	1.52	.728	.109	1.297	1.734	1.00	3.60
Pos.Additional	Motivational	16	3.02	1.014	.254	2.475	3.556	1.50	4.75
	Neutral	12	3.00	1.133	.327	2.280	3.720	1.75	4.50
	Scarcity	17	2.87	1.193	.289	2.254	3.481	1.00	5.00
	Total	45	2.96	1.093	.163	2.627	3.284	1.00	5.00
Neg.Additional	Motivational	16	1.34	.473	.118	1.092	1.596	1.00	2.50
	Neutral	12	1.63	.506	.146	1.304	1.946	1.00	2.50
	Scarcity	17	1.65	.964	.234	1.151	2.143	1.00	3.50
	Total	45	1.53	.706	.105	1.321	1.746	1.00	3.50
Pos.ALL	Motivational	16	3.28	.649	.162	2.932	3.624	2.22	4.44
	Neutral	12	3.20	.943	.272	2.605	3.803	2.11	4.56
	Scarcity	17	3.10	.963	.233	2.610	3.600	1.67	4.67
	Total	45	3.19	.842	.125	2.940	3.445	1.67	4.67
Neg.ALL	Motivational	16	1.31	.514	.129	1.032	1.579	1.00	2.67
	Neutral	12	1.56	.472	.136	1.265	1.865	1.00	2.44
	Scarcity	17	1.70	.770	.187	1.304	2.095	1.00	3.56
	Total	45	1.52	.625	.093	1.336	1.711	1.00	3.56

Appendix Table 4. ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Pos.PANAS	Between Groups	.312	2	.156	.274	.762
	Within Groups	23.914	42	.569		
	Total	24.226	44			
Neg.PANAS	Between Groups	1.791	2	.896	1.747	.187
	Within Groups	21.528	42	.513		
	Total	23.319	44			
Pos.Additional	Between Groups	.213	2	.106	.085	.918
	Within Groups	52.323	42	1.246		
	Total	52.536	44			
Neg.Additional	Between Groups	.896	2	.448	.893	.417
	Within Groups	21.054	42	.501		
	Total	21.950	44			
Pos.ALL	Between Groups	.249	2	.125	.169	.845
	Within Groups	30.921	42	.736		
	Total	31.170	44			
Neg.ALL	Between Groups	1.306	2	.653	1.726	.190
	Within Groups	15.895	42	.378		
	Total	17.201	44			