Leader-Follower Risk Orientation Incongruence, Intellectual Stimulation, and Creativity: A Configurational Approach

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Abstract

Prior work suggests that follower and leader risk orientation is positively associated with follower creativity. We suggest that this view is oversimplified and propose that follower creativity can be stimulated when leader and follower have diverging risk orientations. We, therefore, apply a configurational approach to creativity, evaluating varying combinations of leader and follower risk orientation on follower creativity. Across two field studies, we demonstrate that: (a) follower creativity increases as leaders' and followers' risk orientations become more discrepant (i.e., incongruent); (b) follower creativity is higher when leader-follower dyads are congruent at moderate levels of risk orientation compared to congruence at the extremes (i.e., low and high levels); (c) follower experienced intellectual stimulation mediates the relationship between leader-follower risk-orientation incongruence and congruence and follower creativity; and (d) that leader authority openness moderates the indirect effect of leader-follower risk orientation incongruence on creativity via follower experienced intellectual stimulation. Theoretical and practical implications specific to creativity and leader-follower relationships are discussed.

Keywords: risk orientation; creativity; authority openness; follower experienced intellectual stimulation; leader-follower personality congruence

Being creative is risky (George & Zhou, 2007). With creativity comes uncertainty because not all creative ideas will be successful. Employees must balance the potential benefits (e.g., perceptions of maximal performance or organizational profit) of a successful new idea against the potential costs (e.g., diminished reputation or organizational waste) of a failed idea (Hirst, Van Kinppenberg, Chen, & Sacramento, 2011). Additionally, when an employee suggests changes in products, services, or processes to colleagues, this represents potential disturbances in job responsibilities, status dynamics, or job security (Perry-Smith & Mannucci, 2017). Thus, when employees float new ideas, they risk creating conflict because they are suggesting changes that alter the comfortable routines of their colleagues (Tims, Bakker, & Derks, 2015).

Theorists consistently propose that employees' risk orientation—the tendency to take or avoid risks when making decisions (Sitkin & Weingart, 1995)—should be related to engaging in acts of creativity (Amabile, 2013). When making decisions, individuals must consider the utility of several factors associated with that decision. Individuals high in risk orientation are unafraid of making decisions that have highly impactful and/or potentially detrimental consequences, even though the factors associated with that decision are uncertain, complex, or potentially inaccurate (DiVito & Bohnsack, 2017). Along these lines, prior scholars assume that employees high in risk orientation should be more comfortable being creative because they are less concerned with whether their creative activities will backfire or have unintended consequences (e.g., Dewett, 2006; Madjar, Greenberg, & Chen, 2011; Zhou, Wang, Song, & Wu, 2017).

Importantly, employees do not work in a creative vacuum; their creativity will be influenced by "significant others" within their work environment (Amabile, 2013). In particular, given their hierarchical position, leaders have plentiful opportunities and the requisite authority to reinforce creative behaviors (Magee & Galinsky, 2008; Zhou & Hoever, 2014). In Mainemelis and

colleagues' (2015) review of creative leadership, they concluded that creativity depends not only on followers' creative contributions but also on the leaders' influence. Indeed, prior empirical work illustrates the strong role that leaders play in influencing employee creativity (see Mainemelis et al., 2015; Mumford, Scott, Gaddis, & Strange, 2002 for reviews). Specific to risk orientations, prior work suggests that higher levels of the leader (or the follower) risk orientation should be associated with higher levels of creativity. We suggest that this view is oversimplified. We propose that creativity can be stimulated when leaders and followers have *diverging* risk orientations. Thus, another avenue for understanding heightened creativity is by evaluating leader-follower risk orientation *combinations*.

Prior research illustrates that divergent thinking processes are associated with creativity. For example, employees are more creative when engaging in problem-solving approaches different from their natural styles of thinking (Dane, Baer, Pratt, & Oldham, 2011). Similarly, research illustrates that individuals are more likely to be creative when primed with positions that are divergent from their own (Isaksen & Parnes, 1985). Specific to risk orientation and creativity, individuals high in risk orientation are more likely to engage in trial and error, generating higher quantities of novel ideas. However, this tendency to embrace risk does not address the likelihood of producing useful ideas. In fact, it is logical that individuals low in risk orientation who make conservative decisions based on complete, reliable, and understandable information may be more likely to focus on generating practical ideas and solutions. Thus, it should be the combination of divergent risk orientations—low and high—that facilitates ideas that are both novel *and* useful (i.e., creative).

Along these lines, we propose that when leaders and followers have different risk orientations it will alter the psychological state of the followers. Specifically, we propose that

leader-follower risk orientation divergence will be associated with higher levels of *follower experienced intellectual stimulation*, defined as a psychological state whereby the follower rethinks their assumptions and considers problems in new ways (Rafferty & Griffin, 2004; Zhou, Hirst, & Shipton, 2012), which is one of the four dimensions of transformational leadership (e.g., Judge & Piccolo, 2004; Bass, 1998; Bass, Avolio, Jung, & Berson, 2003). Further, we also propose that leaders with an opposing perspective on risk should facilitate higher levels of follower creativity through follower experienced intellectual stimulation because such diverging perspectives challenge followers to reconsider their existing assumptions, understand the perspectives of their leaders, and integrate these differences into new ideas (Reiter-Palmon & Illies, 2004).

To investigate this research question we apply the configurational approach to creativity (Zhou & Hoever, 2014). The configurational approach allows for examination of the simultaneous, linear, interactive, and nonlinear effects of leader and follower risk orientation. This approach is useful in that it helps pinpoint where creativity may be stable, increasing, or decreasing across the full range of leader-follower risk-orientation configurations (e.g., low, moderate, high) (Doty & Glick, 1994). With this framework in mind, we make a series of hypotheses evaluating trends among the varying combinations of the different levels of leader and follower risk orientation. As alluded to above, our primary hypothesis is that incongruent (i.e., low follower-high leader; high follower-low leader) opposed to congruent (i.e., low follower-low leader; moderate follower-moderate leader; high follower-high leader) leader-follower risk orientations are associated with higher levels of creativity via follower experienced intellectual stimulation. We also propose and test specific configurations as it relates to the maximization of creativity. Specifically, we compare: (a) the two forms of leader-follower risk

orientation incongruence (i.e., low follower-high leader; high follower-low leader) against each other; and (b) the three forms of leader-follower risk orientation congruence (i.e., at low, moderate, and high levels) against each other.

Finally, we also investigate the boundary conditions of this configurational approach to creativity. The activation of followers experienced intellectual stimulation and creativity is unlikely to be universal for all risk orientation incongruent leader-follower dyads. Followers must perceive that it is acceptable to diverge from their leader in terms of how to handle risk. If leaders are perceived as unreceptive to alternative perspectives, followers may revert to the leaders' preferences; consequently, stunting potential follower experienced intellectual stimulation and mitigating the potential for risk orientation incongruence to translate into acts of creativity. To evaluate this conditional indirect effect, we investigate authority openness, defined as the leaders' tendencies to be genuinely interested in and open to the perspectives and ideas of followers (Detert & Burris, 2007). Thus, we contend that with respect to the influence of leaders on follower creativity, the ideal combination is to have a different decision-making perspective from followers and at the same time be open to the ideas stemming from those differences.

This study contributes to the creativity literature in several ways. First, we go beyond the positive, linear assumptions specific to the effect of leader and follower characteristics. Our work takes a configurational approach, which simultaneously and comprehensively evaluates leader and follower influence. In doing so, we illustrate that follower creativity depends on the degree to which leaders and followers are similar or different. Second, our work highlights that leaders can do more than simply encourage follower creativity. Leaders can activate followers' creativity via follower experienced intellectual stimulation when they have divergent risk orientations from their followers. Third, leaders should be also open to the divergent perspectives of their

followers. Such openness serves as a crucial prerequisite for the follower experienced intellectual stimulation stemming from leader-follower risk orientation differences. Fourth, from a practical standpoint, we explicate multiple forms of managerial prescriptions for designing leader-follower dyads for optimal follower creativity. Instead of assuming that the leader or follower should have specific characteristics (i.e., high-risk orientation), it is important to consider how to stimulate creativity through dyadic exchanges.

Theoretical Background and Hypothesis Development

Risk Orientation

Risk orientation differences manifest in several ways. The first is through individuals' preferences for completeness of information. Individuals with low risk orientations prefer unambiguous information, are less likely to trust information they did not gather themselves, and prefer taking action only when they understand all of a problem's components (Sitkin & Pablo, 1992). Alternatively, individuals high in risk orientation welcome all sources of information, including information generated or collected by others; are not afraid of using information that is technically complex or relatively new; and are comfortable making assumptions (Buckley, Chen, Clegg, & Voss, 2018). Differences in risk orientation also manifest through individuals' perceptions of the repercussions of using information. Low-risk orientation individuals prefer not to make decisions that could substantially affect the strategic direction of the company, and they do not want to be involved in decisions that could potentially backfire (Sitkin & Pablo, 1992). High-risk orientation individuals are more confident in making highly impactful, strategic decisions (Brockhaus, 1980) and are less fearful of the potential negative repercussions of their decisions (Mishra & Lalumière, 2011). In total, the facts that information is imperfect, and that it is impossible to predict outcomes (Kahneman, 2003), are unlikely to affect individuals high in

risk orientation (DiVito & Bohnsack, 2017). However, individuals low in risk orientation are cautious about the unknown and prefer to gather accurate, detailed, and wide-ranging information to mitigate concerns regarding uncertain outcomes (Stewart & Roth, 2001).

Risk Orientation Configurations, Intellectual Stimulation, and Creativity

In this study, we focus on five leader-follower risk orientation combinations, namely, high follower-low leader (HL), low follower-high leader (LH), high follower-higher leader (HH), low follower-low leader (LL), and moderate follower-moderate leader (MM). We expect that these combinations of leader-follower risk orientation will differentially influence the degree to which followers' reconsider what information they need as well as their approach to using that information. More specifically, we expect that each combination results in varying levels of follower experienced intellectual stimulation, a psychological state whereby followers reconsider their underlying assumptions, reframe problems with new perspectives, and consider novel ways of doing things (Rafferty & Griffin, 2004; Zhou et al., 2012).

Creative behavior entails restructuring information to develop original and useful ideas (Spiro & Jehng, 1990). This allows for the generation of multiple solutions to a problem specific to its unique context. In multiple ways, follower experienced intellectual stimulation aligns with the psychological precursors to such creative behavior. When followers feel intellectually stimulated, they think about problems in new ways and consequently generate more creative, situation-specific solutions (Zhou et al., 2012). Similarly, when followers feel intellectually stimulated, they consider the merits of alternative perspectives (Nijstad et al., 2010). This mindset allows followers to offer novel yet useful ideas as they recognize the benefits and/or detriments of their own and others' perspectives (Hoever, Van Knippenberg, Van Ginkel, & Barkema, 2012). Followers experiencing intellectual stimulation also feel more confident in

addressing ideas that are complex or unusual (Rafferty & Griffin, 2004), which should challenge the status quo.

Risk Orientation Incongruence

Followers high in risk orientation are more likely to develop unique ways to solve problems because they do not feel that complete information is essential (Sitkin & Pablo, 1992). When such followers work with leaders low in risk orientation (i.e., HL), it forces followers to consider idea feasibility and to explain why certain decisions are appropriate (Hemlin & Olson, 2011). As these high risk orientation followers are asked to consider long-term implications and potential obstacles, they are intellectually stimulated such that they are charged with developing ideas that are both novel and useful given organizational constraints (Perry-Smith & Shalley, 2003). Additionally, followers high in risk orientation feel comfortable presenting an underdeveloped idea or pursuing an uncharted new direction (Sitkin & Pablo, 1992). When working with leaders who are low in risk orientation, these followers begin to more carefully consider their assumptions, collect additional information, and garner a more complete understanding of the more complex aspects of their initiatives (Hemlin & Olson, 2011). In turn, high-risk orientation followers are intellectually stimulated because they are charged with addressing more specific concerns, such as key assumptions, missing information, or other constituents' concerns (Jehn, Northcraft, & Neale, 1999). For example, if a follower develops a novel process that will make his/her department more efficient, he/she may be encouraged to further consider how the change will affect other departments. Followers high in risk orientation also prefer high-risk, high-return ideas and initiatives (Sitkin & Weingart, 1995). When paired with low-risk orientation leaders, these followers are intellectually stimulated in that they are challenged to think about the practical aspects of their big ideas. For example, such followers will be forced to consider

potential risks and develop more logical, evidence-based arguments that clearly illustrate an initiative's feasibility (Pelled, Eisenhardt, & Xin, 1999).

LH dyadic configurations are also likely to be associated with followers' perceptions of intellectual stimulation. Low-risk orientation followers spend ample time and resources to understand all components, processes, and potential issues before taking action (Sitkin & Weingart, 1995). Working with leaders who are high in risk orientation may encourage these followers to relax their assumptions and consider alternate scenarios (Mumford et al., 2002). In doing so, these leaders intellectually stimulate their followers by helping them move beyond overly extensive information gathering and towards information application (Reiter-Palmon & Illies, 2004), both of which are critical components of creative behavior (Amabile, 2013). Followers low in risk orientation are also more likely to focus on decisions and actions that are less risky and less influential in nature (Sitkin & Pablo, 1992). Working with high risk orientation leaders may intellectually stimulate followers' by asking them to make contributions that take a more balanced view of risk. For example, when paired with high risk orientation leaders, these followers may apply their more stringent and critical concerns to more risky projects as opposed to withdrawing from projects (Redmond, Mumford, & Teach, 1993).

When leaders' and followers' risk orientations align, there is less incentive or encouragement for followers to think in non-habitual ways. Low-risk orientation leaders will encourage low-risk orientation followers to continue promoting incremental action based on complete information (Bandura & Walters, 1963; Wiseman & Gomez-Mejia, 1998). Similarly, high-risk orientation leaders will encourage high-risk orientation followers to continue thinking that risks based on unknown assumptions are acceptable (Bandura & Walters, 1963; Wiseman & Gomez-Mejia, 1998). Thus, when followers have leaders with a matching risk orientation, the

same approach to risk is reinforced, reducing followers' need to adapt to new ways of thinking, and in turn, minimizing intellectual stimulation and creativity. Importantly, dyads, where both parties are high in risk orientation, may have a heightened capacity for generating a high quantity of novel ideas. However, these ideas aren't necessarily creative in that they don't benefit from the divergent perspectives inherent in incongruent dyads who have a higher likelihood of intellectual stimulation, and in turn, novel *and* useful ideas.

Followers and leaders with moderate levels of risk orientation need some, but not exhaustive amounts of information, and accept some but not excessive risk. Specific to the relationship between risk orientation and the generation of ideas, each dyad scenario—LH, HL, and MM—may have a similar overall amount of risk orientation, but the MM scenario is divided between the leader and follower. Specific to divergent perspectives, there may be circumstances where MM dyads engage in constructive, idea-provoking dialogue on how to find a successful balance or middle-path between low and high risk orientations. However, compared to LH and HL dyads, there will be fewer conversations with any degree of divergence, and when there is divergence, it will be less severe. In total, we offer the following hypothesis specific to the overall trend of dyadic risk orientations on intellectual stimulation and creativity:

> *Hypothesis 1: Followers' creativity increases as followers' and leaders' risk orientations become more discrepant (i.e., incongruent) (H1a), and this effect is mediated by follower experienced intellectual stimulation (H1b).*

In line with the configurational perspective, we suggest that one incongruence scenario should lead to relatively more intellectual stimulation and creativity than the other. Both scenarios entail divergent perspectives, which is associated with intellectual stimulation and creativity. A key difference between dyads with incongruent risk orientations, however, is the source of the low and high risk orientation. Situational strength research suggests that leaders are

strong situational factors that can overpower the tendencies of followers (Alaybek, Dalal, Sheng, Morris, Tomassetti, & Holland, 2017; Meyer, Dalal, & Hermida, 2010). Followers pay attention to their leaders' preferences because leaders can dictate whether their followers are rewarded or punished for engaging in certain behaviors (Connelly, Certo, Ireland & Reutzel, 2011). For example, leaders wield legitimate social power because to some degree they can dictate followers' job assignments, compensation, and advancement prospects (Magee & Galinsky, 2008). We, therefore, expect that the risk orientation of the leader will play a stronger role in dictating the degree to which divergent risk orientations manifest as intellectual stimulation and creativity. Individuals high in risk orientation are typically more comfortable exploring and discussing undefined concepts and presenting untested ideas (Spence, 1973). Thus, when leaders are high in risk orientation there is a higher likelihood that intellectually stimulating conversations will surface given that such leaders continually push for the generation and sharing of ideas. Alternatively, when leaders are low in risk orientation, their more conservative approach to idea generation may dampen the likelihood that divergent perspectives fully realize their potential with respect to intellectual stimulation and creativity. We therefore hypothesize the following:

> *Hypothesis 2: Low follower-high leader risk orientation configurations are associated with higher creativity compared to high follower-low leader risk orientation configurations (H2a), and this effect is mediated by follower experienced intellectual stimulation (H2b).*

Risk Orientation Congruence

In HH dyads both follower and leader are more inclined to take risks and make assumptions. In LL dyads both follower and leader are more inclined to avoid risks and to seek out information. In each scenario, there is less need to discuss whether and how to take action because followers match the mentalities of their leaders. Thus, with respect to intellectual

stimulation, neither scenario benefits from divergence in perspectives. In MM dyads, however, there should be a moderate amount of opportunities for working through divergent perspectives. In particular, with MM dyads, the circumstances may dictate whether followers and/or leaders feel comfortable avoiding or taking risk (Kahneman, 2003). In other words, in MM configurations, intellectual stimulation is more likely because leaders and followers need to discuss and debate when or if making a risky decision is worthwhile, leading to the sharing of divergent perspectives. Therefore, while congruence at low or high levels of risk orientation congruence limits the need to discuss underlying assumptions and potential actions, congruence at moderate levels offers some opportunities for constructive, intellectually stimulating discussions. Notably, the HH scenario entails higher risk orientations than the MM scenario, which may translate into more unabated, idea generation. Nevertheless, in the MM scenario, both leader and follower still have some potential for idea generation given their moderate levels of risk orientation. This moderate level of idea generation, coupled with the fact that MM scenarios have a higher likelihood of intellectual stimulation—a critical precursor to creativity—should facilitate higher levels of creativity compared to HH scenarios (Amabile, 2013; Woodman, Sawyer & Griffin, 1993).

> *Hypothesis 3: Followers' creativity is higher when leaders' and followers' risk orientations are congruent at moderate levels of risk orientation than when congruent at high and low levels of risk orientation (H3a), and this effect is mediated by follower experienced intellectual stimulation (H3b).*

Risk Orientation Incongruence and Leaders' Authority Openness

Leaders high in authority openness show genuine interest in and give fair consideration to their followers' points of view, and are more likely to integrate those perspectives when making decisions or taking action (Detert & Burris, 2007; Tost, Gino, & Larrick, 2013). For several reasons, leaders' authority openness is particularly relevant for understanding follower

creativity-related cognitive processes. Leaders have some degree of authority over their followers (Magee & Galinsky, 2008) and strongly influence follower well-being (LePine, Zhang, Crawford, & Rich, 2016). This combination causes followers to be acutely aware of whether their preferences, tendencies, or perspectives, which may not align with their leaders, will be viewed by their leaders as constructive or destructive (Detert & Burris, 2007). Thus, how followers view their leaders, the source of the divergent perspective, will influence how employees internalize and react to such discrepancies (Kristof-Brown & Guay, 2011).

Follower experienced intellectual stimulation, and in turn, creativity often emerges when employees are confronted with novel, unique, or nuanced information or perspectives (Spiro & Jehng, 1990). Specifically, as previously discussed, followers are often intellectually stimulated when their leaders make different assumptions regarding how much risk is appropriate in business decisions. However, the creative benefits of this divergent approach will be mitigated when leaders' divergent risk perspectives are construed as clear, authoritative directions on how to think and behave. Since leaders low in openness are unlikely to consider, appreciate, or incorporate divergent ideas, followers may not see value in integrating their leaders' divergent perspective with their own. These followers will no longer perceive the leaders' divergent approaches to risk as productive challenges. Instead of followers reconsidering their assumptions and considering new solutions, they will interpret leaders' divergent perspectives as the only suitable options, lessening the likelihood of integrative thinking and follower experienced intellectual stimulation. Alternatively, if leaders are open, the incongruent risk orientation will continue to be internalized as an interesting and thought-provoking approach that stimulates divergent thinking.

The aforementioned arguments suggest that low authority openness mitigates the creative-

inducing benefits associated with incongruence. Notably, low authority openness should mitigate all forms of incongruence, including LH and HL. Thus, our moderation hypothesis specific to incongruence (Hypothesis 1) makes a moderation hypothesis specific to directional incongruence (Hypothesis 2) obsolete. Specific to nonlinear congruence (Hypothesis 3), all the leader-follower scenarios under investigation have congruent risk orientations; thus, there are no incongruent scenarios that can be less salient via low authority openness. We therefore hypothesize the following:

> *Hypothesis 4a: Leaders' authority openness moderates the effect of leader-follower risk orientation congruence/incongruence on intellectual stimulation as hypothesized in Hypothesis 1, such that the effect is more salient when leaders' authority openness is higher.*
>
> *Hypothesis 4b Leaders' authority openness moderates the indirect effect of leader-follower risk orientation congruence/incongruence on creativity via follower experienced intellectual stimulation as hypothesized in Hypothesis 1, such that the indirect effect is more salient when leaders' authority openness is higher.*

Method

In Study 1 we use a field study to evaluate the effect of leader-follower risk orientation (in)congruence on leader-rated follower creativity (Hypotheses 1a-3a). Study 2 also uses a field study, providing a constructive replication of Hypotheses 1a-3a, but employing an alternative rater of follower creativity: their coworker. This eliminates the potential confounding effects of leaders' risk orientation on their preference for followers' risk-taking behaviors, which could influence leaders' ratings of followers' creativity (Zhou et al., 2017). Additionally, Study 2 evaluates the mediating role of follower experienced intellectual stimulation and the conditional effect of authority openness (Hypotheses 1b-3b, Hypotheses 4a and 4b).

Study 1

Participants and procedures. In Study 1, we collected data from a software development department within a technology services provider located in southeastern China in 2014. This context is ideal for our study because there are plentiful and observable opportunities for followers to engage creatively (Dewett, 2006). Specifically, these individuals were tasked with being creative while testing software and fixing software "bugs." Importantly, such activities also require intensive interaction with their leaders. The human resource department assisted us in distributing anonymous and confidential surveys to 38 leaders and 239 followers. Participants were offered gifts (university-branded souvenirs worth approximately $5 each) as compensation for their time. We received completed questionnaires from 36 leaders (95%) and 208 followers (87%), resulting in 195 (82%) matched dyads (average of 5.42 followers per leader). Among the followers, 88 (45%) were female, and their average age was 30.55 years old (*s.d.* = 8.92). Followers' average tenure with their leaders was 4.46 years (*s.d.* = 11.91), and on average they had 14.46 years of education (*s.d.* = 2.47). All leaders were male, were an average of 35.25 years old (*s.d.* = 8.25), and had an average of 14.81 years of education (*s.d.* = 3.54).[1]

Measures. Both followers (α = .81) and leaders (α = .79) self-rated their risk orientation using the five-items listed in Sitkin and Weingart (1995) (sample item: "Choose risky alternatives even when analyses are based on technically complex information"). Leaders rated their followers' creativity (α = .93) using Farmer, Tierney, and Kung-Mclntyre's (2003) four-item scale (sample item: "Seeks new ideas and ways to solve problems"). Each measure used a

[1] This data collection was initiated by the fourth author in China where IRB approval is neither required nor common. However, the fourth author's school department has ethical policies in place regarding data collection on human subjects that purposefully align with U.S. IRB standards and APA ethical guidelines. The fourth author gained approval from the department before collecting data and conducted the data collection procedures in alignment with the department's ethical policies.

five-point Likert scale (1 = strongly disagree, 5 = strongly agree). We used Brislin's (1986) translation/back-translation procedures for all items.

Given findings in prior (in)congruence research (e.g., Zhang, Wang, & Shi, 2012), we controlled for the gender difference, age difference, education difference, and dyadic tenure. Dissimilarity in age and years of education was measured as an absolute difference score (Zhang et al., 2012). We used a dummy variable (0 = different gender and 1 = same gender) for gender difference.

Analytical strategies. We used a combination of cross-level polynomial regressions (Zhang et al., 2012), response surface modeling analysis (Edwards & Cable, 2009; Zhang et al., 2012), and point difference tests. We utilized Stata 14.0 to address the multilevel nature of the data (Rabe-Hesketh, & Skrondal, 2008). Specifically, the dependent variable (i.e., creativity) was regressed on control variables and the five polynomial terms: follower's risk orientation (F), leader's risk orientation (L), follower's risk orientation squared (F^2), follower's risk orientation times leader's risk orientation (F×L), and leader's risk orientation squared (L^2). We centered F and L around the pooled grand mean before calculating the second-order terms to reduce multicollinearity and facilitate interpretation of the results (Kreft, De Leeuw, & Aiken, 1995). Next, we calculated the slopes and curvatures along the incongruence line (F = -L) and the congruence line (F = L). The shapes of the surface along the incongruence and congruence lines are obtained by substituting the formula for the line (F = -L and F = L, respectively) into the polynomial regression equation.

Hypothesis 1a is supported when the curvature along the incongruence line is positive and significantly different from zero, and when the second principal axis has a slope (p_{21}) of 1 and an intercept (p_{20}) of 0 (Edwards & Cable, 2009). We used the Monte Carlo method (10,000

replications) to construct 95% confidence intervals (CIs) for p_{21} and p_{20} (Kalos & Whitlock, 2009). Additional support for Hypothesis 1a is found when point difference tests reveal that creativity is significantly higher at the LH and HL endpoints (i.e., high endpoint = 2 *s.d.*, low endpoint = -2 *s.d.*) compared to the LL and HH endpoints. Hypothesis 2a suggests that creativity should be higher when leaders are higher than followers in risk orientation compared to when followers are higher than leaders. This hypothesis is supported when the slope along the line of incongruence is negative and significantly different from zero. Additional support for Hypothesis 2a is found when creativity is significantly higher at the LH endpoints compared to the HL endpoint. Hypothesis 3a indicates that the pattern along the congruence line should be an inverted U-shape. This hypothesis is supported when the curvature along the line of congruence is negative and significantly different from zero. Additional support for Hypothesis 3a is found when creativity is significantly higher at the MM endpoint compared to the LL and HH endpoints.

Results

Preliminary analyses. We first conducted a series of multi-level CFAs to examine the distinctiveness of our measures. To determine whether the full measurement model was significantly better than alternative models, we used the Satorra–Bentler (SB) scaled $\chi 2$ difference test, which is robust to deviations from nonnormality (Satorra & Bentler, 2001). The full measurement model (follower self-rated risk orientation and leader-rated follower creativity as both Level 1 and Level 2 variables, and leader self-rated risk orientation as a Level 2 variable) provided good fit (SB-$\chi 2$ = 156.02, df = 100, correction factor = 1.07, $p < .001$; RMSEA = .05, CFI = .96, TLI = .95), and was significantly better than alternative models (see Table 1). The ICC(1) for creativity is .13, which suggests that 13% of the variance in creativity is explained at

the between level, which provides support for the use of multi-level modeling. The means, standard deviations, inter-correlations, and reliability coefficients of the variables are reported in Table 2.

Insert Table 1 and Table 2 about here

Hypothesis tests. The three second-order polynomial terms (F^2, F×L, L^2) were jointly significant ($F = 3.18$, $p = .02$), suggesting that it is appropriate to evaluate the joint effects of follower and leader[2]. With respect to Hypothesis 1a, the surface along the incongruence line curved upward (*curvature* = .38, *SE* = .15, $p = .02$) (see Table 3, Model 2). The U-shaped upward curvature along the F = -L line (right corner to left corner, Figure 1a) indicates that followers' creativity increases as followers' risk orientation diverges from leaders'. Also in support of Hypothesis 1a, the second principal axis has a slope (p_{21}) that is not significantly different from 1.0, as the 95% bootstrap *CI* based on Monte Carlo simulation (10,000 replications) included 1.0 (.57, 1.70), and the intercept (p_{20}) is not significantly different from 0, as the 95% bias-corrected bootstrap *CI* includes 0 (-2.37, .20). Further supporting Hypothesis 1a, the point difference tests (shown in Table 7) revealed that the LH endpoint was significantly higher than the LL (*diff* = 2.04, *SE* = .55, $p < .001$) and HH (*diff* = 1.36, *SE* = .48, $p = .005$) endpoints, and the HL endpoint was significantly higher than the LL (*diff* = 1.57, *SE* = .52, $p = .003$) and marginally higher than HH (*diff* = .89, *SE* = .52, $p = .09$) endpoints. With respect to Hypothesis 2a, although the surface along the incongruence line slopes downward (*slope* = -.18, *SE* = .11, $p = .10$) (see Table 3, Model 2), the effect was only approaching statistical

[2] The interaction terms are carrying the majority of this influence as the squared terms are small and non-significant. Although the findings remain the same if these curvilinear terms are removed, we retain them for two reasons. First, although the effect is small, the coefficients for these non-linear terms are still included when calculating the curvature along the line of congruence and incongruence. Second, in Study 2, the coefficients are large and statistically significant. For consistency, we retain the curvilinear terms here.

significance. The point difference test revealed that the LH endpoint was not significantly higher than the HL endpoint (*diff* = .47, *SE* = .29, *p* = .10). Together, these findings do not support for Hypothesis 2a. With respect to Hypothesis 3a, the surface along the congruence line (rear corner to the front corner, Figure 1a), curves downward (*curvature* = -.46, *SE* = .18, *p* = .01) (see Table 3, Model 2), indicating that followers' creativity is higher when leaders' and followers' risk orientations are congruent at moderate levels of risk orientation than when congruent at high and low levels of risk orientation. Additionally, the point difference tests revealed that the MM endpoint was significantly higher than the LL endpoint (*diff* = 1.15, *SE* = .39, *p* = .004), but was not statitistically higher than HH endpoint (*diff* = .46, *SE* = .31, *p* = .14). Overall, these findings offer support for Hypothesis 3a.

Insert Table 3 and Figure 1 here

Study 2

Participants and procedures. We collected data from eight enterprises[3] in a technology-focused industrial park located in China in 2016. The eight enterprises belonged to one of three industries, including Pharmaceuticals, Biotech, or Information Technology. This sample was ideal for the study because each enterprise is a technology-intensive company whose competitive advantage depends upon its ability to be creative and innovative. A member of the authorship team worked directly with a key contact within the management department of the industrial park to facilitate participation in the survey. The decision regarding which enterprises to contact was made by the management department contact after discussing a priori sample size objectives and estimating potential response rates based upon the number of employees within the

[3] We replicated all analyses while including a dummy variable for each enterprise. The pattern of results remains the same.

enterprise. The invitation to participate was directed to the leadership team of each enterprise. The leadership team was asked to distribute the voluntary surveys to employees that (a) reported to a supervisor, (b) had regular interaction with their supervisor, and (c) whose primary responsibility was related to research and/or development. Similar to Study 1, participants were offered gifts (university-branded souvenirs worth approximately $5 each) as compensation for their time.

At time 1, we distributed surveys to 70 leaders and 387 followers. In total, 59 leaders (84%) and 349 followers (90%) returned questionnaires, and 343 of the followers' questionnaires were successfully matched with their leaders' questionnaires. One week later, we conducted the time 2 survey with the same 343 followers. At that time, we also asked our contacts to pinpoint a coworker of each follower to rate the follower's creativity. The contacts were asked to select the coworker who was the most knowledgeable of the follower's work and performance. If several potential raters met the criteria, we asked the contacts to randomly select one of the coworkers. A total of 327 coworkers (95%) finished the survey, 325 of which were successfully matched with followers.

Among the followers, 178 (55%) were female, the average age was 33.58 years old (*s.d.* = 8.67), and they had an average of 14.56 years of education (*s.d.* = 3.08). Followers' average dyadic tenure with their leaders was 4.82 years (*s.d.* = 10.94). Among the leaders, 1 out of 59 was female, the average age was 34.07 years old (s.*d.* = 8.59), and they had an average of 14.83 years of education (*s.d.* = 3.00). Among the coworkers, 189 (58%) were male, and the average tenure with the followers was 1.25 years (*s.d.* = 2.08).[4]

[4] Similar to Study 1, this data collection was initiated by the fourth author in China where IRB approval is neither required nor common. However, the fourth author's school department has ethical policies in place regarding data collection on human subjects that purposefully align with U.S. IRB standards and APA ethical guidelines. The fourth author gained approval from the department before collecting data and conducted the data collection

Measures. We used Study 1's risk orientation scale for followers (α = .85) and leaders (α = .81). We also used Study 1's creativity scale but adapted the items to be a co-worker rating scale (α = .73). The four items include: "This co-worker tries new ideas or methods first"; "This co-worker seeks new ideas and ways to solve problems"; "This co-worker generates ground-breaking ideas related to the field"; and "This co-worker is a good role model for creativity." For follower experienced intellectual stimulation, we adapted a four-item intellectual stimulation subscale of the Multifactor Leadership Questionnaire Short Form (MLQ 5X) (α = .90) developed by Bass and Avolio (1995). Instead of asking participants to rate the behavior of their leader, participants were instructed to consider their interactions with their leader, and then rate the extent to which they felt intellectually stimulated. The four items include, "Interacting with my supervisor makes me feel challenged to think about old problems in new ways," "Interacting with my supervisor makes me feel forced to rethink some things that have never been questioned before," "Interacting with my supervisor makes me feel challenged to rethink some of my basic assumptions about my work," and "Interacting with my supervisor makes me feel challenged to seek differing perspectives when solving problems." Leaders self-rated authority openness using Tost et al.'s (2013) five-item scale (α = .81) (sample items: "I am open to new ideas," and "I am receptive to suggestions"). All of these scales used a five-point Likert-type scale (1 = strongly disagree, 5 = strongly agree). We controlled for the same variables as Study 1.

Analytical strategies. In addition to the cross-level polynomial regressions and point difference tests we used in Study 1 to test Hypotheses 1a-3a, we employed the mediated polynomial regression approach[5] to test Hypotheses 1b-3b. For Hypothesis 1b, we multiplied the first stage's curvature along the incongruence line (when polynomial regression predicts

[5] More information on the mediated polynomial regression approach can be found here: http://public.kenan-flagler.unc.edu/faculty/edwardsj/MediatedPolynomialRegression.htm

follower experienced intellectual stimulation) by the second stage's path coefficient (experienced intellectual stimulation predicts creativity while having the five polynomial terms in the regression for creativity) to get the indirect effect. Because product terms can produce Type I errors due to nonnormal distributions (Shrout & Bolger, 2002), we tested the significance of indirect effects using the Monte Carlo method (confidence intervals based on 10,000 replications). To test Hypothesis 2b, we multiplied the first stage's slope along the incongruence line by the second stage's path coefficient of intellectual stimulation to get the indirect effect and then conducted Monte Carlo simulations to obtain the confidence interval. Similarly, to test Hypothesis 3b, we multiplied the curvature of the congruence line in the first stage by the second stage path coefficient of intellectual stimulation to obtain the indirect effect and then conducted Monte Carlo simulations to generate the confidence interval.

To test Hypothesis 4a, we employed Edwards' (1996) moderated polynomial regression approach using cross-level equations. We created a moderated polynomial regression model that included the control variables, the original polynomial terms (i.e., F, L, F^2, F×L, L^2), the moderator variable (i.e., M), and the interaction of the moderating variable with each of the original polynomial terms (i.e., M×F, M×L, M×F^2, M×F×L, M×L^2). There is a significant moderating effect if the joint *F* test of the five new product terms is significant. The polynomial coefficients containing authority openness as interaction terms (and their resulting slope and curvature equations) are then evaluated at high (+1 *s.d.*) and low (-1 *s.d.*) levels of the moderator (Edwards, 1996). Hypothesis 4a is supported when the curvature along the line of incongruence is more positive at high (+1 *s.d.*) levels of authority openness compared to at low (-1 *s.d.*) levels of authority openness, and the difference is statistically significant. Hypothesis 4a is further supported when the difference tests reveal that follower perceived intellectual stimulation is

higher for LH and HL endpoints (i.e., high endpoint = 2 *s.d.*, low endpoint = -2 *s.d.*) when authority openness is high (+1 *s.d.*) compared to when low authority openness is low (-1 *s.d.*). To test H4b, the product of stage-one curvature and the stage-two path coefficient should be stronger when the moderator is higher. Confidence intervals are used for testing mediation effects and conditional indirect effects.

Results

Preliminary analyses. To ensure the discriminant validity of the constructs used in Study 2, we conducted a multi-level CFA. The full measurement model (follower self-rated risk orientation and follower experienced intellectual stimulation, and coworker-rated follower creativity as both Level 1 and Level 2 variables, and leader self-rated risk orientation and authority openness as Level 2 variables) provided good fit (χ^2 = 522.28, *df* = 282, correction factor = 1.07, $p < .001$; RMSEA = .05, CFI = .91, TLI = .89), and was significantly better than alternative models (see Table 4). The ICC(1) for creativity is .13, suggesting that 13% of the variance exists in the outcome variables at the between level, supporting our multi-level analytical approach. The means, standard deviations, inter-correlations, and reliability coefficients of the variables are reported in Table 5.

Insert Table 4 and Table 5 about here

Hypothesis tests. Similar to Study 1, the three second-order polynomial terms (F^2, F×L, L^2) were jointly significant ($F = 5.79$, $p < .001$), suggesting that it was appropriate to evaluate the joint effects of leader and follower on creativity (see Table 6, Model 2 and Figure 1b). Consistent with Study 1, the curvature along the incongruence line (L = -F) was significantly positive (*curvature* = .33, *SE* = .10, $p = .001$). Further, the second principal axis has a slope (p_{21}) that is not significantly different from 1.0, as the 95% CI based on Monte Carlo simulation (10,000

replications) included 1.0 (.66, 1.32), and the intercept (p_{20}) is not significantly different from 0, as the 95% bias-corrected bootstrap CI included 0 (-1.46, .03). The point difference tests (in Table7) further revealed that the LH endpoint was significantly higher than the LL (*diff* = 2.29, *SE* = .43, $p < .001$) and HH (*diff* = 1.15, *SE* = .40, $p = .004$) endpoints, and the HL scenario was significantly higher than the LL (*diff* = 1.90, *SE* = .39, $p < .001$) and marginally higher than the HH (*diff* =.75, *SE* = .40, $p = .06$) endpoints. Together, these findings support Hypothesis 1a.

Insert Table 6, Table 7 and Figure 2 about here

Hypothesis 1b predicts that follower experienced intellectual stimulation mediates the relationship between leader-follower risk orientation incongruence and follower's creativity. Model 1 in Table 6 shows that the curvature along the incongruence line (L = -F) is significantly positive (*curvature* = .33, *SE* = .14, $p = .02$), suggesting that leader-follower risk orientation incongruence is positively related to follower's experienced intellectual stimulation. As illustrated in Table 6, Model 1 and Figure 2, the direction and magnitude of the slopes and curvatures along the line of congruence and incongruence for follower experienced intellectual stimulation are similar to creativity. Additionally, the point difference tests reveal similar findings for follower experienced intellectual stimulation as was reported for creativity (see Table7). Model 3 in Table 6 shows that follower perceived intellectual stimulation is positively related to creativity (*b* = .17, *SE* = .04, $p < .001$). We then calculated the indirect effect by multiplying the first stage's curvature along the incongruence line by the second stage's path coefficient. Based on Monte Carlo simulations with 10,000 replications, the indirect effect of incongruence in risk orientation via follower experienced intellectual stimulation on creativity was significant (effect = .06, 95% CI = [.01, .11]) (see Table 8). These findings support Hypothesis 1b.

Insert Table 8 about here

With respect to Hypothesis 2a, similar to Study 1, although the surface along the incongruence line slopes downward (*slope* = -.14, *SE* = .07, *p* = .06) (see Table 6, Model 2), the effect was only approaching statistical significance. The point difference tests (in Table 7) also revealed that the difference between the LH and HL endpoints were only approaching statistical significance (*diff* = .39, *SE* = .21, *p* = .06). Therefore, Hypothesis 2a was not supported. Moving to Hypothesis 2b, the slope along the line of incongruence was not significant when the polynomial terms predict intellectual stimulation (*slope* = -.05, *SE* = .11, *p* = .65) (see Table 6, Model 1). As illustrated in Figure 2, intellectual stimulation didn't appear to be substantially different for LH and HL endpoints. Further, the indirect effect of the slope along the incongruence line was not significant (effect = -.01, 95% CI = [-.05, .03]), as the CI contains zero (see Table 8). Hence, Hypothesis 2b was not supported.

With respect to Hypothesis 3a, there is significant negative curvature along the congruence line (L = F) (*curvature* = -.43, *SE* = .12, *p* < .001) (see Table 6, Model 2). Additionally, the point difference tests in Table 7 revealed that creativity was not significantly higher for the MM endpoint compared to the HH endpoint (*diff* = .29, *SE* = .24, *p* = .23), but was significantly higher for the MM endpoint compared to the LL endpoint (*diff* =1.43, *SE* = .29, *p* < .001). Thus, Hypothesis 3a was supported. For H3b, the curvature along the line of congruence was significantly negative when the polynomial terms predicted intellectual stimulation (*curvature* = -.53, *SE* = .16, *p* = .001) (see Table 6, Model 1). As illustrated in Figure 2, the line of congruence for follower experienced intellectual stimulation was inverted U shaped, which is similar to creativity. To test Hypothesis 3b, we calculated the indirect effect of the curvature of the congruence line by multiplying this first stage curvature with the second stage path coefficient of

perceived intellectual stimulation. In support of Hypothesis 3b, the inverted U-shaped relationship between risk orientation congruence and follower creativity via follower experienced intellectual stimulation was significant (effect = -.09, 95% CI = [-.17, -.03]) (see Table 8).

Hypotheses 4a proposes that authority openness moderates the relationship between risk orientation incongruence and follower experienced intellectual stimulation. The results for the equations, including the interaction terms (M×F, M×L, M×F^2, M×F×L, M×L^2), in predicting follower experienced intellectual stimulation are outlined in Table 9, Model 4. The significant *F*-statistic ($F = 9.58$, $p < .001$) of Model 4 indicates a significant interaction effect (Edwards, 1996). At high levels of authority openness, the curvature along the line of incongruence was significantly positive ($q_{curvature} = 1.15$, $SE = .32$, $p < .001$), and at low levels of authority openness, the curvature is not significantly different than 0 ($q_{curvature} = .07$, $SE = .18$, $p = .71$). Overall, the difference between the high and low condition for the curvature of the incongruence line is significant (*diff* = 1.09, $SE = .29$, $p < .001$) (see Table 10). In Figure 3, for the high authority openness condition, the plot remains U-shaped when moving from left-to-right, but for the low authority openness condition, the plot is flat. Point difference tests also corroborate these findings (see Table 11). Moving to the point difference tests, follower experienced intellectual stimulation was significantly higher for the LH endpoint when authority openness was high compared to when authority openness was low (*diff* = 2.24, $SE = .66$, $p = .001$). Similarly, follower experienced intellectual stimulation was significantly higher for the HL endpoint when authority openness was high compared to when authority openness was low (*diff* = 1.61, $SE = .70$, $p = .02$). Hypothesis 4a is therefore supported.

Hypothesis 4b proposes that authority openness conditionally moderates the indirect effect of risk orientation incongruence. We jointly tested the indirect effects of the five polynomial interaction terms ($M\times F\times P_b$, $M\times L\times P_b$, $M\times F^2\times P_b$, $M\times F\times L\times P_b$, $M\times L^2\times P_b$, where P_b is the stage-two path coefficient) and the results were significant ($\chi 2$ =13.66, df=5, p = .02). Next, we calculated the indirect effect of risk orientation curvature along the line of incongruence on creativity via follower experienced intellectual stimulation at high and low levels of the moderator (and their differences) (see Table 10). When leader authority openness is high, the curvature along the line of incongruence was significant for the indirect effect ($q_{curvature}$ = .21, 95% *CI* = [.08, .39]), and when leader authority openness is low, the curvature along the line of incongruence was not significant for the indirect effect ($q_{curvature}$ = .01, 95% *CI* = [-.05, .08]). Further, the difference between the low and high condition for the curvature along the line of incongruence was significant for the indirect effect (*diff*= .20, 95% *CI* = [.06, .39]). Hypothesis 4b is therefore supported.

Insert Table 9, Table 10, Table 11, and Figure 3 here

Discussion

Summary

The findings of our studies illustrate that leader-follower risk orientation incongruence is positively related to creativity. The findings also illustrate that creativity is higher at moderate levels of leader-follower risk orientation congruence compared to both low and high levels of risk orientation congruence. The findings do not support our hypothesis that creativity is higher in LH scenarios compared to HL scenarios. Study 2 extends these findings by illustrating that the same incongruence and congruence effects are indirectly related to creativity through follower

experienced intellectual stimulation. Further, the results illustrate that leaders' authority openness acts as a conditional moderator such that high authority openness enhances the indirect effect of leader-follower risk orientation incongruence on creativity via follower experienced intellectual stimulation.

Theoretical Contributions

The assumption that high risk orientation is associated with creativity is quite common (Stewart & Roth, 2001). In developing a model of workplace creativity, Amabile (1988) conducted a comprehensive thematic analysis of interview responses from 161 employees regarding the attributes of creative employees. Risk orientation was the fourth most commonly reported attribute, with 34% of respondents mentioning it at least once. Further, process models of creativity, which evaluate the progressive steps in the generation of creative ideas, continually invoke risk-taking as an essential psychological process (Amabile, 2013). Given these assumptions, many scholars predict (and have found marginal support) that risk orientation is associated with creativity (Dewett, 2006; Eisenman, 1987). What is surprising is that empirical support for this positive relationship is inconsistent (e.g., Dewett, 2006; Eisenman, 1987). Workplace creativity scholars commonly suggest going beyond investigations of personal characteristics (i.e., risk orientation), because acts of creativity are also a product of the social context in which the actor is embedded (e.g., Madjar et al., 2011; Dewett, 2006). In applying the configurational approach to creativity, our work answers this call for contextualization, illustrating that the effects of follower risk orientations are indeed a product of leader risk orientations.

As Zhou and Hoever (2014) discuss in their workplace creativity review, consistent main effects are rare. In response, creativity scholars call for interactionist perspectives, which suggest

that actors' environmental characteristics can activate, attenuate, enhance, or mitigate the effects of actors' characteristics. In some cases, actor-context precursors to creativity are considered configurational. This approach accounts for the fact that there are some factors "that are not individually helpful or harmful but that specifically promote or hinder creativity in particular configurations with others" (Zhou & Hoever, 2014, p. 352). For example, creativity scholars have long argued that constructive conflict facilitates idea exchange, and in turn, creativity (Nemeth, 1986). Farh and colleagues (2010) illustrate that this positive relationship depends upon the degree and timing of the conflict. Similarly, there are conflicting perspectives regarding whether extrinsic rewards increase or decrease creativity (Amabile, 2013). Again, taking a configurational approach, Baer, Oldham, and Cummings (2003) illustrate that the direction of the effect depends upon the actors' cognitive style (e.g., adaptors, innovators) and the complexity of the job. This paper contributes to creativity literature by illuminating another circumstance where evaluating configurations is more informative than evaluating direct effects alone. Specifically, we illustrate that creativity can be maximized through multiple, unique combinations of leader and follower risk orientation.

Similar to the work presented here, a subset of creativity research focuses on the "divergence" perspective (e.g., Dane et al., 2011; Farh et al., 2010). The foundation of this perspective is that breaking out of an established pattern of thinking is central to creativity (Sternberg & Lubart, 1995). For example, some scholars take an integrative complexity perspective, suggesting that creativity stems from acknowledging the legitimacy of an alternative perspective and then bridging one's current perspective with this other perspective (Tetlock, Peterson, & Berry, 1993). Similarly, paradoxical framing research suggests that "both/and" thinking as opposed to "either/or" thinking reveals connections between divergent concepts that

lead to creative thinking (Lüscher & Lewis, 2008). Consistent with these divergence perspectives, prior research illustrates that when individuals frame and construct problems in multiple ways, solution originality and quality increase (e.g., Redmond et al., 1993; Reiter-Palmon & Illies, 2004). Our focus on leader-follower risk orientation incongruence contributes to this divergence perspective. Interestingly, our work highlights a new means of divergence: through differences in decision-making tendencies within the leader-follower dyad.

To date, prior work has focused on within-person divergence, the implication being that individuals should be less one-dimensional and more integrative in their thinking. The problem is that individuals may have deeply embedded preferences and tendencies that dictate their thinking patterns, making it challenging to think integratively consistently (Grant & Berry, 2011). Our findings add to this research by suggesting that divergence is a central precursor to creative thinking, but we do so by illustrating that divergent perspectives commonly arise externally, from the actors' contextual surroundings (Amabile, 2013). Individuals who are aware of external perspectives divergent from their own can be stimulated to adapt their perspectives to account for that dissonance (Fong, 2006). However, this divergent perspective must come from a highly salient and influential source. Given leaders' power, authority, and control, they should be strong stimuli that trigger followers to recognize when leaders' perspectives diverge from their own. In total, we illustrate that integrative thinking is not necessarily inherent to the individual; supervisors can prompt followers to think differently. Interestingly, however, our findings did not support the conjecture that creativity would be higher when leaders were higher in risk orientation than followers compared to when leaders were lower in risk orientation than their followers. Although the findings across the two studies were in the proposed direction, the level of statistical significance was marginal. This might suggest that there are supplemental leader

(e.g., charisma) or follower (e.g., openness to experience) characteristics that dictate whether followers internalize the strong signals of their leaders.

Creativity is often a product of social interactions (e.g., Madjar et al., 2011). Within workplace creativity research, perhaps the most widely researched social interaction is that between follower and leader (Mainemelis et al., 2015; Zhou & Hoever, 2014). To date, scholarship has evaluated how leaders' creativity is realized through the work of followers (e.g., Eisenmann & Bower, 2000) and how leaders integrate and synthesize their creativity with the creativity of their followers (e.g., Lingo & O'Mahony, 2010). This stream of research assumes that leaders themselves are creative and those specific interactions with followers can maximize creative outcomes. We illustrate that leaders need not be creative to foster employee creativity. By simply offering a perspective unique from their followers, leaders can foster follower experienced intellectual stimulation and creativity. Prior research has also evaluated how specific leadership styles or behaviors can foster employee creativity (e.g., George & Zhou, 2007). This body of work illustrates that leaders who purposefully encourage creativity through direct verbal, structural, or strategic influence can facilitate followers' creative behaviors. Our work uncovers a less calculative leader behavior that also fosters follower creativity: maintaining a genuine sense of interest and consideration (i.e., authority openness) for the naturally occurring differences in followers' perspectives (i.e., risk orientation).

Practical Contributions

Prior work consistently illustrates that followers and leaders have a harder time working together when their personal characteristics differ (e.g., Xu, Qin, Dust, & DiRenzo, 2019; Zhang et al., 2012). This study, however, illustrates a situation where such differences can be beneficial. It is therefore important that leaders and followers are aware of their risk orientation preferences

and learn how to avoid being biased against leaders or followers with diverging risk orientations. Organizations should encourage their leader-follower dyads to celebrate their differences and find ways to leverage them towards generating creative ideas.

The findings of this study also highlight that leaders should take a more nuanced approach to support follower creativity. Leaders should do more than encourage followers to take creative risks, and then support them through the risk-taking process. Instead, leaders should continually remind followers that they encourage conflicting yet constructive dialogue. Additionally, leaders should be genuinely interested in listening to and incorporating alternative ideas. Along these lines, organizations could tailor their leadership training and development to incorporate useful communication practices, such as mindful listening and perspective-taking.

These recommendations closely align with the prescriptions associated with the practice of constructive controversy, a theory and framework for creating value through intellectual opposition (Johnson, Johnson, & Tjosvold, 2006). The practice of constructive controversy entails encouraging several norms, including (a) honestly expressing one's ideas; (b) listening to and acknowledging the validity of other's ideas; (c) criticizing ideas, not people; and finally (d) trying to integrate ideas in mutually beneficial ways. Organizations could encourage a culture of constructive controversy and/or implement leadership programs that reinforce such practices. Encouraging leaders to have this open-minded mentality should facilitate creativity, as it may maximize the benefits associated with having an assortment of decision-making tendencies throughout the organizations.

Limitations and Future Research

Our choices regarding which source rated which construct was driven by the need to minimize potential biases. We used leader-rated follower creativity in Study 1 and coworker-

rated follower creativity in Study 2. Relative to coworkers, the leaders' hierarchical positions may make them more likely to understand the maximal creative potential of their followers. However, to minimize common method bias in Study 2, we used coworker ratings of follower creativity instead of self- or leader-rated creativity. Compared to leaders, a randomly selected experienced rater outside of the leader-follower dyad is less likely to be influenced by perceptions of relationship quality or performance (Duarte, Goodson, & Klich, 1994). Further, coworkers have the same job responsibilities, conduct similar tasks, and utilize the same resources under similar constraints, which ensures that ratings of followers' creativity are based on a clear understanding of the followers' context (Morgeson & Campion, 1997). Nonetheless, future research should consider incorporating both leader- and coworker-rated approaches in a single study. We also collected leaders' self-ratings of authority openness instead of followers' ratings of their leaders' authority openness, an ideal choice for this study's setting. Culturally there is an expectation that subordinates defer to the authority, power, and status of supervisors (Galinsky, Rus, & Lammers, 2011). In such settings, followers may purposefully or subconsciously distort their ratings of authority-related questions. Further, research suggests that in high power distance settings, authority figures feel more comfortable enacting authority-related behaviors that align with their actual preferences (Galinsky et al., 2011). Although this approach reduces common method bias, it assumes that employees are aware of their leaders' authority openness and that leaders are accurate in their authority openness ratings. In total, to bolster confidence in the findings, future research should explore the potential influence of rater sources in creativity research, especially across different cultures.

Hypothesis 1 suggests that intellectual stimulation and creativity increase as leader and follower become more divergent in risk orientation. This is a holistic hypothesis, evaluating the

overall trend across all forms of congruence and incongruence. As part of the analyses, we also evaluated the differences among the endpoints of the plot (i.e., +/- 2 *s.d.*). Supporting our hypothesis, LH and HL endpoints had higher creativity than both LL and HH endpoints. The difference between LH and HL endpoints versus the LL endpoint was greater than the difference between the LH and HL endpoints versus the HH endpoint. This makes sense, as LL scenarios lack any degree of risk orientation, which might translate into the generation of limited ideas, and also lack divergent perspectives, which should translate into intellectual stimulation. HH scenarios, however, have a high degree of risk orientation but lack divergent perspectives. Theoretically speaking, HH scenarios should be associated with idea generation, but not necessarily utility, whereas incongruence scenarios should facilitate both components of creativity via intellectual stimulation. To further investigate potential differences between specific congruence (e.g., HH) and incongruence scenarios (e.g., LH and HL) future research should breakdown creativity into more specific components (e.g., quantity, novelty, utility of ideas, etc.).

In each study, there were relatively fewer respondents with high ratings on risk orientation. Specifically, for Study 1 there are 30.77% observations ≥ 3 for follower risk orientation and 22.22% observations ≥ 3 for leader risk orientation. For Study 2 there are 34.15% observations ≥ 3 for follower orientation and 22.03% observations ≥ 3 for leader risk orientation. This is important for two reasons. First, the implications of our findings might be more applicable to the majority of cases, which fall within the low-to-moderate levels of risk orientation. Relatedly, from an empirical standpoint, our tests of the slope and congruence along the lines of incongruence and congruence are more representative of our hypotheses compared to the point differences tests, which are supplemental tests evaluating extreme endpoints within the data.

Second, similar to constructs such as dominance or abusive supervision (Graham, Mawritz, Dust, Greenbaum, & Ziegert, 2019), risk orientation may fall into the low base-rate category. Given their relative rarity, extreme levels of such constructs may induce alternative, untested reactions. In total, future research should replicate our approach using a larger sample with more cases at extreme levels to enhance the generalizability of our findings.

The moderation hypotheses are only applicable to H1, which evaluates the overall trend of incongruence versus congruence. For completeness, we evaluated whether authority openness moderated the directional incongruence effect and the nonlinear congruence effect. Our results illustrate that authority openness does not moderate the slope along the line of incongruence (i.e., H2) nor the curvature along the line of congruence (i.e., H3) (see Table 10). Future research, however, should evaluate factors that dictate whether LH or HL dyads have a stronger impact on intellectual stimulation and creativity. For example, our directional incongruence hypothesis draws from situational strength literature, suggesting that leaders' tendencies play a relatively stronger role in divergent thinking processes. Along these lines, perhaps follower power distance orientation or followers' perception of leader power dictates the extent to which LH or HL incongruence scenarios are more impactful. Additionally, when followers and leaders are convergent in risk orientation, leader openness does not influence internalization processes because followers and leaders already have the same risk orientation mindset. Future research should, therefore, consider alternative moderators of the congruence scenarios. For example, perhaps leaders who question their assumptions and proactively seek out new information can create an alternative pathway for experiencing divergent perspectives (Grant & Berry, 2011).

There are several opportunities for future research to build upon our findings. Follower experienced intellectual stimulation is one of the four dimensions of transformational leadership

(Avolio, Bass, & Jung, 1999). Future research could investigate whether followers' perceptions of intellectually stimulating leadership behaviors have the same effect on creativity as a psychological state of follower experienced intellectual stimulation stemming from leader-follower divergence. Additionally, being open to the suggestions and ideas of subordinates—authority openness—is a relatively specific and passive form of leader support. Future research could investigate whether supportive leadership at large, which entails valuing followers' contributions and caring about their well-being (Eisenberger, Huntington, Hutchison, & Sowa, 1986), has the same capacity to enhance or diminish the benefits associated with leader-follower risk orientation differences. It would also be worthwhile to investigate more proximal consequences of leader-follower risk orientation incongruence. For example, perhaps capturing the extent to which followers engage in divergent thinking, or the dyad engages in constructive controversy, would be suitable linking mechanisms between risk orientation incongruence and followers' perceived intellectual stimulation.

Future research could also investigate the short-term versus long-term implications of leader-follower divergence. For example, perhaps in the short-term high leader-low follower risk orientation incongruence is associated with follower perceived intellectual stimulation and creativity, but in the long-term, followers begin to withdraw as they are encouraged to engage in uncomfortable, risky decision making. Relatedly, creativity is typically a precursor to innovation, which entails the successful implementation of creative ideas (Amabile, 1988). Perhaps leader or follower risk orientation plays a different role (e.g., direct, positive effect) in the later stages of this creativity-innovation process. Additionally, risk orientation is a decision making-focused construct. Perhaps the effect would be even stronger if there were leader-follower divergence in problem-solving approaches or thinking styles.

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Table 1

Results of multilevel CFAs for Study 1

Model	**CFI**	**TLI**	**RMSEA**	χ^2_{SB} **(df)**	**c**	$\Delta\chi^2_{SB}$ [a]	Δ**df**	***p-value***
M1: *Within level:* follower risk orientation; follower creativity *Between level:* follower risk orientation; follower creativity; leader risk orientation	.96	.95	.05	156.02 (100)	1.07	—	—	—
M2: *Within level:* combine follower risk orientation and follower creativity *Between level:* combine follower risk orientation and follower creativity; leader risk orientation	.52	.41	.19	853.66 (103)	1.04	352.55	3	<0.001
M3: *Within level:* combine follower risk orientation and follower creativity *Between level:* combine follower risk orientation, follower creativity and leader risk orientation	.41	.28	.21	1019.78 (104)	1.00	517.96	4	<0.001

Note: χ^2_{SB} is the Satorra–Bentler chi-square correction; *c* is the correction factor.

[a] $\Delta\chi^2_{SB}$ is the Satorra–Bentler scaled χ^2 difference test statistic compared to the first model (Satorra & Bentler, 2001), which can be calculated by $(ci*\chi^2_{SB0}-c1*\chi^2_{SB1})*(dfi-df1)/cdi$, where $cdi=(dfi*ci-df1*c1)/(dfi-df1)$, $i=2,3$. However, *cdi* is negative in our study. To avoid this problem, Satorra and Bentler (2010) suggest that *cdi* can be estimated by $(dfi*ci-df1*c1i)/(dfi-df1)$, where *c1i* is the new test of the fit correction factor obtained from the Model *M1*, with starting values being the estimates of model *Mi*. In our study, for *M2, c12 = 1.01; M3, c13 = .98.*

Table 2

Study 1: Descriptive Statistics, Reliability Coefficients, and Inter-Correlations

Variables	*M*	*SD*	1	2	3	4	5	6	7	8	9
First-degree terms											
1. Age dissimilarity	4.81	21.41	—								
2. Gender similarity	.45	.50	.10	—							
3. Education dissimilarity	-.09	4.40	-.13	-.07	—						
4. Dyadic tenure	4.46	11.91	.12	.02	-.45***	—					
5. Follower risk orientation (F)	2.62	.67	-.02	-.12	.07	-.05	**.81**				
6. Leader risk orientation (L)	2.49	.63	-.13	.01	.27***	.22**	-.07	**.79**			
7. Creativity	3.64	.58	.08	.02	-.07	.16*	-.01	.19**	**.93**		
Second-degree terms											
8. F^2	.44	.61	.02	.08	-.01	-.09	-.09	.01	-.00		
9. F*L	-.03	.30	-.08	-.13	-.04	-.07	**.**18*	-.09	-.23*	-.10	
10. L^2	.35	1.04	-.08	-.02	.62**	.01	-.01	.65***	.09	-.10	-.17**

Notes: N = 195 at Level 1, 36 at Level 2. Gender similarity = 1, gender dissimilarity = 0. Reliability coefficients appear on the diagonal in bold. The cross-level correlations were calculated by disaggregating the Level-2 variables into Level 1 variables. The squared and interaction terms of leader and follower risk orientations were generated using the grand-mean centered values.

*$p < .05$. **$p < .01$, ***$p < .001$.

Table 3

Study 1: Cross-Level Polynomial Regression Analysis Results

	Model 1	Model 2
Predictors	*b (SE)*	*b (SE)*
Constant	3.60*** (.06)	3.62*** (.07)
Age dissimilarity	.00 (.00)	.00 (.00)
Gender similarity	.00 (.08)	-.02 (.08)
Education dissimilarity	-.01 (.01)	-.01 (.01)
Dyadic tenure	.00 (.00)	.00 (.00)
Follower risk orientation (F)	.01 (.06)	.04 (.06)
Leader risk orientation (L)	.21** (.08)	.22* (.09)
F^2		-.02 (.07)
F*L		-.42** (.14)
L^2		-.02 (.07)
Congruence line (F = L) Slope		.26*(.11)
Congruence line (F = L) Curvature		-.46*(.18)
Incongruence line (F = -L) Slope		-.18 (.11)
Incongruence line (F = -L) Curvature		.38*(.15)
F for the three quadratic terms		3.18*
σ^2	.31	.30
τ (intercept)	.00	.00
Proportion within-group variance explained[a]	3.76%	8.25%
Proportion between-group variance explained[a]	100%	100%
Deviance[b]	327.39	318.07

Notes: N = 195 at Level 1, 36 at Level 2. Gender similarity = 1, gender dissimilarity = 0.
We have pooled grand-mean centered *F* and *L* values in the regression models.
Standard errors are given in parentheses.
[a] The proportion of variance explained was calculated based on the parameters in the null model.
[b] Model deviance = -2 × log-likelihood of the full maximum-likelihood estimate.
*$p < .05$, **$p < .01$, ***$p < .001$.

Table 4

Results of multilevel CFAs for Study 2

Model	**CFI**	**TLI**	**RMSEA**	χ^2_{SB} ***(df)***	**c**	$\Delta\chi^2_{SB}$[a]	***Δdf***	***p-value***
M1: *Within level:* follower risk orientation; follower experienced intellectual stimulation; follower creativity *Between level:* follower risk orientation; follower experienced intellectual stimulation; follower creativity; leader risk orientation; leader authority openness	.91	.89	.05	522.28 (282)	1.07	—	—	—
M2: *Within level:* combine follower risk orientation and follower experienced intellectual stimulation; follower creativity *Between level:* combine follower risk orientation and follower experienced intellectual stimulation; follower creativity; leader risk orientation; leader authority openness	.62	.56	.10	1278.07 (288)	1.01	217.86	6	<0.001
M3: *Within level:* combine follower risk orientation, follower experienced intellectual stimulation and follower creativity *Between level:* combine follower risk orientation, follower experienced intellectual stimulation and follower creativity; leader risk orientation; leader authority openness	.38	.30	.13	1900.60 (292)	1.01	562.30	10	<0.001

Table 4 (continued)

Results of multilevel CFAs for Study 2

Model	**CFI**	**TLI**	**RMSEA**	**χ^2_{SB} (*df*)**	**c**	**$\Delta\chi^2_{SB}$[a]**	***Δdf***	**p-value**
M4: *Within level:* combine follower risk orientation, follower experienced intellectual stimulation and follower creativity *Between level:* combine follower risk orientation, follower experienced intellectual stimulation and follower creativity; combine leader risk orientation and leader authority openness	.35	.27	.13	1988.06 (294)	1.01	545.80	12	<0.001
M5: *Within level:* combine follower risk orientation, follower experienced intellectual stimulation and follower creativity *Between level:* combine follower risk orientation, follower experienced intellectual stimulation, follower creativity, leader risk orientation and leader authority openness	.31	.22	.14	2097.07 (295)	1.01	385.28	13	<0.001

Note: χ^2_{SB} is the Satorra–Bentler chi-square correction; *c* is the correction factor.

[a] $\Delta\chi^2_{SB}$ is the Satorra–Bentler scaled χ^2 difference test statistic comparing with the first model (Satorra & Bentler, 2001), which can be calculated by $(ci*\chi^2_{SB0}-c1*\chi^2_{SB1})*(dfi-df1)/cdi$, where $cdi=(dfi*ci-df1*c1)/(dfi-df1)$, $i=2,3,4,5$. However, *cdi* is negative in our study. To avoid this problem, Satorra and Bentler (2010) proposed that *cdi* can be estimated by $(dfi*ci-df1*c1i)/(dfi-df1)$, where *c1i* is the new test of the fit correction factor obtained from the Model *M1*, with starting values being the estimates of model *Mi*. In our study, for *M2*, *c12 = 0.96; M3, c13 = .96; M4, c14 = .94; M5, c15 = .87*.

Table 5

Study 2: Descriptive Statistics, Reliability Coefficients, and Inter-Correlations

Variables	*M*	*SD*	1	2	3	4	5	6	7	8	9	10	11
First-degree terms													
1. Age dissimilarity	2.36	20.30	—										
2. Gender similarity	.46	.50	.06	—									
3. Education dissimilarity	.02	4.19	-.09	-.04	—								
4. Dyadic tenure	4.82	10.94	.11*	.04	-.42***	—							
5. Follower risk orientation (F)	2.63	.72	.00	-.12*	.07	-.06	**.85**						
6. Leader risk orientation (L)	2.43	.62	-.10	-.02	.18**	.13*	-.05	**.81**					
7. Leader authority openness	2.11	.48	.04	-.00	-.21***	-.11*	.05	-.28**	**.81**				
8. Perceived intellectual stimulation	3.56	.75	.03	.03	.02	.04	.13*	.12*	-.03	**.90**			
9. Creativity	3.77	.57	-.03	-.04	-.06	-.03	.16**	.20***	.02	.29***	**.73**		
Second-degree terms													
10. F^2	.52	.94	.03	.08	-.05	-.04	-.09	-.00	-.05	-.12*	-.05		
11. F*L	-.02	.33	-.02	-.04	.02	-.06	-.01	.02	.01	-.18***	-.20***	-.05	
12. L^2	.34	.84	-.06	-.01	.48***	.04	.01	.53***	-.37***	.08	.07	-.09	-.12*

Notes: N = 325 at Level 1, 59 at Level 2. Gender similarity = 1, gender dissimilarity = 0. Reliability coefficients appear on the diagonal in bold. The cross-level correlations were calculated by disaggregating the Level-2 variables into Level 1. The squared and interaction terms of leader and follower risk orientations were generated using the grand-mean centered values. $^{*}p < .05$, $^{**}p < .01$, $^{***}p < .001$.

Table 6

Study 2: Cross-Level Polynomial Regression Analysis Results for Mediation

	Intellectual Stimulation	Creativity	
	Model 1	Model 2	Model 3
	b (SE)	*b (SE)*	*b (SE)*
Constant	3.57*** (.07)	3.83*** (.05)	3. 24*** (.15)
Age dissimilarity	.00(.00)	-.00 (.00)	-.00 (.00)
Gender similarity	.07 (.08)	-.02 (.06)	-.03 (.06)
Education dissimilarity	-.00 (.01)	-.02* (.01)	-.02* (.01)
Dyadic tenure	-.00 (.00)	-.01* (.00)	-.01* (.00)
Follower risk orientation (F)	.14* (.06)	.13** (.04)	.11** (.04)
Leader risk orientation (L)	.19* (.09)	.27*** (.06)	.24*** (.06)
F^2	-.09* (.04)	-.03 (.03)	-.02 (.03)
F×L	-.43** (.13)	-.38*** (.09)	-.30** (.09)
L^2	-.01 (.07)	-.01 (.05)	-.01 (.05)
Intellectual stimulation			.17*** (.04)
Congruence line (F = L) Slope	.32** (.10)	.40*** (.08)	.35*** (.07)
Congruence line (F = L) Curvature	-.53** (.16)	-.43***(.12)	-.33**(.12)
Incongruence line (F=-L) Slope	-.05 (.11)	-.14 (.07)	-.13 (.07)
Incongruence line (F=-L) Curvature	.33* (.14)	.33** (.10)	.28** (.10)
F for the three quadratic terms	5.21**	5.79***	3.69*
σ^2	.49	.28	.27
τ (intercept)	.03	.00	.00
Proportion within-group variance explained[a]	6.43%	14.08%	18.42%
Proportion between-group variance explained[a]	32.27%	100%	100%
Deviance[b]	705.88	511.48	494.72

Notes: N = 325 at Level 1, 59 at Level 2. Gender similarity = 1, gender dissimilarity = 0. We have pooled grand-mean centered F and L values in the regression models. Standard errors are given in parentheses. $^{*}p < .05$, $^{**}p < .01$, $^{***}p < .001$.

[a] The proportion of variance explained was calculated based on the parameters in the null model.

[b] Model deviance = -2 × log-likelihood of the full maximum-likelihood estimate.

Table 7

Point Difference Tests

	Study 1	Study 2	Study 2
Point comparison	Difference in Creativity	Difference in Creativity	Difference in Intellectual Stimulation
MM-HH	.46(.31)	.29(.24)	.62(.33)
MM-LL	1.15**(.39)	1.43***(.29)	1.54***(.40)
HH-LL	.68*(.30)	1.14***(.22)	.92**(.31)
LH-HL	.47 (.29)	.39(.21)	.13(.30)
HL-HH	.89(.52)	.75(.40)	1.21*(.55)
LH-HH	1.36**(.48)	1.15**(.40)	1.35*(.53)
HL-LL	1.57**(.52)	1.90***(.39)	2.13***(.53)
LH-LL	2.04***(.55)	2.29***(.43)	2.27***(.59)

Notes. $^{*}p < .05$, $^{**}p < .01$, $^{***}p < .001$.
Standard errors are given in parentheses.
H = high, which is 2 SD above the mean value.
M = moderate, which is at the mean value.
L = low, which is -2 SD below the mean value.

Table 8

Study 2: Indirect Effects of Leader and Follower-Risk Orientation on Creativity via Intellectual Stimulation

Dependent Variable	Line of interest	Slope of Surface		Curvature of Surface	
		Indirect effect	95% *CI*	*Indirect effect*	95% *CI*
Creativity	Congruence line (F = L)	.05†	[.01, .10]	-.09†	[-.17, -.03]
	Incongruence line (F = -L)	-.01	[-.05, .03]	.06†	[.01, .11]

Notes: Confidence intervals are based on Monte Carlo simulations (number of replications = 10,000). † 95% confidence interval excludes zero, signaling the significance.

Table 9

Study 2: Cross-Level Polynomial Regression Analysis Results for Moderation

	Intellectual Stimulation		Creativity			
	Model 4		Model 5		Model 6	
	b (SE)		*b (SE)*		*b (SE)*	
Constant	3.54*** (.07)		3.86*** (.05)		3.19*** (.16)	
Age dissimilarity	.00 (.00)		-.00 (.00)		-.00 (.00)	
Gender similarity	.02 (.08)		-.02 (.06)		-.02 (.06)	
Education dissimilarity	.00 (.01)		-.02* (.01)		-.02** (.01)	
Dyadic tenure	.00 (.00)		-.01 (.00)		-.01* (.00)	
Follower risk orientation (F)	.00 (.06)		.13** (.05)		.14** (.04)	
Leader risk orientation (L)	.12 (.10)		.24** (.07)		.22** (.07)	
F^2	.04 (.05)		-.03 (.04)		-.04 (.04)	
F×L	-.63*** (.15)		-.36** (.12)		-.24* (.12)	
L^2	-.06 (.15)		-.20 (.12)		-.19 (.11)	
Leader authority openness (LAO)	-.26* (.12)		.06 (.09)		.12 (.09)	
F×LAO	-.46** (.13)		-.00 (.10)		.08 (.10)	
L×LAO	-.23 (.19)		-.06 (.15)		-.01 (.14)	
F^2×LAO	.48*** (.10)		.01 (.08)		-.08 (.08)	
F×L×LAO	-.57* (.25)		.03 (.20)		.14 (.20)	
L^2×LAO	.04 (.14)		-.17 (.11)		-.18 (.10)	
Intellectual stimulation					.19*** (.04)	
	When LAO is high (+SD):	When LAO is low (-SD):	When LAO is high (+SD):	When LAO is low (-SD):	When LAO is high (+SD):	When LAO is low (-SD):
Congruence line (F = L) Slope	-.22 (.19)	.47*** (.13)	.34*(.15)	.41***(.10)	.39**(.14)	.32**(.10)
Congruence line (F = L) Curvature	-.67 (.36)	-.62*** (.18)	-.34 (.19)	-.37***(.10)	-.17(.19)	-.31**(.10)

Table 9 (continued)

Study 2: Cross-Level Polynomial Regression Analysis Results for Moderated Mediation

	Intellectual Stimulation		Creativity			
	Model 4		Model 5		Model 6	
	b (SE)		*b (SE)*		*b (SE)*	
	When LAO is high (+SD):	When LAO is low (-SD):	When LAO is high (+SD):	When LAO is low (-SD):	When LAO is high (+SD):	When LAO is low (-SD):
Incongruence line (F=-L) Slope	-.23 (.19)	-.01 (.13)	-.08 (.14)	-.13 (.10)	-.03 (.14)	-.13 (.10)
Incongruence line (F=-L) Curvature	1.15*** (.32)	.07 (.18)	.35 (.19)	.37*** (.10)	.17 (.19)	.31** (.10)
F for the five interaction terms	9.58***		.72		1.14	
σ^2	.44		.28		.26	
τ (intercept)	.01		.00		.00	
Proportion within-group variance explained[a]	15.79%		15.31%		20.10%	
Proportion between-group variance explained[a]	78. 05%		100%		100%	
Deviance[b]	661.97		506.81		487.90	

Notes: N = 325 at Level 1, 59 at Level 2. Gender similarity = 1, gender dissimilarity = 0. Intellectual stimulation = Follower experienced intellectual stimulation.

We have pooled grand-mean centered *F* and *L* values in the regression models.

Standard errors are given in parentheses.

[a] The proportion of variance explained was calculated based on the parameters in the null model.

[b] Model deviance = -2 × log-likelihood of the full maximum-likelihood estimate.

$^{*}p < .05$, $^{**}p < .01$, $^{***}p < .001$.

Table 10

Study 2: Conditional Effects of Authority Leader Openness on Intellectual Stimulation and Creativity via Intellectual Stimulation

Dependent Variable	Line of Interest	Level of Leader Authority Openness	Slope of Surface q_{slope}		Curvature of Surface $q_{curvature}$	
Perceived intellectual stimulation	Congruence line (F = L)	First Stage Effect				
		Low	.47*** (.13)		-.62*** (.18)	
		High	-.22 (.19)		-.67 (.36)	
		Difference	-.69** (.23)		-.05 (.33)	
	Incongruence line (F = -L)	Low	-.01 (.13)		.07 (.18)	
		High	-.23 (.19)		1.15*** (.32)	
		Difference	-.22 (.23)		1.09*** (.29)	
Creativity	Congruence line (F = L)	Indirect Effect	q_{slope}	95% *CI*	$q_{curvature}$	95% *CI*
		Low	.09†	[.03, .16]	-.12†	[-.21, -.04]
		High	-.04	[-.12, .03]	-.13	[-.29, .01]
		Difference	-.13†	[-.25, -.04]	-.01	[-.17, .15]
	Incongruence line (F = -L)	Low	-.00	[-.05, .05]	.01	[-.05, .08]
		High	-.04	[-.12, .03]	.21†	[.08, .39]
		Difference	-.04	[-.13, .04]	.20†	[.06, .39]

Notes: Standard errors are given in parentheses.
Confidence intervals are based on Monte Carlo simulations (number of replications = 10,000).
q_{slope} represents the slope of the surface along the line of congruence and incongruence.
$q_{curvature}$ represents the curvature of the surface along the line of congruence and incongruence.
† 95% confidence interval excludes zero, signaling the significance.
*$p < .05$, **$p < .01$, ***$p < .001$.

Table 11

Study 2: Point difference tests at low and high levels of authority openness

Response variable	Intellectual stimulation		
Points	When Leader authority openness is high ($+SD_{\text{leader authority openness}}$)	When Leader authority openness is low ($-SD_{\text{leader authority openness}}$)	Difference
High follower risk orientation Low leader risk orientation	$HL_{\text{high LAO}}$ = 5.40	$HL_{\text{low LAO}}$ = 3.79	1.61* (.70)
Low follower risk orientation High leader risk orientation	$LH_{\text{high LAO}}$ = 6.06	$LH_{\text{low LAO}}$ = 3.82	2.24** (.66)

Notes. $^{*}p < .05$, $^{**}p < .01$, $^{***}p < .001$.
Standard errors are given in parentheses.
H = high, which is 2 SD above the mean value.
M = moderate, which is at the mean value.
L = low, which is -2 SD below the mean value.

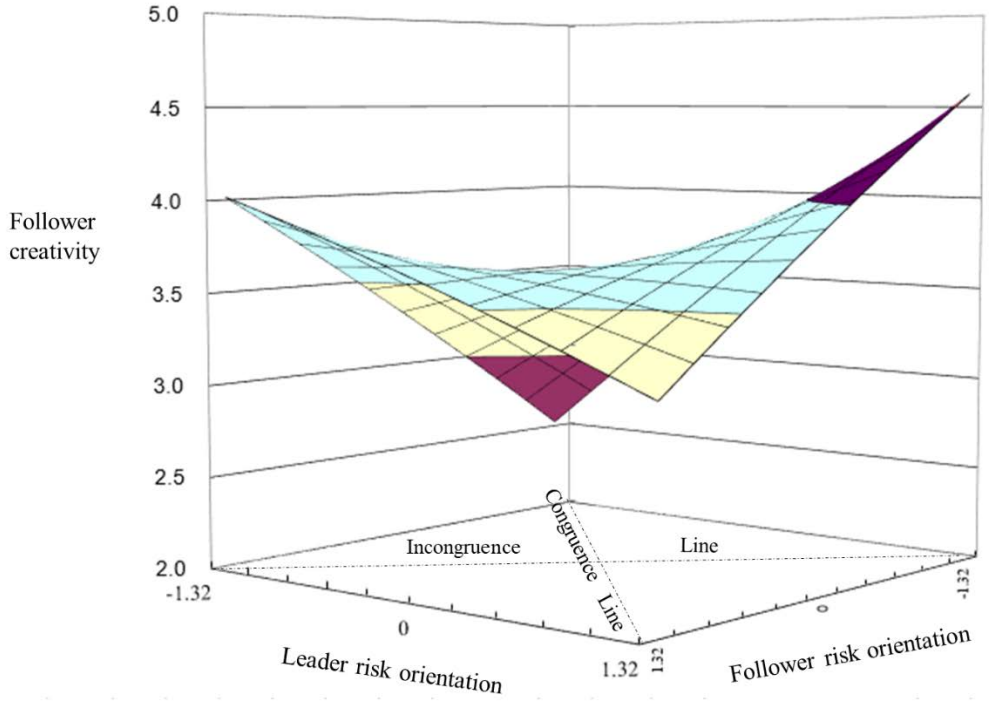


Figure 1a. Risk-Orientation (In)congruence on Creativity for Study 1

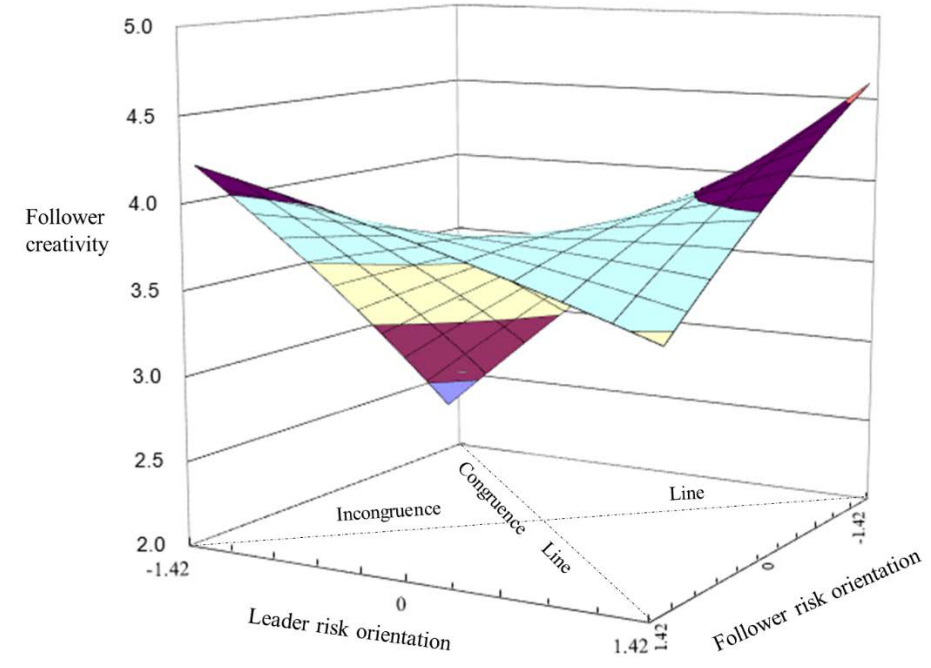


Figure 1b. Risk-Orientation (In)congruence on Creativity for Study 2.

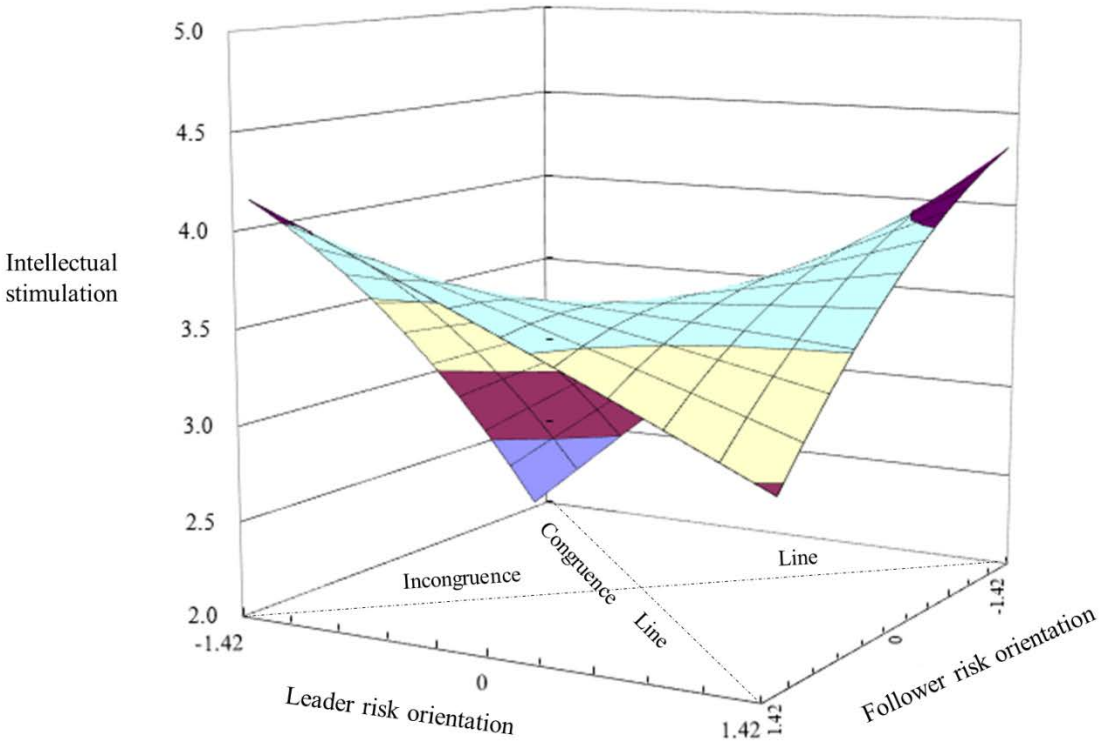
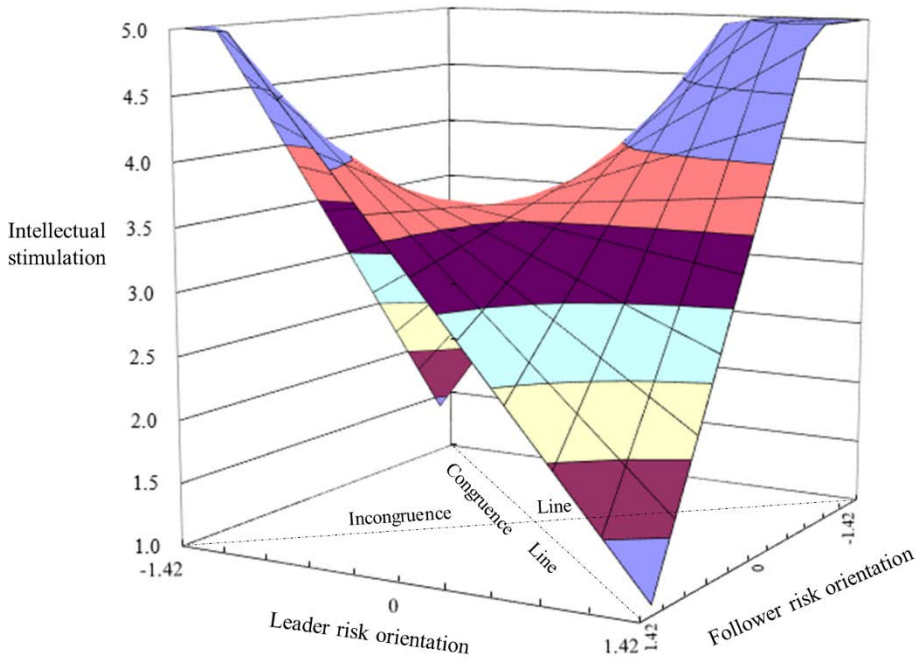
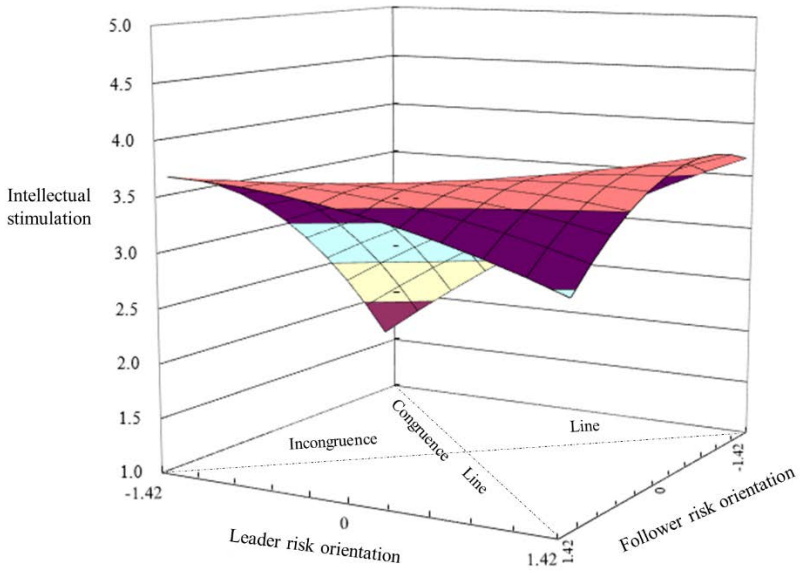


Figure 2. Risk-Orientation (In)congruence on perceived intellectual stimulation for Study 2.



High leader authority openness



Low leader authority openness

Figure 3. Risk-Orientation (In)congruence on Perceived Experienced Intellectual Stimulation at High (top) and Low (bottom) Levels of Authority Openness for Study 2