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HOW DIFFERENT TEAM DOWNSIZING APPROACHES INFLUENCE TEAM-

LEVEL ADAPTATION AND PERFORMANCE

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ABSTRACT

This study examined the relative effectiveness of three structural approaches to reducing team size. Seventy-one five-person teams engaged in a simulated interactive task in which the approach to downsizing was manipulated. Results suggest that the structural approaches to reducing team size differentially impact team performance, and this relationship is mediated by how and to what degree teams adapt their task-related behaviors. Moreover, results from this study emphasize the importance of team composition when reducing team size. Specifically, emotional stability and extraversion can help mitigate the negative effects associated with reducing team size.

HOW DIFFERENT TEAM DOWNSIZING APPROACHES INFLUENCE TEAM-LEVEL ADAPTATION AND PERFORMANCE

There are a variety of reasons at multiple levels of analysis for why team size might be reduced or downsized in organizational settings. For example, organizational downsizing initiatives (e.g., layoffs) are a common reason why teams are forced to work with fewer people. In fact, from 2000 to 2003, organizations in the United States engaged in over 28,000 extended layoff or downsizing events (U.S. Bureau of Labor Statistics, 2005). In other cases, organizations may be forced to reduce team size in order to cope with multiple, simultaneous work demands. For example, Thompson and Duffy (2003) recounted how U.S. Army units were potentially too small to handle both military and peacekeeping operations in Afghanistan and Iraq at the same time. This was because unit size had been reduced as a result of personnel being allocated across multiple, simultaneous deployment needs. Other literature even argues team downsizing should occur because of managers' tendency to "assume that more is better and therefore put too many people on the team…and although managers sometimes form teams that are too small to accomplish their work well, the far more common mistake is overstaffing them" (Hackman, 2002, p. 115-116). In sum, there are a variety of reasons why team downsizing occurs in modern organizations.

To date, the literature on team size has focused on the implications of team size in static environments. For example, in a between-teams study, Wagner (1995) established that team size impacts the degree of cooperation in team settings. Gallupe and colleagues (1992) showed that team size directly impacts the number and quality of ideas generated in team settings. In fact, Hackman and Vidmar (1970) concluded from a cross-sectional study that the optimal team size (across teams and settings) was 4.6 members. This static perspective, although valuable, is

limited in several important ways. Most notably, static views of team size do not address conceptually how teams should change team size over time, nor the implications of these changes on team functioning. Moving from a static perspective of team size to a more dynamic model is essential for understanding these issues and is thus a central purpose and theme of the present study. Specifically, we identify from a structural perspective several ways in which teams can downsize over time and then examine the implications of these structural approaches on adaptive behaviors and performance in teams. We also consider how the relative effectiveness of these structural approaches to team downsizing depends on compositional elements within the team. As such, this is the first empirical study that examines the performance implications associated with reductions in team size.

DOWNSIZING IN TEAMS: THREE BASIC STRUCTURAL APPROACHES

To identify the three structural approaches to team downsizing, we draw from literature on organizational downsizing. This literature provides a theoretical foundation from which to construct structural approaches to team downsizing. Cameron, Freeman, and Mishra (1991; 1993) identified and differentiated between three approaches to downsizing: (a) workforce reduction strategy, (b) redesign strategy, and (c) systemic strategy. The workforce reduction strategy simply reduces the number of lower-level operational employees, giving no consideration to structural differentiation. The redesign strategy downsizes the unit through work redesign and structural change. The systemic strategy focuses on changing the way employees approach their work such that the principles of downsizing (e.g., simplification, continuous improvement) are embraced "as a way of life" in the behavioral routines of employees (Cameron, Freeman, & Mishra, 1991: 62). These three downsizing strategies are not mutually exclusive and can be implemented as single strategies or in combination. In the present study, we

extend this framework from the organization to the team level in order to develop three structural

approaches to team downsizing. We refer to these three approaches as Maintaining Hierarchy,

Eliminating Hierarchy, and Integrating Hierarchy (see Figure 1).

Insert Figure 1 about here

These three structural approaches to team downsizing differentially impact team

performance, and these effects are mediated by how teams adapt their task-related behaviors in

response to the downsizing. As illustrated in Figure 1, the structural approaches to team

downsizing differ on two dimensions: (a) degree of recomposition in the team and (b) degree of

structural change. We conceptualize recomposition as changes in team membership (e.g.,

existing team members leaving the team). The degree of recomposition is a function of (a) how

many membership changes occur in the team and (b) the importance of the members that are

affected by these membership changes. Team member importance is determined by how unique

the member's contributions are to the team; importance could be a function of unique

knowledge, skills, abilities, or the degree to which the individual is a gatekeeper for team

functioning. Recomposition that directly affects team members who are vital to team functioning

(e.g., a team leader) is a more severe trigger for behavioral change than recomposition that

affects team members who are less vital to team functioning. Structural change refers to changes

in the team's hierarchical structure (e.g., moving from a very hierarchical team structure to a

flatter team structure). Both recomposition and structural change are important because they

serve as triggers for team adaptation, which we define as team-level behavioral change.

Specifically, the degree of recomposition and structural change are positively related with teams'

adaptation of task-related behaviors in response to disruptive events such as downsizing (Bettenhausen & Murnighan, 1991; Gersick & Hackman, 1990).

According to Ilgen and Hollenbeck (1991), behavior can be described along two dimensions: quantitative and qualitative. In this study, we consider the extent to which quantitative and qualitative behavioral change mediate the relationship between structural approaches to downsizing and team performance. The quantitative dimension of behavior simply refers to the frequency with which a behavior is performed. In other words, teams may continue to exhibit the same types of behaviors, but engage in more of them at a faster pace. Simply increasing the quantity of behaviors, however, is only one form of behavioral change.

Teams may also qualitatively change the types of behaviors they engage in while performing the task (i.e., the team can work differently). In the present study, we consider how teams qualitatively change their approach toward two important team functions: (a) monitoring the task environment and (b) sharing information among team members. We chose to focus on these two functions because in a hierarchical team structure, the team leader is often responsible for these team functions (Hackman, 1987) and these functions are critical for team effectiveness (Ilgen, Hollenbeck, Johnson, & Jundt, 2005; Marks, Mathieu, & Zaccaro, 2001). In teams with no formal leader, team members are collectively responsible for performing these functions effectively (Cohen, Chang, & Ledford, 1997). Because the structural approaches to downsizing identified here manipulate either the hierarchical structure within the team, team composition, or both, we expect the structural approaches to qualitatively impact the way teams perform these two important functions.

Maintaining Hierarchy

As identified by Cameron et al. (1991; 1993), the workforce reduction approach to downsizing concentrates primarily on reducing the number of operational employees in the organizational unit. This approach manifests itself as layoffs, early retirement programs, and buyout packages, focuses on fast implementation and short-term payoff (e.g., cost reduction). This strategy gives no consideration to the structure of the unit or how work gets done within the unit. This form of downsizing has also been referred to as pure employment downsizing and, after the initial cost savings, is often associated with severe negative implications for performance at the organization level (Cascio, Young & Morris, 1997).

We develop the Maintaining Hierarchy approach to downsizing teams by extending this workforce reduction approach to the team level. At the organization level, no change in hierarchical differentiation accompanies the reduction in organizational size; instead, the primary focus is on headcount reduction. At the team level, the analog to this approach would be maintaining the same form of hierarchical differentiation in the team and simply reducing team size by removing one or more lower-level team members. The formal team leader maintains his or her role and responsibilities within the team, and the resources and responsibilities associated with displaced team members shift to the remaining team members.

Drawing from the work of Gersick and Hackman (1990), this approach to team downsizing should result in relatively fewer adaptive behaviors at the team level. The approach does not alter the hierarchical structure of the team in any way. Moreover, in terms of recomposition, this approach to team downsizing targets only lower-level operational roles within the team. Relative to the leader of the team, displaced team members in this structural approach are less central to team functioning. As a result of no structural change and relatively little recomposition of the team, the remaining team members and team leader continue to

perform functions that are routine. For these reasons, the Maintaining Hierarchy approach

provides a minimal trigger for change and therefore should result in relatively less team

adaptation. Relative to downsized teams that experience more significant structural change or

recomposition, as is the case with other team downsizing approaches, we do not expect

Maintaining Hierarchy teams to exhibit as much quantitative behavioral change. Similarly, we do

not expect these teams to qualitatively change the way in which important team functions are

performed within the team because the Maintaining Hierarchy approach provides much less of

an impetus for behavioral change. Given that adaptation is vital to maintaining unit performance

when downsizing (Cameron et al., 1991), we therefore expect the Maintaining Hierarchy

approach, because it does not trigger as much quantitative or qualitative behavioral change, to

negatively impact team performance.

Eliminating Hierarchy

Cameron and colleagues (1991: 62) suggested that their approaches (workforce

reduction, redesign, and the systemic strategy) to downsizing are not mutually exclusive, and

actually "the most successful firms implemented all three (approaches)…." With this in mind,

we develop the Eliminating Hierarchy approach to team downsizing by considering all three

approaches. While still focusing on reducing overall team size, we also consider in the

Eliminating Hierarchy approach redesigning the team's hierarchical structure and eliminating a

central member of the team. Specifically, the team leader of a hierarchically differentiated team

is removed from the team, thus eliminating any hierarchical differentiation within the team.

Furthermore, whereas the team leader was largely responsible for important team functions such

as monitoring the external task environment and facilitating the exchange of information within

the team, now the team members are collectively responsible for these functions.

In contrast to the Maintaining Hierarchy approach, the Eliminating Hierarchy approach to team downsizing alters the team's hierarchical structure and eliminates a central member of the team (i.e., the team leader). As a result of these changes, the remaining team members are forced to work together in ways that are non-routine. Thus, we should observe more adaptive behaviors in teams that employ this approach (Gersick & Hackman, 1990). In quantitative terms, we expect Eliminating Hierarchy teams to increase their overall effort and collectively adapt to the downsizing by performing more task-related behaviors relative to teams that employ other downsizing approaches. This is because these teams, with the loss of their leader, will realize that they must exert more effort in order to maintain team performance. In qualitative terms, we also expect Eliminating Hierarchy teams to exhibit fundamentally different types of behaviors. Because the team leader is no longer present, the team functions that this person (and position) used to perform must now be fulfilled by the team. To accomplish this, the remaining team members must qualitatively change their behavior in such a way that they can collectively perform these important functions. Consistent with research at the organization level (Cameron et al., 1991), we expect teams that employ this approach to engage in significant behavioral change and, as a result, experience the least amount of performance decline as a result of the downsizing.

Integrating Hierarchy

In developing the Integrating Hierarchy approach, we also extend multiple elements of Cameron et al.'s (1991) framework to the team level. In this approach to downsizing, as with the Eliminating Hierarchy approach, the hierarchical differentiation in the team is removed. However, this approach does not remove the person who had been the team leader from the team, only the role of the team leader. Instead, a lower-level team member is downsized, and the

team leader assumes the roles and responsibilities of the displaced team member. Accordingly, the team leader's role changes such that he or she must assume specific operational duties that were not part of his or her prior role. Thus, the team adapts structurally to the downsizing by removing hierarchical differentiation in the team and reallocating roles and responsibilities within the team. Organizations may adopt this structural approach in order to reduce hierarchical differentiation within the organization while still being able to draw on the perspective and past leadership experiences of people in former leadership positions. The basic principles of this approach are also apparent in recent literature on rotated team leadership, where members systematically move from leadership to peer positions (Erez, LePine, & Elms, 2002).

Because the team leader is retained within the team and only lower-level members are displaced, the Integrating Hierarchy approach to team downsizing does not affect team composition as much as the Eliminating Hierarchy approach. Thus, in accordance with Gersick and Hackman (1990), the Integrating Hierarchy approach offers a less severe trigger for behavioral change than the Eliminating Hierarchy approach. Relative to Eliminating Hierarchy teams, we expect less adaptive behaviors in teams that employ the Integrating Hierarchy approach. Quantitatively, these teams should not increase the number of task-related behaviors they perform to the same degree as Eliminating Hierarchy teams. Qualitatively, because the team leader is still present in the team, it is less likely that Integrating Hierarchy teams will adapt their task-related behaviors to include different types of behaviors. This is because the former team leader is still present in the team, and the behavioral routines developed while this person was in a leadership position are more likely to persist over time despite the structural change (Ancona & Chong, 1996; Bettenhausen & Murnighan, 1985, 1991; Gersick & Hackman, 1990). Any potential positive contributions associated with moving to a less differentiated team structure are

negated by the preservation of established behavioral routines that, in essence, help sustain

differentiation within the team. Because Integrating Hierarchy teams will engage in less adaptive

behaviors, we expect the performance of teams that employ this approach to decline as a result of

downsizing.

In sum, we expect that teams adopting an Eliminating Hierarchy approach to downsizing

will have superior performance relative to those teams adopting a Maintaining or Integrating

Hierarchy approach. In fact, teams adopting an Eliminating Hierarchy approach are expected to

realize performance levels that are not significantly different than the performance of teams not

subject to any downsizing (Control). This is because Eliminating Hierarchy teams will adapt

their task-related behaviors in both quantitative and qualitative ways. Quantitatively, these teams

will exert more effort toward the team task relative to teams that employ other downsizing

approaches. Qualitatively, Eliminating Hierarchy teams will adapt how they go about performing

critical team functions now that the leader is no longer present in the team. The Integrating and

Maintaining Hierarchy teams are less likely to make these same behavioral changes. Thus, we

formally hypothesize the following:

>*Hypothesis 1: Teams employing a Maintaining or Integrating Hierarchy approach to*
>
>*downsizing perform worse than teams that employ the Eliminating Hierarchy approach*
>
>*or teams that do not downsize.*
>
>*Hypothesis 2: The structural approach—team performance relationship will be mediated*
>
>*by (a) quantitative and (b) qualitative behavioral change.*

DOWNSIZING AND TEAM COMPOSITION

Existing literature clearly states that downsizing initiatives can promote, through

unwanted job enlargement and increased task demands, feelings of stress and overburden in

surviving personnel (Kozlowski, Chao, Smith, & Hedlund, 1993). For example, these feelings of stress, when combined with overly high work demands, can lead to job burnout (Lee & Ashforth, 1996; Maslach, 2003). Job burnout is largely affective in nature, and recent meta-analyses have connected job burnout to the affective states of individuals (Thoresen, Kaplan, Barsky, Warren, & de Chermont, 2003). Since the impact downsizing has on individuals is partly affective in nature (e.g., Brockner, Tyler, & Cooper-Schneider, 1992; Brockner, Wiesenfeld, & Martin, 1995), this implies that affective-oriented elements of team composition influence how well teams are able to adapt to downsizing.

The Affective Plane of Personality: Emotional Stability and Extraversion

One element of team composition that is affective in nature and has received considerable attention is the affective plane of personality (e.g., Costa & McCrae, 1980; Watson & Tellegen, 1985). Costa and McCrae (1992) introduced the concept of two-dimensional planes of personality as a way to group non-orthogonal personality factors into theoretically meaningful pairs. The affective plane of personality includes extraversion and emotional stability and "represents an individual's basic emotional style" (Costa and McCrae, 1992: 19). Existing literature on personality at the team level suggests that both emotional stability and extraversion impact team processes and performance (e.g., Barrick, Stewart, Neubert, & Mount, 1998; Beersma et al., 2003; Porter et al., 2003). We focus here on how these two personality factors— emotional stability and extraversion—impact the relationship between team performance and the three structural approaches to downsizing.

Costa and McCrae (1992) suggest that individuals low on emotional stability have a general tendency to experience negative affective states like fear, sadness, embarrassment, anger, guilt, and disgust. Because these disruptive emotions interfere with one's ability to adapt to

change, Costa and McCrae (1992) also suggest that individuals who are low on emotional

stability are relatively less able to adapt to change. In contrast, those high on emotional stability

are usually calm, even-tempered, and able to face stressful situations without becoming upset.

Existing literature on team composition and performance has a long history of

considering how emotional stability impacts team performance (e.g., Heslin, 1964). For instance,

research suggests higher aggregate levels of emotional stability in the team lead to greater levels

of cooperation and prosocial behavior within the team (e.g., Watson & Tellegen, 1985). In

addition, emotional stability has been linked to team adaptability in the sense that teams with

more emotionally stable members show better adaptability to structural misalignment

(Hollenbeck et al. 2002) and uneven workload distributions (Porter et al., 2003) – both of which

are potential problems in team downsizing contexts. For these reasons, emotional stability is

likely a key compositional factor in understanding how teams adapt structurally to downsizing.

Similarly, extraversion may also attenuate the potential negative effects of downsizing in

teams. Extraversion incorporates an element of positive affectivity (Costa & McCrae, 1992;

Watson & Clark, 1984) in the sense that highly extraverted individuals are prone to experience

more positive emotional states (Barrick et al., 1998). In the context of teams, extraversion

promotes greater levels of positive interaction, information exchange, helping behavior, and

cooperation among team members (e.g., Beersma et al., 2003; Porter et al., 2003), all of which

are expected to be important when adapting to reductions in team size.

The Role of Emotional Stability and Extraversion in Team Downsizing

In accordance with Mischel and Shoda's (1995; 1998) cognitive-affective personality

system theory, the degree to which basic dispositional traits such as personality are expressed is

dependent on the situation in which the team operates. In other words, situational features can

activate or trigger the enhanced expression of stable personality traits. We argue here that the

three structural approaches to downsizing differ in the degree to which they trigger expression of

the affective plane of personality. These differences among the structural approaches to

downsizing are due to the severity of change associated with each approach – with Maintaining

Hierarchy as the least severe and Eliminating Hierarchy as the most severe (see Figure 1).

The Maintaining Hierarchy approach makes no change to the team's hierarchical

structure and only minimally affects team composition. The Integrating Hierarchy approach

changes the team's hierarchical structure but makes only minimal changes to team composition.

Thus, the overall severity of these changes is low to moderate in comparison to the Eliminating

Hierarchy approach. As a result, teams employing either the Maintaining or Integrating

Hierarchy approach experience a minimal trigger for change and will therefore be less likely to

recognize a need to adapt. Because these teams are less likely to recognize the need for

adaptation, we do not expect the expression of emotional stability or extraversion to be enhanced

in any meaningful way. Therefore, the affective plane of personality is expected to have no

influence on the performance of teams using a Maintaining or Integrating Hierarchy approach.

In contrast, we do expect the severity of the Eliminating Hierarchy approach to provide a

significant trigger for adaptation. In accordance with Mischel and Shoda (1995; 1998), this

trigger for adaptation should activate the enhanced expression of emotional stability and

extraversion within the team, thereby positively influencing team performance. Enhanced

expression of emotional stability or extraversion in the team will enable the team to better cope

with the challenges associated with team downsizing. For instance, with the loss of a team

leader, teams must collectively perform traditional leadership functions such as monitoring the

environment, obtaining and reallocating resources, and designing the team's task (e.g., Hackman,

1987; Morgeson, 2005). To effectively perform these functions without a formal team leader, the team must have high levels of coordination, information exchange, and an overall sense of positive energy. Empirical evidence suggests emotional stability and extraversion promote these positive interactions within teams (e.g., Barrick et al., 1998). Thus, we formally hypothesize the following for teams employing an Eliminating Hierarchy approach to downsizing:

> *Hypothesis 3: The tendency for teams to perform worse when they do rather than do not employ the Eliminating Hierarchy approach (as predicted in H1) will be weaker when teams' members are high, rather than low, on (a) emotional stability and (b) extraversion.*

METHOD

Research Participants & Task

Research participants were 355 upper-level undergraduate students at a large, Midwestern university. Average age was 21 years, and 57% of the participants were male. Each student was a member of a five-person team, resulting in a total of 71 teams. All individuals were randomly assigned to teams, and all teams were randomly assigned to experimental conditions (see section on Manipulations for details on conditions). In return for their participation, each student received class credit and was eligible for a cash prize.

Participants engaged in a dynamic and networked military command-and-control simulation. The task was a modified version of a simulation developed to study team behavior called Distributed Dynamic Decision-Making (DDD). A description of the DDD task is provided by Miller, Young, Kleinman, and Serfaty (1998) and Hollenbeck et al. (2002). In the present study, each team engaged in two separate, 30-minute simulation exercises that were the same across all teams. In each exercise, teams were charged with keeping unfriendly tracks from

moving into a restricted geographic space, while allowing friendly targets to travel throughout this geographic space. This task was particularly appropriate for the present study for two reasons: (a) the task enabled team members, after a downsizing event, to collectively share in the removed team member's task responsibilities, and (b) the task required all team members to coordinate with each other after a downsizing event.

All individuals and teams, regardless of experimental condition, received the same training on the simulation. This training consisted of two separate modules. First, all participants watched a 15-minute video that introduced them to the simulation. Second, all participants were provided hands-on instruction and time to practice all of the possible tasks in the simulation. This second module lasted approximately 45 minutes and allowed participants to learn the basic mouse movements and operations associated with all possible tasks in the simulation.

Participants were randomly assigned to 5-person teams and then one of two roles in the team. The roles included one team leader and four team members. Each team member controlled four vehicles (assets) that could be launched and used to monitor a geographic space, identify tracks as friendly or unfriendly, and properly engage and disable unfriendly tracks. There were twelve unique tracks, three of which were considered friendly and nine of which were considered unfriendly. These tracks differed in terms of their speed of movement and requirements to disable. Like the other team members, the team leader could identify tracks as friendly or unfriendly.

However, the team leader had several unique abilities that other team members did not have. First, whereas the vision of each team member was limited to his or her own geographic space, the team leader was able to view any part of the geographic space that was viewable by another team member. This enabled the team leader to monitor the overall task environment for

the team. Second, only the team leader was able to reallocate assets amongst the team members, as well as assume control over team members' assets. This enabled the team leader to redistribute assets according to workload within the team, as well as control assets when needed. In the experimental condition where the team leader position was eliminated (i.e., in the Eliminating Hierarchy condition), the team members had to share information with each other about what they were seeing and what assets they needed since no one other than the leader ever had the ability to see the entire geographic space. This means significant interaction (i.e., information-sharing or other ways of coordinating) among team members was needed when the team leader position was eliminated. This increased level of interaction was needed, also, in the Integrating Hierarchy condition since this condition eliminated the leader role and reassigned the leader to the role of peer.

The team task employed in the present study is additive for two reasons. For one, each team member contributed to the team output in a meaningful way. This is fundamentally different than a disjunctive task (e.g., problem solving) where the team's best member determines the output of the team. This is also different than a conjunctive task (e.g., mountain climbing), where the team's weakest member determines the team's output. According to Steiner (1972), this fact alone makes the task additive. Secondly, team performance in this study was operationalized in additive terms (i.e., the total number of effective and ineffective engagements), and prior research suggests an additive approach is warranted when the dependent variable of the study is also operationalized in additive terms (e.g., Porter et al., 2003).

Manipulations & Measures

Downsizing approach. All teams were randomly assigned to one of four conditions. These conditions varied in the approach used to downsize the team from five to four team

members. In the Control condition, teams experienced no downsizing and thus performed the

second simulation with the same team composition and structure as in the first simulation. In the

other three experimental conditions, teams were downsized between the first and second

simulation using one of the three approaches to downsizing identified earlier.

In the first experimental condition, which we refer to as Maintaining Hierarchy, a single

team member was displaced from the team, and this individual's assets were redistributed to the

remaining team members such that the remaining team members collectively shared the

operational responsibilities originally assigned to the displaced team member. The team leader

remained in the leadership role and had no additional operational capabilities or responsibilities.

Thus, in this condition, no structural change was made in response to the downsizing. In the

second experimental condition, labeled Eliminating Hierarchy, the team leader was displaced

from the team, thereby eliminating the hierarchical structure of the team. Although the

operational scope of team members was left unchanged, team members needed to expand their

roles in terms of performing many of the functions previously performed by the leader. The latter

description applies, also, to the third experimental condition, labeled Integrating Hierarchy, since

this condition eliminated the leader role (hence the functions previously performed by the

leader); however, unlike the Eliminating Hierarchy condition, the former leader remained in the

team but with duties previously assigned to a displaced lower-level member of the team.

Recall that the leader role had unique capacities to monitor the entire geographic space

and transfer assets among team members; therefore, in the absence of the leader (in the

Eliminating Hierarchy Condition) and in the absence of a formal leader role (in the Integrating

Hierarchy Condition), the team had to collectively monitor the task environment and reallocate

tasks when workload distribution problems arose. In other words, in each of these experimental

conditions, no single team member could assume the leader role (e.g., view the entire geographic

space, transfer assets); rather, the team as a collective unit had to perform these functions.

Affective Orientation. We measured emotional stability and extraversion via the short-

form of the Revised NEO Personality Inventory (Costa & McCrae, 1992). Each of these

personality factors was measured with 12 items, and the corresponding reliability coefficients

were .80 and .79, respectively. We aggregated individual team members' scores on each of the

personality factors into an overall mean level score for the team. Our choice to use the team's

mean level score is consistent with literature that suggests the appropriate measurement

technique for configural unit properties such as personality depends on the team's task (e.g.,

Barrick et al., 1998; Barry & Stewart, 1997; LePine et al., 1997; Moynihan & Peterson, 2001;

Porter et al., 2003). Based on the theoretical work of Steiner (1972), this literature suggests an

additive approach is appropriate when the team's task is also additive.

Adaptive Behaviors. Both quantitative and qualitative behaviors were composite

variables that were captured by the simulation. Q*uantitative behaviors* were operationalized as a

combination of the total number of times teams (a) launched their assets and (b) identified tracks

as either friendly or enemy targets. These behaviors reflect a general level of activity or effort on

the part of the team, and capture how much effort teams were directing at task-related behaviors.

Launching a large number of assets and identifying tracks requires no real thought, decision-

making or coordination of efforts among team members, but is simply a function of how fast and

how long one can manipulate the software with their mouse. Thus, if one sees an increase in the

level of these behaviors from Time 1 to Time 2, it is direct evidence that the teams were working

faster and harder (quantitative), but not necessarily any differently in terms of types of behaviors

(qualitative). We standardized and averaged these two team behaviors to create the scores.

Qualitative behaviors were operationalized as a combination of the total number of times team members assisted other team members by (a) identifying tracks inside other team members' geographic area and (b) sharing electronically identification information related to the tracks. These behaviors reflect a qualitative change in behavior because they do require thought, decision-making, and coordination effort among team members. In teams with a formal leader position (all teams at Time 1), the leader is best able to perform these functions. In teams without a formal leader position (Eliminating and Integrating Hierarchy teams at Time 2), the team members are collectively responsible for these behaviors. Thus, if team members increase the number of these behaviors from Time 1 to Time 2, it is direct evidence that the team members were working differently than they did at Time 1. As with the quantitative behaviors, we standardized and averaged these two team behaviors to create the scores.

Team Performance. Performance was a composite variable that was captured by the simulation as the total number of effective and ineffective engagements. In the context of the simulation, an effective engagement occurred when the team successfully disabled an enemy track by deploying vehicles with the appropriate power levels. An ineffective engagement occurred when the team either disabled a friendly target or disabled any track that was outside of the restricted area. We reverse coded the number of ineffective engagements so that higher numbers indicate better performance. Team performance was computed by standardizing and averaging these two scores.

Procedure

Participants were scheduled for a three hour session. When they arrived, we first administered the Revised NEO Personality Inventory (Costa & McCrae, 1992) to measure participants' emotional stability and extraversion. Then, each participant was randomly assigned

to a five-person team, and teams were randomly assigned to one of the four conditions: (a)

Control, (b) Maintaining Hierarchy, (c) Integrating Hierarchy, or (d) Eliminating Hierarchy.

Roles within the teams were randomly assigned. Once the teams were formed, each team was

trained together for approximately 60 minutes. After the training was complete, the trainer

informed the team of a performance-based incentive. Teams had an opportunity to earn up to $50

based on their overall team performance in the simulation. Then, the teams were granted

approximately 5 minutes to discuss their strategies for the simulation. The teams then performed

the first of two 30-minute simulations. After the first simulation, the trainer informed all of the

teams in the experimental conditions (Maintaining Hierarchy, Integrating Hierarchy, Eliminating

Hierarchy) that a team member would be removed from the team prior to the second simulation.

The trainer made clear that the manipulation was for research purposes only but provided

no further explanation as to why the person was being removed from the team. The trainer did,

however, indicate that the remaining four team members should think about and discuss how the

team might adapt to such a change. For the control group, where no team member was removed

from the team, the trainer indicated that the team should discuss how it might improve its

performance between the first and second simulations. Teams were granted approximately 5

minutes to discuss their performance strategies between simulations. Teams then performed the

second simulation. After completing the second simulation, teams were thanked for their

participation and rewarded if appropriate.

In the three experimental conditions, the individual who was removed from the team was

escorted away from the team and asked to complete a 30-minute, individual-based version of the

DDD task. This task was completed in a room separate from where the team was performing

their task.

Data Analysis

The research design and analyses employed in this study were all conducted at the team level. To examine the impact of each structural approach to downsizing on team performance, we conducted a hierarchical regression analysis. To begin, we dummy coded the downsizing approaches with the control group as the referent. With team performance from the second simulation as our dependent variable, we then entered team performance from the first simulation in step one. By entering prior performance as step one, we controlled for between-team performance differences prior to the downsizing manipulation. We then entered the dummy codes for downsizing approach in the second step of the equation. By entering all dummy codes in the second step, we were able to examine the independent effects associated with each downsizing approach; with these variables entered simultaneously, the regression weights associated with each approach to downsizing reflect the mean difference in performance between each downsizing condition and the control group (Cohen & Cohen, 1983).

The mediation and moderation hypotheses were tested by extending this hierarchical regression analysis to include additional steps. To examine the mediating effects of behavioral change, we used Baron and Kenny's (1986) method. To test the moderating effects of emotional stability and extraversion, we included a third and fourth step in the hierarchical regression analysis. For each personality factor, we created an interaction term by multiplying the dummy codes by the mean rating for each personality factor. We entered the mean scores on the factors in the third step and the interaction terms in the fourth step of the equation.

RESULTS

Table 1 presents the means, standard deviations, and correlations of all variables measured or manipulated in this experiment. As noted, variance on all measured variables was adequate, and the intercorrelations among variables were modest.

Insert Table 1 about here

Hypothesis 1 predicted that teams in the Control and Eliminating Hierarchy conditions would perform superior to teams in either the Integrating or Maintaining Hierarchy conditions. As indicated in step 2 of Table 2, teams in the Maintaining ($\beta = -.37$, $p < .01$) and Integrating ($\beta = -.28$, $p < .05$) Hierarchy conditions performed significantly worse than teams who did not experience any downsizing (Control). The performance of teams in the Eliminating condition was not significantly different than that of teams in the Control condition ($\beta = -.01$, *ns*), suggesting that these teams performed significantly better than teams in either the Integrating or Maintaining Hierarchy conditions. A one-tailed significance test with Eliminating Hierarchy as the comparison condition confirmed that teams in this condition did indeed perform significantly better than teams in both the Maintaining Hierarchy condition ($\beta = -.37$, $p < .01$) and teams in the Integrating Hierarchy condition ($\beta = -.27$, $p < .05$). This step explained approximately 14% of the incremental variance in team performance at Time 2. Thus, Hypothesis 1 was fully supported.

Insert Table 2 about here

Hypothesis 2 suggested that (a) quantitative and (b) qualitative changes in behaviors would mediate the relationship between the downsizing conditions and team performance. We

tested this hypothesis using Baron and Kenny's (1986) method, which requires that three conditions be met to infer mediation: (1) the independent variables must be significantly related to the dependent variable; (2) the independent variables must be significantly related to the proposed mediators; and (3) the previously significant relationship between independent and dependent variables decreases and becomes non-significant when controlling for the mediator. As noted in the test of Hypothesis 1, the first of these conditions was met.

With respect to the second condition, we regressed the Time 2 quantitative and qualitative behaviors on the dummy codes for experimental condition. We also controlled for the Time 1 quantitative and qualitative behaviors in order to remove any between-team variance that existed prior to the downsizing. In terms of quantitative behaviors, Maintaining Hierarchy (β = -.64, p < .01), Integrating Hierarchy (β = -.59, p < .01), and Eliminating Hierarchy (β = -.39, p < .01) teams engaged in significantly fewer of these behaviors than the Control teams. In terms of qualitative behaviors, both the Maintaining Hierarchy (β = -.30, p < .01) and the Integrating Hierarchy (β = -.29, p < .01) teams engaged in significantly fewer of those behaviors than the Control teams. The Eliminating Hierarchy (β = -.13, ns) teams were not significantly different than the Control teams in terms of qualitative behaviors.

Regarding the third condition for mediation, we regressed Time 2 performance on Time 1 performance, the dummy codes for experimental conditions, and the quantitative and qualitative behaviors. The effects of both the Maintaining Hierarchy and Integrating Hierarchy dummy codes dropped to non-significance. The Maintaining Hierarchy effect decreased from -.37 (p < .01) to -.12 (ns), and the Integrating Hierarchy effect decreased from -.28 (p < .05) to -.07 (ns). The Time 2 quantitative behavior variable remained significant (β = .36, p < .05), but the Time 2 qualitative behavior variable did not (β = -.11, ns). Thus, the quantitative—but not qualitative—

behaviors fully mediated the effects of downsizing condition on Time 2 performance as

expected, thereby supporting Hypothesis 2a but not Hypothesis 2b.

In Hypotheses 3a and 3b, we examined the impact of team-level emotional stability and

extraversion on the performance of teams adopting an Eliminating Hierarchy approach to

downsizing. Specifically, Hypothesis 3a predicted that downsizing teams according to the

Eliminating Hierarchy approach would work especially well when the team was high on

emotional stability. Based on the significance of the interaction term in Table 2 and the

illustration in Figure 2, this hypothesis was supported ($\beta = 4.26$, $p < .05$). Hypothesis 3b

predicted a similar effect for extraversion. However, as noted in Table 2, this hypothesis was not

supported with the current data ($\beta = -.87$, *ns*). Although not formally hypothesized in this study,

we also found that highly extraverted teams downsized according to the Integrating Hierarchy

approach significantly outperformed teams in the same condition who were low on extraversion

(see Figure 3). A potential explanation for this is that higher levels of extraversion enabled

Integrating Hierarchy teams to recognize via interpersonal communication the need for team

adaptation. Overall, the interaction terms between the personality factors and the structural

approaches to downsizing accounted for over 19% of additional variance in team performance.

Insert Figures 2 and 3 about here

DISCUSSION

Disruptive events are clearly one impetus for behavioral change and adaptation in teams

(Louis, 1980). However, not all disruptive events impact team functioning in the same way

(Morgeson & DeRue, 2006). Thus, it is important that we examine specific types of disruptive

events and their unique implications for team adaptation and performance. In the present study, we consider team downsizing as one type of disruptive event and focus specifically on how three structural approaches to team downsizing impact adaptive behaviors and performance in teams. The findings from this study have several important implications for how teams respond and adapt to disruptive events such as downsizing.

One such implication is that the approach used to implement team downsizing has considerable influence over how teams adapt to the downsizing and ultimately team performance. Based on our findings, the fate of the team leader, both in terms of the person and position, seem to be an important driver of this relationship. When the team leader (both person and position) is eliminated from the team, as is the case with Eliminating Hierarchy teams, the jolt to team functioning is sufficiently disruptive to prompt the team to recognize the need for and engage in behavioral change. Specifically, in this study, we find that Eliminating Hierarchy teams adapt to the downsizing by engaging in quantitative behavioral change and increasing their effort directed at task-related behaviors. This is in contrast to downsizing approaches that maintain the leadership hierarchy or integrate the leader into the team. These alternative approaches to team downsizing (Maintaining Hierarchy, Integrating Hierarchy) do not employ the same degree of recomposition in the team, and as a result, teams employing either a Maintaining or Integrating approach to team downsizing do not engage in the behavioral changes necessary to effectively adapt to the downsizing. Prior research has not considered how the fate of the team leader within the context of disruptive events shapes teams' adaptive behaviors and performance, so this is one way in which our study extends existing theory and research. This finding also has important implications for how team downsizing is managed in organizations. Our results suggest that managers should employ approaches to team downsizing that involve

both structural change and recomposition. If the downsizing approach does not involve both

structural change and recomposition, our findings suggest that teams are less likely to adapt to

the disruption, and managers will need to find some way to actively intervene and facilitate the

necessary team adaptation. Otherwise, team performance will suffer due to a lack of adaptation.

Another finding from this study that has implications for how teams respond to disruptive

events is that the affective plane of personality, especially team-level emotional stability, enables

teams to better adapt to disruptions. The downsizing literature offers little guidance regarding

how compositional factors such as personality impact post-downsizing outcomes. Existing

literature on team adaptation, however, has suggested that team compositional factors such as

personality can influence teams' adaptive capacity (LePine, 2003). Our study extends this prior

research in at least two ways. First, we know surprisingly little about how the affective plane of

personality impacts team adaptation. Our findings suggest that the affective plane of personality

is a key compositional factor that impacts team's ability to adapt to disruptive events. Second,

existing literature on team adaptation and composition does not consider how compositional

factors interact with the team's approach to adaptation. In our study, we show that the affective

plane of personality impacts team adaptation and performance differently depending on the

team's approach to downsizing.

Specifically, our findings indicate that team-level emotional stability enhances the

performance of Eliminating Hierarchy teams. One potential reason why emotional stability

enhanced the performance of Eliminating Hierarchy teams (but not other teams) is that losing the

team leader, both in terms of the person and position, was the most disruptive downsizing event

for teams, and teams comprised of members who were emotionally stable were best equipped to

deal with this disruption. From a managerial perspective, although organizations can rarely

predict truly disruptive events, our study suggests that organizations can prepare in advance for disruptive events such as downsizing by composing teams that are well suited for dealing with disruption. Emotional stability is one such factor that managers should use in team selection processes to enhance teams' adaptive capacity.

This study also contributes to our understanding of how teams adapt to disruptive events by decomposing behavioral change into different types of team behaviors. Prior literature on team adaptation has focused mostly on what factors prompt team adaptation, and much less attention has been directed at precisely what types of team behaviors are being adapted in response to disruptive events. Drawing from Ilgen and Hollenbeck (1991), we extend existing theory on team adaptation by decomposing behavioral change into two types of team behaviors (quantitative and qualitative) and then looking at how the adaptation of these different types of behaviors impacts team performance.

This distinction of quantitative and qualitative team behaviors produces a new set of questions for existing and future research on team adaptation – namely, how are teams adapting (quantitatively or qualitatively) and what are the implications for team performance if teams adapt quantitatively but not qualitatively, or vice versa. This study found that disruptive events led to quantitative behavioral change but not qualitative behavioral change. It is possible, however, that other conditions or types of disruptive events could lead some teams to make qualitative changes. Future research should seek to identify which conditions or disruptive events facilitate each type of behavioral change. In the present study, quantitative but not qualitative behavioral change explained differences in team performance. Over long time periods, however, quantitative behavioral change has its limits because people can only work harder and faster for so long. This is evident in Trottman's (2003) recount of how Southwest Airlines' flight

attendants were only able and willing to expend high levels of effort for so long before they demanded qualitative changes in how work was accomplished. Over long time periods, qualitative behavioral change may become a more important factor in explaining team performance. By distinguishing between quantitative and qualitative behavioral change, we offer team adaptation scholars a theoretical framework for decomposing the notion of behavioral change into different types of team behaviors and exploring these issues. We also offer managers a new lens through which they can view team adaptation. Specifically, not all types of behavioral change are equally effective, and managers must learn how to identify and then facilitate the appropriate type of behavioral change given the needs and constraints of their organization.

Limitations

Several limitations to this study should be noted. First, a common limitation of studies conducted in laboratory contexts is associated with the external validity of the findings. Participants in the present study were undergraduate college students who are reasonably homogeneous in terms of demographics and work experience. Therefore, we cannot be certain that our findings generalize to different populations. However, one needs to keep the nature of the research question in mind when assessing the relevance of external validity (Berkowitz & Donnerstein, 1982). With regards to the present study, there is no apparent reason why the downsizing principles (Cameron et al., 1991) we extend from the organization to the team level would not hold in this specific context.

Second, the design of the task used in this study presents several limitations. The task was designed such that teams with four or five team members could complete the task. In organizational settings, tasks may exist where downsizing the team precludes the team from accomplishing the task, and our study would not apply to this type of task. In other words, we

assume in this study that the task can be done with the knowledge and skills that remain in the team after the downsizing. In addition, the task used in this study was additive in nature, and thus our findings may not generalize to disjunctive or conjunctive team tasks. For example, downsizing the team's best member in a disjunctive task would severely limit the team's ability to perform. Finally, in the Maintaining and Integrating Hierarchy approaches to downsizing, the role and responsibilities of the displaced team member were either redistributed to the remaining team members or assumed by the team leader. In the present study, the task responsibilities of the displaced team member were simple enough for redistribution of task responsibilities to occur. However, if this role required an exceptional level of expertise or experience, our findings may not generalize. Future research that examines our team downsizing model using different types of task situations would be noteworthy.

Finally, this study documented that different structural approaches to downsizing result in different performance outcomes because of the impact they have on behavioral change. This study does not, however, address the question of why some disruptions to team functioning (such as the Eliminating Hierarchy approach) are better at triggering team adaptation, as compared to other forms of disruption (such as the Integrating or Maintaining Hierarchy approaches). Existing theory suggests this is because of the structural and composition changes associated with the Eliminating Hierarchy approach, but we did not specifically examine whether these objective features of the approaches to team downsizing align with individuals' perceptions of severity, nor did we empirically address how individuals' perceptions of severity influence team functioning. Future research that tests our assumptions about how the team downsizing approaches differ in terms of severity and disruption would make a noteworthy contribution to the literature. This study also did not address whether teams adapt to disruptive events as the

result of explicit within-team discussion and planning, or implicitly as team members instinctively adapt their behaviors to the new environment. To address this issue, future research should differentiate the disruptive events that trigger team adaptation based on whether their impact occurs via explicit processes such as information sharing and planning, or whether adaptation occurs via implicit, unspoken coordination among team members. Insights from this research would add clarity to our understanding of the processes through which team adaptation occurs.

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TABLE 1

Descriptive Statistics and Correlations

Variable	Mean	SD	1	2	3	4	5	6	7	8	9	10
1. Maintain	.26	.44	–									
2. Eliminate	.25	.44	-.33*	–								
3. Integrate	.24	.43	-.35*	-.32*	–							
4. Emotional Stability	3.45	.24	.01	-.03	-.05	–						
5. Extraversion	3.64	.21	-.04	-.23*	.15	.28*	–					
6. Time 1 Quantitative Behaviors	.00	.73	-.16	-.16	.08	-.08	.07	–				
7. Time 2 Quantitative Behaviors	.00	.79	-.40**	-.05	-.21	-.06	.10	.54**	–			
8. Time 1 Qualitative Behaviors	.00	.73	-.05	-.06	.09	.00	.20	.05	.05	–		
9. Time 2 Qualitative Behaviors	.00	.72	-.31**	.15	-.10	.01	.12	.01	.33**	.63**	–	
10. Time 1 Performance	.00	.70	-.18	.02	.17	-.10	.01	.30**	.02	-.03	.02	–
11. Time 2 Performance	.00	.67	-.31**	.21	-.13	.09	-.03	.02	.41**	-.21	.10	.13

[a] $N = 71$ teams

* $p < .05$; ** $p < .01$

TABLE 2

Results of Hierarchical Regression Analysis for Team Performance on Structural

Approach to Downsizing, Quantitative and Qualitative Behaviors, and Team Personality

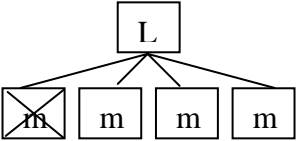| Independent Variable	Main Effects	Mediated Effects	Moderated Effects
Team Performance (Time 1)	.10	.11	.08
Maintain [a]	-.37**	-.12	2.34
Integrate [a]	-.28*	-.07	-7.54**
Eliminate [a]	-.01	.17	-3.43
Quantitative Behaviors		.36*	–
Qualitative Behaviors		-.11	–
Emotional Stability			-.12
Extraversion			-.13
Maintain x Emotional Stability			-.16
Integrate x Emotional Stability			1.40
Eliminate x Emotional Stability			4.26*
Maintain x Extraversion			-2.59
Integrate x Extraversion			5.87*
Eliminate x Extraversion			-.87
R^2	.16	.25	.37
F	3.13*	3.48**	2.78**
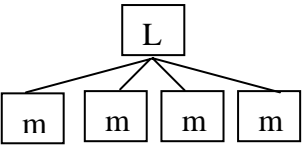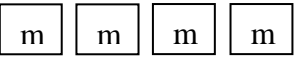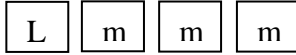
$N = 70$ teams

[a] Dummy Coded (Control = 0; Other = 1)

* $p < .05$; ** $p < .01$

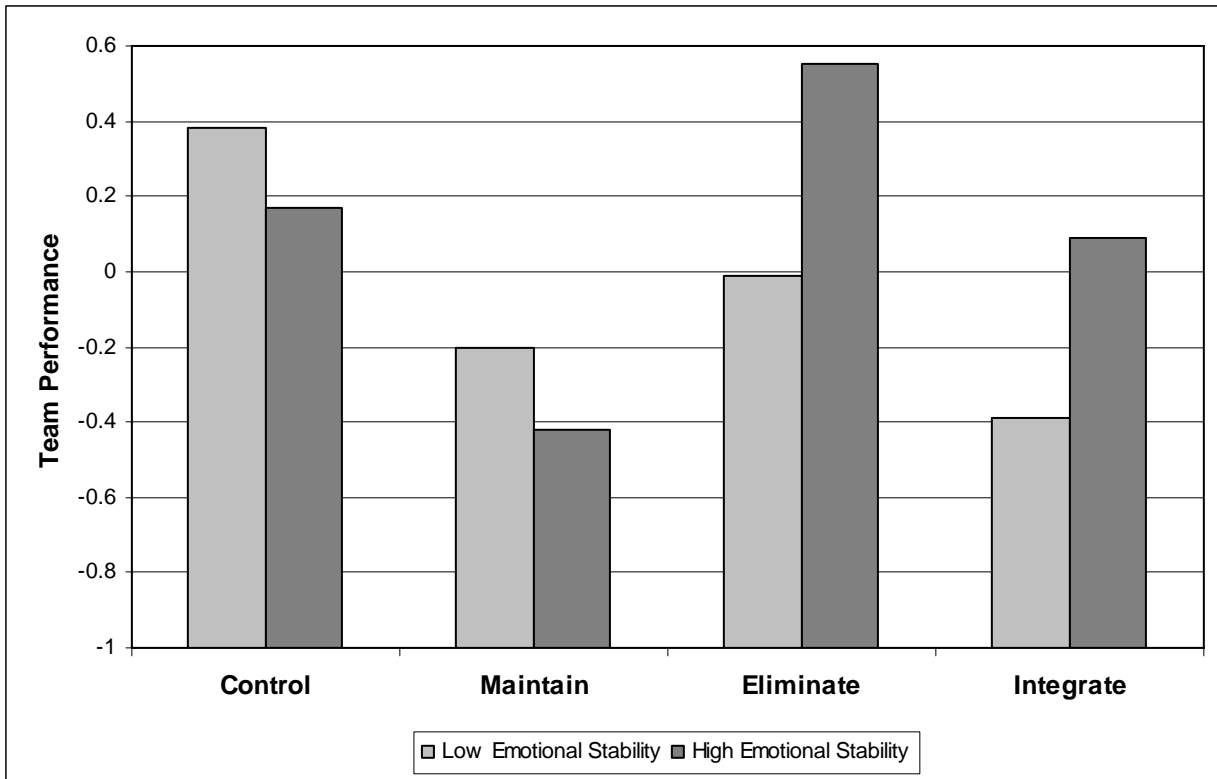**FIGURE 1**

Three Structural Approaches to Downsizing Teams

Team Structure: Pre-Downsizing	Team Structure: Post-Downsizing	Severity of the Change		
		Structure	Recomposition	Total
	Maintaining Hierarchy	Low	Low	Low
	Eliminating Hierarchy	High	High	High
	Integrating Hierarchy	High	Low	Moderate

L = Team Leader

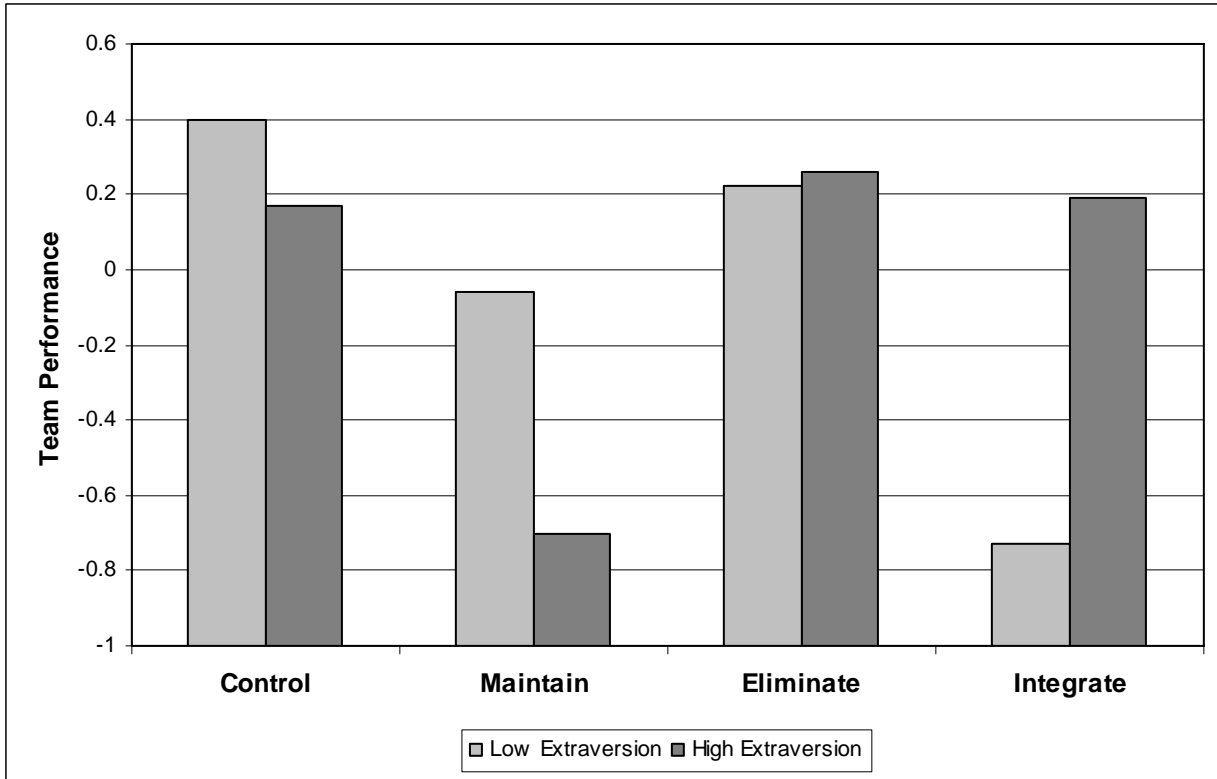m = Team Member

FIGURE 2

Effects of Emotional Stability on Structural Approaches to Downsizing

Note. High and low emotional stability represent one standard deviation above and below the mean, respectively.

FIGURE 3

Effects of Extraversion on Structural Approaches to Downsizing

Note. High and low extraversion represent one standard deviation above and below the mean, respectively.