The External Leadership of Self-Managing Teams: Intervening in the Context of Novel and Disruptive Events

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Relatively little empirical research has been conducted on external leaders of self-managing teams. The integration of functional leadership theory with research on team routines suggests that leaders can intervene in teams in several different ways, and the effectiveness of this intervention depends on the nature of the events the team encounters. External team leaders from 3 organizations first described a series of events ($N = 117$), and leaders and team members then completed surveys to quantitatively describe the events. Results indicated that leader preparation and supportive coaching were positively related to team perceptions of leader effectiveness, with preparation becoming more strongly related to effectiveness as event novelty increased. More active leader intervention activities (active coaching and sense making) were negatively related to satisfaction with leadership yet were positively related to effectiveness as events became more disruptive.

Keywords: leadership, team, group

Structuring work around self-managing teams has become a fact of organizational life (Cascio, 1995; Hackman, 1990; Lawler, 1986; Manz & Sims, 1993). One of the potential benefits of moving to a team structure is the reduced need for hierarchical command and control leadership. This is because self-managing teams have a large amount of autonomy and control over their immediate work environment (Cohen, Chang, & Ledford, 1997). Because teams can manage most of their own activities, the need for leaders who are not members of the team is reduced. Yet there are at least three reasons why external leadership can play an important role in team effectiveness. First, self-managing teams are rarely delegated full decision-making authority (Yukl, 2002). It is often left to the external leader to make key team decisions (e.g., hiring and firing, dealing with customers, purchasing equipment). Second, there are some activities external leaders are ideally situated to perform, such as encouraging the team (Manz & Sims, 1987), managing the team's boundaries (Ancona, 1990), and dealing with unexpected problems or events that can occur. Because internal team leaders are involved in day-to-day task performance, their ability to monitor the team and environment is limited. Finally, external leaders are frequently found in team-based settings and can positively impact team functioning (Hackman, 2002; Manz & Sims, 1987; McIntyre & Salas, 1995). Despite this fact, we still know relatively little about how leaders manage teams and when leadership is most likely to be effective (Zaccaro, Rittman, & Marks, 2001).

The current research seeks to add to our understanding of external team leadership by empirically examining the role external team leaders can play in improving self-managing team functioning. In particular, functional leadership theory suggests that team leaders intervene to help teams solve problems. Research on team routines indicates that novel performance environments produce a range of problems external team leaders are ideally situated to help the team solve. An integration of these literatures shows that leaders can intervene in the team in several ways and the effectiveness of this intervention depends upon the nature of problems the team encounters. The effectiveness of and reactions to external team leadership is investigated among self-managing production and service teams across three different organizations.

Functional Leadership

One theoretical model increasingly recognized as useful for understanding external team leadership is the functional leadership approach (Hackman & Walton, 1986; Hill, 2001; McGrath, 1962; Zaccaro et al., 2001). The basic principle of the functional perspective is that the main job of a team leader is, ". . .to do, or get done, whatever is not being adequately handled for group needs" (McGrath, 1962, p. 5). As such, the functional perspective suggests that external team leadership is centered on helping teams solve the problems they encounter on a day-to-day basis (Hill, 2001; Zaccaro et al., 2001).

According to the functional leadership approach, leaders satisfy team needs in two ways. First, leaders attend to the internal and external work environment for events and other information that may have implications for team functioning. This includes monitoring or collecting information about the absolute level of team performance (Komaki, Desselles, & Bowman, 1989; McGrath, 1962), gathering information about goals and task requirements, obtaining information about events that might influence the team (Hackman & Walton, 1986), interpreting performance conditions and environmental changes (Kozlowski, Gully, McHugh, Salas, &

Cannon-Bowers,1996; McGrath, 1962), and forecasting future conditions in order to ascertain what negative or positive events may be about to occur (Hackman & Walton, 1986). The importance of such monitoring activities has been highlighted in both traditional leadership settings (Komaki, 1986; Kotter, 1982; Mintzberg, 1973; Yukl, 2002) and more team-oriented settings (Komaki et al., 1989).

Second, on the basis of an understanding of the team and the context within which it operates, the leader intervenes or otherwise implements solutions to maintain or improve team functioning (Hackman & Walton, 1986; McGrath, 1962; Zaccaro et al., 2001). A small body of research has examined exactly what external team leaders do and how these intervention actions can positively impact team functioning. This has included supporting a team's self-management (Cohen et al., 1997; Manz & Sims, 1987), providing performance feedback (Komaki et al., 1989), communicating with the team (Marks, Zaccaro, & Mathieu, 2000), and coaching the team (Edmondson, 1999; Kirkman & Rosen, 1999; Wageman, 2001).

Yet the notion that an external team leader should intervene in a self-managing team still remains something of a paradox. A defining feature of self-managing teams is that they have considerable decision-making autonomy and active control over their work environment (Cohen et al., 1997). As such, team leader intervention could be viewed as usurping team autonomy. This has led some to acknowledge that in many circumstances there is simply no need for the external team leader (Hill, 2001; Zaccaro, Rittman, & Marks, 2001). If intervention is not always needed, inappropriate external team leader intervention will have deleterious effects on team functioning. Thus, it is essential to identify the circumstances under which a leader should intervene in the team and when a leader should not intervene.

Team Routines and External Team Leader Intervention

Team behavior depends on the demands of the task itself, and teams can be categorized into distinct types on the basis of these tasks (McGrath, 1984). One particularly common type of team (and the focus of the present investigation) is production and service teams. These teams produce standardized products or provide a delimited range of services to internal or external customers. Employees on such teams commonly work together on a full-time basis over extended periods with considerable self-management (Sundstrom, De Meuse, & Futrell, 1990). Finally, such teams use specific technologies where work processes are used repeatedly over time.

Because production and service teams produce consistent outputs within established technical systems over an extended period of time, they tend to perform within relatively familiar and consistent task environments. Thus, as teams encounter the same events again and again, they develop routines that specify precise, well-understood, and well-known actions (Gersick & Hackman, 1990). These temporal cycles of goal-directed activity have been referred to as *episodes* (Marks, Mathieu, & Zaccaro, 2001) and event cycles (Morgeson & Hofmann, 1999). This suggests that a large proportion of team task behavior becomes automated or routinized, in much the same way that individual information processing and behavior becomes automated (Schneider & Shiffrin, 1977). The development of team routines is functional for

typical task performance conditions because it allows teams to follow a consistent course of action, create efficiencies of performance, and work as an integrated whole.

Such routinized behavior tends to persist "more or less automatically until and unless something specific happens to break a group out of its routine" (Gersick & Hackman, 1990, p. 80). These specific "happenings" tend to be discontinuous, in that they stand apart from the features of the task environment (Allport, 1967; Peterson, 1998). When problems or disruptive events occur, teams are forced out of their routines and must respond in a more effortful and controlled manner (Louis & Sutton, 1991). In essence, these problems create novel environments for which teams do not have preexisting responses (Marks, Zaccaro, & Mathieu, 2000). The events that occur can mark or signify a transition from one performance episode to another. For example, Gersick (1988, 1989) has documented the influence of midpoints in changing the behavior of project teams. Any natural or imposed milestone (e.g., midpoint, anniversary, competition of major part of a project) may serve as an event that causes the group to reappraise or otherwise alter their behavior. This may be a particularly opportune time for external team leaders to begin to prepare the team for the next performance cycle. Events can also interrupt ongoing performance episodes. When such interruptions occur, external team leaders are ideally positioned to intervene in the team and help the team adapt to the event and resume the performance episode.

The existence of team routines has two important implications for external team leadership in production and service team contexts. First, as noted earlier, under normal task conditions, teams have very few leadership needs (Hill, 2001; Zaccaro et al., 2001). This is due to the relatively automatic functioning that occurs when team routines are in place and the task environment is familiar. Second, the occurrence of events or problems offers external team leaders the opportunity to contribute to team performance by acting as a potentially critical resource to help team adaptation. Leaders might be able to prepare the team for the event, respond to the problem, or support the team. Such intervention has two implications for external team leadership performance. First, in the course of managing events, leaders can do things to improve team performance. To the extent that leaders help improve team performance they will be judged to be more effective leaders. Second, what leaders do often has implications for the satisfaction teams have with their leaders. As we shall see, the things leaders do to improve team performance do not necessarily make teams satisfied with their leaders.

External Team Leadership and Novel Performance Environments

The foregoing suggests that external team leadership is most needed when teams encounter unique problems. This creates a novel performance environment and offers an opportunity for the external team leader to positively impact team functioning. Leaders can intervene by preparing the team, coaching the team, or helping the team make sense of uncertain events.

Preparing the Team

Because problems can occur that disrupt a team's ability to perform its work, one of the primary tasks of external team

leadership is to monitor the work environment for potentially disruptive events and to prepare the team to manage or otherwise be ready for problems prior to their occurrence. In essence, leaders help build team capabilities before problematic events occur. For example, a leader may recognize his or her team will face a high workload in the near future. To prepare the team, he or she could analyze the workload and resource needs and engage in joint planning with the team and seek additional resources to meet the increased workload. Leaders can also be involved in the initial stages of responding to a problem by working with teams to decide on direction, helping the team develop a task performance strategy, facilitating initial meetings, challenging teams to improve their processes, clarifying project goals and so on.

The basic idea behind the notion of leader preparation is that leaders are working with the team before events occur to help build team capabilities. The extent to which a leader has prepared the team will influence the team's ability to respond to an event without the leader's assistance. This is because teams who are prepared before an event occurrence will be more likely to possess the capability to deal with the problem by themselves. Although this will positively affect team functioning, it will have an uncertain relationship with satisfaction. It might improve satisfaction because teams may appreciate the leader's proactive intervention, yet it might decrease satisfaction because teams may resent the leader's intervention, particularly if it is not clear to the team members that the intervention is needed. For example, some events may not be well known to the team, so the preparation on the part of the leader may appear to be unneeded. Yet the imminent occurrence of other events may be clear to all, and leader preparation may be desired and sought after.

> *Hypothesis 1:* Leaders who engage in a greater amount of preparation will be perceived by teams to be more effective than will leaders who engage in a smaller amount of preparation.

Because these are self-managing teams, however, in many instances teams will be fully capable of handling the range of problems that occur. In essence, teams will have a preexisting response to routine events and thus will not require leadership assistance. This suggests that the most effective external team leaders will choose to prepare their teams only when the situation warrants it. Because existing rules or procedures are not likely to apply to novel events, leaders contribute the most to team functioning when they see novel events on the horizon that teams may not have encountered in the past. In essence, because teams have no history with novel events, they may be uncertain about what to do when one occurs. External team leaders can help teams prepare for these novel events by attempting to alter the event to better match a team's capabilities or help the team prepare or otherwise be ready for the event when it does arrive. This suggests that preparation will be most effective when novel events occur.

> *Hypothesis 2:* The relationship between preparation and perceptions of leader effectiveness will be moderated by event novelty such that preparation will be most strongly related to effectiveness when novel events occur.

Coaching the Team

Another way external team leaders can intervene is to act as coaches. Coaching has been defined as "direct interaction with the team that is intended to shape team processes to produce good performance" (Wageman, 2001, p. 561). For example, Edmondson (1999) found that team leader coaching increased team psychological safety, which, in turn, increased learning behavior. Kirkman and Rosen (1999) identified a number of coaching-related activities and found they were related to team empowerment and other positive team outcomes. Wageman (2001) found that *positive coaching* (defined as providing cues and informal rewards for self-managing behaviors and problem-solving consultation) was positively related to team self-management and quality of group process, and *negative coaching* (defined as identifying team problems and leader task intervention) was negatively related to team self-management and work satisfaction. These results indicate that some forms of coaching might actually have a negative impact on team processes. Wageman (2001) framed these different forms of coaching in "positive" and "negative" terms (because of their positive and negative relationships with self-management). Examining the behavioral content of these different forms of coaching (see examples above), however, suggests that the "positive" form reflects supportive and reinforcing forms of leadership, and the "negative" form reflects active intervention in the team.

The more supportive form of coaching reflects what Manz and Sims (1987) referred to as leading others to lead themselves. Essentially, external team leaders can act as a noninvasive resource for the team. Instead of becoming directly involved in the team's task work, external team leaders seek to foster a sense of competence and independence in the team (Cohen et al., 1997). Key to these self-management leadership behaviors is to provide rewards and reinforcement for self-management behaviors on the part of the team (Wageman, 2001). This will serve to increase a team's self-confidence and is in keeping with the spirit of self-managing teams. As a consequence, teams will react positively to such leadership. In addition, leaders who engage in this form of coaching will help the team be more effective.

> *Hypothesis 3:* Supportive coaching will be positively related to satisfaction with external team leadership.

> *Hypothesis 4:* Leaders who engage in a greater amount of supportive coaching will be perceived by teams to be more effective than will leaders who engage in a smaller amount of supportive coaching.

The active intervention form of coaching reflects a leader's tendency to become actively involved in the team's work (e.g., identifying team problems and leader task interventions in Wageman's [2001] terms). Such an active form of coaching could be construed as "negative" from the team's perspective because it reflects a usurping of team self-management and autonomy. Thus, when leaders become actively and directly involved in the team's task performance, team members will reactive negatively to such leadership.

> *Hypothesis 5:* Active coaching will be negatively related to satisfaction with external team leadership.

Leader Sense Making

A final way external team leaders intervene is to interpret or "make sense" of uncertain organizational events for the team (Weick, 1995). Leader sense making involves identifying important environmental events, interpreting these events given the team's performance situation, and offering this interpretation to the team (Zaccaro et al., 2001). In effect, external team leaders can manage the meaning of events for the team members and others (Smircich & Morgan, 1982). This is important in team contexts because the presence of shared mental models of environmental events is viewed as essential for effective team functioning (Klimoski & Mohammed, 1994; Marks et al., 2000; Mathieu, Heffner, Goodwin, Salas, & Cannon-Bowers, 2000).

Yet sense-making activities on the part of leaders would also appear to run counter to principles of team self-management. Just as active coaching is likely to produce negative team reactions, so too will sense making. This is likely to be the case because the active interpretation of events will appear intrusive and manipulative to self-managing teams. A hallmark of self-management is the transfer of control from the leader to the team (Mills, 1983). One aspect of this team-level control is that self-managing teams have a great deal of latitude to develop and enact their own version of reality, in effect interpreting the meaning of events occurring in their context as they see fit (Hackman, 1986). Freedom to engage in this kind of sense making is an important component of self-management, and attempts to influence or control it are likely to be viewed negatively because of its challenge to team self-management.

> *Hypothesis 6:* Leader sense-making activities will be negatively related to satisfaction with external team leadership.

When Active Leader Intervention Is Warranted

The preceding two hypotheses seem to suggest that leaders should not become actively involved in the team because of the potentially negative impact on team self-management. In fact, virtually all of the intervention activities shown to lead to positive team outcomes, such as fostering a team's self-management, providing performance feedback, communicating with the team, and coaching the team, have a more supportive and less directive character. Yet there is a role for the active involvement of external team leaders in team functioning, notwithstanding any negative team reactions such involvement may entail.

When disruptive events or problems occur, active forms of external team leadership become much more important (Zaccaro et al., 2001). Two lines of research provide understanding as to why this is the case. First, behavioral studies in the traditional leadership literature support the notion that leaders are often occupied by problems, disturbances, "fires," or events (Cowan, 1990; Isenberg, 1984; Kotter, 1982; Mintzberg, 1973; Sayles, 1964; Yukl, 2002). Problems can be thought of as "event-based triggers for action" (Gersick, 1994, p. 32) and let leaders know their assistance is needed. This is likely to be true in the external team leadership context as well because problems create the context that justifies active intervention on the part of the leader.

Second, disruptive events or problems can produce stress, uncertainty, and time pressures in the team. Research on group decision making indicates that when groups encounter these sorts of problems, decision making and communication becomes more centralized and autocratic (Argote, Turner, & Fichman, 1989; Isenberg, 1981). Problems therefore create a greater need for leadership, along with corresponding social expectations that external team leaders will assume a more active role (Isenberg, 1981). This suggests that disruptive events produce an immediate need for the more active forms of leader intervention. In circumstances such as this, teams actually need a leader's help because they are unable to manage the event themselves. Thus, active forms of intervention will be most effective when disruptive events occur.

> *Hypothesis 7:* The relationship between active coaching and perceptions of leader effectiveness will be moderated by disruptive events such that active coaching will be most strongly related to effectiveness when disruptive events occur.

> *Hypothesis 8:* The relationship between leader sense-making activities and perceptions of leader effectiveness will be moderated by disruptive events such that leader sense-making activities will be most strongly related to effectiveness when disruptive events occur.

Method

Research Settings

Three different organizations participated in this research. All the organizations had self-managing teams with formally designated external leaders. The external leaders were not involved in the team's day-to-day activities and were referred to as coordinators, team leaders, and project leaders at the different organizations.

The first research site was a large pharmaceutical company. The unit involved in the study was responsible for managing the data that result from clinical trials of new drug compounds. Work was organized into teams, with some teams organized around products (e.g., certain drug compounds) and others organized around function (e.g., data reporting). The teams provided a variety of services to other teams and organizational units.

The second research site was a mid-sized food processing plant. The unit involved in the study was responsible for the daily production and maintenance of the plant. The plant had around-the-clock operations, and team members worked closely with each other and with other teams.

The third research site was a large state university. The unit involved in the study was responsible for building and grounds maintenance. The work was organized into cross-functional teams who were responsible for all emergency, routine, and preventative maintenance in a defined geographic area. These teams provided maintenance services directly to customers (i.e., building occupants) as well as other units in the organization (i.e., project teams, central shops).

Procedure

This study involved two distinct phases. Because the hypotheses involve problems or events, the first phase involved interviews with external team leaders to understand the kinds of events and problems that occur in team contexts. The interviews were designed to provide specific examples of events that could be used in the survey phase. The second phase involved a survey administered to leaders and team members to gather information on the events described in the first phase.

Interview procedure. Once an organization agreed to participate in the research, semistructured interviews were conducted with all external team leaders in the unit under study. Thirty-four interviews were conducted across the three organizations. Prior to the interview, leaders were given an overview of the research project and asked to think about some problems or incidents that had occurred in the team's past.

The interviews were started by asking the following question: "Tell me about a time when a problem or incident occurred that affected the team's ability to get its work done in which you somehow intervened to get them back on track." This typically got the external team leaders talking about a range of disruptive events. After they were done discussing that particular event, they were asked about a time when they did not directly intervene. As the interview progressed and leaders became more comfortable discussing events, they were asked to recount both positive and negative things that happened in the team, events that arose within the team, and events that had their origin outside the team. These multiple prompts ensured that the widest possible range of events was discussed, and not simply problems or disruptions. Finally, leaders were asked to focus on events that would be familiar to most team members.

When discussing each event, a number of questions were asked about the event itself, what the leader did, and how the team was affected. This structure and methodology was patterned after the critical incident technique (Flanagan, 1954). After the interviews, the events were summarized in narrative form. These events were reviewed and edited by the leaders to ensure that they were accurate. The Appendix highlights some example events.

Survey procedure. Because the hypotheses concern the impact of leadership in relation to specific events, it is necessary to investigate what leaders do when specific events occur and how these events impact their teams. As such, the most appropriate test of the hypotheses occurs at the event level of analysis; that is, the rating target was the event, and the data were analyzed at this level. The events collected in the interview phase were placed in surveys that were administered to external team leaders and team members. Leaders rated their intervention activities for each event that pertained to them as well as how each event affected the team. In other words, external team leaders were asked about several different events and they responded to each event separately. Team members rated the leader's effectiveness in managing each event and their satisfaction with this leadership. Their responses were aggregated for each event. The surveys were tailored to each external team leader and team such that they rated events that had actually happened to them in the past. No two teams rated the same event. The advantage of this methodology is that it enables external team leaders and teams to rate real (not hypothetical) events.

Figure 1 provides a simplified illustration of the measurement procedure for two external team leaders. As the figure shows, 1 leader rated three events, with 6 team members responding to Event 1, 4 team members responding to Event 2, and 5 team members responding to Event 3. The other leader in this example rated four events (which were different from the three events rated by Leader 1), with different team members responding. Thus, the team-member provided ratings are aggregated to the event level and the leader-provided ratings are individual leader responses for each event.

Sample

Twenty-nine leaders and 265 team members completed usable surveys covering 117 distinct events. Response rates were 85% and 75% for the leader and team member samples, respectively. The external team leaders had an average of 13.5 years leadership experience, and the team members had an average tenure of 7.5 years. Men made up the majority of both the external team leaders (26 men, 3 women) and the team member sample (70% men, 30% women). There were approximately 9 team members on
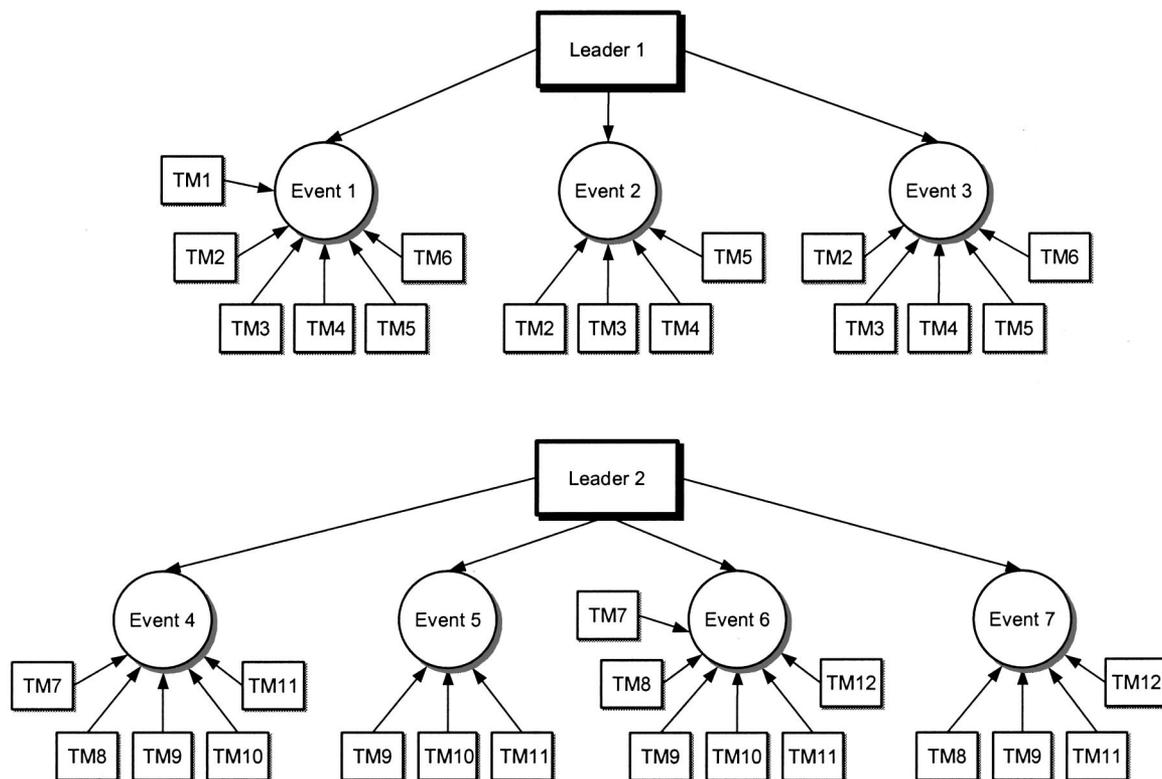

Figure 1. Research design. TM = team member.

each team and between 4 and 5 team members provided ratings on each event (some events did not involve all team members).

Measures

All measures were rated on a 5-point "extent" scale on which 1 = *not at all*, 2 = *to a limited extent*, 3 = *to a moderate extent*, 4 = *to a large extent*, and 5 = *to a very large extent*. All scales were averages of applicable items, with larger values indicating more of the variable. Common method variance was minimized through methodological separation. That is, all hypothesis tests involved different data sources, where leaders provided the predictor measures and team members provided the dependent measures.

The survey questions were targeted at the specific event. Because external team leadership research has not focused on specific events, no existing survey measures were available to operationalize the constructs. In particular, although the traditional leadership literature (dyadic, hierarchical leadership) has identified an enormous number of leader behaviors (see Yukl, 2002), it is not clear whether and how these behaviors are relevant in the self-managing team setting. The team leadership literature has identified either very broad categories of leader activities (e.g., Hackman & Walton, 1986) or a focused set of behaviors (e.g., Manz & Sims, 1987). For example, the functional leadership approach suggests that the role of the leader is to monitor the environment and then intervene when necessary. This suggests that a potentially unlimited set of behaviors is possible. Unfortunately, the specific behaviors the leader can do when intervening are not well specified in functional leadership theory (in the team context). Other research has investigated specific team leader behaviors, which include supporting a team's self-management (Cohen, Chang, & Ledford, 1997; Manz & Sims, 1987), communicating with the team (Marks, Zaccaro, & Mathieu, 2000), and coaching the team (Edmondson, 1999; Kirkman & Rosen, 1999; Wageman, 2001). This is a fairly limited set of behaviors, particularly when compared with the large number of behaviors identified in the traditional leadership literature. In addition, it is not clear when and whether these behaviors are always needed in team settings.

Given this, I sought to understand exactly when leaders are needed in team settings. As noted, I suggested that the occurrence of events or problems offers external team leaders the opportunity to contribute to team performance. My thinking was thus centered on events and what leaders can do (in terms of intervention) in the context of those events. This led to the identification of specific event management strategies (i.e., behaviors) a leader might use when intervening.

Measures were adapted or developed to assess the constructs described earlier. To ensure their content validity, two doctoral-level industrial–organizational psychologists, two senior managers at the first organization included in the study, and I reviewed the items. These judgments were used to refine the measures. What resulted were highly face-valid measures (e.g., to assess preparation, an item asks whether the leader attempted to prepare the team) that evidenced reasonable internal consistency reliability ($M = .86$, following Fisher's *r-z* transformation) and adequate interrater reliability and agreement (for measures provided by team members).

Preparation. The three-item preparation measure assessed the extent to which leaders prepared teams for an event. For each event, external team leaders were asked, "In considering all the actions you undertook with respect to this event, to what extent were you attempting to (a) prepare the team to manage the event by themselves, (b) prepare the team to be ready for the event, and (c) prepare the team to have an action plan for the event." Internal consistency reliability was .76.

Supportive coaching. The three-item supportive coaching measure assessed the extent to which leaders sought to reinforce the team. This kind of reward and reinforcement for successful self-management is central to supportive forms of coaching (Wageman, 2001). Supportive coaching entails fostering a sense of competence and independence in the team and does not involve becoming directly involved in the team's task work. Practically, this would involve providing reinforcement to the team but not actually becoming involved in the task performance itself. For each event, external team leaders were asked, "In considering all the actions you undertook with respect to this event, to what extent were you attempting to (a) reinforce successful responses to the event, (b) reinforce strategies that have worked in the past, and (c) emphasize the lessons learned by the team." Thus, leaders that indicate they do these things are supporting the team outside of its task performance by offering positive reinforcement and other nondirective assistance. Internal consistency reliability was .86.

Active coaching. The four-item active coaching measure assessed the extent to which leaders sought to become more actively involved in the team's task work when events occurred. Practically, this would entail becoming directly involved in helping the team perform its work. Becoming actively involved in the team's activities is key to active forms of coaching (Wageman, 2001). For each event, external team leaders were asked, "In considering all the actions you undertook with respect to this event, to what extent were you attempting to (a) act as an additional resource to the team, (b) help the team develop problem solutions, (c) serve as a facilitator/coach to the team, and (d) provide assistance to the team." Thus, leaders that indicate they do these things are becoming more directly involved in the task work itself. Internal consistency reliability was .86.

Sense making. The three-item sense-making measure assessed the extent to which leaders sought to interpret events for the team. For each event, external team leaders were asked, "In considering all the actions you undertook with respect to this event, to what extent were you attempting to (a) change the way the team interprets the event, (b) alter the way the team thinks about the event, and (c) modify how the team thinks about the event." Internal consistency reliability was .91.

Event novelty. The four-item event novelty measure assessed the extent to which an event was familiar to the team. One way to assess the novelty of an event is to determine whether a team has rules or procedures in place to respond to an event. If they do not know how to respond, the event can be viewed as novel. The Analyzability subscale from Withey, Daft, and Cooper (1983) was used because when events are not analyzable, no rules or procedures can tell a team member how to respond. In essence, team members will have to actively search beyond the existing procedures for a response (Withey et al., 1983). For each event, external team leaders were asked, "Considering each of the events listed on the attached form, please indicate the extent to which the team on the following response scale." The specific items were "to what extent. . . (1) there is a clear, known way to respond to this event, (2) there is an understandable sequence of steps that can be followed by the team in responding to this event, (3) team members can rely on established procedures and practices in responding to this event, and (4) the team had rules, procedures, or guidelines to follow when this event occurred." This scale was reverse coded so that higher numbers indicate greater event novelty. Internal consistency reliability was .90.

Event disruption. The five-item event disruption measure assessed the extent to which an event affected the team's ability to get its work done. Because production and service teams develop routines to guide behavior, one way to index event disruption is to identify instances in which events affected routinized behavior. Events can be viewed as disruptive if they cause the team to actively think about what to do when the event occurs (as opposed to more automatic forms of responding; Gersick & Hackman, 1990). For each event, external team leaders were asked, "Considering each of the events listed on the attached form, please indicate the extent to which the event influenced the team on the following response scale." The specific items were "to what extent (a) this event disrupted the team's ability to get its work done, (b) this event caused the team to stop and think about how to respond, and (c) this event altered the team's normal way of responding." Team members also indicated to what extent (a) "this event disrupted the team's ability to get its work done" and (b) "this event required the team to change the way it does its work." The external team leader and team member responses were averaged to create the event disruption measure. Internal consistency reliability was .65.

Perceptions of leader effectiveness. The three-item perceptions of leader effectiveness measure assessed the extent to which leaders effectively managed the event. For each event, team members were asked, "Considering each of the events listed on the attached form, please indicate the extent to which they can be described in the following ways on the response scale below. If an event is unfamiliar to you, skip it and proceed to the next event." The specific items were, "to what extent did (a) the leader's assistance resulted in a breakthrough in the team's performance, (b) the leader's assistance improved the team's performance, and (c) the leader's assistance resulted in accelerated team performance." Internal consistency reliability was .90.

Because these ratings are aggregated to the event level of analysis, it is necessary to assess the extent to which team members converged in their judgments of leader effectiveness. Interrater reliability was measured via the intraclass correlation (ICC; James, 1982; Shrout & Fleiss, 1979). ICC(1) is an index of interrater reliability (or the extent to which raters are substitutable; Bliese, 2000) and was .17 in the current study. ICC(2) provides an estimate of the reliability of the group means and was .49, which is somewhat low, but not surprising given the small teams. In addition, there was significant between-groups variance in perceptions of leader effectiveness, $F(110, 420) = 1.95$, $p < .01$. The ICC(1) and ICC(2) values in the current study are comparable with previous research that has dealt with aggregation issues (Campion, Medsker, & Higgs, 1993; Hofmann & Stetzer, 1996). Interrater agreement was measured via the r_{wg} statistic (James, Demaree, & Wolf, 1984; Kozlowski & Hattrup, 1992). Interrater agreement reflects the absolute level of agreement across raters and thus assesses the extent to which raters make similar mean-level ratings. Average interrater agreement was .71.

Satisfaction with external team leadership. A single item asked team members to indicate the extent to which they were, "satisfied with the way the leader responded to this event." ICC(1) was .17, ICC(2) was .47, and average interrater agreement was .70. In addition, there was significant between-groups variance in satisfaction, $F(110, 423) = 1.90$, $p < .01$.

Control measures. Several control measures were also used. The amount of time leaders had been in their current job was included because senior external team leaders may approach their role differently than junior external team leaders. Leader gender was also included because there may be some differences in leadership styles between men and women. Finally, because the three organizations may differ in terms of their structure (e.g., centralization, formalization), human resource systems (e.g., compensation, training, promotion), amount of time teams have been in place, and other unknown factors, dummy codes were assigned to control for potential differences across organizations. This eliminates the influence that any differences across organizations might have on the results. Team size was measured but was not significantly related to the study measures. As such, it is not included as a control variable.

Results

Table 1 contains the means, standard deviations, and intercorrelations among the study variables. An examination of the means indicates that external team leaders engaged in roughly equal levels of preparation and supportive and active coaching but considerably less sense-making activities. Overall, team members reported relatively low mean leader effectiveness but high levels of satisfaction with leadership. Correlations among the external team leader intervention activities ranged between .158 and .595, with an average intercorrelation of .343 (following an r to z conversion). Supportive and active coaching were the most highly related leader activities ($r = .595$, $p < .01$). To test whether these behaviors are empirically distinct, the leader intervention activity items were factor analyzed. The results of the principal-components analysis with varimax rotation showed that the items loaded on the relevant factor with minimal cross loadings (only two items loaded over .30 on another factor), suggesting they are distinct. It is interesting to note that all leader activities (except sense making) were negatively related to event novelty, indicating that leaders intervened less frequently when novel events occurred. Perhaps leaders were not sure how to respond to novel events. Although perceptions of leader effectiveness and satisfaction with leadership were strongly related, the magnitude of the relationship ($r = .552$, $p < .01$) does not suggest that these measures are interchangeable (especially given the considerable difference in their means).

Inspection of Table 1 indicates initial support for a number of the hypotheses. Because leaders provided ratings of multiple events, there is a lack of independence in leader ratings of events (i.e., events are nested within leaders). To take this lack of independence into account, the hypotheses were formally tested with hierarchical linear modeling (HLM; Bryk & Raudenbush, 1992; Hofmann, 1997; Hofmann, Griffin, & Gavin, 2000). The Level 1 predictors included all leader and team member ratings of the event (which varied depending on the hypothesis). The Level 2 predictors included leader tenure and gender, as well as the two organizational dummy codes to control for potential differences between organizations (I chose to control for organization at Level 2 instead of including a Level 3 predictor because of the small number of organizations [i.e., 3] included in the sample). For the main effect hypotheses (H1, H3–H6), the t test of the γ_{10} parameter provides a direct test of the hypothesis taking into account the

Table 1
Descriptive Statistics and Intercorrelations Among Study Variables

Variable	M	SD	1	2	3	4	5	6	7	8
1. Preparation	3.13	1.05	—							
2. Supportive coaching	3.16	1.14	.298**	—						
3. Active coaching	3.22	1.04	.341**	.595**	—					
4. Sense making	2.34	1.23	.359**	.172	.158	—				
5. Event novelty	3.43	1.11	−.230**	−.350**	−.287**	.043	—			
6. Event disruption	2.67	0.78	.222*	−.073	.051	.159	.160	—		
7. Perceptions of leader effectiveness	2.41	0.73	.302**	.142	−.008	.194*	−.078	.107	—	
8. Satisfaction with leadership	3.61	0.82	.022	−.025	−.242**	−.195*	.013	−.013	.552**	—

Note. $N = 117$.
* $p < .05$. ** $p < .01$.

lack of independence in leader ratings. For the interaction hypotheses (H2, H7–H8), the *t* test of the γ_{30} parameter provides a direct test of the hypothesis taking into account the lack of independence in leader ratings (see Hofmann et al., 2000).

Hypothesis 1 suggested that leader preparation would be positively related to perceptions of leader effectiveness. Results indicate that as leaders engaged in greater preparation activities, they were judged to be more effective ($\gamma_{10} = .120, p < .01, R^2 = .04$).

Hypothesis 2 suggests that event novelty would moderate the relationship between leader preparation and perceptions of leader effectiveness in that preparation would be most strongly related to effectiveness when novel events occur. As Table 2 indicates, event novelty did moderate the relationship between preparation and perceptions of leader effectiveness. Through the use of the variance components from the HLM analysis, the R^2 for the interaction accounted for 4% of the variance in perceptions of leader effectiveness. To explain the form of the interaction, I plotted the relationship between preparation and event management effectiveness for high and low levels of event novelty (defined as +1 and −1 standard deviation from the mean, respectively; Aiken & West, 1991) in Figure 2. In keeping with the hypothesis, the relationship between preparation and perceptions of leader effectiveness is strong and positive for novel events. This relationship is nonexistent for familiar events.
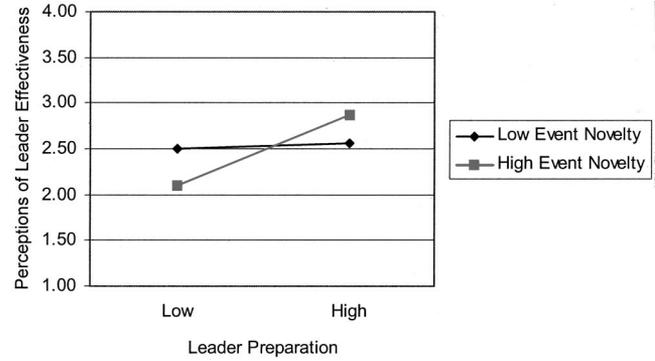
Table 2

Tests for Moderation of Perceptions of Leader Effectiveness

Predictor	Coefficient	SE
H2: Leader Preparation × Event Novelty Interaction		
Intercept (γ_{00})	3.932††	1.035
Leader tenure (γ_{01})	0.004†	0.002
Leader gender (γ_{02})	−0.232	0.317
Organization Dummy Code 1 (γ_{03})	0.754†	0.403
Organization Dummy Code 2 (γ_{04})	0.565	0.349
Leader preparation (LP) (γ_{10})	−0.520††	0.181
Event novelty (EN) (γ_{20})	−0.649††	0.177
LP × EN (γ_{30})	0.190††	0.053
H7: Active Coaching × Event Disruption Interaction		
Intercept (γ_{00})	2.678†	1.199
Leader tenure (γ_{01})	0.005†	0.003
Leader gender (γ_{02})	−0.244	0.346
Organization Dummy Code 1 (γ_{03})	1.024†	0.509
Organization Dummy Code 2 (γ_{04})	0.761†	0.426
Active coaching (AC) (γ_{10})	−0.171	0.221
Event disruption (ED) (γ_{20})	−0.357	0.273
AC × ED (γ_{30})	0.079	0.077
H8: Leader Sense-Making × Event Disruption Interaction		
Intercept (γ_{00})	2.734††	0.959
Leader tenure (γ_{01})	0.005†	0.003
Leader gender (γ_{02})	−0.314	0.344
Organization Dummy Code 1 (γ_{03})	1.003†	0.481
Organization Dummy Code 2 (γ_{04})	0.641	0.419
Leader sense making (LS) (γ_{10})	−0.254	0.152
Event disruption (ED) (γ_{20})	−0.294††	0.179
LS × ED (γ_{30})	0.099†	0.059

† $p < .05$, one-tailed.   †† $p < .01$, one-tailed.

Figure 2. Event novelty as a moderator of the relationship between leader preparation and perceptions of leader effectiveness.

Hypotheses 3 and 4 suggest that supportive coaching would be positively related to satisfaction with external team leadership and perceptions of leader effectiveness, respectively. Results indicate that, although supportive coaching was unrelated to satisfaction with leadership ($\gamma_{10} = -.006$, *ns*), as leaders engage in greater supportive coaching they are viewed as being more effective ($\gamma_{10} = .100, p < .05, R^2 = .03$).[1] Thus, Hypothesis 3 was not supported but Hypothesis 4 was supported.

Hypotheses 5 and 6 suggest that both active coaching and leader sense making would be negatively related to satisfaction with external team leadership. Both active coaching ($\gamma_{10} = -.170, p < .01, R^2 = .05$) and leader sense making ($\gamma_{10} = -.161, p < .05, R^2 = .09$) were negatively related to satisfaction with leadership.[2]

Hypotheses 7 and 8 suggest that event disruption moderates the relationship between active coaching and leader sense making and perceptions of leader effectiveness, respectively, in that these forms of active intervention would be most strongly related to effectiveness when disruptive events occur. As Table 2 indicates, event disruption did not moderate the relationship between active coaching and perceptions of leader effectiveness. Event disruption did moderate the relationship between leader sense making and perceptions of leader effectiveness, accounting for an incremental 5% of the variance.

Taken together, these results indicate limited support for Hypotheses 7 and 8. Yet both active coaching and leader sense making reflect active intervention on the part of the leader. As such, they involve a constellation of behaviors that leaders might demonstrate, and only by considering them together is an accurate picture of active intervention gained. To test this possibility, I combined active coaching and leader sense making to create an active intervention composite ($\alpha = .85$). It was found that event disruption did moderate the relationship between active intervention and perceptions of leader effectiveness, accounting for an incremental 4% of the variance ($\gamma_{30} = .178, p < .05$). To explain

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[1] When both preparation and supportive coaching were simultaneously regressed on perceptions of leader effectiveness, only preparation remained statistically significant.

[2] When supportive coaching, active coaching, and sense making were simultaneously regressed on satisfaction with leadership, all three were statistically significant.

the form of this interaction, I plotted the relationship between active intervention and effectiveness for high and low levels of event disruption in Figure 3. In keeping with the hypotheses, the relationship between active intervention and perceptions of leader effectiveness is strong and positive for disruptive events. This relationship is slightly negative for nondisruptive events. This suggests that active intervention is most effective when disruptive events occur.

Discussion

This research represents an integration of the functional approach to external team leadership and research on team routines. This resulted in a view of external team leadership that focused on the events that occur in the team context and how the nature of these events, in part, moderates the effectiveness of external team leader intervention. This study showed that leaders intervene in specific ways when events occur and that the intervention strategies are differentially related to effectiveness and satisfaction with leadership. In particular, leader preparation and supportive coaching were positively related to perceptions of leader effectiveness, with preparation becoming more strongly related to effectiveness when novel events occur. The more active forms of intervention (active coaching and sense making) were negatively related to satisfaction with leadership, yet these active intervention activities were positively related to effectiveness when disruptive events occur. These results have a number of implications for external team leadership.

First, this study defined and then refined the use of events as the unit of analysis. This serves as an integrative mechanism, linking the teams and leaders around common phenomena and providing a rationale for external leader intervention in self-managing teams. Such a focus on events joins a growing body of research that recognizes the central role events can play in job-related outcomes (Lee & Mitchell, 1994; Peterson, 1998; Trevino, 1992; Weiss & Cropanzano, 1996). This approach differs from research that focuses on stable, long-lasting features of the work environment. In essence, events prompt organizational members to evaluate aspects of the environment or job situation. Because of their salience, importance, and influence on work-related outcomes, events might be profitably used as the unit of analysis when investigating a wide range of organizational phenomena.
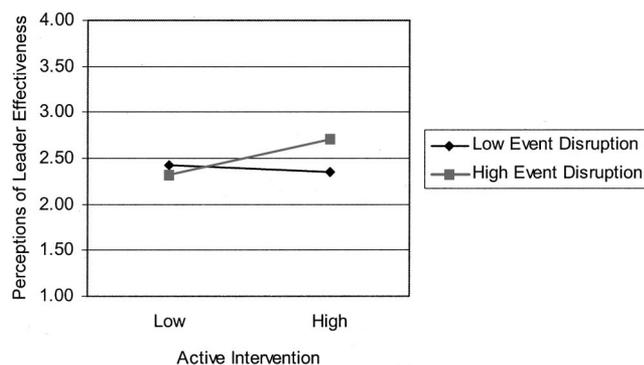

Figure 3. Event disruption as a moderator of the relationship between active intervention and perceptions of leader effectiveness.

Yet when taking an event-oriented approach it is important that respondents are able to remember the events. This was accomplished in the current study by having team leaders focus on events that would be known by multiple team members and then including enough detail in the event summary itself to facilitate recall. To avoid potential problems with memory or retrospective biases, future researchers might find it useful to use a diary methodology in which leaders and teams record the smaller events that occur on a daily basis. In addition, the choice of events should be clearly tied to the phenomena under study. The focus in the current study was on events that had implications for team functioning. Other research has focused on events that had implications for such things as turnover (Lee, Mitchell, Wise, & Fireman, 1996) and emotional reactions (Weiss, Suckow, & Cropanzano, 1999). There is a range of other phenomena that could be studied using an event-oriented approach.

Second, this research demonstrated that intervention activities could be tied to specific kinds of events. In other words, preparation, supportive and active coaching, and sense making do not occur in the abstract, they occur in the context of specific events. Such a focus on specific events is particularly useful because it centers on concrete examples that allow "the manager to describe what he [or she] knows best (actual events) and leav[e] interpretation of data and development of theory to the researcher" (Mintzberg, 1973, p. 223). However, the present study only investigated a small number of leader intervention activities. Additional forms of intervention are possible and future research should seek to explicate the full range of appropriate activities in the external team leadership context.

Third, this research demonstrated that different forms of leadership are related to perceptions of effectiveness. Leader preparation becomes critically important when novel events occur. Thus, when teams do not really know how to handle the event, leaders can help them prepare for it. Active forms of intervention (active coaching and sense making) become critically important when events are highly disruptive. This suggests that leaders should treat disruption as a trigger for becoming actively involved in the team, even though self-managing teams generally react negatively to this form of intervention.

These moderated findings suggest that the choice of an intervention strategy involves a joint consideration of the event and a team's standing in relation to the event. Questions the leader might ask include, "Does the team know how to handle this event?" and "How much will this event disrupt the team?" Depending on the answers to these questions, leaders can choose the appropriate intervention strategy. In this way, the present findings provide guidelines for external team leader intervention activities and build on the generic intervention activities offered by functional leadership theory.

One question left unanswered by this research is what enables a team to have a routine response to an event. Future research could investigate those team factors that increase the likelihood of being able to cope with novel events without a leader's assistance. For example, characteristics of the team's design may have implications for team functioning. Teams with greater amounts of self-management may need less assistance, whereas teams with greater interdependence may be more affected by novel events.

Similarly, research might focus on how the nature of events is related to team routines. For example, the extent to which teams

have encountered similar events in the past (regardless of their standing on the team characteristics noted above) might be important for understanding how they are affected by the event. It may be that if a similar event has been experienced before, the team will know what to do. Similarly, if an event is very clear and unambiguous, it is likely that the team will be in a better position to manage it themselves. This has obvious implications for external team leadership in that it offers insight into the kinds of events leaders might want to monitor more closely. A taxonomy of events or event types could prove useful for team leaders.

Another issue only partially addressed in the present research concerns the possible triggers for intervention. Future research should examine if there are signs in the event or team that prompt intervention. For example, external team leaders might intervene only after the team asks for assistance. Or they may wait until they see a sign (e.g., reduced quality, complaints from customers) that the team is unable to manage the event by themselves. Or leaders might decide to let the team fail in the short term so that they may gain long-term benefits from the experience of having to manage the event by themselves.

Finally, it should be noted that the focus of this study was on events that had already occurred and of which teams had some awareness. This was done to obtain quantitative data from multiple sources. This sampling strategy has obvious limitations. For example, most of the events were things that had occurred in the team or broader environment. As such, the external team leaders did not initiate most of the events. Future research might investigate the potential for leaders to be initiators of events and the circumstances that attend such initiation. That is, effective leaders may initiate events at key points in the task cycle, create opportunities to disrupt ineffective routines, or stimulate reappraisal of elements of the team's work. In addition, leaders initiating events may become more relevant at higher levels in the organization. That is, at strategic levels the generation of events may guide, shape, or change the organization's course and serve as potent symbols that can have wide-ranging influence on organizational behavior.

The contributions noted above notwithstanding, there are several possible limitations to this study that should be kept in mind when interpreting the research findings. First, this was a cross-sectional study. As a result, few conclusions can be drawn about the causal nature of the relationships between the variables. Future research could investigate events as they occur over time to better understand the causal processes that underlay leader actions and team responses to events. For example, it may be possible to intensively study a smaller number of events to understand how leaders identify events, the cycle of leader and team anticipation and reaction to events, and the short- and long-term outcomes.

Another limitation of this study is that it relies entirely on team member ratings of external team leader effectiveness. As such, these are the team's perceptions of leader effectiveness. Although these kinds of ratings are commonly used in leadership research, it does not address other potential problems with the measure. For example, leaders might have been judged to be effective because their behavior conforms to some form of implicit leadership theory or prototype (Lord, Foti, & De Vader, 1984) and not because they were actually more effective.

Finally, production and service teams seek to increase efficiency by developing rules and standard operating procedures. Generally speaking, disruptions to routines are something to avoid. This may not always be the case. In some settings, disruptions may be viewed positively because they stimulate the development of novel solutions or break dysfunctional habits (Louis & Sutton, 1991). For example, in a research and development setting disruptive events may be actively encouraged because they may prompt unique ideas. Indeed, effective leaders may initiate events at key points in the task cycle, create opportunities to disrupt ineffective routines, or stimulate reappraisal of elements of the team's work. Future research should investigate the role of routines and disruptions in other types of teams.

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(*Appendix follows*)

Appendix

Examples of Events

Annual report process behind schedule
Beginning series of new studies
Changing submission strategy
Coding mistake
Customer complaint about rail cars
Deviating from test plan standards
Dissatisfaction with level of customer service
Documenting business rules
Equipment breakdown
Evaluating resource needs
Feedback from customer
Fire in pellet building
Foaming coil cleaner accident
General stores inventory reduction
Lack of statistician support
Leader change in parts acquisition process
Performance problem with new analyst
Poor performing employee
Preparing for studies
Selecting shop location
Strategic sourcing initiative
Validation compliance dispute