9-29-2022

The Effects of Leader Support for Creativity and Leader Gender on Subordinate Creative Problem-Solving Performance

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Recommended Citation

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Abstract

Ample correlational research shows that leader support for creativity is related to subordinate creativity, yet research examining the causality of this relationship experimentally is scant. Furthermore, most studies that demonstrate support for this relationship have used relatively subjective creativity measures that do not tap as effectively into the creative problem-solving process. Thus, we experimentally examined whether leader support for creativity affects subordinate creative problem-solving performance. We also examined whether this relationship depends on leader gender. We used experimental vignette methodology and a sample of 247 working adults to test these relationships. We found that high (vs. low) leader support for creativity resulted in a significantly higher number of ideas generated. Additionally, post-hoc analyses showed that high (vs. low) leader support for creativity resulted in a significantly higher number of original ideas and higher number of quality ideas generated. We also found that when the leader was a woman (vs. man), average originality of ideas was significantly higher. We found no significant interactive effects of leader support for creativity and leader gender. We discuss how this study further elucidates our understanding of leader support for creativity, as well as avenues for future creativity research involving leader gender.

Keywords: creative problem-solving performance, leader support for creativity, leader gender, experimental vignette methodology

The Effects of Leader Support for Creativity and Leader Gender on

Subordinate Creative Problem-Solving Performance

Over the past few decades, organizations have undergone fast-paced changes in globalization, surges in competition, and transformative developments in technology and artificial intelligence. Within the past few years alone, the coronavirus pandemic has posed a whole new host of never-before-seen challenges for employers and employees alike. In response to these changes, both academia and industry have looked to the power of creativity, arguing the skill's importance for employee and organizational performance (e.g., Anderson et al., 2014; Belsky, 2020; World Economic Forum, 2016; 2020).

Organizational scholars have therefore sought to better understand the factors that influence employee creativity, concentrating on personality (e.g., Kim et al., 2010; Oldham & Cummings, 1996; Shalley et al., 2004), cognition (e.g., Mannucci & Yong, 2018; Reiter-Palmon & Illies, 2004), and context (e.g., Amabile et al., 2004; Hora et al., 2021; Mumford et al., 1997; Oldham & Cummings, 1996; Shalley et al., 2004). Indeed, organizational researchers have paid particular attention to the contextual influence of leadership on employee creativity (e.g., Amabile et al., 2004; Hughes et al., 2018; Reiter-Palmon & Illies, 2004; Shalley & Gilson, 2004; Tierney & Farmer, 2004; Oldham & Cummings, 1996), with a great deal of research on the positive influence of leader support for creativity (e.g., Kim et al., 2010; Madjar, 2008; Madjar et al., 2002). To our knowledge, despite ample research showing correlational support, studies have yet to experimentally examine whether leader support for creativity *affects* employee creativity and have yet to examine this particular relationship using relatively more objective measures of creativity (i.e., creative problem-solving performance)[1].

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[1]Redmond et al., (1993) conducted a laboratory experiment that assessed the effect of specific leadership behaviors regarding problem construction, learning goals, and feelings of self-efficacy on creative performance (i.e., idea

Research also indicates that leaders are perceived and evaluated differently depending on their gender (e.g., Johnson et al., 2008; Rhee & Sigler, 2015; Watson & Hoffman, 2004), with some, albeit limited, research showing that leader gender can have differential effects on employee task performance (e.g., Rice et al., 1980). Researchers argue that these gender differences are rooted in gender stereotypes stemming from social roles; that is women are expected to exhibit nurturing, communal behaviors, while men are expected to exhibit competitive, agentic behaviors (Eagly & Karau, 2002; Eagly & Wood, 2012). Due to the perceived mismatch between expectations of women (e.g., women are communal) and prototypical leadership characteristics (e.g., leaders are agentic), women in leadership roles are subject to greater prejudice compared to men, which ultimately negatively influences their leadership success (Eagly & Karau, 2002). What is more, research also suggests that compared to women, men reap better outcomes for exhibiting communal leadership behaviors such as perceptions of leader effectiveness and promotability (Hentschel et al., 2018), follower innovative work behaviors (Reuvers et al., 2008), and follower performance (Wang et al., 2013). Given these gender differences in leadership outcomes, investigating leader gender and its effect on the relationship between leader support for creativity and subordinate creativity seems particularly warranted.

Altogether, regarding the relationship between leader support for creativity and subordinate creativity, researchers have limited evidence of causality via experimental design, have little understanding of leader support for creativity's effect on creative problem-solving performance, and have yet to examine the influence of leader gender. Accordingly, given calls

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originality and idea quality). Škerlavaj et al. (2014) conducted a laboratory experiment that assessed the effect of generic leader support (i.e., perceived supervisor support) and employee creative performance (i.e., idea generation and idea implementation).

for: (1) more use of experimental design in the study of leadership (e.g., Podsakoff & Podsakoff, 2019), (2) a deeper understanding of leader support's influence on subordinate creativity (e.g., Amabile et al., 2018; Hughes et al., 2018), and (3) a greater focus on the role of gender in creativity (e.g., Hora et al., 2021), we aimed to fill these research gaps. Specifically, we experimentally examined the effects of leader support for creativity and leader gender on subordinate creative problem-solving performance. By conducting this research, we hoped to better explicate the influence these contextual factors have on this increasingly valuable workplace skill.

Leader Support for Creativity

Leaders play a particularly important role in establishing and shaping an environment that unlocks employee creativity (Amabile et al., 2004; Hughes et al., 2018; Mumford et al., 2002; Reiter-Palmon & Illies, 2004; Shalley & Gilson, 2004; Tierney & Farmer, 2004). One way leaders can foster this environment is by exhibiting support for their employee's creative endeavors. According to Mumford et al. (2002), leader support for creativity involves withholding criticism, judgement, and negative attitudes while an employee is producing and developing ideas, as well as acknowledging and rewarding the generation of novel ideas (i.e., idea support). Leader support for creativity also involves providing the employee with requisite resources to produce and implement novel ideas (i.e., work support). Finally, leader support for creativity involves validating the employee's self-worth by boosting their self-efficacy and competence related to the task at hand (i.e., social support). A seminal longitudinal study conducted by Amabile and colleagues (2004) also sheds light on leader behaviors that signal a work environment that supports creativity. These behaviors include exhibiting positive supporting (e.g., champion their actions and decisions, keep them abreast of stressful issues, help

relieve their negative feelings), monitoring (e.g., provide them with guidance and constructive positive feedback), recognizing (e.g., recognize their good performance in private and public), and consulting behaviors (e.g., ask for their ideas and opinions), among others (e.g., collaborating with subordinates).

Expectedly, several field studies have found a positive relationship between leader support for creativity and subordinate creativity (e.g., Kim et al., 2010; Madjar, 2008; Madjar et al., 2002). Madjar et al. (2002) found employee perceived supervisor support for creativity was positively related to supervisor evaluations of creativity. Madjar (2008) expanded this line of research finding that both perceived emotional and informational support for creativity from supervisors was positively linked to supervisor-evaluated creativity. Research has also shown positive relationships between general leader support and other creativity criterion variables, such as peer-evaluations of creativity (e.g., Amabile et al., 2004) and the number of patent disclosures written by employees (e.g., Oldham & Cummings, 1996).

Although studies demonstrate a positive relationship between leader support for creativity and subordinate creativity, few have established causal support via experimental design. One notable study was conducted by Redmond and colleagues (1993). Using a sample of 96 university students, the researchers manipulated the following leader behaviors: self-efficacy (high vs. low), goal type (learning vs. performance), and problem construction (supplemental instruction provided vs. no supplemental instruction provided). Participants were asked to come up with solutions to a marketing problem, and these solutions were subsequently rated for their originality and quality. Results indicated that leader behaviors had a direct effect on participants' creative performance. Specifically, the authors found that bolstering self-efficacy and encouraging engagement in problem construction aided the originality and quality of

participants' solutions. Though leader support for creativity was not directly manipulated in this study, these findings shed light on its potential effects on subordinate creative problem-solving performance.

Another experimental study worth noting was conducted by Škerlavaj et al. (2014). Using 124 undergraduate students, the authors examined whether generic leader support moderated the inverted U-shaped relationship between creative-idea generation and idea implementation found in a separate study. In the first phase of their experimental study, participants were asked to individually come up with ideas for a job advertisement. Here, creative-idea generation was manipulated by asking participants to generate either uncreative, moderately creative, or very creative ideas. After completing this first phase, participants entered the second phase of the experiment. In this phase, participants were asked to get in groups of four or five, write and draw out their ideas for a job advertisement, and help fellow group members implement their design ideas. Here, leader support was manipulated by providing instructions that emphasized aspects like constructive feedback, task clarity, and positive reinforcement (i.e., high support) or limited feedback, lack of interest, and ignorance (i.e., low support). Ideas from the first phase were rated for quality and originality, and ideas from the second phase were rated for innovation. The authors found that leader support buffered the curvilinear relationship between creative-idea generation and idea implementation by making it positive and linear. Though the authors manipulated generic leader support, this study provides insight into the effect of leader support for creativity. Evidently, it is hard to ignore the potentially confounding influence of peer-support on this task. Thus, experimental research methodology that better isolates the effect of leader support for creativity is still needed.

Experimentally Examining the Effects of Leader Support for Creativity

Clearly, several studies demonstrate leader support for creativity is positively related to subordinate creativity. If we were to consider the many other positive, communal leadership constructs and styles widely studied in creativity research today, that number of studies markedly increases (Hughes et al, 2018; Mainemelis et al., 2015; e.g., generic leader support, transformational leadership; leader-member-exchange; empowering leadership, servant leadership). Bearing in mind the wealth of preexisting research, why should we experimentally examine leader support for creativity's effect on subordinate creativity?

To start, it is important we recognize that leader support in general is conceptually and empirically different from other seemingly alike leadership constructs and styles (Cheung & Wong, 2011; Hughes et al., 2018; Mainemelis et al., 2015; Shalley & Lemoine, 2018; Tu et al., 2019). As Shalley and Lemoine (2018) points out in their review of leadership behaviors and employee creativity, leader support is a "general leadership behavior, unconnected to any specific style" (Introduction section, para. 2). In another review of leadership and creativity, Hughes et al. (2018) makes clear that support for creativity is a leadership attribute categorically distinct from positive leadership styles. Researchers have also distinguished between leader support and positive leadership styles in their empirical investigations (e.g., Cheung & Wong, 2011; Tu et al., 2019). For example, Cheung and Wong (2011) examined leader support as a moderator in the relationship between transformational leadership and subordinate creativity. Taking this distinction one step further, we examined leader support *for creativity* in the present study, meaning we did not focus on leader support broadly, but leader support specific to creative undertakings.

Secondly, as mentioned, the relationship between leader support for creativity and subordinate creativity has mostly been examined via field studies; this means the strong causal

evidence between these two constructs is limited[2]. Undoubtedly, the contributions these field studies have made are important to our understanding of leadership and employee creativity in the "real world". What is more, based on cross-sectional (e.g., Madjar et al., 2002) and longitudinal research (e.g., Amabile et al., 2004) thus far, we arguably have reason to believe that two of the three commonly argued conditions necessary to draw causal conclusions have been met: (1) covariation (i.e., changes in leader support for creativity leads to changes in subordinate creativity) and (2) temporal precedence (i.e., leader support for creativity causes subordinate creativity and not the other way around). However, previous empirical work cannot, with certainty, meet the third condition necessary to establish a causal relationship: (3) plausible, alternative explanations for the observed relationship have been ruled out.

To illustrate, most of the abovementioned field studies used employee-rated measures to assess leader support; these measures can be clouded by attitudes towards the leader (e.g., fear of leader obtaining ratings), misread for another phenomenon (e.g., supervisor close monitoring), or be the result of another positive, communal, facilitative influence (e.g., transformational leadership, leader-member-exchange, indirect leadership support from more senior levels, organizational climate factors, peer support). Since there is a plethora of positive, communal leadership phenomena, each considered to facilitate subordinate creativity (Mainemelis et al., 2015), it is arguably even more important we tease the influence of these concepts apart and experimentally examine whether leader support for creativity alone *affects* subordinate creativity. In doing so, we can "establish cause-and-effect relationships critical to the development of knowledge in the organizational and behavioral sciences" and help "develop a better understanding of the complex world in which we live" (pp. 11-12; Podsakoff & Podsakoff,

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[2] There are ways researchers can optimize the ability of cross-sectional and longitudinal research to infer causation. For more information, see Spector (2019).

2019). Though it may go without saying, our understanding of organizational phenomena ultimately requires field and experimental research.

Finally, most of the abovementioned field studies examined creativity using supervisor- or peer-ratings. These other-ratings have their strong suits (e.g., considered more objective than self-report creativity), but can still be complicated by attitudes towards the employee (e.g., liking or disliking the employee's commitment to the organization, liking or disliking the employee's motivation to work), or reported under misconceptions about creativity (e.g., creativity is more affiliated with artistic domains, creativity is more prevalent in younger individuals). Additionally, other-rated creativity does not tap into the specifics of the creative problem-solving process as effectively as other creativity measurement approaches. Creative problem-solving, which involves creativity, is the process of producing novel and useful ideas to solve ambiguous, ill-defined problems (Mumford et al., 1991; Mumford et al., 1997). Although many models exist (e.g., for a review, see Mumford et al., 1991), researchers generally agree that the creative problem-solving process involves idea generation (i.e., generating ideas to solve the problem; divergent thinking) and idea evaluation (i.e., assessing which ideas should be selected, adapted, or rejected given the problem; convergent thinking). These cognitive processes are considered central for arriving at a creative product (Mumford et al., 1991; Mumford et al., 1997). Consequently, by using creative problem-solving performance as a criterion, we can gain a better understanding of how central aspects of the creative problem-solving process (e.g., idea generation, idea evaluation, idea novelty, and idea usefulness) are differentially affected by variables of interest. Though creativity researchers have taken this criterion approach to measuring employee creativity before (e.g., Carmeli et al., 2013; Redmond et al., 1993; Škerlavaj et al., 2014), more could be done pertaining to the examination of leader support for creativity.

Given recent calls for a deeper dive into leader support's influence (e.g., Amabile et al., 2018), as well as calls to look afresh at taken-for-granted relationships in leadership and creativity (e.g., Hughes et al., 2018), research that further clarifies our understanding of leader support for creativity's effect on subordinate creative problem-solving performance appears important.

Taken together, we investigated the effect of leader support for creativity on subordinate creative problem-solving performance across two different processes (i.e., idea generation and idea selection). We not only expected relationships to be positive, but to be able to make stronger causal claims through use of experimental design. Taking this research one step further, we aimed to unpack the role of leader gender, a widely examined variable in leadership research yet to be examined in the leader support-subordinate creativity research space.

Leadership and Gender

One factor that may affect the relationship between leader support for creativity and subordinate creative problem-solving performance is leader gender. Research indicates that men are perceived and evaluated as more effective leaders than women, even when exhibiting comparable behaviors (e.g., Johnson et al., 2008; Rhee & Sigler, 2014; Watson & Hoffman, 2004). For instance, a lab study conducted by Watson and Hoffman (2004) found that women failed to be viewed and liked as leaders compared to men in their problem-solving groups, despite displaying comparable levels of competence, participation, and influence in their groups. Another study conducted by Rhee and Sigler (2014) asked participants to watch movie clips in which leader gender (men vs. women) and leadership style (participatory vs. authoritarian) were manipulated. Results showed that men were rated as more effective leaders than women regardless of whether the leadership style exhibited was participatory or authoritarian. The authors also found that participants preferred to work with leaders who were men, and that

women who exhibited an authoritarian style of leadership were penalized most. Studies have found a similar effect of leader gender on relatively objective measures of employee task performance, though research examining this type of criterion is scant (Eagly et al., 1995; Vecchio, 2003). For example, Rice and colleagues (1980) conducted an experimental study to assess whether task performance differed across female-led and male-led groups. The authors had 72 groups complete tasks rated by two independent judges. The authors ultimately found a main effect such that male-led groups performed better than female-led groups. There have since been calls for greater use of more objective leadership effectiveness measures when studying the role of leader gender (e.g., output quantity, independently judged output quality; Vecchio, 2003) – something we do in the present study in our assessment of creative performance.

Now what explains these gender differences in leadership outcomes? Based on social role theory, differences in perceptions between men and women are rooted in gender stereotypes stemming from social roles; women are stereotypically expected to exhibit communal behaviors, while men are stereotypically expected to exhibit agentic behaviors (Eagly & Karau, 2002; Eagly & Wood, 2012). According to Eagly and Karau's (2002) role congruity theory, an extension of social role theory, women in leadership roles experience prejudice because of contradictions between characteristics of their gender stereotype (e.g., nurturing, communal) and characteristics of prototypical leadership (e.g., competitive, agentic). This prejudice against women can manifest in two forms. The first form regards women being evaluated less favorably when it comes to leadership potential because leadership is typically associated with masculinity. The second form regards women leaders being evaluated less favorably because it is less desirable for women to perform leadership behaviors compared to men. These prejudices can lead to a number of negative outcomes for women, including reduced effectiveness in their leadership role

compared to men.

In line with role congruity theory, we can expect that subordinate creative performance will be better under the leadership of men compared to women. Can we still expect the same pattern of findings when taking the effect of leader support for creativity into account? Although there is clear congruence between leader support for creativity behaviors and the women gender stereotype, research shows that men have an advantage in reaping positive outcomes when exhibiting positive, communal leadership styles (e.g., Hentschel et al., 2018; Reuvers et al., 2008; Wang et al., 2013). For instance, Hentschel et al. (2018) found that the positive relationship between transformational leadership and effectiveness evaluations, and transformational leadership and promotability evaluations, was stronger for men compared to women. These authors also found that communality and effectiveness evaluations mediated the positive relationship between transformational leadership and promotability evaluations, and this mediation was present for men but not women.

Regarding subordinate performance outcomes, Wang et al. (2013) found that benevolent leadership positively influenced subordinate creativity, task performance, altruism towards colleagues, and conscientiousness, and these positive relationships were stronger for men (vs. women). In another study, Reuvers et al. (2008), using a sample of 335 healthcare workers, found that transformational leadership was positively related to follower innovative behavior, and that this relationship was stronger under leaders who were men (vs. women). Reuvers and colleagues (2008) reasoned women may be simply expected to exhibit transformational leadership behaviors given their gender stereotype; in contrast, men may be commended since the transformational leadership style is counter to theirs. Hentschel and colleagues (2018) furthered this point by discussing that men may be experiencing a communality-bonus effect

when exhibiting communal leadership behaviors. It is therefore possible that men experience this communality bonus when displaying leader support to drive creative performance too. In other words, it is possible that the positive effect of leader support for creativity on subordinate creative problem-solving performance is stronger under the leadership of men compared to women.

Unfortunately, as mentioned, there is a lack of research examining the influence of leader gender on relatively objective measures of subordinate performance (Eagly et al., 1995; Vecchio, 2003). Additionally, as mentioned, there have been calls to increase use of these types of measures so we can better understand the influence of leader gender (Vecchio, 2003). What is also sparse is research examining leader gender in the creativity space; this is especially surprising since researchers and practitioners have called attention to the gender disparities that exist and persist in the workplace, particularly in leadership, for several decades. Rightfully, researchers have recently made pleas to better understand the role of gender in creativity (e.g., Hora et al., 2021), especially since recent research shows that men are ascribed as more creative and innovative compared to women (e.g., Luksyte et al., 2018; Proudfoot et al., 2015). Thus, understanding whether leader gender differences exist in the leader support for creativity-subordinate creativity relationship seems warranted.

The Present Study

In summary, correlational research shows that leader support for creativity is related to subordinate creativity, but few studies have examined the causal nature of this relationship experimentally. In addition, most of the pre-existing literature has examined this relationship with relatively subjective creativity measures (e.g., supervisor- or peer-ratings), leaving our understanding of leader support for creativity's influence on more objective measures, like

creative problem-solving performance, limited. Furthermore, men and women leaders have been shown to be perceived and evaluated differently, as well as influence subordinate outcomes differently, even when exhibiting comparable behaviors. Given theory and research (e.g., role congruity theory; communality bonus effect) show that gender differences in leadership perceptions, evaluations, and effectiveness outcomes are in favor of men, it is possible that the effect of leader support for creativity on subordinate creative performance depends on leader gender. Accordingly, we employed experimental vignette methodology to investigate whether leader support for creativity (high vs. low) and leader gender (male vs. female) affect subordinate creative problem-solving performance. We hypothesized the following:

1. Leader support for creativity will positively affect creative problem-solving performance, such that participants in the high leader support for creativity condition will have higher creative performance scores (i.e., idea generation and selection) compared to participants in the low leader support for creativity condition.

2. Drawing on role congruity theory, leader gender will affect creative problem-solving performance, such that participants in the male leader condition will have higher creative performance scores (i.e., idea generation and selection) compared to participants in the female leader condition.

3. Drawing on the communality-bonus effect, leader support for creativity and leader gender will jointly affect creative problem-solving performance, such that the positive effect of leader support for creativity on creative performance scores (i.e., idea generation and selection) will be stronger for participants in the male leader condition compared to the female leader condition.

Method

Participants

Data were collected online via Qualtrics, an online survey tool, from 375 working adults recruited from Amazon Mechanical Turk (MTurk), an online crowdsourcing marketplace that provides researchers access to a larger, more demographically diverse subject pool than traditional research samples (Aguinis et al., 2021). Since participant attrition and inattention is a concern salient to MTurk research, we took several rectifying actions that coincide with implementation guidelines offered by Aguinis and colleagues (2021). These actions included collecting additional data from participants beyond the ideal final sample size, administering several attention checks throughout the study, adding open-ended questions that were subsequently screened to ensure data quality, and ensuring all anchors of scales administered were labeled. In taking these actions, we aimed to better ensure participants were truly invested in completing our study.

Of the 375 participants, 313 answered all four of our attention checks correctly. Upon visual inspection of open-response data, 66 participants were flagged for providing responses that appeared to come from a bot, script, or other automated answering tool, and were subsequently removed from analysis. The final participant sample was 247 working adults (62.8% male, 37.2% female). The mean age was 34 years old ($Mdn = 31$; $SD = 8.68$). Most participants identified as White (71.3%), followed by Asian (11.3%), Black/African American (8.1%), Hispanic/Latino/Spanish (4.0%), multiracial (2.8%), and American Indian/Alaska Native (2.4%). Most participants reported holding a bachelor's degree (48.2%) and reported working 35 or more hours a week on average (89.1%). Participants indicated an average job position tenure of 3.93 years ($SD = 3.37$). The survey took an average of 17 minutes to complete, and

participants were compensated US$1.25 for their participation[3].

Procedure

We informed participants that the purpose of the study was to understand the relationship between workplace factors and problem-solving performance. We asked participants to provide demographic information first, including gender. After responding to the demographic questionnaire, we randomly assigned participants into one of four conditions based on their reported gender; in doing so, we controlled for any possible influences participant gender could have on results (e.g., relational demographic effects, Tsui & O'Reilly, 1989; same-gender bias effects, Eagly et al., 1992, Eagly et al., 1995; gender bias in encoding leader behaviors, see Shen & Joseph, 2021 for a review). The study was a 2 (high vs. low leader support for creativity) x 2 (male vs. female leader) design that resulted in four experimental conditions: (1) high leader support for creativity from a woman, (2) high leader support for creativity from a man, (3) low leader support for creativity from a woman, and (4) low leader support for creativity from a man.

We asked all participants, regardless of condition, to read a vignette describing a hypothetical situation occurring within a fictional organization. In this situation, the organization was noted to be losing employees and seeing decreases in employee productivity. Believing that the issue stemmed from the organization's inability to provide competitive wages, the organization's Vice President asked the participant's supervisor to help improve the situation. The vignette indicated that the supervisor did not know how to solve this problem and accordingly turns to the participant, their subordinate, for help.

After the vignette, we presented participants with an instructional note from their

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[3] Although the compensation rate for this study at the time of data collection was above the median wage of US$2.00 per hour for MTurk workers (Hara et al., 2018), we must acknowledge that this rate is less than US federal minimum wage. Accordingly, we recommend researchers pay participants at least US federal minimum wage when sampling from crowdsourcing platforms.

supervisor. The supervisor instructed participants to generate as many ideas to solve the

organization's problem. In addition to generating solutions, the supervisor asked participants to

select the solution they thought would be best to implement. Ultimately, the supervisor engaged

participants in a creative problem-solving task. It should be noted that we presented identical

information to participants across conditions apart from the leader's level of support for

creativity (high vs. low) and gender (male vs. female).

To manipulate leader support for creativity, participants in the high leader support for

creativity condition were provided an instructional note from their supervisor that included

phrases a leader supportive of creativity would communicate (e.g., "Your contributions to

[organization] have been valuable", "I believe your ideas will help us to solve our

[organization's] issues", "I encourage you to take risks when generating ideas", and "[I] am

curious to see what you come up with"). Phrases such as these echo leader behaviors theorized

and found to signal high leader support for creativity to employees (e.g., positive supporting,

recognizing, consulting behaviors, Amabile et al., 2004; idea, work, and socioemotional support

behaviors; Mumford et al., 2002). Participants in the low leader support for creativity condition

were provided an instructional note from their supervisor that simply told the participant to

complete the task at hand (i.e., "Your job is to generate as many ideas to solve [organization's]

problem.").

To manipulate leader gender, the name of the leader presented in the female leader

condition was "Julie Smith", whereas the name was "Stephen Smith" in the male leader

condition. The last name "Smith" was chosen, as this surname is one of the most common in the

United States (U.S. Census Bureau, 2016). The first names were chosen because they have been

shown to elicit similar average ratings in perceived age, warmth, and competence (Newman et

al., 2018).

Manipulation Checks

Leader Support for Creativity

To assess the effectiveness of our leader support for creativity manipulation, we asked participants to respond to a five-item measure designed specifically for the study. The measure was constructed with consideration of several leader support for creativity measures previously used in creativity research (e.g., encouragement scale from Dewett, 2006; supervisor creativity-supportive behavior scale from Tierney & Farmer, 2004). We asked participants to rate these items on a scale of 1 (*Strongly Disagree*) to 5 (*Strongly Agree*). The five items presented randomly included: (1) "My supervisor encouraged me to solve the problem creatively", (2) "My supervisor believed that I was capable of coming up with creative solutions", (3) "My supervisor indicated that my suggested solutions would be valued", (4) "My supervisor encouraged me to take creative risks in solving the problem", (5) "My supervisor bolstered my confidence in solving the problem". The measure met an acceptable level of internal consistency ($\alpha = .85$).

Leader Gender

To assess the effectiveness of our leader gender manipulation, we asked participants two questions: "What was the name of your supervisor?" and "What was the gender of your supervisor?". Participants could indicate "Julie Smith", "Stephen Smith" or "I could not determine" for the name question, and "Female", "Male", or "I could not determine" for the gender question.

Pilot Testing

We pilot tested to ensure the effectiveness of these manipulations. For information on how pilot testing informed the main study, see Appendix A.

Creative Performance

As mentioned, participants were asked by their supervisor to generate multiple solutions to an ill-defined problem and select the solution they thought would be best to implement. This creative problem-solving task allowed us to generate five types of creativity scores: idea fluency, average originality, average quality, selected idea originality, and selected idea quality. These five types of scores ultimately yielded measures of creative ideation and evaluation.

For idea fluency, the number of ideas generated were counted to create a score for each participant. For average originality and quality, research assistants with training in creativity rated ideas using a modified version of Amabile's (1982; 1996) Consensual Assessment Technique (for more information, see Reiter-Palmon, 2020). Three raters independently evaluated each idea for originality, and another three raters independently evaluated each idea for quality. Originality was defined as the degree to which a given idea was novel and was evaluated on a scale of 1 (*Very Unoriginal*) to 5 (*Very Original*). Quality was defined as the degree to which a given idea was appropriate and was evaluated on a scale of 1 (*Very Low Quality*) to 5 (*Very High Quality*). Inter-rater agreement and reliability were determined through obtaining within-group agreement (r_{wg}) and intraclass correlation coefficients (ICCs). Results indicated that originality ratings, $r_{wg} = .81$; ICC(2, 3) $= .82$, and quality ratings, $r_{wg} = .75$; ICC(2, 3) $= .70$, met acceptable levels of reliability (James et al., 1984; Lebreton & Senter, 2008; Shrout & Fleiss, 1979). We therefore averaged ratings across each set of three raters to obtain a single score for each idea. Idea scores were then averaged across participants to obtain an average originality score and average quality score for each participant. Finally, we averaged ratings for the ideas selected as best to implement across each set of three raters, resulting in a selected idea originality score and selected idea quality score for each participant. For more information on

examples of solutions and how they were rated, please see Appendixes B and C.

Results

Manipulation Checks

As expected, participants in the high leader support for creativity condition ($M = 4.36$, $SD = 0.54$) compared to those in the low leader support for creativity condition ($M = 3.58$, $SD = 0.82$) reported experiencing significantly higher levels of leader support for creativity, $t(207.46) = 8.77$, $p < .001$, $d = 1.13$. Furthermore, a two-way analysis of variance (ANOVA) was conducted examining leader support for creativity scores as the dependent variable to ensure leader support for creativity and leader gender were manipulated independently. Results indicated a significant main effect for leader support for creativity, $F(1, 243) = 77.43$, $p < .001$, no main effect for leader gender, $F(1, 243) = 0.02$, $p = .886$, and no interactive effect of leader support for creativity and leader gender, $F(1, 243) = 0.01$, $p = .939$. The leader support for creativity manipulation was therefore considered successful.

Additionally, majority of participants correctly recalled the name and gender of their leader. For the female leader condition, 98.4% of participants correctly reported their leader's name was Julie, while 94.4% of participants in the male leader condition correctly reported their leader's name was Stephen, $\chi^2(2) = 221.16$, $p < .001$. For the female leader condition, 84.6% of participants correctly reported their leader was female, while 91.9% of participants in the male leader condition correctly reported their leader was male, $\chi^2(2) = 158.93$, $p < .001$. The leader gender manipulation was therefore also considered successful.

Main Analyses

Descriptive statistics and correlations between all five dependent variables can be found in Table 1. We present the results of each two-way between-subjects ANOVA test for each

dependent variable below.

For idea fluency, we found a significant main effect of leader support for creativity, $F(1,$ 243) = 6.11, p = .014, η_p^2 = .03, such that participants experiencing high leader support for creativity generated a significantly greater number of ideas (M = 6.48, SD = 4.38) than those experiencing low leader support for creativity (M = 5.26, SD = 3.29). In contrast, we did not find a main effect of leader gender, $F(1, 243)$ = 0.15, p = .700. We also did not find an interactive effect of leader support for creativity and leader gender, $F(1, 243)$ = 0.001, p = .977. For more information, see Figure 1.

We did not find a main effect of leader support for creativity on average originality, $F(1,$ 243) = 1.80, p = .181. We did, however, find a significant main effect of leader gender, $F(1, 243)$ = 4.84, p = .029, η_p^2 = .02, such that average originality was significantly higher under the female leader (M = 2.28, SD = 0.62) compared to the male leader (M = 2.11, SD = 0.55). We did not find an interactive effect of leader support for creativity and leader gender, $F(1, 243)$ = 0.36, p = .549. For more information, see Figure 2.

For average quality, we found no main effect of leader support for creativity, $F(1, 243)$ = 0.38, p = .538, no main effect of leader gender, $F(1, 243)$ = 0.64, p = .423, and no interactive effect of leader support for creativity and leader gender, $F(1, 243)$ = 0.12, p = .729. We also found similar non-significant results for selected idea originality, such that there was no main effect of leader support for creativity, $F(1, 243)$ = 1.81, p = .180, no main effect of leader gender, $F(1, 243)$ = 1.72, p = .190, and no interactive effect of leader support for creativity and leader gender, $F(1, 243)$ = 1.19, p = .277. Likewise, for selected idea quality, we found no main effect of leader support for creativity, $F(1, 243)$ = 0.11, p = .744, no main effect of leader gender, $F(1,$

243) = 0.04, *p* = .836, and no interactive effect of leader support for creativity and leader gender, *F*(1, 243) = 0.16, *p* = .691.

Post-Hoc Analyses

Some creativity researchers contend that fluency is not a sufficient proxy for creativity, arguing that generating a high quantity of ideas does not necessarily equate to generating a high quantity of *creative* ideas (e.g., Reiter-Palmon et al., 2019). Given this argument, we conducted post-hoc analyses on two additional dependent variables: fluency of original ideas (i.e., the number of ideas with an average rating of three or higher on the originality rating scale) and fluency of quality ideas (i.e., the number of ideas with an average rating of three or higher on the quality rating scale).

For fluency of original ideas, we found a significant main effect of leader support for creativity, *F*(1, 243) = 7.53, *p* = .007, η_p^2 = .03, such that participants experiencing high leader support generated a significantly greater number of original ideas (*M* = 1.94, *SD* = 3.07) than those experiencing low leader support for creativity (*M* = 1.08, *SD* = 1.45). We did not find a main effect of leader gender, *F*(1, 243) = 1.00, *p* = .317, nor did we find an interactive effect of leader support for creativity and leader gender, *F*(1, 243) = 0.76, *p* = .384. For more information, see Figure 3.

We also found a significant main effect of leader support for creativity on fluency of quality ideas, *F*(1, 243) = 10.03, *p* = .002, η_p^2 = .04, such that participants experiencing high leader support for creativity generated a significantly greater number of quality ideas (*M* = 0.44, *SD* = 0.87) than those experiencing low leader support for creativity (*M* = 0.17, *SD* = 0.43). Again, we did not find a main effect of leader gender, *F*(1, 243) = 0.21, *p* = .649, nor did we find

an interactive effect of leader support for creativity and leader gender, $F(1, 243) = 0.02$, $p = .891$.

For more information, see Figure 4.

<div align="center">

Discussion

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Overall, our results indicated that the relationship between leader support for creativity

and subordinate creative problem-solving performance did not depend on leader gender. Still,

this study provided nuanced insight into the leader support for creativity-subordinate creativity

relationship. Specifically, our results indicated that high (vs. low) leader support for creativity

positively affected idea fluency, or the number of ideas generated. Additionally, post-hoc

analyses showed that high (vs. low) leader support for creativity positively affected the fluency

of original ideas and the fluency of quality ideas. Our results also indicated that ideas were more

original under the leadership of a woman (vs. a man), shedding light on our undeveloped

understanding of leader gender's influence on subordinate creativity.

Research Implications

Leader Support for Creativity-Subordinate Creativity Relationship

This study contributes to the leader support for creativity-subordinate creativity literature

in two important ways. The first way regards the study's unique use of experimental

methodology. The second way regards how the study's findings build on current understanding

of this key relationship.

Experimental Methodology. We examined whether leader support for creativity

affected subordinate creative problem-solving performance using experimental methodology.

Prior to this study, most research examined this relationship using correlational research design.

Through an experimental approach, we were able to control the influence of leader support for

creativity more precisely, as well as mitigate the influence of potential extraneous variables (e.g.,

transformational leadership, leader-member-exchange, peer support). This control allowed us to better rule out alternative explanations and subsequently draw stronger causal claims regarding the relationship between leader support for creativity and subordinate creativity.

We also used creative problem-solving performance to assess subordinate creativity – a criterion considered relatively more objective. Previous research examining the leader support for creativity-subordinate creativity relationship typically used supervisor- or peer-ratings to assess creativity. Indeed, these types of creativity ratings have their strengths (e.g., considered more objective than self-ratings), but can still be riddled with biases stemming from prior experiences with employees. Moreover, other-ratings assume respondents are credible raters of creativity. Here, we were able to better control such biases by using independent raters to evaluate solutions to a creative problem-solving task, as well as boost the credibility of ratings by leveraging quasi-experts to assess responses.

Finally, we experimentally examined whether leader support for creativity affected two different processes of the creative problem-solving process: idea generation and idea selection. Most research at this point had examined subordinate creativity using measures that did not necessarily tap into the employee's creative problem-solving process. As mentioned, idea generation and idea evaluation are considered central cognitive processes for arriving at a creative product. By examining both subordinate idea generation and idea selection, we were able to observe the continuance of leader support for creativity's effects on different aspects of the creative problem-solving process.

Altogether, we (1) employed an experimental design, (2) used independent, quasi-experts to rate solutions to a creative problem-solving task, and (3) examined both idea generation and idea selection to understand leader support for creativity's effects. Through this study design, we

were able to better explicate the causal effect of leader support for creativity on subordinate

creativity, refining our understanding of this relationship overall.

      Leader Support for Creativity and Idea Fluency. Though the effect size was small, we

found that leader support for creativity positively affected idea fluency. Previous creativity

literature has shown that certain leader behaviors affect idea fluency (e.g., behaviors that

encourage knowledge sharing and exchange, Carmeli et al., 2013; transformational leadership

behaviors, Bono & Judge, 2003; Jung, 2001). Here, we uncovered that subordinate idea fluency

can be affected by another leader behavior, that of leader support for creativity (i.e., indicating

employee contributions are valued, believing employee ideas will meaningfully help, telling

employees to think about the problem in new and innovative ways, encouraging employees to

take risks when generating ideas, communicating interest in the ideas they generate). Though we

found that leader support for creativity affected subordinate idea fluency, we did not find that

leader support for creativity affected subordinates' average originality, average quality, selected

idea originality, or selected idea quality. These findings potentially indicate that leader support

for creativity may be beneficial for augmenting the quantity of ideas, but not necessarily the

creativity of ideas. Moreover, these findings potentially indicate that leader support for creativity

may be beneficial for divergent thinking processes, like idea generation, but not necessarily

convergent thinking processes, like idea selection. Since generating many ideas can aid in

solving a problem creatively, a high degree of leader support for creativity may be most

instrumental in situations when a larger pool of ideas is needed to be worked with, such as a

brainstorming session.

      One potential explanation for this finding may be the instructional note's focus on

generating multiple ideas, as opposed to generating only *creative* ideas. In line with theory and

research on employee reciprocity (e.g., Settoon et al., 1996), it is possible that participants in the

high leader support for creativity condition sought to reciprocate the level of support directed at

them by closely following the quantity-focused instructions. Employee reciprocity may therefore

explain why participants in the high (vs. low) leader support for creativity condition generated a

greater number of ideas in the end. Furthermore, creativity researchers have suggested that

quantity-focused instructions can increase the number but decrease the creativity of ideas

generated (e.g., Reiter-Palmon et al., 2019). This implication further reinforces the possibility

that the present study's quantity-focused instructions explains our idea fluency results.

As noted, some creativity researchers maintain that the number of ideas one generates

does not necessarily correspond to one's creativity (e.g., Reiter-Palmon et al., 2019). To

illustrate, an employee could come up with a single idea high in originality and quality, while a

second employee could come up with 10 ideas low in originality and quality. Based on idea

fluency scores, the second employee would be deemed more creative. To address this potential

concern, post-hoc analyses were conducted to assess whether leader support for creativity

affected the fluency of original ideas and the fluency of quality ideas. Keeping in mind that

effect sizes were yet again small, results indicated that subordinates in the high (vs. low) leader

support for creativity condition not only generated a greater number of original ideas, but also a

greater number of quality ideas. Thus, it may be that our instructions struck some sort of balance

between being quantity- and creativity-focused, but not enough to drive an effect on average idea

originality, average idea quality, or idea selection scores overall. Contrary to what was expected,

none of these findings depended on leader gender.

Leader Gender-Subordinate Creativity Relationship

We found that subordinate average originality was higher when the leader was a woman

(vs. a man), though the effect size was small. Research explaining this main effect is also limited, but one potential reason may be that participants were naturally influenced by stereotypical characteristics of women (e.g., being warm, caring, nurturing, communal) when completing this creative problem-solving task. As mentioned, women are expected to exhibit supportive behaviors because it falls in line with their gender stereotype. Consequently, the woman leader may have affected average originality because participants already prescribed this leader to be supportive. This idea falls in line with findings from Rice et al. (1980). In their study, the authors found that followers of male-led groups (vs. female-led groups) attributed successful task performance more to the leader's hard work and less to the luck of the group when it came to a structured task (i.e., drawing task assessed for accuracy), whereas this same follower attributions pattern was found amongst followers of female-led groups (vs. the male-led groups) when it came to an unstructured task (i.e., written proposal task assessed on originality, practicality, and completeness).

It is also worth noting that Eagly and colleagues' (1995) meta-analysis found that women are perceived as more effective in mid-level leadership positions compared to men. Eagly and colleagues (1995) argued that women may be better suited for mid-level leadership roles because these positions call for more cooperation and motivation to develop employees. More recently, Paustian-Underdahl et al. (2014) found that women were rated more effective leaders compared to men in mid-level positions, supporting Eagly et al.'s (1995) findings. Though not the intention of the present study, the supervisor in the vignette was described in a way that could have led participants to think the leader was in a mid-level leadership position. Consequently, our finding that subordinate average originality was greater under the leadership of a woman (vs. man) may be driven by the leader appearing to be in a mid-level leadership position.

Although we found that leader gender affected subordinate average originality, we did not find that leader gender affected subordinates' idea fluency, average quality, selected idea originality, or selected idea quality. Unsurprisingly, people tend to view generating original, novel ideas as inherently taking a risk. Our finding that women leaders better facilitate generation of original ideas could suggest that there is something about women that helps subordinates take said risk and generate ideas considered "outside the box"; our study found that the level of leader support for creativity exhibited was not one of them.

Practical Implications

This study's findings offer some implications for practice, though we urge practitioners to bear the small effect sizes accompanying these significant findings in mind. First, leaders should be aware that their support for creativity can be effective for generating many ideas. Their support for creativity may not necessarily increase the originality and quality of ideas, meaning leaders may need to take a different approach when it comes to boosting the creativity of ideas, such as emphasizing desires for originality and quality as opposed to quantity.

Second, leaders should be aware that their support for creativity may be more instrumental to divergent thinking processes, such as idea generation, but not necessarily convergent processes, such as idea selection. To illustrate, picture a leader asking their employee to find a creative solution to an ambiguous workplace problem. The leader's support for creativity may go a long way when it comes to that subordinate coming up with multiple ideas. However, when the subordinate goes to select an idea to implement, the leader may need to introduce supplementary support for creativity or take a different behavioral approach altogether.

Third, the ability of women leaders to drive subordinate idea originality should not go unnoticed. Men are typically viewed more favorably in "risk-taking" spaces compared to

women. Men are often, albeit stereotypically, perceived to be more willing to take risks than women in leadership positions (e.g., Horowitz et al., 2018). What is more, men in general are ascribed as more creative compared to women (e.g., Luksyte et al., 2018; Proudfoot et al., 2015). Though the effect size was small, the present study found that women leaders are better able to drive more novel, imaginative, and outside-the-box ideas compared to men. Despite more research being needed to confirm this effect, we believe it is still incumbent on organizations to not overlook women leaders and their ability to drive idea originality.

Limitations and Future Directions

Despite aims to provide a more robust understanding of the leader support for creativity-subordinate creativity relationship, experimental vignette methodology is not without limitations. Whereas experiments are important for establishing causality and demonstrating high internal validity, the present study suffers from low external validity. In other words, these results may not generalize to other populations across settings and time. To illustrate, this online study asked individuals to internalize a hypothetical situation of working for a mock organization under a mock leader. Future research may benefit from assessing the leader support for creativity-subordinate creativity relationship, and whether it depends on leader gender, using an in-person or field experiment. Approaches such as these may strengthen the situational salience for participants. Alternatively, researchers could employ the same methodology used in the present study but administer the vignette in a way that is more realistic to the work setting. For example, future research could format the supervisor's instructional note to appear like an email and instant message. This approach may also strengthen the situational salience for participants and have implications for how leaders can facilitate creativity in remote work situations.

Despite aims to assess both idea generation and idea selection, another potential

limitation was using a divergent thinking and creative problem-solving hybrid task to assess

subordinate creative problem-solving performance. Creative problem-solving tasks involve

asking participants to report a single answer to an ill-defined problem. This single answer

response allows participants to elaborate on their idea, thereby making evaluation of originality

and quality of solutions more obvious to raters (Reiter-Palmon & Arreola, 2015). Future research

may want to employ the present study's methodology and, instead, ask participants to generate a

single answer response to see whether results replicate.

Because leader support for creativity only affected subordinate idea fluency, future

research is also needed to understand what leader behaviors specifically enhance subordinate

idea originality and idea quality. Researchers may benefit from emphasizing desires for

originality and quality in their instructions, as opposed to quantity. Additionally, researchers may

want to examine whether additional leader support for creativity is needed when subordinates

enter a new creative process. Finally, researchers may benefit from examining whether a

different leader behavioral approach altogether is beneficial when subordinates enter convergent

processes of creativity. Certainly, leader gender should be considered in all these proposed

research avenues given research suggesting leader gender can influence perceptions, evaluations,

and effectiveness outcomes (e.g., Hentschel et al., 2018; Johnson et al., 2008; Reuvers et al.,

2008; Rhee & Sigler, 2015; Rice et al., 1980; Watson & Hoffman, 2004; Wang et al., 2013).

Finally, both replication and further exploration is needed to understand why women (vs.

men) were better able to drive subordinate idea originality. As mentioned, examining the effect

of leadership level may be an adequate starting point. Additionally, since industry is suggested to

have an influence on gender differences in leadership (e.g., Eagly & Karau, 2002), investigating

whether different effects arise based on the organization's industry could provide valuable

insights. Finally, as mentioned, previous research has proposed leader support for creativity is

comprised of idea, work, and social support (e.g., Mumford et al., 2002) and has examined the

relationship between emotional vs. informational leader support for creativity and subordinate

creativity (e.g., Madjar, 2008). It may therefore be worthwhile to examine whether leader gender

differences manifest given the type of leader support for creativity offered. Ultimately, greater

examination of gender in creativity is needed, and given theories and research demonstrating

gender differences in leadership, we believe that exploring gender differences in leadership's

effects on employee creativity is a fruitful avenue to explore.

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Table 1

*Descriptive Statistics and Correlations for Creativity Dependent Variables*

Variable	*M*	*SD*	Min	Max	1	2	3	4	5
1. Idea fluency	5.89	3.92	1	25	–				
2. Average originality	2.20	0.59	1.00	4.33	.15*	–			
3. Average quality	2.14	0.60	1.00	3.78	-.05	.55**	–		
4. Selected idea originality	2.12	0.73	1.00	4.33	.13*	.75**	.42**	–	
5. Selected idea quality	2.27	0.79	1.00	4.33	.10	.47**	.78**	.44**	–

Note. N = 247. Min = minimum; Max = maximum.
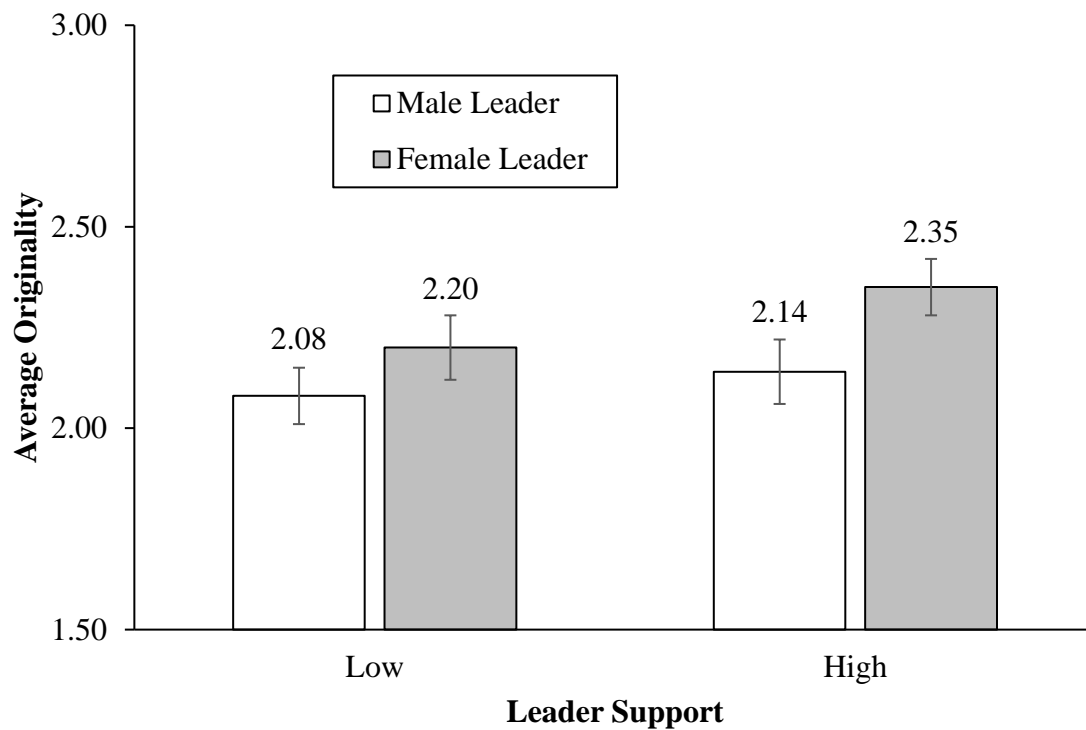
p < .05. **p* < .01.

Figure 1

Interactive Effect of Leader Support for Creativity and Leader Gender on Idea Fluency
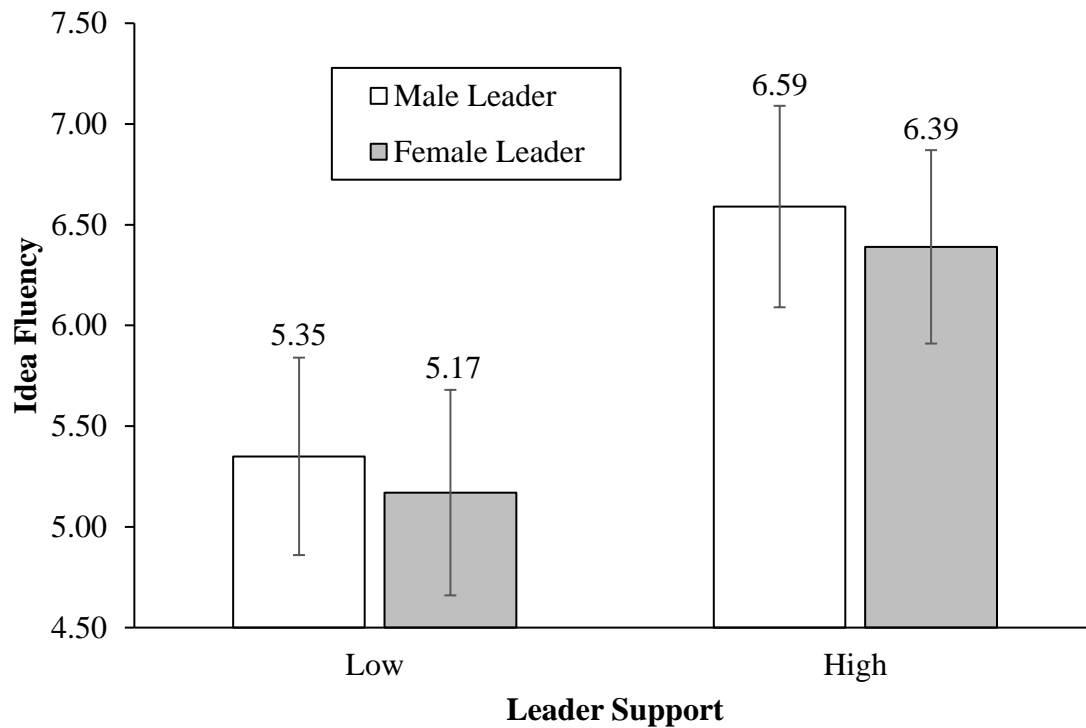
Note. This figure demonstrates a main effect of leader support for creativity on idea fluency. No main effect of leader gender or interactive effect of leader support for creativity and leader gender on idea fluency was found. Error bars show standard errors.
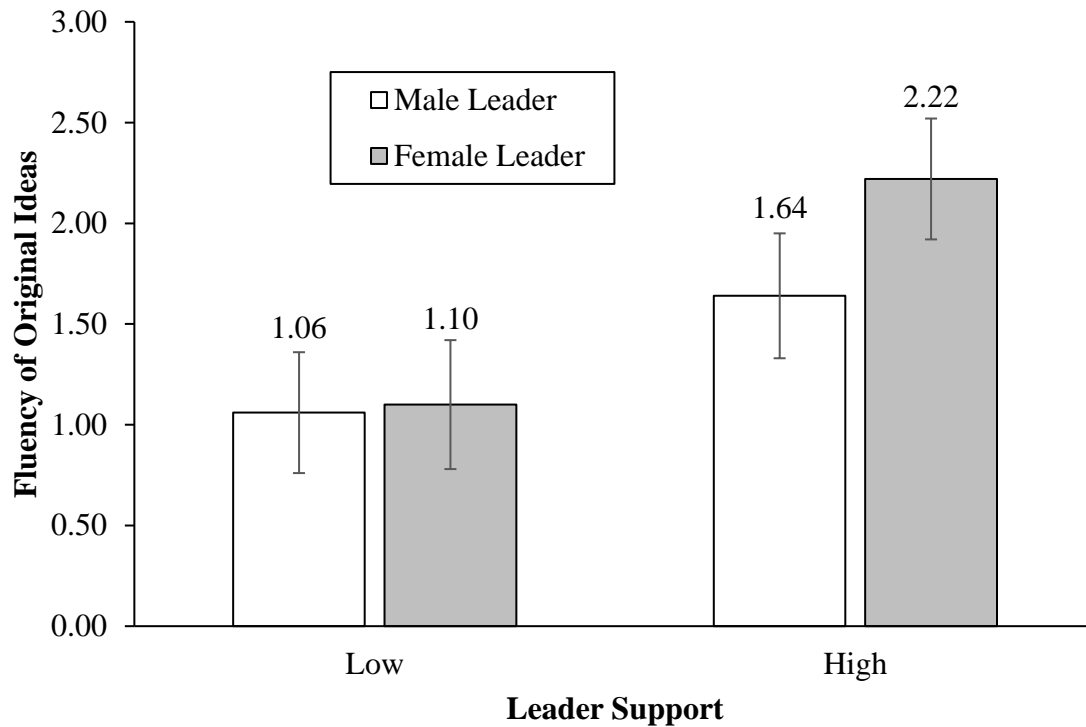
Figure 2

Interactive Effect of Leader Support for Creativity and Leader Gender on Average Originality

Note. This figure demonstrates a main effect of leader gender on average originality. No main effect of leader support for creativity or interactive effect of leader support for creativity and leader gender on average originality was found. Error bars show standard errors.
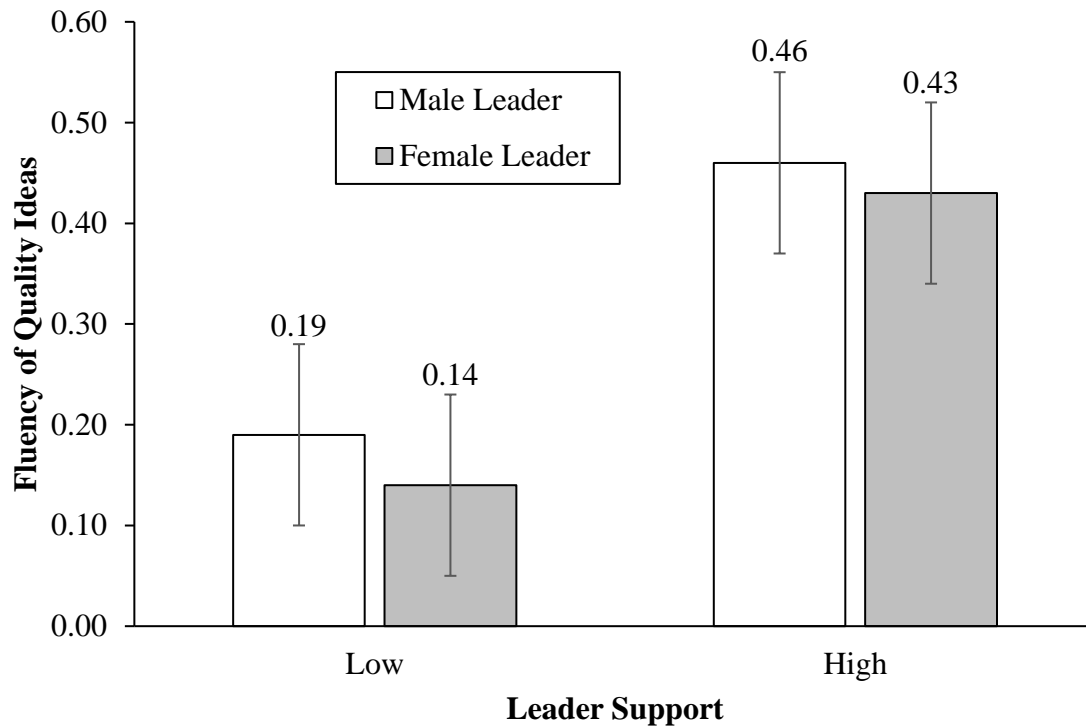
Figure 3

Interactive Effect of Leader Support for Creativity and Leader Gender on Fluency of Original

Ideas

Note. This figure demonstrates a main effect of leader support for creativity on fluency of

original ideas. No main effect of leader gender or interactive effect of leader support for

creativity and leader gender on fluency of original ideas was found. Error bars show standard

errors.

Figure 4

Interactive Effect of Leader Support for Creativity and Leader Gender on Fluency of Quality

Ideas

Note. This figure demonstrates a main effect of leader support for creativity on fluency of quality

ideas. No main effect of leader gender or interactive effect of leader support for creativity and

leader gender on fluency of quality ideas was found. Error bars show standard errors.

Appendix A

Additional Pilot Testing Details

Two pilot studies were conducted to assess the effectiveness of the leader support for creativity and leader gender manipulations. The same general procedure was employed across both pilot studies as described in the *Procedure* section. Each pilot study took approximately 10 minutes to complete, and participants were compensated US$1.00.

The first pilot study ($N = 39$) assessed both the leader support for creativity and leader gender manipulation. Results indicated that the leader gender manipulation was effective, meaning participants correctly identified the gender of their leader. However, results indicated that the leader support for creativity manipulation was not effective, meaning participants did not correctly indicate the level of support for creativity imposed.

We identified potential reasons for why the leader support for creativity manipulation in the first pilot study was not effective and made corresponding changes in the second pilot study. In the first pilot study, we included phrases like "your goal", "think about the problem in new and innovative ways", and "provide novel and inventive solutions to our problem" across both support conditions. These phrases could have come across as motivating and encouraging creativity to participants in the low leader support for creativity condition. Thus, in order to strengthen the leader support for creativity manipulation, we adapted instructions for the low leader support for creativity condition to be less supportive (i.e., "Your job is to generate as many ideas to solve [organization's] problem."). In the first pilot study, we also administered a 3-item measure to assess the leader support for creativity manipulation, but internal consistency was questionable ($\alpha = .67$). Moreover, after further examination of these three items, it was clear that the items asked more about leader task creativity expectations rather than leader support for

creativity. And so, we designed and administered a five-item measure (i.e., discussed in the

Manipulation Checks section) to better assess leader support for creativity for our study. Finally,

we decided to add two open-ended questions asking what participants' supervisor asked them to

do and what the most important points of the instructions were. This set of open-ended questions

was administered to allow for deeper processing of the leader support for creativity

manipulation. It is worth mentioning that we also leveraged a larger sample size in the second

pilot study to ensure statistical power.

Consequently, a second pilot study was conducted with the aforementioned changes. The

second pilot study ($N = 54$) assessed only the leader support for creativity manipulation. This

pilot study's results indicated that the leader support for creativity manipulation was effective,

meaning participants correctly indicated the level of support for creativity imposed. Thus, the

leader gender manipulation from the first pilot study and the leader support for creativity

manipulation from the second pilot study were used in the main study.

Appendix B

Idea Examples for Originality

Rating	Rating Label	Idea Example
1	Very unoriginal	Find a way to increase wages
2	Unoriginal	Hold weekly meetings about company's progress
3	Neutral	Give people a better title without giving them raises
4	Original	Company fitness center for employees to use at no cost. Equipment would be donated or purchased for minimal cost secondhand
5	Very original	Build a subway station that stops at the front of your company

Appendix C

Idea Examples for Quality

Rating	Rating Label	Idea Example
1	Very low quality	Emotional blackmail
2	Low quality	Change business direction to have a sharper edge in the business world
3	Average quality	Offer a giveaway or some sort of incentive for spreading the word about the company
4	High Quality	Facilitate a more cohesive environment, by providing team building activities at both a department and company level
5	Very High Quality	Organize collaborations with universities and schools, so that workers can understand the importance of their role by seeing with their own eyes the admiration that students feel towards them