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# Leader behaviors and the work environment for creativity: Perceived leader support

Teresa M. Amabile[a,*], Elizabeth A. Schatzel[a], Giovanni B. Moneta[a], Steven J. Kramer[b]

[a]*Harvard Business School, Harvard University, Soldiers Field, Boston, MA 02163, USA*
[b]*Wayland, MA, USA*

## Abstract

This exploratory study investigated leader behaviors related to perceived leader support, encompassing both instrumental and socioemotional support. The study first established that leader support, proposed to be a key feature of the work environment for creativity, was positively related to the peer-rated creativity of subordinates working on creative projects in seven different companies. Then, to identify the specific leader behaviors that might give rise to perceived support, two qualitative analyses were conducted on daily diary narratives written by these subordinates. The first, which focused on specific leader behaviors that had significantly predicted leader support in a preliminary quantitative analysis, illuminated both effective and ineffective forms of leader behavior. In addition, it revealed not only subordinate perceptual reactions to this behavior (their perceptions of leader support), but affective reactions as well. The second qualitative analysis focused on the behavior of two extreme team leaders in context over time, revealing both positive and negative spirals of leader behavior, subordinate reactions, and subordinate creativity.
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## 1. Introduction

Like other crucial organizational outcomes, creativity and innovation stem not only from overall firm strategy and access to resources but, more fundamentally, from the minds of the individual employees who, alone or with others, carry out the work of the organization every day. The extent to which they will produce creative—novel and useful—ideas during their everyday work depends not only on their individual characteristics, but also on the work environment that they perceive around them (Amabile,

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* Corresponding author.
*E-mail address:* tamabile@hbs.edu (T.M. Amabile).

Conti, Coon, Lazenby, & Herron, 1996). In contemporary knowledge-work-intensive organizations, most projects are done by teams of professionals striving to be both productive and creative in developing new products, new services, new processes, or new ways of doing business. Of all of the forces that impinge on people's daily experience of the work environment in these organizations, one of the most immediate and potent is likely to be the leadership of these teams—those ''local leaders'' who direct and evaluate their work, facilitate or impede their access to resources and information, and in a myriad of other ways touch their engagement with tasks and with other people.

Previous research presents some intriguing evidence that people's perceptions of the work environment created by their team leaders and, in particular, their perceptions of instrumental and socioemotional support, relate to their creativity (e.g., Oldham & Cummings, 1996; Scott & Bruce, 1994). However, little is known about how, specifically, these positive or negative work environments arise. What is it that leaders say and do, day by day, that leads people to perceive that they do or do not have the leader's support? We tackle this question in an exploratory study, by examining the daily diaries of employees who were working on team projects that required creativity. By studying these subordinates' diaries for evidence of the leader behaviors that stood out in their minds day by day, and the level of leader support that they perceived in their daily work environment, we probe the complex microprocesses through which organizational creativity ultimately rises and falls.

## 2. Leader support and creativity

Surprisingly, leadership has not generally been treated as a particularly important influence on creativity (Mumford, Scott, Gaddis, & Strange, 2002), despite the likely impact of leader behavior on the perceived work environment, and the demonstrated impact of the perceived work environment on creativity (e.g., Amabile et al., 1996; Mumford & Gustafson, 1988; Mumford et al., 2002; Witt & Beorkrem, 1989). Each of the three major theories of organizational creativity—the componential theory of Amabile (1988, 1997), the interactionist theory of Woodman, Sawyer, and Griffin (1993), and the multiple social domains theory of Ford (1996)—includes the work environment as an influence on employee creativity.

Of the three, the componential theory of creativity features the work environment most prominently. Moreover, it is the only theory of organizational creativity that specifies broad features of leader behavior—both from immediate supervisors and from high-level managers—that contribute to the perceived work environment for creativity. Although the theory presents seven other features of the organizational work environment, including the behavior of top management, the availability of resources, and cross-organizational cooperation, it proposes perceived leader support (termed ''supervisory encouragement'') as the feature that is under the most direct control of the immediate supervisor. Thus, exploring this aspect of the work environment for creativity is of interest for both theoretical and managerial reasons.

The componential theory provides the conceptual foundation for our study, through its suggestion of a mediational model whereby leader behavior influences subordinate perceptions of leader support that, in turn, influence creativity. According to this theory, the support provided by immediate supervisors exerts an influence on subordinates' creativity through direct help with the project, the development of subordinate expertise, and the enhancement of subordinate intrinsic motivation. The componential theory proposes that positive behaviors of supervisors include serving as a good work model, planning

and setting goals appropriately, supporting the work group within the organization, communicating and interacting well with the work group, valuing individual contributions to the project, providing constructive feedback, showing confidence in the work group, and being open to new ideas (Amabile, 1997). Thus, leader support behaviors should include both instrumental (or task-oriented) and socio-emotional (or relationship-oriented) actions.

A slowly expanding body of literature over the past 30 years has documented the importance of perceived leader support for subordinate creativity. (For a review, see Mumford et al., 2002.) At the level of teams, some studies have demonstrated that team members' collective view of support from their leader is associated with the team's success in creative endeavors (e.g., Amabile & Conti, 1999; Amabile et al., 1996). At the level of individuals, there is some evidence of a connection between subordinates' general perceptions of their leader and the individual creativity of those subordinates (Andrews, 1967; Tierney, Farmer, & Graen, 1999). A few studies of individual creativity have investigated particular areas of leader support, such as the team leader's tendency to provide both clear strategic direction and procedural autonomy in carrying out the work (Pelz & Andrews, 1976) or supportive, noncontrolling supervision (Oldham & Cummings, 1996).

Taken together, these studies suggest that subordinates will be more creative when they perceive their immediate supervisors as being supportive of them and their work. The first aim of the present study is to replicate this finding, extending existing evidence by examining subordinates' day-by-day perceptions:

Research Question #1: *Do a subordinate's day-by-day perceptions of team leader support relate to the subordinate's overall creativity?*

## 3. Influences of specific leader behaviors

### 3.1. Influences of leader behaviors on perceived leader support

Our second research question focuses on how perceptions of leader support arise. We began our study with the assumption that it should be possible to identify specific leader behaviors associated with higher or lower levels of perceived support—particularly if we could track leader behaviors and subordinates' perceptions of support on a daily basis. Because we aim to link specific day-by-day leader behaviors with the perceived day-by-day leader support that we propose enhances creativity, the behavioral approaches to leadership provide an appropriate foundation for this study (e.g., Fleishman, 1953; Stogdill, 1963; Yukl, 1981).

The classic behavioral approach is the two-factor theory of leadership, which specifies that all leader behaviors can be characterized as either task oriented ("initiating structure") or relationship oriented ("consideration") (Fleishman, 1953). Task-oriented behaviors focus on getting the job done, and include such things as clarifying roles and responsibilities, planning projects, monitoring the work, and managing time and resources. Relationship-oriented behaviors focus on the socioemotional: showing consideration for subordinates' feelings, acting friendly and personally supportive to them, and being concerned for their welfare. It is important to note that in the leader behavior literature, the term "support" typically refers to relationship-oriented behaviors only, while in the creativity literature, "support" typically refers to *all* leader behaviors that could enhance creativity—both task- and relationship-oriented. We adopt the latter, broader usage.

The dichotomous categories proposed by the two-factor behavioral conceptualization are now generally considered too multifaceted to yield consistent results on subordinate perceptions or performance (Yukl & Van Fleet, 1992). Thus, in this study, we adopted a "middle range" (Yukl, 2002) leader behavior taxonomy, the Managerial Practices Survey (MPS) of Yukl, Wall and Lepsinger (1990). This taxonomy proposes categories of behavior that are considerably more specific than the two broad factors (such as clarifying responsibilities, mentoring, or monitoring the work), but still broad enough to contain a number of related types of behavior (e.g., Shipper & White, 1999; Yukl et al., 1990).

Yukl and Van Fleet (1992) argue that leader behaviors are likely to have their strongest and most immediate impact on subordinate perceptions. Given the intuitive appeal of this assertion, it is surprising that there is little empirical evidence testing the behavior–perception connection. Two studies demonstrate such a link. In a field study (Xin & Pelled, 2003), supervisory–subordinate conflict negatively related to subordinate perceptions of the supervisor's emotional support and creativity encouragement. In an experiment that established a causal link (Casimir, 2001), task-oriented and emotionally oriented statements attributed to a hypothetical leader influenced subjects' perceptions of that leader. Our study builds on this prior work by linking several specific leader behaviors to subordinate perceptions in organizations.

Our study expands on prior research on the leader behavior–subordinate perception link in another way, as well. Virtually all leader behavior theory and, indeed, leadership theory more generally, focuses on positive or effective behaviors that leaders do or should do (e.g., Fleishman, 1953; House, 1977; Stogdill, 1963; Yukl, 1981). Indeed, apart from a small literature on leader derailment (Van Velsor & Leslie, 1995), the only sense in which most leadership studies take leadership failures into account is through the absence or low frequency of positive behaviors. We suggest that the one-sided focus on positive leader behavior limits the breadth of theoretical conceptualizations of leadership, because there may be important ways in which negative leader behaviors operate on subordinate perceptions and performance differently from the absence of positive behaviors. Thus, our study looked not only for positive but also negative effects of leader behaviors on subordinate perceptions of leader support.

Research Question #2: *How do specific day-by-day leader behaviors relate to positive and negative day-by-day subordinate perceptions of leader support?*

Subordinate perceptions constitute one class of reactions to leader behavior, which has been the focus of existing theory and research on the work environment for creativity. We believe that, in addition to examining perceptual reactions, it is important to examine subordinates' affective reactions, as well. This expanded view is suggested by the psychological literature on affect. Over the past two decades, several experiments have demonstrated that induced positive affect leads to greater fluency, flexibility, and originality of cognition—all processes involved in generating creative ideas (see Isen, 1999, for a review). It seems likely that in addition to having perceptual reactions to leader behaviors, subordinates have affective reactions, as well. For example, if an employee's team leader monitors work details too closely, that employee is not only likely to perceive the leader as nonsupportive of independent creativity, but is also likely to feel upset and angry. Thus, in our qualitative analyses, we looked for affective as well as perceptual effects of specific leader behaviors. Conceptually, we consider both perceptual and affective effects under the general rubric of subordinate reactions to leader behaviors, reactions that could mediate the effect of those behaviors on subordinate creative performance.

## 3.2. Influences of leader behaviors on creative performance

Overall, the literature linking specific leader behaviors to group performance is scant (Kim & Yukl, 1995, p. 352), and the literature linking specific leader behaviors to individual creative performance is even smaller. General group performance has been positively predicted by leaders' task-oriented planning, clarifying, monitoring, and networking behaviors, as well their person-oriented subordinate development, recognition, and socioemotional support behaviors (Kim & Yukl, 1995; Komaki, Desselles, & Bowman, 1989; Kotter, 1982; Van Fleet & Yukl, 1986; Yukl et al., 1990). A handful of prior studies have found positive links between subordinate creativity and some specific team leader behaviors: serving as an ambassador for the team within the organization (Ancona & Caldwell, 1992); focusing on work-related rather than administrative communications to the team (Katz & Tushman, 1979); providing various forms of assistance to the team's work (Barnowe, 1975); and providing general (vs. very close) supervision (Barnowe, 1975).

One recent study provides important suggestive evidence linking one type of leader behavior to individual creative performance, and demonstrating that the perceived work environment partially mediates that link (Scott & Bruce, 1994). In a survey of R&D employees and their managers, subordinates described the quality of their leader–member exchange (LMX) relationship, which is the extent to which the relationship is marked by trust, mutual liking, and respect. Although not a strong, comprehensive measure of specific leader behaviors, the LMX does capture certain aspects of how the leader behaves toward the subordinate. The LMX measure of the leader–subordinate relationship positively predicted subordinate creativity as assessed by the manager, and the effect was partially mediated by subordinates' perceptions of support for innovation in the work environment. Thus, this study provides evidence that subordinates' creativity is a function of their perceptions of the general work environment for creativity, which is, in turn, partially a function of their relationship with the leader. Because the naturalistic data we collected in our study do not allow for a quantitative test of the mediational model, this study is particularly important in laying the foundation for ours.

Our third research question addresses the dearth of comprehensive empirical evidence linking leader behavior to subordinate creativity, the dearth of empirical evidence on the possible mediating role of subordinate reactions, and the absence of holistic views of how patterns of leader behavior might have their effects over time.

Research Question #3: *What is the nature of the connections between leader behaviors, subordinate reactions, and subordinate creativity over time?*

Our study examined each of these links, separately and together, using both quantitative and qualitative analyses. We aimed to go beyond prior research by increasing the comprehensiveness, immediacy, and specificity of knowledge on the ways in which leader behaviors might influence the work environment and, ultimately, subordinate creativity in organizations.

## 4. Methods

### 4.1. Overview

The data for this study were collected as part of a multistudy longitudinal research program designed to investigate employees' experience of day-by-day organizational events, perceptions of

the work environment, and performance. Our primary goal in the present study was to identify the day-by-day leader behaviors that might affect subordinates' perceptions of leader support and, ultimately, their creativity. We began by establishing a relationship between perceived leader support and subordinate creativity. We then carried out a preliminary quantitative analysis, followed by two qualitative analyses, on daily diary narratives. After coding all subordinate-reported team leader behaviors into categories specified by prior leader behavior researchers (Yukl et al., 1990), we used multilevel regression to identify those key behaviors most strongly related to daily scale-rated perceptions of leader support. In order to explore the ways in which leaders carried out these key behaviors and subordinates' reactions to them, we then carried out a microscopic qualitative analysis on all incidents of leader behavior falling into each of those categories. The second qualitative analysis took a broader perspective on leader behaviors in context over time; this macroscopic analysis compared two teams that differed widely in both perceptions of leader support and creativity.

## 4.2. Participants

Participants were recruited for a study "designed to radically increase our knowledge about how managers and teams can bring about more consistently desirable project outcomes." The full sample consisted of 238 knowledge workers from 26 project teams in seven companies representing three industries (chemicals, high tech, and consumer products).[1] On average, 92% of the members of each work team participated in the study, ranging from 68% to 100%. All teams had a management-designated team leader who, in addition to supervising the team's work, was also an active member of the team.[2] Teams were selected for participation in the study only if, according to top managers in the company, most members of the team were primarily dedicated to the team's project, and if creativity was both possible and desirable in that project. The average number of participants from each team, including team leaders, was 9.2, with a range of 3–20. Data were collected for either the duration or a significant portion of each project, with a mean data collection period of 18 weeks and a range of 8–37 weeks.

Of the 238 employees in the full sample, 182 were male and 56 were female. The mean participant age was 38 years ($SD = 10.2$ years) with a range of 22–68 years. The mean tenure in the company was 7.7 years ($SD = 8.9$ years) with a range of 2 weeks to 36 years. The sample was highly educated; 86% of participants had earned at least a college degree, and most had earned advanced degrees. Of the 238 employees in the full sample, 211 were subordinates; that is, they were not designated team leaders. Of those 211 subordinates, 139 (66%) reported at least one leader behavior incident and, thus, were retained for the quantitative and qualitative analyses of leader behavior. The characteristics of the 139 participants in the retained sample were very similar to those of the overall sample.

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[1] Ten individuals were members of two different teams that participated in the study at two different points in time. Because these 10 individuals reported on different team leaders when they were members of different teams, we treated them as unique participants on each team.

[2] One team had two designated team leaders over the duration of their project; however, only one team leader was designated at a given time.

### 4.3. Measures

#### 4.3.1. Reported team leader behaviors

Information on team leader behaviors, as reported by their subordinates, was obtained using a Daily Questionnaire administered via e-mail Monday through Friday. Participants were asked to complete the Daily Questionnaire independently of each other toward the end of their workday. Of the 238 participants in the full sample, the mean response rate on the Daily Questionnaire was 75%.

The Daily Questionnaire included two narrative items from which we obtained information on leader behaviors. In order to render the measure of leader behaviors as comprehensive, naturalistic, and unobtrusive as possible, we did not ask participants to focus specifically on their leader's behavior. Rather, we obtained daily free-response descriptions of any salient events occurring in the participants' workdays, and extracted descriptions of team leader behaviors for analysis in this study. The first free-response item called for the participant to "briefly describe one event from today that stands out in your mind as relevant to the target project, your feelings about the project, your work on the project, your team's feelings about the project, or your team's work on the project," and the second invited participants to "add anything else you would like to report today." The responses to these two items constitute what we refer to as the participant's daily diary narrative.

All narratives were subjected to a two-stage coding process.[3] In the first stage, coders identified every instance in which a subordinate reported a same-day action carried out by the team leader that directly affected the subordinate either as an individual or as part of the team. Of the 139 participants who reported at least one team leader behavior, the cumulative frequency over the entire course of their participation ranged from 1 to 44 reported leader behaviors, with an average of 5 per participant. In the second stage of the coding process, each team leader behavior incident was coded using a modified version of the 14-category leader behavior taxonomy presented in the MPS (Yukl et al., 1990). We chose to ground our coding in the MPS because it is one of the most comprehensive and rigorously developed leader behavior measures in the field (Arnold, Arad, Rhoades, & Drasgow, 2000), and because the developers of the MPS note that its categories are appropriate for content analysis of naturalistic diary data (Yukl & Van Fleet, 1992).

To create a coding scheme that would capture both the positive and the negative varieties of leader behaviors reported in our data, we expanded the original 14 MPS categories by creating three forms of each. We labeled the original MPS behavior definitions as "positive" (engaging in the positive form of the behavior, or performing it well), because the MPS developers predicted and found positive relationships between those behaviors and subordinate performance. We then added a "negative" form for each MPS behavior (engaging in the negative form of the behavior, or performing it poorly), as well as a "neutral/unknown" form (when positivity/negativity could not be determined from the narrative). Coding leader behaviors into these more fine-grained forms allowed us to capture not only what team leaders did, but also how well they did it.

Leader behaviors were coded as positive if the subordinate's description suggested that (a) the behavior was positive in nature (such as providing needed information or help, rewarding or giving recognition, or mentoring); (b) the behavior was done well (clearly, in a timely fashion, sensitively, etc.);

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[3] Details regarding both stages of the coding process, including intercoder reliabilities, can be obtained from the first author. Reliabilities for various primary coder–reliability coder pairs ranged from 62% to 91%.

(c) the leader restrained from performing a negative behavior that was expected by the subordinate (such as failing to act in a usually hostile manner); or (d) the subordinate felt good about the behavior (or absence of behavior).

Leader behaviors were coded as negative if the subordinate's description suggested that (a) the behavior was negative in nature (such as giving information in an inappropriate way, planning poorly, or giving a harsh evaluation); (b) the behavior was done poorly (unclearly, late, insensitively, etc.); (c) the leader failed to perform a positive behavior that was expected or wanted by the subordinate (such as failing to provide needed information or mentoring, failing to provide feedback, failing to respond to a concern or complaint, etc.); or (d) the subordinate felt badly about the behavior (or absence of behavior).

Table 1 presents the definitions of each original MPS category. We also expanded the MPS categories by adding a 15th main category, "Other," which was intended to capture those leader behaviors that did not easily fit into one of the 14 existing MPS categories. Thus, in our modified taxonomy, there were 45 categories into which any given leader behavior incident could be coded (e.g., monitoring—positive, monitoring—negative, monitoring—neutral). Of these 45 possible categories, 39 had at least one instance in the diary narrative database.

### 4.3.2. Leader support

We assessed perceived team leader support, which includes both task-oriented and relationship-oriented support, with three scale-rated items included in the Daily Questionnaire. The basic question for each item was "To what extent does each item describe the work environment of your project as you perceived it today?" The three items used in this study were the following: "encouragement and support from the project supervisor"; "positive interactions between the team and the supervisor"; and "clarity of goals for the project," each scored on a 7-point scale ranging from 1 (*not at all*) to 7 (*extremely*), with a midpoint of 4 (*moderately*). The three items were averaged to create a single score of daily leader support ($\alpha$=.82).

The construct validity of the daily leader support scores was assessed by comparison with scores on the KEYS work environment inventory (Amabile et al., 1996), a validated instrument that has been used most widely in the domain of creativity research. One of the eight KEYS work environment scales, Supervisory Encouragement, is designed to measure local leader support; the other scales assess other aspects of the task, team, and organizational work environment. The KEYS instrument was administered three times throughout the data collection period to all individuals on each work team (at the onset, midpoint, and end of each team's project). As expected, mean daily leader support correlated more strongly with mean KEYS Supervisory Encouragement ($r$=.62, $p<.001$) than with any of the other KEYS scales, indicating that the daily measure of leader support has reasonable convergent and divergent validity.

### 4.3.3. Subordinate creativity

Subordinate creativity was assessed using peer ratings of the subordinate's creative contributions to the team's project. A questionnaire was administered to all participants at the end of every month throughout the data collection period for each team. Participants rated themselves and their teammates' "creative contribution to the project during the past month" with a response scale ranging from 1 (*very low/very poor*) to 7 (*very high/very good*"), with a midpoint of 4 (*average*). We computed each subordinate's mean peer-rated creativity by first taking the average rating of the subordinate's creative

Table 1
Definitions of managerial practices in the Managerial Practices Survey (MPS) (Yukl, 2002)

| MPS category | Definition |
|---|---|
| Planning and Organizing | Determining long-term objectives and strategies, allocating resources according to priorities, determining how to use personnel and resources to accomplish a task efficiently, and determining how to improve coordination, productivity, and the effectiveness of the organizational unit. |
| Problem Solving | Identifying work-related problems, analyzing problems in a timely but systematic manner to identify causes and find solutions, and acting decisively to implement solutions to resolve important problems or crises. |
| Clarifying Roles and Objectives | Assigning tasks, providing direction in how to do the work, and communicating a clear understanding of job responsibilities, task objectives, deadlines, and performance expectations. |
| Informing | Disseminating relevant information to people who need it to do their work, providing written materials and documents, and answering requests for technical information. |
| Monitoring | Gathering information about work activities and external conditions affecting the work, checking on the progress and quality of the work, evaluating the performance of individuals and the organizational unit, analyzing trends, and forecasting external events. |
| Motivating and Inspiring | Using influence techniques that appeal to emotion or logic to generate enthusiasm for the work, commitment to task objectives, and compliance with requests for cooperation, assistance, support, or resources, and setting an example of appropriate behavior. |
| Consulting | Checking with people before making changes that affect them, encouraging suggestions for improvement, inviting participation in decision making, and incorporating the ideas and suggestions of others in decisions. |
| Delegating | Allowing subordinates to have substantial responsibility and discretion in carrying out work activities, handling problems, and making important decisions. |
| Supporting[a] | Acting friendly and considerate, being patient and helpful, showing sympathy and support when someone is upset or anxious, listening to complaints and problems, and looking out for someone's interests. |
| Developing and Mentoring | Providing coaching and helpful career advice, and doing things to facilitate a person's skill acquisition, professional development, and career advancement. |
| Managing Conflict and Team Building | Facilitating the constructive resolution of conflict, and encouraging cooperation, teamwork, and identification with the work unit. |
| Networking | Socializing informally, developing contacts with people who are a source of information and support, and maintaining contacts through periodic interaction, including visits, telephone calls, correspondence, and attendance at meetings and social events. |
| Recognizing | Providing praise and recognition for effective performance, significant achievements, and special contributions, and expressing appreciation for someone's contributions and special efforts. |
| Rewarding | Providing or recommending tangible rewards such as a pay increase or promotion for effective performance, significant achievements, and demonstrated competence. |

[a] This category name (Supporting) is used in the narrow sense of socioemotional support, in congruence with the terminology of the MPS leader behavior taxonomy that we adopted for this study. Note that we use the term "leader support" in our study to refer to broad support, including instrumental and socioemotional behaviors.

contribution from each peer judge, and then computing a single overall creative contribution score by averaging these mean ratings.

*4.4. Selection of leader behaviors for qualitative analysis*

We used quantitative analysis as a screening device to identify those leader behaviors on which to focus the first qualitative analysis. The screening proceeded in two steps. In the first step, we eliminated

all leader behaviors that were not significantly related to leader support. In the second step, we eliminated all low-frequency leader behavior categories, using 10 as the minimally acceptable frequency.

The analysis of the relationships between leader behaviors and leader support utilized multilevel modeling (e.g., Goldstein, 1995), in which Level 1 was the single daily observation, Level 2 the person, and Level 3 the team. The dependent variable of daily leader support was regressed on the daily occurrence/nonoccurrence of the leader behaviors. For each of the leader behavior categories (e.g., monitoring—positive), an indicator variable was created with the value 1 if a behavior falling in that category occurred on that day, and the value 0 if it did not. The indicators were entered simultaneously in the regression equation as predictors of daily leader support. After row-wise elimination of missing data in the dependent variable of daily leader support, 7194 days' worth of observations were included in the analysis. The multilevel model was estimated using the program MLwiN Version 1.0 (Goldstein et al., 1998). Table 2 presents the frequency counts and estimated fixed effects of all leader behavior categories.

A total of eight leader behaviors passed both screening procedures (significantly related to leader support, and frequency greater than ten). Of these, four were the positive form of behaviors (Monitoring, Consulting, Supporting, and Recognizing) that, as expected, were positively related to leader support;

Table 2
Multilevel regression of daily perceived leader support on daily reports of team leader behaviors: Frequency counts ($f$)[a] and estimated fixed effects ($B$) with standard errors

| MPS behavioral categories (from Yukl, 2002) | Modified behavioral categories for the present study | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Positive | | | Negative | | | Neutral/Unknown | | |
| | $f$ | $B$ | SE | $f$ | $B$ | SE | $f$ | $B$ | SE |
| Planning and Organizing | 28 | .02 | .15 | 26 | − .29 | .16 | 7 | .11 | .30 |
| Problem Solving | 3 | .19 | .45 | 10 | − .64** | .25 | 0 | – | – |
| Clarifying Roles and Objectives | 39 | − .05 | .13 | 56 | − .21[+] | .11 | 21 | − .14 | .17 |
| Informing | 50 | .09 | .11 | 23 | − .27 | .17 | 39 | .13 | .13 |
| Monitoring | 53 | .34** | .11 | 34 | − .29* | .13 | 19 | − .31 | .19 |
| Motivating and Inspiring | 4 | − .44 | .40 | 9 | − .75** | .26 | 0 | – | – |
| Consulting | 22 | .39* | .17 | 15 | .23 | .21 | 2 | .06 | .55 |
| Delegating | 6 | .53 | .31 | 1 | − .93 | .78 | 3 | − .06 | .46 |
| Supporting[b] | 55 | .22* | .11 | 13 | − .28 | .22 | 3 | − .16 | .45 |
| Developing and Mentoring | 14 | .08 | .21 | 2 | .06 | .55 | 0 | – | – |
| Managing Conflict and Team Building | 21 | .04 | .17 | 10 | − .18 | .25 | 0 | – | – |
| Networking | 2 | 1.20* | .55 | 1 | − .09 | .80 | 0 | – | – |
| Recognizing | 27 | .49** | .15 | 6 | − .67* | .32 | 1 | .18 | .80 |
| Rewarding | 9 | .49 | .28 | 0 | – | – | 1 | .68 | .83 |
| Other | 24 | .11 | .16 | 1 | − 1.12 | .78 | 35 | .34* | .14 |

[a] The frequency counts represent the number of diary narratives that had a team leader behavioral incident in the category, after considering multiple events in the same category within the same narrative as only a single occurrence.

[b] This category name (Supporting) is used in the narrow sense of socioemotional support, in congruence with the terminology of the MPS leader behavior taxonomy that we adopted for this study (Yukl, 2002). Note that we use the term "leader support" in our study to refer to broad support, including instrumental and socioemotional behaviors.

\* $p < .05$.
\*\* $p < .01$.
[+] $p < .06$.

three were the negative form of behaviors (Problem Solving, Clarifying Roles and Objectives, and Monitoring) that, as expected, were negatively related to leader support; the remaining was a neutral behavior (Other) that, unexpectedly, was positively related to leader support. Monitoring was the only behavior category to yield significant results in both the positive and negative forms, suggesting it may be of particular importance.

## 4.5. Qualitative analyses

### 4.5.1. Qualitative analysis of behavioral categories

To gain insight into how leader behaviors might influence daily reactions and performance, we conducted qualitative analysis on those eight behaviors that passed the two screens described earlier. This analysis served two functions. First, it delineated more finely and described more completely the daily behaviors of team leaders in each of the significant behavior categories. Second, it identified participants' explicit reports of links between these leader behaviors and their own perceptual reactions, affective reactions, and performance. Through an iterative process, the second author read each narrative in each of the significant behavior categories, identified subcategories representing the major ways in which leaders enacted behaviors in that particular category, and chose a representative example for each of these subcategories. Next, the first author read all narratives that had been assigned to each subcategory, checking the second author's identification and description of the subcategories, and making corrections as necessary. This step yielded few changes to the second author's initial identifications and descriptions.

### 4.5.2. Qualitative analysis of extreme cases

Although a full qualitative exploration of all diary narratives is beyond the scope of this paper, we conducted a deep qualitative analysis of two contrasting teams and their leaders. The purpose of this analysis was to develop a preliminary understanding of the evolving patterns of leader behaviors in their organizational context, and the possible effects of those behaviors on subordinate perceptions, reactions, and performance over time. The two focal teams were selected because they differed widely on leader support ratings and peer-rated creativity, and because they both had a relatively large number of reported team leader behaviors to examine.

The Vision[4] team appeared to have excellent team leadership. Of all 26 teams in our study, the Vision team leader received the highest mean subordinate rating on daily perceived leader support, and the third highest on the KEYS Supervisory Encouragement scale. The Vision team was also the third highest rated team on peer-rated creativity. In contrast, the Fusion team leader was rated lowest of all 26 teams in the study on both daily subordinate-rated leader support and KEYS subordinate-rated Supervisory Encouragement. Moreover, the Fusion team was third from the bottom on peer-rated creativity. In addition, the Vision and Fusion teams were chosen because they were matched on two key variables. Situated in the central research divisions of two different large, successful chemicals firms, they were both early stage R&D projects that aimed to develop and determine the technical and commercial viability of new product ideas.

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[4] All names of teams and individuals are pseudonyms.

The fourth author reviewed all background material gathered on each of the two companies, projects, and teams, carefully read all daily narratives from all members of each team—including the team leader—and performed a comparative analysis of leader behavior–subordinate dynamics in the two teams. The first author then reviewed the same background material, read all narratives from both teams, and reviewed the fourth author's summary. Any disagreements were discussed until consensus was reached; these disagreements were infrequent and minor.

## 5. Results

### 5.1. Relationship between perceived leader support and subordinate creativity

Research Question #1 asks whether a subordinate's day-by-day perceptions of team leader support relate to the subordinate's overall creativity. Because this question does not involve leader behaviors, we addressed it by using data from all 211 subordinates, regardless of whether they had reported a team leader behavior. The relationship between subordinates' mean daily perceived leader support and their mean peer-rated creativity was positive, moderate, and significant ($\rho = .18$, $p < .05$). This result replicates previous findings (Amabile et al., 1996; Oldham & Cummings, 1996) showing that overall perceived leader support is a significant aspect of the work environment for creativity, and extends those findings with evidence on day-by-day leader support.

### 5.2. Qualitative analysis of significant leader behavior categories

#### 5.2.1. Varieties of leader behaviors

Table 3 presents a summary of the varieties of behaviors that fell into each significant behavioral category, along with one example of each subcategory from the subordinates' diary narratives. (There were several instances of each subcategory in the diary narratives.) Table 3 reveals four central observations about the varieties of leader behaviors resulting from this qualitative analysis. First, subordinates reported considerable detail about not only positive but also negative leader behaviors. In fact, fully a third of all subordinate-reported leader behaviors fell into negative behavioral categories, and the negative behavioral reports were often longer and more detailed than the positive. Moreover, examples of both the positive and the negative behaviors reveal that the positivity or negativity was often conveyed more by *how* something was done than *what* was done.

Second, there is a variety of behaviors represented in most of the categories. This suggests either that each of the key leader support behaviors can be accomplished in one of a variety of ways, or that *many* different forms of behavior are required for the leader to effectively demonstrate a particular kind of support. For example, consider Recognizing—Positive. It may be that leaders can use subordinate recognition to show their support *either* through private or public recognition (see Table 3), or it may be that subordinates will fail to feel supported if the leader neglects to express appreciation for good work in team meetings *as well as* in private conversations.

Third, a few leader behaviors that were interpreted positively involve not so much the performance of a positive behavior as the notable *absence* of an expected negative behavior or the *alteration* of a typically negative behavior pattern. Specifically, in the Supporting—Positive category, we saw one instance where a team leader who typically failed to support subordinates' decisions or actions

Table 3

Summary of qualitative analysis of leader behaviors related to subordinates' perceived leader support[a]

| Leader behavior categories positively related to perceived leader support | |
|---|---|
| ***Supporting***[b]***—Positive** had a significant positive relationship with subordinate ratings of leader support.* | |
| Showing support for a team member's actions or decisions | While having a somewhat frustrating conversation with our strategic alliance partner's director, I upset him and his reply was to have my team leader, Rob, call him. I immediately told Rob about the situation. The positive side to this is Rob voiced support and offered comfort, which made me feel good that my manager would stick by me. |
| Helping alleviate stressful situations for subordinates | The one event that happened today that surprised and really made me feel good was that, on Monday, I shared with Ming (business team manager) that I was disappointed in the fact that several of our team members have been waiting for me to monitor when something was due from them, and then they scramble around trying to get things done the last minute. I gave him a written list of examples on projects that were very time constrained. He asked me if I would be available for a meeting this afternoon, and of course I responded positively. Imagine my surprise when I went in and he had everybody that owed a response/action sitting around a conference table for a work session where they would give a date that they would complete all their projects and get us back up to date! You could not ask for more from a business team manager—he is a terrific leader! And best of all, we were able to all do it without any hard feelings (a lot of stress, but no hard feelings). |
| Socializing | Went shopping at lunchtime with project manager. We didn't find anything but it was very nice to get off campus. |
| Keeping team members informed about stressful issues | Jake called to pass along news of a pending organization change which has more positive implications than most of the rumors. I appreciated his call from vacation to let me know of this glimmer of bright light in the sea of uncertainty. |
| Addressing subordinates' negative feelings | This morning my project manager came over and sat next to me and asked me if I was okay after all the firing that went on yesterday. I thought that was really nice . . . we all had a very rough day yesterday but I feel better today . . . in 45 days we will all know our fate and then we can get on with our lives one way or the other . . . the outcome of all this is really out of our control . . . I'm trying to concentrate on what IS in my control [by] doing my job. |
| Disclosing personal information | Our project manager sat down with us and took time to share how she was feeling. It was fun, and it made me feel better to think that she trusted us with her feelings. This made me want to work harder so that I'd be more supportive of her and the team. It also made me feel lucky to be part of a team where others can take time to share honestly. |
| Absence of an expected negative or alteration of a negative pattern | [The product development] team finally agreed [to] postponing the [product] launch [in today's] conference call. [. . .] This is good news, as we have [. . .] been trying to convince them for the last few weeks that they were asking the impossible. [This is the first] time I have seen [the team leader] taking a stand. She has gone up considerably in my estimations!! |
| ***Monitoring—Positive** had a significant positive relationship with subordinate ratings of leader support.* | |
| Maintaining regular contact with and providing general guidance to subordinates | Received a call from Aaron [the team leader] who is in Italy. Just checking up on things and giving an encouraging word on progress and that we are doing the right things. |
| Providing constructive positive feedback on work done | Reviewed updated product analysis with Kate [the team leader] and received positive feedback from her regarding the format of my analysis and content. |

Table 3 (*continued*)

| Leader behavior categories positively related to perceived leader support |
| --- |

***Monitoring—Positive*** *had a significant positive relationship with subordinate ratings of leader support.*

| Monitoring progress in a timely manner | At the beginning of the day, Annette, Sue, Anthony [the team leader] and I met to review the additions to the spec that we had produced the day before. Compared to previous meetings, we were able to focus on the task and avoid "religious" digressions. Anthony pretty much just listened, but seemed supportive. A good meeting under heavy time pressure. |
| --- | --- |
| Reacting to problems in the work with understanding and help | The team decided to postpone our next review; my software and especially software documentation was simply too far behind, and the team really wants to do it right. Lionel [the team leader] was visibly frustrated by the missed deadline, but VERY supportive once the team decision was made. He told me afterwards that we've already taken some heat from management, but that there was appreciation for us wanting to do things "by the book." |
| Absence of an expected negative or alteration of a negative pattern | I told [my team leader] that I was not going to meet a deadline for info I had promised— he did not make a big deal about it—he could have tried to delve into the why's and how's—but he made no big deal about it. This is the way that I would expect other managers to act (in this similar situation where this was a self-imposed deadline) and I really didn't know how he would respond. |

***Recognizing—Positive*** *had a significant positive relationship with subordinate ratings of leader support.*

| Recognizing good performance in private | I got a nice "attaboy" from the project manager about the work I put in on the database reload I've been working so hard on. She seemed to be really pleased, and she thanked me for sticking with the assignment. Her nice words made my day go much better! |
| --- | --- |
| Recognizing good performance in public | In a team meeting, Gene [the team leader] recognized me for work I did—this felt good and is a motivating factor for me. |

***Consulting—Positive*** *had a significant positive relationship with subordinate ratings of leader support.*

| Acting on subordinates' ideas or wishes | Gary [the team leader] was asked if the team wanted to participate in a special seminar which would have taken 4–5 hours, and threw the question out to the team. Given the workload, we voted against doing it. I appreciated the support of Gary and the division to be able to "just say no" to this one. |
| --- | --- |
| Asking for team members' ideas and opinions | Seth [the team leader] asked for my opinion on a problem that he is facing. This, to me, is an encouraging sign of his enhanced trust in my technical ability. |

***Other–Neutral/Unknown*** *had a significant positive relationship with subordinate ratings of leader support.*

| Being away from the office | Chuck [the team leader] was out of the office today, which I wasn't expecting. He usually gives me a lot to do, so I was expecting to be busy helping him today. I was glad to be able to get caught up on some of the little things. |
| --- | --- |
| Collaborating with subordinates | Eight hours [of] discussions and work with [the team leader about] results and actions from [my Japan] trip. |
| Expressing emotion observable by subordinates | It was frustrating that the Florida members [of the team] didn't show up for the videoconference on marketing essentials when they had confirmed and didn't tell us. I know [the team leader] was pretty frustrated by this. |

| Leader behavior categories negatively related to perceived leader support |
| --- |

***Clarifying Roles and Objectives—****Negative had a marginally significant negative relationship with subordinate ratings of leader support.*

| Creating high time pressure with assignments | [My team leader] is trying to set up the phase 2 exit meeting for the project for [Oct. 23]. I won't be even close to done with all the paperwork I'm theoretically supposed to have done by then, let alone having the real work done by then. I'm feeling mighty stressed out about now. |
| --- | --- |

Table 3 (*continued*)

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Leader behavior categories negatively related to perceived leader support

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**Clarifying Roles and Objectives**—*Negative had a marginally significant negative relationship with subordinate ratings of leader support.*

| | |
|---|---|
| Giving assignments that are not appropriate for the team member | Matt [the team leader] came by my office this morning and told me that he would be freeing up Jared from the project early so that he could work on another project. I don't mind Jared being freed up before me. What hurt was that Jared's share of the mindless, boring, wind-up activities were now transferred to me, and that I would be on the project much longer than I expected, just because of this. Matt tried to patronize me by saying that I do this kinda job better than Jared anyway. I hated that part as well, because I don't want to be in competition for the noncreative, mindless, wind-up activities of the job. I felt like the Cleaning Lady! |
| Not providing enough clarity about an assignment | Greg [the team leader] assigned a project to me with nothing at all to go on and told me to get information on it. I didn't know where to start or even what he was talking about. Greg is soooo busy he couldn't explain anything about it to me. |
| Changing assignments or objectives too frequently | I keep getting confusing signals from Doug [the team leader] on things I'm working on. I'm trying to bring our advertising agency person to the [trade show] to help him quickly see how [our competition] positions their products in the market we are pursuing. Doug asked me to give him a "proposal" to bring this guy down to the show, and tell him the cost. I did that, and now he put up a new hurdle, asking for a great deal of additional information. I'm starting to feel like I'm chasing a moving target, with Doug changing the rules on the fly. This makes my job much more frustrating, and also much more time-consuming. |
| Assignments that conflict with other management instructions | When talking to [the VP of R&D,] Dan, about the [Pulsar] project, he asked me to fax our retail prices to [Jean Riley at Pulsar]. She was going to [a distributor] on Monday and needed this information. I asked Rob [the team leader] [if] he wanted to release this information to Jean and he said," absolutely not!" I had no idea what to do, listen to Dan or Rob. |

**Monitoring—Negative** *had a significant negative relationship with subordinate ratings of leader support.*

| | |
|---|---|
| Checking on the status of assigned work too often | [My team leader] mentioned this morning that he wanted to review my presentation w/ me sometime today—again—he needs to be in control!! |
| Inadequate understanding of subordinates' capabilities or work | [My team leader] asked me some questions concerning materials which I have answered now for the third time. Who is listening out there??? I hope I am not too proud when I say that this stuff is not rocket science, but it is really simple things I am having to explain to this guy. |
| Providing nonconstructive negative feedback on work done | Frank's [the team leader's] e-mail to the team that the quality of the experiment documentation was "poor" upsets me a bit. Not sure who he directed his message to. I felt we, as a team, could've used a little more constructive criticism from him instead of being treated like a bunch of kids. |
| Checking on the status of assigned work for too long | Staff meeting—it was much too long. Sergio directs the meeting. First, he reviews all the items on the agenda, which are basically a list of tasks and action items that need to be completed (a "to-do" list). Then, he goes around the room to each individual, to see if they have anything to say. This turns into a drawn-out meeting where specific items, not pertinent to the team as a whole, are belabored ad nauseam. This happens at every weekly staff meeting and I really feel that Sergio is not in control of the meeting, yet, 10 or 12 people are held hostage to this situation. |
| Displaying lack of interest in subordinates' work or ideas | I am feeling slightly frustrated... I tried to speak with Marci [the team leader] about an idea for an experiment yesterday. She put me off and said she'd get back to me by today ... still waiting. |

Table 3 (*continued*)

| Leader behavior categories negatively related to perceived leader support |
| --- |

***Problem Solving—Negative*** *had a significant negative relationship with subordinate ratings of leader support.*

| | |
| --- | --- |
| Avoiding solving problems | [The team leader] came over and told me that the interim review would be earlier than the team was expecting and he could do nothing about it, even though he is supposed to be the team leader and managing the project. |
| Creating problems | I [agree] with [my team leader on] her issues but [we're] too far into the work to stop at this very instant. Stopping right now will send a bad message to [the vendor to whom we are outsourcing manufacturing], will delay momentum, and has no constructive value to progress (we are past the point of no return for this phase). Her issue is that the team did not get full alignment on the decision to sign [this vendor] on, and the team was not organized in planning the project. [I agree,] but to stop everything right now is counterproductive. |

[a] Examples are excerpts from team member Daily Questionnaire diary narratives, and have been edited for confidentiality. Some additional editing was done to correct typographical errors or provide clarification. All such additional editing is signified by [brackets] in the text.

[b] This category name (Supporting) is used in the narrow sense of socioemotional support, in congruence with the terminology of the MPS leader behavior taxonomy that we adopted for this study (Yukl, 2002). Note that we use the term "leader support" in our study to refer to broad support, including instrumental and socioemotional behaviors.

uncharacteristically provided such support. In the Monitoring—Positive category, we saw instances where team leaders who typically made unconstructively negative comments or, in general, monitored inappropriately, were noted to have simply restrained from their typically negative monitoring behavior.

Fourth, of the seven specific leader behavior categories in Table 3, four describe behaviors that are generally thought to be task oriented or "initiating structure" (Monitoring—Positive, Monitoring—Negative, Clarifying Roles and Objectives—Negative, and Problem Solving—Negative) and three describe behaviors that are generally thought to be relationship-oriented or "consideration" (Supporting—Positive, Recognizing—Positive, and Consulting—Positive). However, examination of the subcategories in Table 3 reveals that task-oriented behaviors, such as monitoring work progress, often contain elements of relationship orientation. For instance, Monitoring—Positive contains the subcategory, "reacting to problems in the work with understanding and help." Monitoring—Negative contains the subcategories "displaying lack of interest in subordinates' work or ideas" and "providing nonconstructive negative feedback on work done." Both of these have a clear socioemotional component. Similarly, relationship-oriented behaviors often contain elements of task orientation. For example, Supporting—Positive contains the subcategory "keeping team members informed about stressful situations" and Consulting—Positive contains "acting on subordinates' ideas or wishes." This suggests that leadership involves behaviors in which task-oriented and relationship-oriented aspects are tightly interwoven.

### 5.2.2. Effects of leader behavior on subordinates' reactions and performance

Although, clearly, the qualitative analysis cannot confirm or refute causal connections between variables, we found some suggestive evidence in the daily diary narratives of specific leader behaviors influencing subordinates' reactions and performance on the day in which the behavior occurred. Specifically, we found evidence of direct effects of leader behavior on subordinates' perceptual

Table 4
Examples of direct and indirect leader behavior effects on subordinates[a]

1. Leader behavior → subordinate performance
   a. Patricia came by with a review of the analysis model, and this sparked off a lively discussion, the results of which were very satisfying. (Monitoring—Positive)[b]
   b. [The team leader] isn't making any decision on the subject and time is ticking away. (Problem Solving—Negative)

2. Leader behavior → perceptual reaction
   a. [The team leader] circulated his second draft of the revised patent application incorporating all the stuff we talked about yesterday. I think he did a masterful job of resolving and expressing the diverse ideas and opinions we covered. I think his efforts have greatly bolstered the value of this patent and our chances of getting it approved. (Consulting—Positive)
   b. "[The team leader] came over and told me that the interim review would be earlier than the team was expecting and he could do nothing about it, even though he is supposed to be the team leader and managing the project. (Problem Solving—Negative)
   c. [The team] met to discuss our meeting on Monday with Adam Cooper [VP of R&D] and Bob Brown [Lab Director]. The purpose of that meeting [was] to get buy-in on the [team's project] concept and some support from Adam. Calvin [the team leader] and I discussed developing prototypes. Calvin is overly optimistic (unrealistic) about prototypes, and I think he may be putting me in a bad spot because of his optimism. (Clarifying Roles and Objectives—Negative)

3. Leader behavior → affective reaction
   a. Our [team leader] is home!!!! Our [team leader] is home!!!! Everything's going to be okay now. Okay so I exaggerate a little, but [his] return after almost 2 weeks (illness, then vacation) is such a relief of pressure on each of us. He's the big brother who guides, protects, and encourages us. (Supporting—Positive)
   b. [The team leader . . .] threw the question out to the team. Given the workload, we voted against doing it. I appreciated the support of Gary [. . .] (Recognizing—Positive)
   c. I have this feeling that I'm not being utilised to my full potential—it's a shame that when I proactively seek work I'm given nothing or undemanding work. (Clarifying Roles and Objectives—Negative)

4. Leader behavior → perceptual or affective reaction → performance
   a. At the working meeting [with a teammate and Sue, the team leader . . .], the team changed from a "Sue leading" to a "three equals" format as the day progressed. This made everyone more outgoing, more ideas were discussed, and more progress was made. (Consulting—Positive)
   b. The team got encouraging words from [the team leader] about the progress we've made on the first half of the CIS design. I feel more confident now about the project and more focus in terms of our team objective. (Recognizing—Positive)
   c. Today I worked [with the team leader] in reviewing data I have compiled—he is very nitpicky when it comes to the [format] and presentation—He kept me too long reviewing what I've already done that I had no time to do what else is needed to be done! (Monitoring—Negative)

[a] Examples are excerpts from team member Daily Questionnaire diary narratives, and have been edited for confidentiality. Some additional editing was done to correct typographical errors or provide clarification. All such additional editing is signified by [brackets] in the text.
[b] Parentheses indicate the behavioral category encompassing the example.

reactions, affective reactions, and performance. In addition, there was some evidence of perceptual and affective reactions mediating the effects of leader behavior on performance. These relationships, along with a few examples, are presented in Table 4.[5]

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[5] It is important to note that the diary narratives rarely described any effects of leader behaviors, which is not surprising given that the Daily Questionnaire instructions asked participants to describe events, not effects of those events. Thus, although interpretations of this part of the analysis must be cautious, we believe that subordinates' spontaneous reports of the effects of leader behaviors may generally be considered veridical.

Of the narratives that contained explicit information on subordinates' perceptions of the leader, more came from descriptions of negative than positive leader behaviors. Indeed, all three significant negative behavioral categories described in Table 3 contained some evidence of an impact on subordinate perceptions of the leader. In all of these cases, the leader's behavior induced subordinate doubt about the leader's intellectual capabilities or leadership skills. Interestingly, the narratives revealed that perceptual reactions may go beyond perceptions of the leader. Occasionally, subordinates described effects of the leader's behavior on perceptions of *themselves*. These instances appeared primarily in the Consulting—Positive category, suggesting that subordinates' self-perceptions were enhanced when the leader consulted with them about important decisions or issues.

As expected, we found evidence of affective reactions to leader behaviors, as well. This evidence appeared not only in words describing emotions, but also in affect-laden punctuation. Affective reactions were actually more frequent than perceptual reactions and, as can be seen across a number of categories in Table 3, some of these affective reactions were quite strong. Interestingly, a number of positive reactions appeared related to stress or anxiety reduction. This suggests that emotionally supportive team leader behaviors may be particularly salient in difficult times (see Table 4, Example 3a). Negative leader behaviors seemed to influence subordinates' affect even more frequently than did positive behaviors. The negative affective reactions were often quite specific, including anxiety, stress, distraction, frustration, and anger. (For examples, see Table 3, Monitoring—Negative category, and Table 4, Example 3c.)

Although rare, there were some interesting diary entries where participants described an apparently direct effect of the leader's positive or negative behavior on performance, without any intervention of subordinate perceptions or affective reactions. In the positive direction, team leaders sometimes provided helpful suggestions about the work or actually collaborated with the subordinate while reviewing the work (see Table 4, Example 1a). In the negative direction, poor leader Clarifying behavior sometimes led to subordinate confusion about how they should be doing their work or even what they should be doing; poor Problem Solving behavior, where the leader failed to adequately address serious issues in the project, sometimes impaired performance of subordinates or the team as a whole (see Table 4, Example 1b). Of course, the absence of perceptual or affective effects in any given narrative does not mean that such effects did not occur. However, the examples suggest that direct effects, unmediated by perceptual or affective reactions, are at least plausible.

Finally, a few narratives suggest a mediated sequence similar to the one we described in the Introduction: leader behaviors influence subordinate reactions, which in turn influence performance. These narratives fell into six of the eight leader behavior categories that were significantly related to leader support, including Supporting—Positive, Recognizing—Positive, Consulting—Positive, Clarifying—Negative, Monitoring—Negative, and Recognizing—Negative (see Table 4, Examples 4a, 4b, and 4c).

## 5.3. Qualitative analysis of extreme cases

To take a more comprehensive and macroscopic view of possible links between leader behavior, subordinate reactions, and subordinate performance, and to examine patterns of leader behavior over time in context, we carried out an in-depth qualitative analysis of 2 of the 26 teams in the study. As described in the Methods section, these two teams differed dramatically in subordinate perceptions of team leader support and in subordinate creativity. Moreover, the Vision team, led by Dave, was highly successful. Near the end of the project stage that we studied, the Vision team had a creative

breakthrough, one that could revolutionize a key manufacturing process in the firm. Soon thereafter, management announced that Vision had been listed as a top 10 priority project within the organization.

In contrast, the Fusion team, led by James, was much less successful. Only a few weeks after the project began, the team recommended to management that they cease further development and disband the team; that recommendation was accepted. However, it seems that this recommendation was ill considered, resulting mostly from the desire of some Fusion team members to end their working relationship with James. In the course of closing down the project, two team members discovered that an unexploited option might, in fact, have led to success. Although James's own diary narratives demonstrate that he was well aware of problems between himself and the team, he never addressed them effectively (an example of Problem Solving—Negative behavior). Other than occasionally allowing team members to complain about the problems, there is little evidence in the narratives that he attempted to do anything to change the team dynamic.

When we examined the behaviors of Dave and James in their organizational contexts, we detected several fundamental differences.

### 5.3.1. Micromanagement versus consultation

There were two ways in which James micromanaged the Fusion team. In assigning tasks (behaviors in the Clarifying Roles and Objectives—Negative category), he led highly experienced subordinates to feel overcontrolled by issuing decrees about what they would do, for example: "[The] team leader revealed to me that the team will merge with [another] team, [and] we will lose a valuable technical resource. [He said] that, in addition to my responsibilities, I will take on that work—Not [asking] will I take on that work, but [stating] that I WILL take on that work."[6] As part of his objective-setting behavior, James reinforced upper management's quite narrow focus for the project, rather than challenging it as several team members believed he should do. As a result, almost from the start, some members of the Fusion team felt that the project had little chance of success and that no matter how hard they worked, the project would fail.

James also micromanaged through his Monitoring behavior. He spent much of his time checking on the performance and activities of individual Fusion team members, causing a great deal of frustration that most likely affected ratings of leader support. "A team member [reported] that the team leader needs to know his schedule at all times, another team member reported that the team leader questioned an expense report entry—three members of the team spent a great deal of time during the day discussing the frustration that each has in dealing with the team leader." It seems likely that the time these team members spent venting their frustrations with James detracted from their time on creative work. In contrast, Dave tended to monitor the progress of the Vision *project*, rather than the activities of the team members. "We had our weekly team meeting and discussed developments in the project and let the project leader know important developments in the product's performance. The project leader also reported to us on his business trip." Interestingly, as this quote indicates, Dave not only solicited input from the team, but he also kept them abreast of his own progress. Such behavior was notably absent in the Fusion team's reports of James's behavior.

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[6] Quotes have been edited for confidentiality and length. All names of individuals, teams, products, and companies have been disguised. Any other alterations made in the excerpted quotes are noted with [brackets]; those alterations were made only to correct spelling or grammatical errors or to clarify references made in the participant's narrative.

Micromanagement behaviors like James's were virtually nonexistent in Vision team narratives about Dave. Instead, these narratives described a consultative approach to managing the team. Dave involved subordinates in decision making during weekly meetings, in which he and the team worked together to set their priorities and goals (Consulting—Positive behaviors). On the first day of the project, a team member said, "The entire team drew a decision tree that clarifies what work will be done on our first product." Throughout our study, the Vision team members expressed a sense of ownership over, pride in, and commitment to the project. In contrast, James seldom asked for Fusion team members' input into decisions. This lack of consultation not only appeared to undermine subordinates' motivation to give the project their best efforts, but it also likely deprived the project of fresh perspectives that could have saved it.

### 5.3.2. Selling the project

Because leader networking behavior is not obvious to subordinates, there were virtually no mentions of such behavior in the team member reports analyzed in our regression and our first qualitative analysis. However, because our qualitative analysis of the Vision and Fusion teams included team leaders' diary narratives, we were able to detect clear differences in the extent to which Dave and James networked, and more importantly, in the way that they networked. Dave spent a large percentage of his time talking with upper management, potential customers, and other resources, behaviors that fit well with those discovered in studies of successful product development teams (Ancona & Caldwell, 1992). He appeared to have two main goals for this networking: selling the positive features of the Vision project (e.g., "I found out [from a colleague] that two of our customer divisions are not aware of what we are doing and how it might help them") and learning information that could be helpful to the project (e.g., "Discussed results obtained today with several senior scientists. Results show one of our products is significantly different from other coatings in its class").

Moreover, as part of his networking activity, Dave fought for the project. When he learned that upper management's support for the project was wavering, he immediately contacted them and demonstrated the value of the project. This is illustrated in one of Dave's daily narratives: "Demonstrated to two [senior people] who have expressed doubt about success of our project [...] that the prototypes have sufficient properties for planned applications." The same day, one of Dave's team members reported, "Dave gave some disturbing news about how our project was being perceived with the higher [management]. It seems they did not understand the great progress we're making and were not giving us much positive support. Dave is trying to clear this up and is putting much energy forward into it." Since management's support for the project remained high, the Vision team continued to receive support and resources from the organization. This appeared to reinforce the team's commitment to the project, since it demonstrated to them that their work was important to the success of the company. By contrast, there was no evidence that James ever fought for the Fusion team's project, put any energy into selling it, or tried to bring valuable information back to the team. When he networked, it was usually to learn what management wanted, not to influence them or obtain specific information for improving the project.

### 5.3.3. Recognition

Although the Vision and Fusion team leaders did not differ in the frequency with which they gave subordinates recognition for their work, they did differ in the context they chose for giving recognition. When Dave recognized a team member, it was invariably in a public way: "In our team meeting, Dave expressed how happy he was with the progress we've made in the new materials

Tim and Will had made that week." In contrast, only once did James recognize a team member in public. It seems possible that public recognition might be a more effective motivator and engender stronger feelings of leader support than private recognition. However, given the very low frequency of these behaviors in our database, we can do little more than speculate on the importance of this difference.

### 5.3.4. Spirals of positivity and negativity

We also found evidence of synergistic effects, whereby positive or negative leader behaviors evoked subordinate reactions and affected subordinate performance, which in turn led to a spiraling augmentation of the leaders' behaviors and their effects over time. Dave's external information gathering, along with his selling and defending of the Vision team project, provided the team with raw material for creative idea generation and encouragement to tackle the project's complexities, which, by enhancing team members' creativity, gave Dave something tangible to show the next time he sold and defended the project. His practice of consulting with team members and fostering information flow within the team ensured that all on the team (including himself) had a clear sense of what was and was not working, which allowed him to focus on monitoring the project rather than individuals, which in turn likely stimulated team members' intrinsic motivation over time.

By contrast, James's initial failure to consult the team about any aspects of the project plan or to challenge management's view of the project not only undermined team members' sense of self-determination, but also deprived the project of the potentially creative thinking that the team might have been able to provide. Without that creative thinking, the team's performance suffered, likely reinforcing James's basic tendency to micromanage and closely monitor individual subordinates. That micromanaging and negative monitoring angered team members, who wasted time venting their frustrations about James rather than working productively on the project. Just as Dave's Vision team seemed to be on a self-sustaining positive path as his leader behavior patterns and his subordinates' reactions played out over time, James's Fusion team seemed set on an irreversible path toward self-destruction.

## 6. Discussion

This study suggests that a leader who interacts daily with subordinates may, through certain behaviors directed at those subordinates, influence their daily perceptions, feelings, and performance, ultimately influencing the overall creativity of the work that they do. To come to this conclusion, we took advantage of a large and complex database with many unique characteristics. Although a full examination of the database will require a series of studies over a long period of time, this study used a preliminary quantitative analysis and two qualitative analyses to afford a preliminary look at the impact of leader behaviors on subordinates. Taken together, these analyses provide insight into how day-by-day leader behaviors might influence the work environment for creativity. In particular, local leaders display support for subordinates and their work by monitoring progress efficiently and fairly, consulting with them on important decisions, supporting them emotionally, and recognizing them for good work. They display a lack of support by monitoring progress inefficiently or unfairly, giving unclear or inappropriate task assignments, and failing to address important problems.

### 6.1. Leader behavior influences on subordinates: perceiving, feeling, and creating

Our data provide suggestive evidence of the proposed mediated sequence whereby leader behaviors precipitate subordinate perceptual and affective reactions, which in turn influence subordinate creative performance. The first qualitative analysis revealed that some subordinates, on the day that a leader behavior occurred, explicitly described not only the behavior, but also its effect on their perceptions or feelings, and the consequences for their work. The second qualitative analysis illustrated apparent effects of two team leaders' behaviors not only on how team members were thinking and feeling, but also on the flexibility, fluency, and originality with which they approached their work. The regression revealed that particular leader behaviors significantly predicted subordinate perceptions of leader support, which significantly predicted peer-rated subordinate creativity in a separate analysis.

The componential theory of organizational creativity (Amabile, 1988, 1997) provides a general framework in which to understand these effects. It states that the perceived work environment can have a significant impact on individual and team creativity, it identifies local leader support as one important aspect of the perceived work environment for creativity, and it suggests some behavioral elements that may constitute such support. The present study replicates and goes beyond prior research supporting the conclusion that the supervisory work environment can have a significant impact on subordinate creativity (Amabile & Conti, 1999; Amabile et al., 1996; Oldham & Cummings, 1996; Pelz & Andrews, 1976; Scott & Bruce, 1994). It does so by identifying those particular leader behaviors that appear to have an impact on the perceived supervisory work environment, and by providing a first glimpse into the microprocesses through which leader support might influence creative project work. The degree of specificity afforded by this approach could allow for considerably greater clarity in theoretical conceptions of how positive and negative work environments for creativity arise. In particular, our study suggests that the componential theory, which has focused on the creativity consequences of work environment perceptions, be expanded to include specific antecedents of those perceptions—particularly the leader behavior antecedents of perceptions of leader support.

The microscopic detail on particular behavioral incidents in this study presents an opportunity for a more precise articulation of how leader behaviors have their effects. Consider first the impact on perceptions. Both qualitative analyses suggest that leader behaviors might influence subordinate perceptions of the leader primarily by signaling the leader's competence to lead—both intellectual or technical competence relevant to the project work, and overall skill as a leader. Interestingly, these work-focused perceptions were much more predominant than character-focused perceptions having to do with the leader's personality or values, even in many of the emotionally charged reports of negative leader behaviors. In addition, the qualitative analysis of behavioral categories revealed some evidence of effects of leader behaviors not only on subordinates' perceptions of the leader but also on subordinates' perceptions of themselves—particularly their competence and the value of their work.

Besides uncovering links between leader behaviors and subordinate perceptions, the qualitative analyses also uncovered the expected links between leader behaviors and subordinate affective states. Indeed, the diary narratives often described strong affective reactions to leader behaviors, and explicit mentions of such reactions were more common than explicit mentions of perceptions of the leader. Thus, in formulating a theoretical story of how leader behaviors influence subordinates' creativity, it is essential to consider how those behaviors might give rise not only to perceptions of the leader and the

self, but also to positive or negative feelings. Furthermore, it is essential to consider how those feelings might enhance or undermine creative activity. The extensive psychological literature on affect provides compelling theoretical argument and empirical evidence of a causal relationship between induced affective state and a number of performance dimensions, including creativity (see Isen, 1999). Because most of that work has focused on positive affect, however, there is much work still to be done in understanding both sides of affective experience and its impact on creativity.

This study also has implications for theories of leader behavior. The classic two-factor theory of leader behavior (Fleishman, 1953) proposes that effective leaders must engage in both task and relationship management (Initiating Structure and Consideration behaviors). Our findings suggest two modifications to this basic proposition. First, it appears that leaders cannot *help* but engage in both task and relationship management; the only question is how well or poorly they will do so. Because leadership is an interpersonal phenomenon, every leader behavior, no matter how task oriented, is likely to convey information about the leader–subordinate relationship. And, although it may be possible to engage in some relationship-oriented behaviors that convey little task-relevant information, it is probably rare that such behaviors have no consequences for the subordinate's task engagement. Both of our qualitative analyses provided evidence suggesting that task and relationship behaviors are inextricably intertwined.

Second, *effective* leadership appears to require skill not only in managing both subordinate tasks and subordinate relationships, but also in integrating the two simultaneously. In the Vision and Fusion teams, both Dave and James affected their subordinate relationships through work monitoring, but Dave's skills allowed him to do so in a much more relationship-enhancing fashion.

## 6.2. The autonomy syndrome

Both qualitative analyses point to a related set of leader behaviors that appear to be particularly important in subordinate reactions and creativity: Monitoring, Clarifying Roles and Objectives, and Consulting. All were relatively frequent and significantly related to leader support in either their positive form (Consulting), their negative form (Clarifying Roles and Objectives), or both (Monitoring). Because this complex of behaviors has to do with the extent to which subordinates are treated as relatively autonomous contributors with valuable contributions to make, we refer to it as the "autonomy syndrome." The positive form of this syndrome is evident in the behavioral patterns of leaders whose subordinates perceive high leader support and perform effectively, while the negative form is evident in leaders whose subordinates perceive low leader support and perform ineffectively. These findings are consistent with situational (Hersey & Blanchard, 1969) and path goal (House, 1971) theories of leadership: Effective leaders adjust their control and oversight of subordinates' work as a function of the subordinate's level of knowledge and experience, and they involve subordinates as much as possible in high-level decisions about the project. Less effective leaders fail to do either or both.

Why should perceptions of the leader, arising from leader behavior, influence creative performance in organizations? The autonomy syndrome illustrates one possible perceptual mechanism. As the contrasting behavioral patterns of James and Dave illustrate, leaders' task-assigning, monitoring, and decision-making behaviors can either undermine or enhance subordinates' sense of self-determination and competence. According to cognitive evaluation theory (Deci & Ryan, 1985), these two intervening processes are the basis for intrinsic motivation, which, according to the componential

theory of creativity, is the primary mechanism by which the perceived work environment affects creativity. An extensive empirical literature supports the link between intrinsic motivation and creativity, with some recent research suggesting that the effect arises because intrinsic motivation is marked by deeper engagement in the work and greater exploration (Ruscio, Whitney, & Amabile, 1998). Thus, the illumination of the autonomy syndrome provides some theoretical insight into how and why perceptions of the leader may influence subordinate creativity.

### 6.3. Accentuating the negative

Although existing leader behavior theories, and leadership theories in general, focus almost exclusively on positive behaviors, three sources of evidence in this study suggest that negative behaviors might be even more important. First, reports of negative leader behaviors in our participants' diary narratives were quite common. Given that the companies we studied were all high performing (profitable and respected in their industries), this prominence of negative behaviors is particularly striking. Second, the qualitative analysis of behavioral categories suggested that affective reactions to negative behaviors may be stronger than those to positive behaviors. Moreover, the negative affective states (usually frustration and anger) seemed to be more specific than the positive states (usually rather diffuse pleasant feelings). Third, the positive behavioral categories contained a number of leader behavior incidents that were described as the unexpected absence of a negative behavior or the unexpected alteration of a habitually negative behavior pattern. By contrast, we found little evidence that the unexpected absence of a positive behavior was noteworthy to subordinates. Perhaps leaders who regularly engage in positive behaviors are given the benefit of the doubt when those behaviors lapse.

These pieces of evidence suggest either that negative leader behaviors in organizations are more extreme than their positive ones, that people in organizations are naturally more oriented toward noticing negative behaviors, or that negative behaviors have more of an impact than positive ones. Disproportionate salience and impact of negative behaviors are consistent with psychological and organizational research suggesting an asymmetrically large effect of negative (as opposed to positive) information and events (Bartel & Saavedra, 2000; Rozin & Royzman, 2001). For this reason, we suggest that leadership theorists and researchers—who have previously focused on the occurrence or absence of positive leadership behaviors—begin to incorporate negative leader behaviors into their models and empirical tests.

### 6.4. The amplification of leader behavior impact over time

The qualitative analysis of the Vision and Fusion teams revealed that leaders' behaviors can lead to positive or negative spirals in team dynamics and performance, whereby the effects of leader behaviors become amplified over time. These cases suggest that the effects of leader behaviors on subordinate perceptions, affect, and creativity are neither static nor unidirectional. The implication is that both creativity scholars and leader behavior scholars should pay greater attention to the dynamic processes that link various types of leader behaviors to each other, to subordinate reactions, and to subordinate performance. Feedback mechanisms and changes in effects over time are largely absent from both current theories of organizational creativity (Amabile, 1988, 1997; Ford, 1996; Woodman et al., 1993) and current theories of leader behavior (Yukl, 2002).

## 6.5. Future research

This study illustrates the advantages of collecting detailed narrative data on what goes on in creative projects over long periods of time. We hope that future researchers will consider this methodology as a way to obtain unconstrained, specific, and dynamic information on events, reactions to those events, and ongoing effects in organizations. The study also illustrates the advantages of developing simple quantitative measures of narrative data, and conducting quantitative analyses using them, to screen these vast stores of data for deeper qualitative analyses designed to explore complex psychological and organizational processes. We believe that useful insights can be gained by using quantitative analysis in the service of qualitative analysis, as we did here, and vice versa.

However, the advantages afforded by the diary narrative method entailed some significant trade-offs. Ideally, future research will address the limitations that arose from these trade-offs. Most importantly, although the qualitative analyses both suggest a causal sequence from leader behaviors to subordinate reactions to subordinate performance, no naturalistic study such as this can confirm causality. Such confirmation would require carefully controlled experiments that manipulated particular aspects of leader behavior and assessed tightly measured effects. In addition, the unconstrained nature of the diary narratives, though likely reducing response bias, had the significant disadvantage of yielding sparse data. Although we had several hundred unique leader behavior incidents to analyze, they appeared in only a small percentage of all daily diary reports collected in the study and, as a consequence, any one specific type of leader behavior appeared only rarely.[7] This open-ended approach, an advantage in exploratory studies such as ours, would be a disadvantage in hypothesis-testing studies using either quantitative or qualitative methods. Researchers interested in doing such studies would be well advised to narrow both the field of organizational events on which they request reports and the range of outcomes on which they collect data.

This study suggests many substantive issues warranting future research, including: an autonomy syndrome, an asymmetrically large negativity effect, an amplification of leader behavior into dynamic positive or negative spirals, and a central role for affective reactions as well as perceptual reactions toward the leader and the self. In addition, we urge creativity researchers to examine the effects of specific leader behaviors on other aspects of the work environment for creativity, and to include specific behaviors enacted by others besides team leaders—such as higher level managers, peers within and outside the project team, and even people outside the organization. We urge leader behavior researchers to pay more attention to perceptual and affective processes, and to consider creativity as an important performance outcome. And we urge both creativity and leadership scholars to carefully consider day-by-day microprocesses in order to better understand mechanisms of influence and better advise practitioners who wish to improve their impact on subordinate performance.

## 6.6. Management implications

Due to its detailed findings about both positive and negative leader behaviors, this study yields some relatively specific suggestions for managers of people whose job involves significant creative problem

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[7] Because the data on specific behaviors were sparse, a lack of significant relationship between any behavioral category and leader support in the regression should not be taken as an indication that the behavior has no effect.

solving. Several behaviors deserve particular emphasis in the leader's repertoire, behaviors requiring the following: skill in communication and other aspects of interpersonal interaction; an ability to obtain useful ongoing information about the progress of projects; an openness to and appreciation of subordinates' ideas; empathy for subordinates' feelings (including their need for recognition); and facility for using interpersonal networks to both give and receive information relevant to the project. Perhaps just as importantly, there are also several behaviors for leaders to avoid or reduce, including giving assignments without sufficient regard to the capability or other responsibilities of the subordinate receiving them; micromanaging the details of high-level subordinates' work; and dealing inadequately with difficult technical or interpersonal problems (whether due to technical incompetence, interpersonal incompetence, inattention, or sloth).

Clearly, leaders whose interactions with subordinates and with the project are marked by a predominance of negative behaviors and a dearth of positive ones face a daunting task of learning technical and/or managerial skills and unlearning unproductive patterns. Next, of course, the task is to change subordinates' perceptions of and affective responses to the leader. It is perhaps comforting, then, that our analyses suggest that *stopping* negative behaviors seems to be particularly salient to subordinates. If such alterations are permanent, they may yield significant improvements in subordinates' thoughts, feelings, and creative performance.

At the broadest level, our study suggests that leaders who wish to support high-level performance must pay careful attention to the details of their own everyday—and seemingly mundane—behavior toward subordinates. What this study has demonstrated, we believe, is the power of ordinary practices.

## Acknowledgements

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