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THE INFLUENCE OF DAILY CONFLICT ON PERCEPTIONS OF CREATIVITY: A LONGITUDINAL STUDY

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This paper theorizes that perceived creativity is a phenomenon largely affected by social interactions in the workplace, one of which is daily conflict events. We here examine the influences of each task, process, and relationship conflict experienced at work on perceived creativity. Using both quantitative and qualitative time-series data from the daily diaries of 228 employees of seven companies, we looked for both positive and negative relationships between conflict and perceptions of creativity. Multi-level models controlling for repeated measures and team membership reveal that daily conflict occurrences are significant same day and next day antecedents to perceived creativity—some positive, and some negative. The use of daily measures administered longitudinally allows us to pinpoint with greater specificity the nature of the conflict-perceived creativity relationship. Implications for theory and methods are discussed.

Keywords: Daily conflict, Creativity, Longitudinal study

Creativity is essential to compete in industry, and research has increasingly focused on the processes that contribute to creative outcomes for individuals in organizations. Decades of creativity research has produced several major theories of creativity (e.g., Amabile, 1996; Ford, 1996; Simonton, 1999; Woodman, Sawyer, & Griffin, 1993), and each notes that some forms of interpersonal interaction

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can play a role in the creative process. To date, however, none have yet identified conflict as a specific type of interpersonal interaction which can have systematic effects on one's thoughts about creative production. Our goal is to extend this work by exploring theoretically and empirically whether and how particular types of conflict experienced by individuals' influences their perceptions of creativity both in their own and their team's work, which we argue is one indicator of creative processes for individuals in organizations. Using daily measures of conflict and perceived creativity from 228 individuals in 26 projects teams from seven different companies, we will examine the emerging conflict-creativity relationship as it occurs day by day, as opposed to aggregated across entire projects. As such, we also propose to extend each the conflict and creativity literatures by exploring theoretical reasons regarding specifically how the timing of conflict events might influence perceptions of creativity.

Our study thus contributes to the conflict and creativity literatures in several important ways. First, previous research examining the conflict-creativity relationship has tended to treat all types of conflict alike and thus has not conceptualized conflict in a multi-dimensional way, and might thereby have obscured relevant differences in this relationship (e.g., James, Chen, & Goldberg, 1992; Kolb & Glidden, 1986). For another, most studies of conflict have not been able to pinpoint the effects of conflict in a natural setting and in a localized time-frame to understand the more immediate effects of conflict on one's state of mind, but instead have most often asked participants to rate the levels of conflict they experienced in retrospect (e.g., Jehn, 1995, 1997). Finally, we aim to explore a more psychological dependent measure—perceptions of creativity—instead of more tangible outcomes, to see how conflict acts in a very personalized way on this one part of the creative process. In this way, we hope to contribute to the field by examining how the experience of conflict on the same day and the day following might influence perceptions of creative performance. To summarize, we here theorize that conflict events will directly influence the individual psychological processes that researchers associate with creative activity (Amabile, 1996), some for the better and others for the worse.

Creative Processes and Conflict

Much of the research on creativity has focused on tangible creative outcomes exclusively—those ideas or products which meet the criteria of being *novel* and *useful* (see Amabile, 1996). However, there are two other elements worthy of research attention as well: (1) the process by which creative ideas are generated, and (2) each individual's perception of the creativity occurring. We focus on the interplay between these two elements in the current investigation since both have important implications for creativity overall. For example, in her componential model, Amabile (1996) describes creative cognitive processing as an iterative process whereby creative ideas are generated. Included within this process are several steps, meant to occur in no particular order, including: problem identification (noting there is a problem to be solved), preparation (gathering information to solve the problem), response generation (searching memory and the environment to

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develop options to solve the problem) and response validation and communication (testing the response possibilities against some standard). Within Amabile's theory, social processes, including conflict, can play a role in many of these creative cognitive steps, most notably the preparation and response validation stages. For example, conflicts involving disagreements about specific work options could alert an individual to a different line a reasoning that could better prepare them to solve a problem. In this way, some forms of conflict might allow an individual to winnow through various possible creative solutions by providing either validating or invalidating information. Thus, interpersonal interaction, such as conflicts, can and does influence creative processes.

In addition, recent theoretical work in the area of creativity has focused on individual perceptions of creativity as an important outcome variable, independent of measurable creative products. This is based primarily on the idea that if one imagines him or herself to be creative, tangible creative end-products are more likely to result at a future point in time, either in the same or in other contexts (Hargadon, 2002; see Kurtzberg, 2005 for a more complete discussion of this idea), for three reasons. First and most directly, believing oneself to be creative has been shown to increase actual creative production going forward (Eisenberger, Haskins, & Gambleton, 1999; Mueller, Amabile, Simpson, Fleming, & Hadley, 2003), potentially because of the effects of self-fulfilling prophecies (Miller & Turnbull, 1986; Rosenthal & Jacobson, 1968). Second, positive perceptions of creativity are linked with increases in confidence and self-efficacy (Satterfield & Muehlenhard, 1997), which are valued traits in an organization. Similarly, Seligman & Csikszentmihalyi (2000) have observed that people consider creativity to be a positive and satisfying experience, which results in positive affect, thereby linking these perceptions with a host of positive organizational outcomes, including better performance, relationships, and commitment to the organization (Isen, 1999; Pelled & Xin, 1999; Seligman, 2000; Staw, Sutton, & Pelled, 1994). Thus, perceptions of creativity can be thought of as an outcome relevant for both the creative process and for attaining positive organizational outcomes in a more general sense. Taken together, we here present ideas exploring how one facet of interaction, conflict, can affect the creative process by influencing individual perceptions of creativity.

Conflict Theory: Task Conflict and Creativity

Though conflict is generally defined as a struggle over incompatible goals (Wilmot & Hocker, 2001), conflict researchers have recognized that not all conflicts are the same. Previous research establishing a theory of conflict has identified three main categories of conflicts: task-based conflict, which pertains to discussions and debates about the work being done; relationship-based conflict, which pertains to the interpersonal interaction among group members; and process-based conflict, which pertains to *how* the work is accomplished (and the assignment of roles and responsibilities). Research has shown a curvilinear relationship between task-based conflict and group performance, indicating that while some task-based conflict can be beneficial, large amounts of it can become counterproductive (Jehn, 1995), if the task is non-routine in nature. If the task is

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entirely routine, task conflict does not seem to have the same potential benefits. Relationship conflict (Amason, Thompson, Hochwarter, & Harrison, 1995), and process conflict (Jehn, 1997), are seen as singularly damaging. Previous research thus demonstrates the importance of categorizing the type of conflict present in group situations, instead of merely assessing the presence of conflict, since the different types can have vastly different effects.

Classic research on creativity (Guilford, 1950; Torrance, 1969) has described the ability to think flexibly (considering many different approaches and categories of thought) as one of the crucial elements that can lead to novelty in ideas. We argue that task conflict similarly brings multiple viewpoints to light and thus can provide a vehicle for more creative thinking by stimulating the development of and defense of multiple perspectives. In fact, other research has demonstrated that groups that contain multiple opinions tend to be more original (Van Dyne & Saavedra, 1996), more innovative (De Dreu & West, 2001), more divergent (Nemeth, 1986), and more complex (Gruenfeld, 1995) in their products than groups in which members all agree. Though it is theoretically possible to stifle all conflict at work (Thomas, 1992), lack of disagreements of any kind can hinder both productivity and creativity (Nemeth, 1995). This can even leave teams susceptible to the dangerous occurrence of "groupthink" (Janis, 1972), in which the psychological drive for consensus at any cost suppresses dissent and consideration of alternatives. Differences of opinion can indeed promote better decisions (e.g., Amason & Schweiger, 1994; van de Vliert & de Dreu, 1994), particularly in the realm of teams striving for *creative* outcomes (James, 1995; Smith & van der Meer, 1994; Kolb & Glidden, 1986). Thus, we expect task conflict to produce more cognitive variation and the testing of ideas, and thus more insights (Perkins, 1986).

However, in this research we are concerned not with the group-level outcomes but instead with the individual perceptions of the creative process, as described above. In addition to the significant outcome potential of positive perceptions of creativity, we believe that the individual perceptions of the creative process can also provide an important motivating function such that the individual will be more likely to discuss and play with ideas that he or she believes are creative (Amabile, 1996).

Task Conflict and Creativity Over Time

Even despite the positive relationship demonstrated between task conflict and performance in situations when groups face non-routine tasks, conflict is still recognized as having other negative consequences on outcomes such as individuals' satisfaction, liking of other members, and intent to remain in the group (Jehn, 1995). In other words, there are potential psychological costs associated with conflict that might not appear in an exploration solely of the more tangible or quantitative work outcomes. Thus, even with the potential benefits that task conflict may offer, it can also spiral into unproductive interactions which can be detrimental to work outcomes (Jehn, 1997).

In light of the mounting evidence that negative mood deters creative thought (see Amabile, Barsade, Mueller, & Staw, 2005, for a review), it is seemingly paradoxical that task conflict should contribute to negative affect (e.g., disliking and

dissatisfaction) while also positively contributing to creativity. One possibility is that the timing of the conflict can moderate this process. For example, affective events theory would predict that a person might experience negative affect in response to a task conflict event (Weiss & Cropanzano, 1996). Because a vast amount of research and theory has shown that, with few exceptions (see Amabile, Barsade, Mueller, & Staw, 2005 for a review), negative affect contributes to lower levels of creativity, perceived creativity (which is highly correlated with positive affect) may decrease on the day the task conflict occurs. However, since theories of emotion suggest that such affective responses to events tend to be short-lived (Forgas & George, 2001)—in fact empirical evidence has shown that 70% of negative moods sampled lasted only one day (Nolen-Hoeksema, Morrow, & Frederickson, 1993)—it may be reasonable to expect that the content (and thus, the potential positive perspective-giving effects) of the task conflict may remain dormant in memory for a day, or until the individual is in the appropriate psychological state (that is, past the clouding influence of the more immediate negative reaction) to openly consider the information communicated by the task conflict.

In other words, positive perceptions of creativity may not occur immediately following a task conflict event as negative feelings may take the forefront immediately after a conflict event, thus inhibiting the processing of the new information presented by the conflict. Instead, we expect that the potentially productive effects of the task conflict will occur a day after the conflict event had occurred, instead of on the same day, when the new information or criticism has had enough time to incubate and recombine. There are several examples in the creativity literature of ideas and associations emerging some time after exposure to the initiating idea, and this process has been labeled the incubation process (Simonton, 1999). Incubation is one component of the creative process that involves the conscious stimulation of ideas and thoughts that are unconsciously recombined in the mind in novel ways some period of time after the initial exposure to the ideas themselves.

Because the majority of the previous literature examining conflict has examined the influence of conflict on performance outcomes aggregated to a single point in time (see Jehn & Mannix, 2001, for an example of conflict studied over blocks of time in a group setting), this may have obscured important processes occurring real-time in the task conflict-creativity relationship we here propose to study. As such, we predict that task conflict will negatively relate to perceived creativity the same day, but will positively relate to perceived creativity the next day.

Hypothesis 1: Higher levels of task conflict will lead to lower levels of perceived creativity the same day.

Hypothesis 1a: Higher levels of task conflict will lead to higher levels of perceived creativity the next day.

Process Conflict, Relationship Conflict and Creativity

While we expect that task conflict should positively relate to perceptions of creativity the next day, we predict that process conflict might negatively relate to perceptions of creativity regardless of the timing. Theoretically we would expect process conflict to detract from individuals' ability to execute individual action, as

conflict over roles, activities, and goals detract from an individual's ability to accomplish any work, including creative work (Jehn, 1997). Previous research has confirmed that the extent to which teams have difficulty assigning tasks and roles to team/members can detract indirectly from an individual's and directly from a team's ability to perform creatively (Taggar, 2002). Thus, on the psychological level, we here argue that when one is consumed with trying to sort out roles, responsibilities, and goals, the mental energy absorbed by these thoughts will subsume any chance for creative thinking in this localized timeframe, and will leave one with the sense that no creative work was accomplished. Though it is possible that the airing of process issues can be of some benefit to teams eventually (Jehn & Bendersky, 2003; Jehn & Mannix, 2001; Tjosvold, 1991) as it helps pave the way for a smoother progression of work, it is unlikely that the effects would occur either in terms of an individual's mindset about creative production, or in the single day timeframe we propose to examine here. Thus, we do not expect that the relationship between process conflict and creativity will change from one day to the next.

Hypothesis 2: Higher levels of process conflict will relate to lower levels of perceived creativity the same and next day.

While we would also predict that relationship conflict would negatively relate to creative perceptions at work regardless of the timeframe, we expect the mechanisms to differ. More specifically, relationship conflict involves the relational aspects of social interaction as opposed to just the coordination of tasks. Essentially, relationship conflict primarily influences individual performance by weakening social and relational ties (Jehn, 1995), and lessening social support (Rook, 2003), which in turn can affect creative performance (Madjar, Oldham & Pratt, 2002). In addition, interpersonal conflicts can be discouraging psychologically, and we expect them to consume one's psychological energy to the point where one neither engages in nor recognizes creative progress afterwards.

Hypothesis 3: Higher levels of relationship conflict will lead to lower levels of creativity the same and next day.

Method

We now turn to empirical tests of our three hypotheses. While it is difficult to observe actual work teams in organizations without disturbing their functioning, natural work teams provide us with the most accurate possible view of what actually happens in organizations on a daily basis. This research used a combination of two kinds of self-report data—first, reports of the daily events that were most important to each individual on a project team, and second, individual ratings on their own and their team's creativity that day. This study was designed to explore the events that are most salient in one's day, in order to gain a better understanding of how individual occurrences each day affect perceived outcomes. To get a more complete picture of the effects of each event, we first coded the events into categories and then explored the relationship between events and ratings on the same day and on the day following the focal event.

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Participants

The data for this research were collected as part of a multi-year, longitudinal study, known as the Team Events and Motivation (TEAM) study.¹ The data include 228 individuals on 26 teams in 7 different organizations, in three different industries (chemical/pharmaceutical, high-tech, and consumer products). Teams were studied for either an entire project from start to finish, or an entire project phase. The length of time that each team participated in the study ranged from 9 to 38 weeks, with a mean of 19.04 weeks.

Procedure

Process data were collected using the Electronic Event Sampling Methodology, which collected both descriptions about the salient events in one's work day as well as perceptions of work outcomes for that day (Amabile, Whitney, Weinstock, Miller, & Fallang, 1997), using an e-mail form called the Daily Questionnaire (DQ). Individuals reported events from their work on their projects daily, in order to keep the descriptions as close as possible to the actual events in time and in content. Response rates on the Daily Questionnaire averaged 75%. In addition, individuals responded to scale questions on their performance and their team's performance each day.

As part of the Daily Questionnaire, participants were asked for a free-response to the statement "briefly describe one event from today that stands out in your mind as relevant to your project, your feelings about this project, your work on this project, your team's feelings about this project, or your team's work on this project." The Daily Questionnaires from all 228 participants yielded a total of 11,638 event narratives, with one narrative per Daily Questionnaire. These free-responses were coded for content and classified into one of a series of codes. The coding family of primary importance to this study was on conflict events (see below for details on the coding scheme and the reliability analyses). Conflict was coded into three different conceptual categories: task conflict, interpersonal relationship conflict, and process conflict.

Independent Variables. The primary independent measures were derived from the content coding of the free-response section of the Daily Questionnaire. Approximately 6% of the descriptions were coded as one of the three forms of conflict, yielding approximately 250 instances of each of the three forms: task, process, and relationship conflict. Each of the three types of conflict was represented at some point during every team's participation in the study. Conflict codes were then converted to percentages of all codes used to control for the number of days that each team was in the study.

Dependent Variables. Two different scales were created from the daily questionnaire to measure participants' impressions of both their individual creativity and their team's creative synergy. The Perceptions of Individual Creativity scale contained the items "I was creative today" and "I felt imaginative today" ($\alpha =$

¹This study was conducted under the direction of Teresa Amabile and was supported by the Division of Research at Harvard Business School.

.80). The Perceptions of Team Creative Synergy scale contained the items “The team was creative today,” “The team worked well together today,” and “The team was supportive today” ($\alpha = .83$). Each of these scales was analyzed on both the same day as reported conflict events and on the day following reported conflict events. The nature of the data thus helps to establish causality—the conflict event by design had to occur before the ratings of creativity took place. Since we had no theoretical reason to believe that higher perceptions of creativity would lead to more conflict events, we did not test for the reverse relationship. It is also important to note that both the coding procedure (outside experts had to rate and agree on the content of the reported events) and the lagged nature of the data (participants were unlikely to still be focused on events of “yesterday” when filling out their ratings “today”) lessen possible concerns over common method variance.

Coding Scheme and Reliability. The conflict categories used in this study were developed based on theories about groups and conflict (e.g., Jehn, 1995, 1997; Amason et al., 1995), and can be seen in the appendix. The coding process involved the categorization of the *central idea* presented in each narration into one and only one sub-category in the coding scheme. Despite our instructions to participants to describe *one thing* from their work that day, the vast majority of participants lacked a singular focus to their daily reports. One coder segmented the central idea in each narration by highlighting several words or phrases that indicated the main point (even if several forms of conflict are described, the coder was instructed to select the single most primary focus of the event description). In addition, coders did not categorize the same narratives that they had segmented to ensure that central idea selection was not biased by what section of the narrative seemed easiest to code.

Two separate stages were involved in the establishment of reliability for this coding process: establishing reliability in segmenting the central idea in each narration, and establishing reliability in coding the central idea into a category. The two coders (one of whom was blind to the hypotheses and purposes of the study) agreed on the central idea segmenting in 82% of the events. In a check of the conflict-category reliability, the two coders agreed on the categorization of conflict events 84.8% of the time, which, when corrected for a chance agreement, resulted in a 73.7% Cohen’s Kappa reliability statistic. Difficult-to-code narratives (approximately 5% of the cases) were discussed until consensus was reached.

Data Analysis. The major analyses were conducted using multi-level models, which control for several forms of variation (Singer, 1998). The multi-level models allowed us to control for team membership and intra-individual variance (the tendency for a given participant to respond in a consistent way across time), while generating a fixed effect coefficient describing the relationship between each predictor and outcome. The daily data form a panel data set, with data on 228 respondents by days (yielding a total of 11,638 respondent/day observations, as described above).

Results

Table 1 shows the Pearson correlation coefficients regarding the bi-variate relationships between all major variables in the study. We also examined the relationship between all major predictors in the study and several possible control variables (e.g., sex, age, length of company tenure, and education), but did not find any significant relationships and therefore did not include these variables as controls in any models.

Table 1
Means, Standard Deviation and Correlations Between all Major Variables

| | Min | Max | Mean | SD | Task Conflict | Process Conflict | Relation- ship Conflict | Individual Creativity | Team Creative Synergy |
|--------------------------|------|------|------|-----|------------------|---------------------|-------------------------------|--------------------------|-----------------------------|
| Task conflict | 0 | .27 | .02 | .03 | — | | | | |
| Process conflict | 0 | .40 | .03 | .04 | .16 | — | | | |
| Relationship conflict | 0 | .20 | .02 | .04 | .18 | .39* | — | | |
| Individual creativity | 1.56 | 6.87 | 3.90 | .91 | .46* | -.08 | .05 | — | |
| Team creative synergy | 2.05 | 6.20 | 4.29 | .81 | -.14 | -.50** | -.38* | .47* | — |

Note: These analyses were conducted at the project level, $N = 237$.

+ $p < .10$. * $p < .05$. ** $p < .01$. (two-tailed)

Hypotheses 1 through 3 predicted that the three different types of conflict should have different influences on participants' perceptions of creative outcomes. First, we predicted that task conflict should positively influence creative outcomes. This hypothesis was only partially supported. Table 2, Model 1 shows that task conflict alone does not predict self-rated creativity on the same day as the conflict itself occurred, providing some disconfirming evidence for Hypothesis 1. However, when we examined the lagged influence of task conflict on self-rated creativity the following day, we found that the number of task conflicts did significantly and positively predict higher levels of self-rated creativity the following day (see Table 2, Model 2), providing some support for Hypothesis 1a.

To further examine the relationship between task conflict and creative outcomes, we examined how task conflict influences participants' perception of their team's creative synergy, and here we found the reverse effect. Table 2, Model 3 shows that the relationship between same day task conflict and team creative synergy is significant and negative, providing some support for Hypothesis 1, while the lagged models examining task conflict yielded no significant results between task conflict and creative synergy (see Table 2, Model 4), providing some disconfirming evidence for Hypothesis 1a. It seems that the effects of task conflict can be

entirely different on perceptions of creativity depending on whether the focal actor is the self or the team.

Table 2
Multi-Level Regressions of Task Conflict Predicting Individual Creativity and Team Creative Synergy at Time T and T-1 Controlling for Potential Mediators¹

| | Individual Creativity | | Team Creative Synergy | |
|--------------------------------|-----------------------|-------|-----------------------|-------|
| | M1 | M2 | M3 | M4 |
| Task conflict (Time T) | .00 | | -.02* | |
| Task conflict (Time T-1) | | .11* | | -.03 |
| <i>N</i> | 11508 | 11508 | 10831 | 10610 |

¹Standardized coefficients are reported.

+*p* < .10. **p* < .05. ***p* < .01. (two-tailed)

Hypothesis 2 involved process conflict, and predicted that participants experiencing process conflict would perceive less creativity overall. We found support for this hypothesis since process conflict significantly and negatively predicted self-rated creativity the same and next day (Table 3, Models 1 & 2). When examining the relationship between process conflict and team creative synergy, we found partial support for our hypothesis (2), since process conflict significantly predicted lower levels of perceived team creative synergy for same day, but not the next day (Table 3, Models 3 & 4).

We also predicted that relationship conflict should negatively influence perceptions of creativity but only found limited support for this hypothesis (3). Neither the same day nor lagged models (see Table 4, Models, 1 & 2) showed a significant relationship between relationship conflict and self-rated creativity. We found some evidence that relationship conflict negatively influenced perceptions of team creative synergy the same day, but were unable to pinpoint directionality as the lagged analyses yielded no significant results (Table 4, Models 3 & 4).

Discussion

The current investigation provides seminal evidence that different types of conflict can influence perceived individual and team creativity at work in a localized (two-day) timeframe. A close examination of the results reveals three interesting patterns. First, the results suggest that conflict is only potentially positively related to individuals' impressions of their *own* creativity on the day following a task conflict. Second, in terms of the perceptions of *team* creativity, all three types

of conflict displayed only negative relationships, where relationships were observed at all. Third, the negative effects of conflict on perceptions of team creativity seem to take temporal primacy over the reflections on individual creativity, in that the negative team ratings occurred on the same day as a task conflict and the positive effects on self ratings occurred on the following day. In addition, as can be seen in Table 1, it is of interest that on average, if people tended to experience task conflict, they tended not to experience higher levels of process or relationship conflict. However, if they experienced higher levels of relationship conflict, they were also more likely to experience higher levels of process conflict (and vice versa). This suggests that there may be an interplay between process and relationship conflicts such that there may even be a causal link; future research can aim to address this idea more thoroughly.

Table 3
Multi-Level Regressions of Process Conflict Predicting Individual Creativity and Team Creative Synergy at Time T and T-1 Controlling for Potential Mediators¹

| | Individual Creativity | | Team Creative Synergy | |
|-----------------------------|-----------------------|-------|-----------------------|-------|
| | M1 | M2 | M3 | M4 |
| Process conflict (Time T) | -.02** | | -.02*** | |
| Process conflict (Time T-1) | | -.10* | | -.05 |
| <i>N</i> | 11508 | 11269 | 10831 | 10610 |

¹Standardized coefficients are reported.
 +*p* < .10. **p* < .05. ***p* < .01. (two-tailed)

All Conflicts are Created Equal

Process conflict seems to be the most potentially damaging form of conflict to one's perceptions of creative output, in that three of our four models demonstrated negative effects for this type of conflict. While relationship conflicts may be unpleasant and somewhat distracting from work, and task conflicts have the potential to help offer new perspectives on problems, process conflicts have the potential to be a much greater impact on being able to plan, visualize outcomes, and actually accomplish creative tasks. When team members are unclear about *how* to accomplish work, or who is supposed to do what, advancement may slow down or stop altogether, limiting feelings of creative progress. However, it is also possible that process conflict may serve other productive roles in team work apart from the effects on perceived creative performance, such as airing issues related to justice,

power, accountability, and equality in teams (Deutsch & Coleman, 2000; Jehn & Bendersky, 2003; Tjosvold, 1991).

Table 4
Multi-Level Regressions of Relationship Conflict Predicting Individual Creativity and Team Creative Synergy at Time T and T-1 Controlling for Potential Mediators¹

| | Individual Creativity | | Team Creative Synergy | |
|----------------------------------|-----------------------|-------|-----------------------|-------|
| | M1 | M2 | M3 | M4 |
| Relationship conflict (Time T) | -.00 | | -.05*** | |
| Relationship conflict (Time T-1) | | .09~ | | .03 |
| N | 11508 | 11263 | 10831 | 10610 |

¹Standardized coefficients are reported.
 +*p* < .10. **p* < .05. ***p* < .01. (two-tailed)

Relationship conflict events, on the other hand, were associated only with negative perceived team creative synergy ratings on the same day as the conflict event itself. Thus, though there are potentially limiting effects of having interpersonal disagreements or discord on perceptions of the team, the lasting impact of these conflicts may not be as pervasive as are those resulting from a process conflict.

Finally, task conflict seems to have the only degree of positive potential, since it was associated with higher perceived individual creativity ratings for the day after the conflict event. Even this form of conflict, however, demonstrated a negative relationship with the perceptions of the team's creativity on the same day that the conflict occurred. From these analyses, it seems safe to assume that any form of conflict, even a minor disagreement on a specific work feature, can cause a negative ripple in an individual's impressions of the team's creativity.

It is worthy of note that the only positive relationship displayed was with perceptions of *individual* and not *team* level creativity. This is consistent with a wealth of research on positive illusions and self-serving attributions which display the tendency to bestow credit for positive events upon the self and place the blame for negative ones on other people or other factors in the surrounding environment (see e.g., Ross & Nisbett, 1991). However, this observation may also be an artifact of the timeframe studied here—on any one day, each team member is likely to have a closer connection with his or her own thoughts and creative work progress, while once the entire project has been completed, the perceptions of positive accomplishment could potentially spread to the team as well.

Effects of Timing

Conflict is an inherently emotional experience. It is tremendously difficult for individuals to remain objective about a situation when they feel that others are disagreeing, or even disapproving, of their point of view (Jehn, 1997). The more localized effects of the conflict, then, may be to lash out at the team members in question and consider the whole team to be functioning sub-optimally, especially when it comes to perceptions of creative outcomes, regardless of the type of conflict experienced. In the case of task conflict, however, a day later in time may be enough distance to allow individuals' the chance to integrate the feedback from the task-based disagreement to achieve a positive gain in their own creative work. Indeed, research has shown that the extent to which individuals' experience negative emotion deters their ability to perform creatively (Amabile, Barsade, Mueller, & Staw, 2005). If conflict events, regardless of the type of conflict, contribute negatively to affective experience on the same day, this may inhibit creative thinking on that day, but potentially allow an opportunity for stimulated creative thinking when the mood or emotion has dissipated. Research has shown that many moods and emotions dissipate over the course of day; hence, mood can be transitory (Forgas & George, 2001; Nolen-Hoeksema, Morrow, & Fredrickson, 2003; Weiss & Cropanzano, 1996). Affect may have a mediating relationship in this way; future research can aim to tease apart these effects more specifically.

Another possible explanation of this pattern of results concerns the actual amount of time and energy the conflict takes up for individuals on the day of its occurrence. Conflicts literally take time away from direct progress on work tasks. It may be the case that individuals did not have time to make progress on their own work, creatively or otherwise, on a day when much of their time and energy were absorbed by a disagreement. From that standpoint, it would make sense that the positive effects to individual work, if there were to be any, wouldn't show up until the following day's report.

Theoretical and Methodological Implications. The most important contribution that this study provides is that specific types of everyday events that occur within teams actually do have effects on individuals in quantifiable ways. Some of the research on teams in the past has focused on significant moments during a team's process, such as Gersick's (1988, 1989) studies demonstrating the regrouping that occurs at the midpoint of the group's time together, or the effects of team membership change in the middle of work (Argote, Insko, Yovetich, & Romero, 1995). This study encourages us to think about teams not only as a series of important moments, but as a continuous process during which critical things can happen at any point, and even events that seem mundane on a daily level can lead to predictable individual reactions.

More specifically to the study of conflict, our results suggest that conflict events do have local effects in terms of timing. Previous research has for the most part treated conflict in a static manner over the course of a team's life (see e.g., Amason, 1996; James et al., 1992; Jehn, 1995, 1997), using participants' summaries of the amount and severity of the conflicts that they had experienced in their teams, *post hoc*. Recently, some research (e.g., Jehn & Mannix, 2001) has begun to

look at the temporal dimension of conflict in teams longitudinally, and has found that when separated into beginning, middle, and end time periods, the temporal location of different kinds of conflict can have differing effects on performance. Our findings contribute to this growing stream of research by demonstrating effects on the daily level.

Methodologically, we show that the electronic medium allows for easy observations of people daily, over an extended period of time, without being physically present or overly interfering in their work processes. This allows us the opportunity to have descriptions of conflict events from the team members themselves in rich qualitative form, without asking them to reconstruct the process long after the actual occurrences or having to intrude during the actual moment. The high response rate of participants in this study demonstrates that this methodology, in the appropriate situation and with top management support, can be a tremendous tool for observing elements of organizational life. (Indeed, several participants commented at the end of their project that they would miss the opportunity to reflect on their day in writing, as the Daily Questionnaire had prompted them to do.)

Finally, this research project furthers the reliability and the construct validity of the three types of conflicts in two ways. First, the coding scheme used in this research was specifically created to be able to recognize the distinctions among task, relationship, and process conflict. By establishing effective reliability of this coding scheme, we have demonstrated that it is indeed possible for multiple coders to consistently recognize each of these forms of conflict in a systematic manner, and reinforces the idea that these are constructs which should be treated independently from one another, with different effects on individual perceptions. In this way, conflict can be parsed into types without requiring the team members to self-identify the type of interaction that they reported. These contributions will hopefully aid future researchers in exploring the effects of specific types of conflict on team occurrences and outcomes.

Strengths and Limitations. One clear strength of the current investigation is the use of statistical techniques that allows us to control for non-independence by accurately modeling the variance, as opposed to aggregating our data. This way, we are able to more accurately model the emerging conflict-perceived creativity relationship and control for similarity within individual and team variables. A second strength of the current investigation resides in our use of longitudinal data which allowed us to examine the influence of timing on the relationship between conflict and creativity. Because our methodology allows for "temporal primacy" of the conflict events to the perceived creativity ratings, we can with some confidence suggest that in our study, conflict contributed to creativity in the case of task conflict and individual level reports of creativity.

However, our design did not allow us to control for the many possible variables that may also have been related to the outcome in question, as we might have been able to do in a laboratory design. Hence, while we cannot suggest that conflict directly and solely caused the resulting perceptions of creativity, we have good reason to believe the relationship between the two variables is in the direction of conflict-to-perceived creativity, and not the other way around, based on the tempo-

ral primacy of those events in our data collection process. However, we must acknowledge that there are likely to be other influences on the perceptions of creativity apart from conflict events. Future research can hopefully address additional areas in all levels of analysis such as individual skills and temperaments, affective responses, positive team interactions, and organizational support and leadership to better understand more completely how perceptions of creativity are formed.

In addition, it would be worthwhile for future research to make the link between perceived creativity measures and more objective measures more concrete. This could be done by having some objective standard of creativity, quality, or productivity of the individual's and the team's work in addition to the perceptual ratings. Other organization-level variables such as turnover, commitment, satisfaction, and overall success in the marketplace may also relate to the perceptual variables we here measured.

Conclusion

The current investigation builds and extends our understanding of the conflict-perceived creativity relationship by proposing theoretical mechanisms through which conflict influences creativity, as well as proposing the moderating influence of time on the task conflict-perceived creativity relationship. This study represents the first daily study of creativity and conflict and shows that conflict events do influence perceptions of creativity on the same and next day. Our findings suggest that while process and relationship conflict routinely hurt perceived creativity, task conflict may hurt perceived creativity the same day, but help perceived creativity the following day. Understanding when task conflict contributes to the creative process can help employees manage expectations about when task conflict events are likely to yield creative outcomes. Similarly, understanding that task conflict can initially lead to perceptions of lower creativity the same day underscores why task conflict is often discouraged in team settings (Morrison & Milliken, 2000), even though task conflict clearly benefits performance (Jehn, 1995).

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Appendix
Conflict Coding Categories

| | Task Conflict | Process Conflict | Relationship Conflict |
|----------------------------|--|--|--|
| Category Definition | disagreement, difference of opinion, confusion, lack of shared understanding, or multiple person indecision <i>on any work issue, strategy, schedule or short term plan, short term goal, or interpretation of information</i> (often includes technical details of some kind) | disagreement, difference of opinion, confusion, lack of shared understanding, or multiple person indecision <i>on any big picture plan, long term goal, long term strategy, or job design issue, including roles and responsibilities; lack of planning by multiple people</i> | <i>disunity, distrust, interpersonal conflict or dislike, discord, or complaints</i> about another person; negative team activities / in group-out group mentality |
| Example | "Two teammates are still at odds about the need for a motor test bed. One insists that we must have it, the other does not think it is needed." | "[One person] thought we should be making product already when [others] thought we are still in the planning stage" | "During the meeting a teammate became aggressive and insulting toward another team member, and there was enough spilling over to include me. Problem: she will not share and must 'Top Dog' or you will feel her roar." |

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