

The Experience of Improvising in Organizations: A Creative Process Perspective**EXTENDED ABSTRACT**

Creativity is essential for contemporary organizations, but the processes by which creativity emerges are still poorly understood (Anderson, Potočnik, & Zhou, 2014). Most scholars have conceptualized the creative process as a linear, planful sequence of phases unfolding over relatively long time horizons (e.g., Amabile & Pratt, 2016; Wallas, 1926). However, recent research has suggested creativity may also be generated through emergent, in-the-moment actions, or *improvisation* – “the design of a novel activity pattern [that] occurs during the pattern’s enactment,” (Cuhna, Miner, & Antonacopoulou, 2016, p. 3). Improvisation can generate many kinds of creative solutions in organizations, such as responses to life-threatening crises that go beyond the scope of people’s training (e.g., Hutchins, 1991; Weick, 1993), real-time problem solving by managers in fast-paced industries (e.g., Crossan & Sorrenti, 1997; Brown & Eisenhardt, 1997) and entrepreneurs dealing with unexpected problems and opportunities (e.g., Baker & Nelson, 2005; Hmielski & Corbett, 2008). In short, improvisation is an important source of creativity at work and can have lasting consequences for organizations (Smets, Morris, & Greenwood, 2012; Barrett, 1998; 2012).

This paper offers a critical review of research on improvising in organizations through the lens of improvisation as a creative process (Fisher & Amabile, 2009). We argue that the experience of improvising, which is characterized by simultaneous fear and exhilaration, is critical to understanding the experience of creativity, as well as how and why people improvise. We offer three recommendations for researchers to integrate the experience of improvising into organizational creativity research and theory: (1) adopt pragmatic theories of action that de-emphasize intentions and conscious deliberation, (2) focus on the balance between competing and simultaneous experiences rather than fleeting emotions, and (3) increase attention to process research and theorizing.

The Experience of Improvising

We identify three characteristics of the experience of the improvising. First, improvisation is both “exhilarating and perilous” (Barrett; 1998, p. 606). Improvising in diverse contexts, such as jazz (Peplowski, 1998), theater (Spolin, 1983), and pick-up basketball games (Eisenberg, 1990), is interpersonally risky: improvisers test the limits of their own capabilities and sometimes fail in embarrassing ways. Courting the perilous edge of one’s known capabilities focuses improvisers on the present moment, rather than on previously rehearsed routines. To access such moments, one must be immersed in the present moment, rather than relying on the past or worrying about the future. Indeed, a radical focus on the present is one of the most important elements of improvisation, in which “past and future blend together in a deep experience of the present.” (Crossan et al., 2005, p. 139).

In focusing intently on the present and seeking out situations that call out for novel responses, the perilous nature of improvisation can lead to experiences that artistic improvisers often describe as “transcendent”—exhilarating and timelessness feelings in which actors do not experience conscious control of their actions. Such reports of transcendent experience are pervasive in accounts improvisation, ranging from *tarab* music in Egypt and Lebanon (Racy, 1998) to basketball games (Eisenberg, 1990).

Although the risks of improvisation may help artistic improvisers to focus on the present and engender transcendent experiences, the perilous nature of repeatedly improvising on the job may be stressful in many organizational contexts. In life-threatening accounts of firefighters (Weick, 1993) or nautical crews (Hutchins, 1991) improvising, the stressful

aspects of improvisation may outweigh the exhilarating ones because the stakes are so high. For instance, one of the workers in Baker and Nelson's (2005) study of bricolage among entrepreneurial firms improvised an effective IT solution, but eventually quit his job, because he was "tired of trying to make that half-assed system run and then trying to explain why it couldn't do everything the real systems can do" (p. 350). Moreover, improvisation may be frowned upon in highly regulated environments, adding to the stress involved in its use. For instance, Batista and colleagues (2016) found that emergency room medical workers often needed to improvise solutions that went around or contradicted accepted protocols, but then felt obligated to hide their improvisations from view to avoid scrutiny or potential punishment. Improvisation was thus pushed into the "underlife" of the organization, and was not formally recognized or discussed publicly. In such situations, improvising may be a risky deviation for actors, increasing the fearful nature of the experience. In these ways, improvisational creativity is experienced in ways that are likely different from formally sanctioned, planned-for compositional creativity.

Barriers to Research on Subjective Experience in Improvisation

Why is there so little theory on the experience of the creative process, and of improvisational creativity in particular? We detail two especially problematic areas that inhibit understanding improvisation as a process. First, many scholars have noted that what constitutes an "idea" is problematic (e.g., Nonaka, 1994; Tsoukas & Chia, 2002). Ideas are one of the main foci of creativity research (e.g., Gilson & Litchfield, 2017), and are prominent in models of the compositional process (e.g., *idea* generation, *idea* execution). Creativity research typically conceptualizes ideas things that are explicitly generated and stored in people's minds (e.g., "having an idea"), awaiting enactment or implementation. By conceiving of ideas as mental representations, creativity scholars use a "dualistic" epistemology, in which knowing and doing are separate activities linked by individuals' intentional actions (i.e., a *purposive-rational* view of action). This dualistic, purposive-rational view of ideas and action is problematic for understanding improvisation (Barrett, 2000; Weick, 1998; Yanow & Tsoukas, 2009). Following many earlier social theorists (e.g., Heidegger, 1962; Mead, 1934), Gergen (1985) argued that "knowledge is not something people possess in their heads, but rather, something people 'do' together" (270). This "pragmatist" view of action puts more emphasis on how social situations and interactions call for and evoke creative action (Joas, 1996). Rather than consciously choosing to pursue a goal, actors test out and revise courses of actions in real time as they observe themselves acting in the social world and see others and the environment respond. Means and ends are not separable, but intermingled. While purposive-rational views emphasize the "push" of intentions and choices on actions, pragmatist views emphasize the "pull" of social dynamics in eliciting actions.

Creativity research is replete with purposive-intentional action views. By theorizing task presentation, idea generation, and idea verification as separate, creativity scholars have created divisions that are not experienced by improvisers. Pragmatic theories of action offer an alternative because they de-emphasize plans and intentions; instead, action is embedded, constrained, and shaped by social interactions (Tsoukas, 2009). This better represents improvising as it is practiced and experienced. Pragmatic theories of actions suggest that we falsely try to explain and interpret our experiences in terms of purposive-rational, agentic accounts, in which we overstate the role of intentional, goal-directed action, and understate the extent to which we improvise our way through organizational life. This view "hides" improvisational creative action (Joas, 1996), in that scholars and practitioners explain creativity action as if it were planned, rather than reflecting the experience of simply acting and finding the goals and purposes during or after acting.

A second barrier to integrating the experience of improvising into organizational research has been that scholars have examined improvisation at many different levels of analysis (Cunha, et al., 2016; Hadida, et al., 2015): some research focuses on individuals, some on small groups improvising collectively, and others on organizations as a whole (Cunha, et al., 2016). It is unclear whether the experience of a firefighter trying to save his life (e.g., Weick, 1993) has the same experience as a member of an organization that has improvised entry to a new market (e.g., Bingham, 2009). Indeed, do the aspects of the experience of improvising detailed here really apply to organization-level improvisation? Following Cunha and colleagues (2016), we agree that researchers need to be more specific about how aspects of improvising cross levels of analysis. Improvisation, by its nature, occurs at the intersection of action and cognition; it encompasses how people think and feel in the situations they exist in and how they relate to one another in the moment. Several studies have showed how improvisation can link the actions of individuals to the group (e.g., Bechky & Okhuysen, 2011), organization (e.g., Miner, et al., 2001), and field (e.g., Smets, et al 2012). To create such specifications, it may be more useful for macro scholars to differentiate between an entrepreneur improvising in a problem solving process and an entire organization working in concert to address a crisis. This will allow people's experience of improvising to propel the process forward, or begin to inhibit it. It may also help to explain why different members of an organization in which improvisation is occurring may have disparate reactions to it.

Integrating the Experience of Improvising into Creativity and Improvisation Research

We advance three steps for overcoming the barriers we discussed to integrate the experience of improvisational creativity into theory on both creativity and improvisation in organizations. First, scholars should focus less on momentary affective states, in favor of understanding the balance between “exhilaration and peril” over time that the creative process, and improvisation in particular, introduces. Second, scholars should suspend the assumption that knowledge is constituted “in-the-head” and, is then simply realized through execution. Third, scholars should seek to integrate across what are mostly separate streams of research on organizational creativity and improvisation to generate new process theories of creativity in organizations that incorporate the experience of the people involved.

Improvisational creativity has been largely overlooked in research on creativity. As we argue, the experience of improvising is important for organizational scholars to attend to both because human experience is, on its own, an important outcome of organizational life, and because the “exhilarating and perilous” nature of improvisation shapes the conditions under which people seek out and avoid it. Because improvisation is an important source of creativity, scholars of creativity should further develop process theories that incorporate its experience. Because improvisation is also a creative process, we hope that scholars of improvisation will also draw more on insights from creativity research, bringing to bear the accounts of the experience and outcomes of improvising. In bringing together these two emerging research traditions around the topic of the experience of the creative process, we will have a richer and phenomenologically grounded view of improvisational creativity in organizations.

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There is increasing recognition in research on creativity, defined as the production of novel and useful ideas (Amabile, 1996; Oldham & Cummings, 1996), that creativity is, at least in part, a social activity (Amabile & Pillemer, 2012; Perry-Smith & Shalley, 2003). Emphasizing the social side of creativity means that the characteristics or attributes of our interactions with others in the social or work environment may foster or hinder creative generativity (Amabile, 1996; Shalley, Zhou, & Oldham, 2004). Power, defined as having control over valued resources, is a pervasive and fundamental feature of social organization and it is perhaps unsurprising that this aspect of the social environment is often linked to creativity (Anderson & Galinsky, 2006; Galinsky et al., 2008; Hildreth & Anderson, 2016; Smith & Trope, 2006). While power may influence the creativity of individuals, pairs, or groups, it is especially relevant for creativity at the dyadic level where it has a direct bearing on interactions with others that potentially help or hinder the generation of creative ideas (Sosa, 2011; Taggar, 2002; Zhou & Hoever, 2014).

Although dyads are often characterized by power asymmetries, relatively little attention has been paid towards the effect that power asymmetries among the interacting members has on their *joint* creative performance. While some individual level studies found that power promotes abstract thinking and cognitive flexibility (Galinsky et al., 2008) which can lead to higher levels of creativity (Sligte et al., 2011), other studies at the group level found that power leads to lower levels of creativity because groups of high-power individuals engaged in status conflict and consequently decreased their focus on the task, and shared less information (Hildreth & Anderson, 2016). Given these mixed findings, it seems that the positive individual-level effect of power on creativity does not simply aggregate linearly, which raises the question of when or under what conditions will power asymmetry trigger higher levels of dyadic creativity?

Power asymmetry may be beneficial for creativity because hierarchical differences can

actually benefit a dyad's creativity relevant processes (Taggar, 2002). Differences in power establishes social order, facilitates coordination (Magee & Galinsky, 2008), and evokes smoother interactions (Tiedens & Fragale, 2003). For instance, individuals who are lower in formal rank are expected to respond more submissively to those of higher rank because they are aware of their formal rank in the hierarchy in this structured situation (Tiedens & Fragale, 2003; Anderson & Brown, 2010). Even if it is not favorable to be inferior in rank people usually do not challenge this social order once a hierarchy is established since its functionality is legitimized and justified (Jost, Banaji, & Nosek, 2004). Therefore, interactions among power asymmetric dyads are likely to involve fewer conflicts than those of power symmetric dyads and also allow for the emergence of complimentary behaviors, such as the exchange and combination of domain-relevant information embedded in the dyadic tie, that operationalize the cognitive benefits associated with power and lead to the achievement of higher-levels of creativity.

We further posit that power asymmetry is likely to be most beneficial for creativity when the social status of the dyadic members is relatively high. Status, or the social prominence that others accord to us, increases the likelihood that the members of a dyad will share their ideas and information (Magee & Galinsky, 2008). Since high-status people have won others' approval, they are unlikely to fear the negative effects of the disapproval of their ideas and may be more confident in their ideas (Galinsky et al., 2008; Duguid & Goncalo, 2015). Thus, at high levels of status, power asymmetry may be especially beneficial for creativity as the members of the dyad are willing to share and consider each other's ideas, and the high-power member of the dyad has the cognitive flexibility to recognize and the resources needed to promote creative ideas.

We assessed the effects of power asymmetry and status on creativity through a field study at a market research company in the Netherlands ($N=26$; $M_{age} = 35.27$, $S.D. = 6.29$; $M_{tenure} = 3.5$,

S.D. = 0.74; 20 female, 6 male; 62% B.A. or higher; 54% full-time). A network survey (100% response rate) that had a roster of employee names and asked employees to indicate who they went to for advice when they had an important work-related problem, was used to identify 242 dyadic relationships. We measured power via employees' formal rank (1=Back office; 2=Junior research managers; 3=Research managers; 4=Senior research managers; 5=Managing partners). We created a dichotomous variable in which 0 indicates power symmetry (150 dyads), or that the dyadic members have the same formal rank, and 1 indicates power asymmetry (92 dyads), or they have different formal ranks. Employees indicated the respect and admiration they had for all of their colleagues; these were averaged together to make a social status variable (3 point likert scale 1=low status; 2=medium status; 3=high status). Supervisors rated all employees creativity; we averaged three items from Zhou and George (2001)(5 point likert scale 1=low; 5 = high).

Linear regression analysis controlling for gender, age, tenure, education, and employment status (pt/ft) supported our arguments for a positive main effect of power asymmetry ($\beta=0.67$ $p<.001$) on creativity. Power asymmetric dyads were significantly more creative ($M=3.49$; $S.D.=0.32$) than power symmetric dyads ($M=3.24$; $S.D.=0.46$). This effect of power asymmetry was concentrated in the following combinations (2-4: $\beta=0.53$ $p<.001$; 2-5: $\beta=0.76$ $p<.001$; 3-5: $\beta=0.29$ $p<.01$; 4-5: $\beta=0.53$ $p<.001$) which differed significantly from each other. These results confirm our arguments for a main effect of power asymmetry on creativity. Status, however, negatively moderated the relationship between power asymmetry and creativity ($\beta=-0.05$; $p<.10$). When we examined the interaction more closely, we found that status interacted positively with the 4-5 dyads ($\beta=0.39$; $p=.06$) and negatively with the 3-5 dyads ($\beta=-0.54$; $p<.05$). When status is relatively high and both members of a power have some power (although one has more power than the other), the dyad may avoid status conflicts and focus on the generation of creative ideas.

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The temporal dynamics of creativity and idea implementation in teams

For many teams in organizations, innovation is a core component of performance (Choi & Chang, 2009). As competition among organizations increases and change within organizations accelerates, teams and individuals are more and more expected to develop innovative solutions and to contribute to organizational innovation (Baer, Leenders, Oldham, & Vadera, 2010). At the same time, there is an increasing pressure to get tasks accomplished within short time frames. As we will argue, a focus on getting things done and moving ahead quickly is a double-edged sword for team innovation: Although some teams fail at innovating because they don't get things done and fail to move forward and realize their ideas, others fail precisely because they move ahead too quickly and as a consequence do not create anything original.

The distinction between creating ideas and getting things done is reflected in the definition of innovation as the generation and implementation of new and useful ideas (West & Farr, 1990). In accordance with this definition, most researchers agree that two broad sets of activities underlie innovation: creativity refers to the generation, evaluation, and selection of ideas; implementation involves acting upon and realizing ideas (e.g., Farr, Sin, & Tesluk, 2003; West, 2002). Two theoretical perspectives on how teams manage the relation between creativity and implementation can be distinguished: The linear perspective assumes a sequence of distinct phases that presumably follow each other step-by-step from creativity to implementation (e.g., Amabile, 1988; Farr, et al., 2003), whereas the complexity perspective assumes that creativity and implementation are intertwined and unfold in a cyclical and chaotic manner (e.g., Schroeder, Van de Ven, Scudder, & Polley, 1989). There appears to be an implicit agreement in the literature that both perspectives contain some truth and that innovation processes exhibit linear as well as chaotic features. However, empirical studies have not yet disentangled the interplay between creativity and implementation (Baer, 2012). Indeed, most empirical studies treat innovation as an outcome rather than a process (Knight, 2015) and do not distinguish between creativity and implementation. Consequently, evidence on how teams manage tensions as well as interdependencies between creativity and implementation in such a way that innovation emerges is sparse.

To address this gap and to further the understanding of innovation in organizations, this article examines and tests the assumptions that underlie current models of the innovation process. It integrates the outlined theoretical perspectives and derives testable predictions on how the temporal dynamics of creativity and implementation are related to team innovation. More specifically, we suggest that, in early time frames, such as the first days or weeks of a project, the foundation is laid for whether or not an innovative outcome will be developed. Teams lay this foundation if they engage in unconstrained creativity and take time to generate many ideas and explore different directions (Simonton, 1997). In these early time frames, teams need to reconfigure and integrate diverse knowledge from different sources, which is necessary to develop something unique and original (Taylor & Greve, 2006). Therefore, we hypothesize that only when teams engage to a high extent in creativity early in their projects they will be able to produce highly innovative outcomes (*Hypothesis 1*).

We further suggest that in early time frames of an innovation project, teams need to refrain from quickly moving to implementation as an early focus on implementation hinders engagement in unconstrained ideation and the development of highly original ideas. Implementation is supported by an action-oriented mindset that is focused on execution and goal attainment (Gollwitzer, Heckhausen, & Steller, 1990). Such a mindset is narrow and biased in

the sense that motivational mechanisms support only those processes in a team that lead to attainment of the activated goal and suppress alternative processes that distract from goal achievement (Beckmann & Kuhl, 1984). When fully engaged in implementation, a team will not consider remote alternatives and different perspectives as long as they are not of immediate usefulness for the goal that is pursued (Baumann, Kuhl, & Kazen, 2005). Thus, we hypothesize that the level of implementation in early time frames is negatively related to team innovation (*Hypothesis 2*).

In contrast to early time frames of a project, the importance of implementation increases as a team progresses with a project. In order to deliver an innovative solution and not merely an original idea, implementation activities need to gain momentum at some point during the project (Baer, 2012). Implementation also serves the function of elaborate reality checks as it generates feedback about the feasibility and deficiencies of ideas (Manske & Davis, 1968). If teams fail to start actually acting on their ideas at some point, they will not be able to meet project deadlines and present an innovative outcome at the end of the project (Gersick, 1988). Therefore, we suggest that an increase in implementation over time is positively related to team innovation (*Hypothesis 3*).

As implementation gains importance over the course of a team project, creativity does not lose importance at an equal rate. Instead, we suggest that when implementation increases, teams need to engage in creativity to support the implementation of their ideas. While teams work on an idea, this idea is never complete and developed in all its details. It needs to be refined, reshaped, and adapted during the process of implementation (Paulus, 2002). Otherwise, the degree of elaboration and differentiation of an initial idea will be low and it cannot be translated into a deliverable outcome. Creativity is also necessary throughout a project because the likelihood of setbacks increases as a team progresses, especially when ideas are highly original and pre-existing schemata of how to realize ideas cannot be utilized (Schroeder, et al., 1989). Creativity is thus needed to handle problems and find solutions and ideas how to solve problems and overcome hurdles (Hargadon & Bechky, 2006). Thus, we suggest that a decrease of the degree of creativity over the course of the project will be negatively related to team innovation (*Hypothesis 4*).

Method and Results

We tested our model in a sample of applied innovation projects that engineering students worked on for about of one semester. Our sample consisted of 76 teams with 228 engineering students. We used a repeated measures design with 3 to 6 measurement occasions depending on the length of the projects. At each measurement occasion, team members were asked to what extent the team had engaged in *creativity* and *implementation* activities within the last two weeks (10 items; Cronbach's α s between .84 and .96). The answers of individual team members were aggregated to the team level. *Team innovation* was assessed at the end of the semester by the instructors of the student courses, who rated the novelty and quality of the project outcome. These ratings were combined into a team innovation measure (5 items; Cronbach's $\alpha = .93$).

To test whether the initial level of creativity and implementation as well as change over time in these processes are related to team innovation, we regressed team innovation on intercepts and change in creativity and implementation over time (cf. Chen, Ployhart, Cooper Thomas, Anderson, & Bliese, 2011). In a first step, we regressed both processes on time as the independent variable, using mixed-effect growth models (Bliese & Ployhart, 2002). In these analyses, we obtained empirical Bayes estimates for each team for intercepts and slopes. The

estimated Bayes intercepts, which result from these two regressions, represent the initial value of creativity and implementation. In addition, the estimated Bayes slopes represent change over time in the two types of processes. In the second step, team innovation was regressed on the empirical Bayes estimates obtained in the first step. With this analysis, we tested whether the initial value and the linear change (i.e., the fall or rise) in creativity and implementation over time were related to team innovation.

As predicted by Hypothesis 1, which assumed a positive relationship between the level of creativity in early time frames and team innovation, the intercept of creativity was marginally significantly positively related to team innovation ($\beta = .32, p < .10$). Hypothesis 2 predicted a negative relationship of the level of implementation in early time frames with team innovation. Accordingly, the intercept of implementation was significantly negatively related to team innovation ($\beta = -.51, p < .01$). Hypothesis 3 stated that an increase in implementation would be positively related to team innovation. Change in implementation was indeed positively related to team innovation ($\beta = .35, p < .05$). Finally, Hypothesis 4 stated that a decrease in creativity over time is negatively related to team innovation. Accordingly, the slope of ideation should be positively related to team innovation. However, change in creativity was unrelated to team innovation ($\beta = -.04, p > .10$), disconfirming Hypothesis 4.

Discussion

This study integrated the linear and the complexity perspective on the innovation process and specified a dynamic pattern of creativity and implementation that should result in team innovation. In support of our hypotheses, teams delivered innovative outcomes if they started out with a high level of creativity and refrained from an early focus on implementation. Over the course of the projects, there was an increase in implementation activities in those teams who eventually delivered innovation. Contrary to our expectation, we could not show that a decrease in creativity was negatively related to team innovation. However, further analyses revealed a positive relationship between creativity at later time frames and team innovation, suggesting the importance of creativity not only in the beginning but also at the end of innovation projects.

The study contributes to the literature by showing that current models of the innovation process tend to adopt one of two theoretical perspectives. Both perspectives shed light on important aspects of the innovation process, however, each perspective alone is incomplete (Bledow, Frese, Anderson, Erez, & Farr, 2009). The complexity perspective neglects linear-sequential aspects—most notably that idea creation precedes idea implementation; the linear perspective oversimplifies the innovation process and fails to take into account that teams frequently move back and forth between creativity and implementation and can engage in both activities simultaneously. Our research provides a foundation for future research on team innovation that explicitly considers the temporal interplay of creativity and implementation.

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A Dynamic Multilevel Model of Social Capital and Creativity

As organizations increasingly utilize team-based structures for creative work, teams represent an almost ubiquitous social context in which individual creativity manifests (Chen, Chang, & Hung, 2008; Richter, Hirst, van Knippenberg, & Baer, 2012). As such, an abundance of research has examined how social capital—defined as a set of resources inherent in the relationships held by individuals (Adler & Kwon, 2002)—can foster creativity and innovation (Reagan & Zuckerman, 2001). However, while scholars have largely accepted the relationship between social capital and creativity at the individual and team levels (e.g., Damanpour, 1991; George, 2007; Reagans & Zuckerman, 2001), there have been inconsistent empirical findings and contradictory theorizing (see Perry-Smith & Mannucci, 2017, for a review) that require reconciliation to provide a solid foundation for future research.

To address this need, we propose a dynamic theoretical model that integrates a multilevel perspective with previously neglected dimensions of social capital (e.g., relational and cognitive social capital; Nahapiet & Ghoshal, 1998) and literature on team dynamics (e.g., Marks, Mathieu, & Zaccaro, 2001) to provide a more nuanced perspective of how social capital and creativity coevolve over time. To this end, we first build upon extant literature to suggest that social capital at the individual level has implications for creativity at the individual level, as well as creativity and innovation (the development and implementation of creative ideas; Amabile, 1988) at the team level. Next, we develop theory to suggest that creativity at both levels can elicit changes in the social capital of both individual employees and the team overall. Finally, we theorize about the implications such changes have on the potential for future creativity at the individual level, and the potential for creativity and innovation at the team level.

In our model (Figure 1), we first examine how social capital at the individual level influences creativity at both the individual and team levels. There is an overwhelming consensus that certain configurations (e.g., Burt, 2000; Cattani & Ferriani, 2008) and types (e.g., Perry-Smith, 2006; Tortoriello & Krackhardt, 2010) of relationships can elicit creativity in individuals. This may be due to an individual having access to non-redundant information (e.g., Burt, 2004), support (Perry-Smith & Mannucci, 2017), or generative feedback (Harrison & Rouse, 2015) from peers. Ultimately, recent research has concluded that both the structure and content of relationships are important in fostering creativity (Cattani & Ferriani, 2008; Harrison & Rouse, 2014). In our model, we explain how both forms of network-related individual social capital foster creativity at the individual level, which may subsequently result in team-level creativity and innovation.

Next, we delineate how creativity can result in changes to social capital at both individual and team levels. Specifically, we develop theory to suggest that creativity at the individual level not only influences creativity at the collective team level, but that it also results in changes in social capital (e.g., network structure) for both individuals and the team overall. These effects build on previous research that recognizes creative performance may have a reciprocal relationship with social capital, such that over time,

creativity actually changes the nature of an individual's relationships (e.g., Perry-Smith & Shalley, 2003).

Importantly, we propose that the effects creative outcomes on social capital occur at both the individual and team levels. Differences in the construct of social capital at the individual and collective levels have been detailed in extant literature on social capital (e.g., Moliterno & Mahony, 2011; Payne, Moore, Griffis, & Autry, 2011). Specifically, individual social capital refers to resources that directly benefit an individual actor, such as the position of an individual within their network or the specific dyadic ties in which an individual is included (Leana & Van Buren, 1999). Conversely, group social capital is a collective attribute that directly benefits the group (e.g., team, organization) instead of an individual actor (Leana & Van Buren, 1999). We predict that a team member's creative performance will impact both types of social capital, and that these effects will have different implications due to the different nature of the social capital construct across levels.

Our model builds upon the aforementioned theorizing in two important ways. First, we take a multilevel perspective to differentiate between the outcomes of creativity on social capital at the individual and collective (team) levels. As the majority of extant social capital and creativity theorizing has been at the individual level, we provide a more nuanced perspective to consider the implications beyond changes to the individual's social capital. Our model allows for us to develop theory that acknowledges the importance of social capital at both levels but also to theorize about the cross-level effects creativity simultaneously has on social capital across these levels. Secondly, we explicitly differentiate between creativity's impact on an individual's internal (intra-team) and external (inter-team) social capital, and we discuss how these changes may be complementary in the creative individual's continued performance over time. That is, we provide a more detailed and nuanced perspective on how creativity influences changes in different aspects of an individual's social capital.

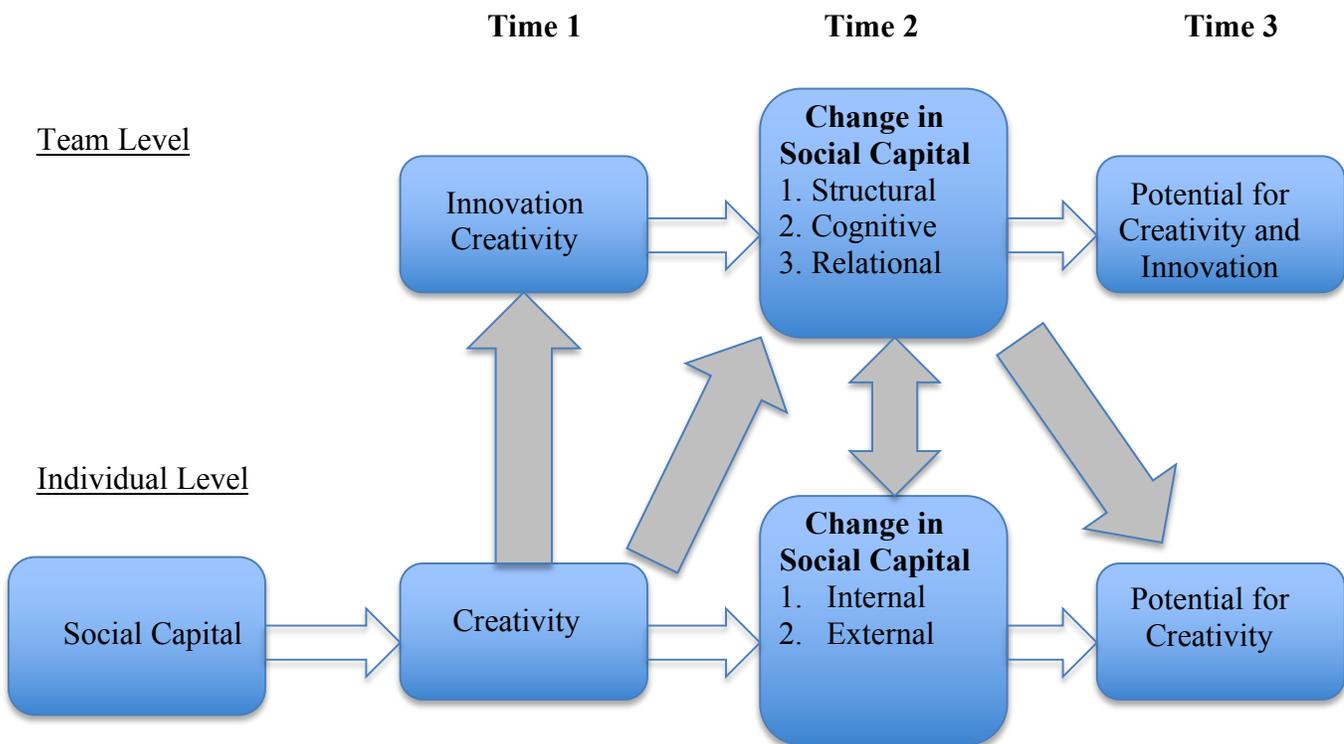
In the last portion of our model, we posit how changes in social capital for individuals and teams influence the potential for future creativity at the individual level, and the potential for creativity and innovation at the team level. Specifically, we build on the recurring phase model of teams which posits that team competences and outputs evolve over time (Marks et al., 2001) to propose that individual creative performance will not only influence the social capital of the individual, but also that of the team. Furthermore, such changes in the social capital at both levels have implications for potential creativity at the individual and team level.

For example, changes in an individual's external social capital can create value for the team as the creative individual's success inspires new relationships that may attract new resources (both tangible and intangible) that can be utilized by the team to engage in future creative performance. Correspondingly, we recognize that the creative individual's internal social capital, or their relationships within the team, may also change as a result of their creativity. Specifically, they may become more recognized and, as a result, relied upon by their coworkers who seek to develop stronger ties. While previous

research (e.g., Perry-Smith & Shalley, 2003) has argued that this change will result in homogeneity of thinking and ultimately decreased creativity, we propose changes to this social capital that may also lead to positive outcomes. Specifically, the focal individual might use this newfound support from colleagues to help foster continued creativity through support (Perry-Smith & Mannucci, 2017) or generative feedback (Harrison & Rouse, 2015). Therefore, we propose that changes in the social capital of both the team and the creative individual may have positive implications for the team's future potential for creativity and innovation.

Taken together, our model makes a theoretical contribution by elucidating how the dynamic relationships between social capital and creativity may not only influence the continued potential for creativity by a focal individual, but may also impact the creativity and innovation of their team through changes to social capital. By incorporating theorizing on team dynamics (e.g., Marks et al., 2001) with extant research on the coevolution of creativity and social capital (e.g., Perry-Smith and Shalley, 2003), we highlight the multilevel, dynamic nature of these relationships that may serve as a useful foundation for future research and theorizing on the social antecedents and consequences of creative performance.

Figure 1. A dynamic multilevel model of the relationship between social capital, creativity and innovation, changes in social capital, and the potential for future creativity at the individual and team level



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