

Research note

# Collective enactment of leadership roles and team effectiveness: A field study<sup>☆</sup>

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## Abstract

Based on role enactment theory, leadership task theory, and emerging notions of leadership as a collective process, this study examined the existence and performance correlates of collective team leadership in state department of transportation road maintenance teams. Confirmatory factor analysis ( $n=277$ ) supported a hypothesized four-factor model consisting of: planning and organizing, problem-solving, support and consideration, and development and mentoring. Collective leadership enactment within teams was positively related to mean level of team members' collectivism, but not power distance. The mean level of collective leadership within a team, particularly the development and mentoring dimension, predicted supervisor-rated team performance ( $n=45$ ). Future research and team management implications for conceptualizing collective leadership as concertive role enactment are discussed.

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As organizations face increasingly unpredictable, dynamic, and complex environments, substantial transformations are taking place in the way in which work is performed, including a growing reliance on work teams. The rationale for this shift is that teams can contribute meaningfully to organizations beyond the capabilities of individuals working alone, yet teams often fail to function to their anticipated level (Hackman, 2002). Factors such as trust (Edmondson, 1999), cross training, and coordination (Marks, Sabella, Burke, & Zaccaro, 2002) help determine team effectiveness, but another possible factor is the collective enactment of leadership roles. Recent attention has been given to the proposition that an individual model of leadership adopted in many teams is incompatible with current organizational needs (e.g., Pearce & Conger, 2003), but questions about collective leadership remain largely unanswered.

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## 1. From individual leaders to collective leadership

The traditional view of leadership presumes a top-down influence of the leader on followers, where the leader is the primary originator and conductor of leadership (Drath, 2001; Pearce & Conger, 2003). Much of the leadership literature has been devoted to this approach and has investigated individual leader traits, skills, and behaviors (see Bass, 1990).

In the face of an increasing demand for innovation and flexibility, organizations have begun to view leadership holistically as concertive action (Gronn, 2002) and to shift some traditional leadership roles onto other team members. Similarly, researchers have begun to acknowledge the importance of leadership, wherever it occurs (Hunt & Dodge, 2000).

The concept of collective leadership is a radical departure from traditional views of leadership. The epicenter of collective leadership is not the role of a formal leader, but the interaction of team members to lead the team by sharing in leadership responsibilities. Possessing leader traits, skills, and behaviors is still potentially important to collective leadership; indeed they are helpful and allow one to more easily think like a leader and be an active participant in creating leadership. Collective leadership, however, is not a characteristic of a person, but involves the relational *process* of an entire team, group, or organization (Hunt & Ropo, 1997). As a process, collective leadership presumes that leadership can be embedded in the dynamics of a social system (Dachler, 1992), and need not be constrained to acts of a heroic or charismatic individual (e.g., Hunt, 2004; Yukl, 1999).

## 2. Existing research on collective leadership

Earlier unpublished research and several recent studies suggest that collective leadership might indeed enhance team effectiveness, though the amount of empirical evidence documenting the existence and benefits of collective leadership is “modest” (Seers, Keller, & Wilkerson, 2003, p. 94) and operationalizations have varied between studies. In a field study, Neubert (1999) failed to find a relationship between leader dispersion (the number of informal leaders divided by team size) and team performance in 21 manufacturing teams. Pearce & Sims (2002), however, found that cross-functional team members’ perceptions of team leadership behavior predicted customer, managerial, and team self-ratings of effectiveness, and, further, accounted for more variance than formal leadership.

Three studies have assessed shared leadership in undergraduate samples. Avolio, Jung, Murry, & Sivasubramaniam (1996) found that perceptions of shared leadership were related to later perceptions of team effectiveness, although data were analyzed at the individual level. Sivasubramaniam, Murry, Avolio, & Jung (2002) found that team-level leadership led to higher team potency beliefs and higher project grades, and Taggar, Hackett, & Saha (1999) found that student work teams were more effective when the mean level of individual leadership (rated by other members) was higher.

Taken together, these studies suggest that collective leadership is related to team effectiveness when teams are engaged in complex tasks that require a large amount of interdependence, but under more routine conditions (i.e., Neubert, 1999) the benefits of collective leadership have yet to be demonstrated. Conceptually, collective leadership should be beneficial in all types of teams because shared enactment of leadership roles provides an increased capacity for getting things done, regardless of the task. Thus, we hypothesize that:

**Hypothesis 1.** More extensive collective leadership within a team will be associated with higher levels of team performance.

## 3. A role-based view of collective leadership

Roles are fluid constructs that individuals can take on and off with relative ease (Goffman, 1959). Although the role concept receives little contemporary attention in the study of leadership (see Denison, Hooijberg, & Quinn, 1995, for a notable exception), the concept of roles underlies much of the most well-researched and empirically documented approaches to leadership (Bass, 1990). Some early advocates of the role approach to leadership even viewed leadership as an emergent group process (e.g., Sherif & Sherif, 1953). Similar to this early work, and in line with modern organizational demands, we view collective team leadership as a role structure that is based on leadership roles that are informally adopted and enacted by team members. Collective leadership is more than the sum of individual role taking; it is the holistic concertive action of a group (Gronn, 2002) and needs to be assessed accordingly.

There currently exists no instrument explicitly designed to measure the concept of *collective* leadership role enactment across an entire team. The TMLQ, which is a team-referenced measure of an existing measure of transformational and transactional leadership (MLQ; Bass & Avolio, 1991), comes close; however we contend that transformational leadership—

even when thought of as a group-level phenomenon—does not adequately assess leadership as a collective process, and might be difficult to conceptualize in a sample of road maintenance teams performing largely routine tasks. Further, transformational leadership emphasizes a leader–follower distinction and strong social influence, which are counter to the theoretical underpinnings of leadership as a collective process of action.

#### 4. Values and norms associated with collective leadership

In addition to understanding the collective leadership construct, understanding its correlates is also important. As Katz & Kahn (1978) point out, the roles that are expected and enacted in a social system are informed by both norms (which prescribe and sanction behaviors) and values (which are the ideological justifications for roles). Collective leadership role enactment, then, can be better understood by examining the norms and values in which collective leadership is embedded. Two normative/value dimensions thought to be related to collective leadership roles were investigated: individualism/collectivism and power distance.

##### 4.1. Individualism/collectivism

Although the various components of culture (including individualism/collectivism) were originally hypothesized as patterns of societies (Hofstede, 1980), other research has shown considerable variability *within* societies (e.g., Cable & Judge, 1994; Clugston, Howell, & Dorfman, 2000; Wagner, 1995), suggesting the possibility that team members within the same organization might differ along this dimension.

Conceptually, collectivism is characterized by interdependence, personal relationships, security, duty, and ingroup harmony (Triandis, 1994). Because the personal identity of a collectivist is understood in reference to a valued group (which may include one's work team), collectivists favor group goals and needs over individual goals and needs (Earley, 1994) and will be more likely to feel shared responsibility on team tasks (Wagner, 1995). Individualism sits at the opposite end of the continuum and is characterized by personal freedom, autonomy, high individual achievement, and perhaps most importantly, independence from referent groups (Triandis, 1994); further, individualists are presumed to value and act in ways which satisfy self-interest (Wagner & Moch, 1986), rather than team interest. Because individualists and collectivists construe their relationship to groups in different ways and value interdependence differently, we predict that teams composed of members who are more collectivistic or individualistic will differentially engage in collective leadership tasks (Earley, 1993); thus it is hypothesized that:

**Hypothesis 2.** Teams whose members endorse more collectivistic views will exhibit higher levels of collective leadership.

##### 4.2. Power distance

Another important dimension that might also have between-team implications for collective leadership is power distance, or the extent to which an individual accepts unequal distributions of power in organizations (Hofstede, 1980). Bochner & Hesketh (1994) found that individuals measuring high on power distance readily accepted hierarchy and accepted their social status as followers. It has also been shown that individuals high in power distance were more likely to feel inferior to their bosses (Clugston et al., 2000), suggesting they would also feel less equipped to engage in leadership roles. At the team level, relatively low power distance between individuals and their formal leader is likely needed for collective leadership to occur. Thus, it is hypothesized that:

**Hypothesis 3.** Teams whose members endorse unequal distribution of power (power distance) will exhibit lower levels of collective leadership.

## 5. Method

### 5.1. Participants

Data were collected from winter road teams in six counties of a state department of transportation at the end of the winter season. A total of 277 individuals provided usable responses to the survey. Confirmatory factor analysis was

conducted on individual responses, whereas team means were used for all other analyses. Among the 52 teams where at least half of the team's members responded to the survey (a criterion for inclusion), an average of 74% of team members completed the survey. Mean team size was 5.5 employees ( $SD=2.2$ ; range=3, 13); approximately 5% were female. Mean tenure with the organization was 14.3 years (range=4 months, 38.5 years). Forty-five foremen rated their team's effectiveness, thus the sample size for correlations including foreman-related effectiveness was 45.

Interdependent tasks of the teams included emergency snow clearing; spreading gravel, salt, and anti-skid; and general road maintenance. Teams each had an assigned foreman and could be considered "traditional work teams" according to Macy's (1996) continuum of team types. Preliminary interviews showed that whereas team members did not work together on all tasks, a mix of sequential-, reciprocal-, and pooled-coordination of resources and expertise was present.

## 5.2. Measure development

Although there are many possible components to collective leadership (just as there are many components to individual leadership), we took into consideration ways in which collective leadership role enactment might be reasonably expected in the sample of road-work teams.

A great deal of individual leadership research dating from the early Ohio State and Michigan studies (e.g., Cartwright & Zander, 1960; Hemphill & Coons, 1957) has shown that leadership involves both task- and relationship-oriented behaviors (Yunker & Hunt, 1976). In addition to meta-analytic support that both task and relationship behaviors at the individual level are important for leadership outcomes (Judge, Piccolo, & Ilies, 2004), support for these two broad behavioral components has also been found in the context of co-acting teams (e.g., Kozlowski, Gully, McHugh, Salas, & Cannon-Bowers, 1996). The extensive support for these dimensions led us to assume that an adequate measure of collective leadership needed to consider both types of behaviors. At the same time, some previous leadership research in teams (e.g., Bowers & Seashore, 1966) and at the individual level (see Hunt, 2004), has found support for more fine-grained behavioral distinctions, suggesting that consideration of subdimensions of task- and relationship-oriented behaviors might be incrementally informative to researchers and practitioners (Yukl, Gordon, & Taber, 2002).

In determining the specific kinds of behaviors that were relevant to collective leadership, we assessed the specific roles of effective managers and leaders by first consulting the Managerial Practices Survey (MPS; Yukl & Lepsinger, 1990). Developed in multiple samples using multiple techniques, the 11 MPS dimensions consider such roles as problem solving, delegating, disseminating information, and being patient and considerate. After conceptualizing how the eleven MPS dimensions might exist at the collective level, we removed those roles that were outside the domain of teams in the sample (such as formal rewards and performance evaluation). Through discussion among the authors, the remaining factors were conceptually distilled into four proposed dimensions: (a) *Planning and Organizing* (task), (b) *Problem Solving* (task), (c) *Support and Consideration* (relationship), and (d) *Development and Mentoring* (relationship).

Planning and Organizing involves sharing in setting objectives, which includes participation in the decision-making process, goal setting, and determining how to use personnel and other resources in an efficient manner. Problem Solving involves sharing in identifying and diagnosing task-related problems, carefully using a team's combined expertise to analyze problems, and arriving at effective solutions. Support and Consideration includes providing support to team members, acting patiently, fostering a collective team atmosphere, and listening to and encouraging other team members. Development and Mentoring includes exchanging advice about careers, being positive role models to new team members, and learning from and teaching skills to other team members.

The researchers generated an initial list of 28 items, 7 items per hypothesized factor. Fourteen members of an I/O Psychology Ph.D. program served as subject matter experts in a Q-sort task, resulting in 25 items being retained; 6 items per factor, with 7 items for problem solving (see Results for a description of scale refinement and Table 2 for items).

## 5.3. Measures

### 5.3.1. Collective leadership

The 25-item instrument used in this study gauged collective leadership dimensions using a 7-point scale with responses ranging from 1 (*never*) to 7 (*always*). Items assessed the frequency that team members shared in (a) planning and organizing, (b) problem solving, (c) support and consideration, and (d) development and mentoring (see Table 2). In multi-level construct terminology (Chan, 1998), collective leadership was conceptualized as a referent-shift consensus model, with individuals assessing perceptions of team-level collective leadership. As partial justification for aggregation of collective

leadership to the team level of analysis, intraclass correlation coefficients (ICC(1)) and eta-squared values were calculated for all four collective leadership dimensions (Bliese, 2000).

Values for the collective leadership ICC's were .08, .08, .01, and .10, respectively (with corresponding  $F(52, 277) = 1.45, 1.48, 1.05, 1.58$ ). All values, except for the dimension of support and consideration, were statistically significant ( $p < .05$ ) in the ANOVA model, suggesting the presence of team-level effects and thus justifying aggregation (Bliese, 2000). Eta-squared values (.25, .24, .20, .26) were at or above the .20 cutoff used in previous research (e.g., Dirks, 2000), suggesting the presence of meaningful group-level effects. Corrected  $r_{wg}$  values (Lindell, Brandt, & Whitney, 1999) were also calculated and were, on average, below the .70 threshold for aggregation justification. Given the generally supportive results and theoretical reasons for conceptualizing collective leadership as a group construct, each collective leadership dimension was aggregated.

### 5.3.2. *Collectivism*

Individualism/Collectivism was gauged using six items from Dorfman & Howell's (1988) measure of ecological-, rather than individual-level culture (Clugston et al., 2000). Items assessed the extent to which individuals value group acceptance, group welfare, group success, and group loyalty (Cronbach's  $\alpha = .76$ ). Empirical support for aggregation was provided by ICC(1) (.07,  $F(52, 277) = 1.39, p < .05$ ), and eta-squared (.23).

### 5.3.3. *Power distance*

Six items from Dorfman & Howell (1988) assessed ecological-level, as opposed to individual-level, power distance. Items gauged perceptions on topics such as use of position power and appropriateness of manager/employee socializing (Cronbach's  $\alpha = .63$ ). ICC(1) (.07,  $F(52, 277) = 1.41, p < .05$ ) and eta-squared (.24) supported aggregation.

### 5.3.4. *Supervisor ratings*

Each foreman completed an assessment of his or her team's effectiveness on five dimensions: (a) planning, (b) problem solving, (c) support and consideration, (d) development and mentoring, and (e) overall effectiveness. An example item is "How effective are team members at working together to solve problems." Responses to the five items were gauged on a 7-point scale ranging from 1 (*very ineffective*) to 7 (*very effective*).

## 6. Results

Of the 28 original items in the pre-test Q-sort task, three items that exhibited both poor substantive agreement and poor substantive validity (Anderson & Gerbing, 1991) were not retained, and two items were reworded.

The adequacy of the hypothesized four-factor collective leadership model was assessed by comparison of six nested models using confirmatory factor analysis procedures. In order to have a sufficient response-to-item ratio, confirmatory analysis was conducted at the individual level. Model 1 specified only one collective leadership factor, whereas Models 2 and 3 specified two-factor models (uncorrelated and correlated, respectively), allowing items to load on only task and relationship dimensions. Models 4, 5, and 6 each specified a four-factor model of collective leadership. Model 4 specified that all four factors were orthogonal, whereas Model 5 allowed correlations between the two task dimensions (planning and organizing; problem solving) and between the two relationship dimensions (support and consideration; development and mentoring), only. Model 6, the model hypothesized to provide the best fit among the nested models, specified intercorrelations among all four collective leadership factors. Model 7 is identical to Model 6 but specified two higher-order constructs (task and relationship); however, Model 7 is not nested and cannot be directly compared.

Relative fit of the alternative models was assessed using both chi-square and practical fit indices (viz., RMSEA, NNFI, CFI). Chi-square difference tests and practical fit indices suggest that Models 6 and 7 fit the data well (see Table 1). Both of these models specified four distinct, yet related collective leadership factors, with Model 7 specifying 2 higher-order factors. Model 6 demonstrated significantly better fit than either Model 5 [ $\Delta\chi^2(4, N=269) = 255.3, p < .05$ ] or Model 3 [ $\Delta\chi^2(5, N=269) = 504.38, p < .05$ ].

In order to further assess the adequacy of the measurement model, Fornell & Larcker (1981) advocate the use of composite reliability and estimated variance extracted statistics. Composite reliability assesses the internal consistency of a measure and is analogous to coefficient alpha. The variance extracted estimate measures the variability due to the construct in relation to random measurement error. Table 2 provides estimates for composite reliabilities and variance extracted, as well as standardized factor loadings and reliabilities for Model 6. All items loaded highly on their intended factor, and the

Table 1  
Fit statistics for one-, two-, and four-factor models

Model	$\chi^2$	df	RMSEA	NNFI	CFI
1. One-factor	2632.85	275	0.17	0.70	0.73
2. Two-factor orthogonal	1617.07	275	0.12	0.82	0.84
3. Two correlated factors	1397.74	274	0.11	0.85	0.87
4. Four-factor orthogonal	1892.12	275	0.14	0.80	0.82
5. Restricted correlations four factor	1148.66	273	0.10	0.89	0.90
6. Four correlated factors <sup>a</sup>	893.36	269	0.09	0.92	0.93
7. Second-order two factor <sup>a</sup>	838.91	270	0.08	0.93	0.94

Model 7 is not nested within the other models. RMSEA=root mean square error of approximation; NNFI=non-normed fit index; CFI=comparative fit index.

<sup>a</sup> Best-fit models.

scales displayed high reliability and variance extracted (for comparative purposes, Cronbach alphas for the four scales are reported in Table 3).

Team-level correlations among variables are presented in Table 3. Collective leadership (except the problem solving dimension) was positively related to a number of supervisory effectiveness dimensions, providing general support for Hypothesis 1. Notably, mean levels of team mentoring and development were related to foreman ratings on all dimensions of effectiveness. Taken together, collective leadership dimensions were related significantly and positively to collectivism, supporting Hypothesis 2. The relationships between collective leadership dimensions and power distance, however, were not significant, failing to support Hypothesis 3. Team size was not significantly correlated with collective leadership

Table 2  
Measurement properties for hypothesized collective leadership model (model 6)

Construct and items	Standardized loading	Reliability	Variance extracted
Planning and organizing	–	.96 <sup>a</sup>	.78
Planning how the work gets done.	.86	.74	
Allocating resources according to team's priorities.	.85	.72	
Setting our team's goals.	.87	.76	
Organizing tasks so that work flows more smoothly.	.90	.81	
Deciding how to go about our team's work.	.91	.83	
Providing helpful input about team's work plans.	.90	.81	
Problem solving	–	.96 <sup>a</sup>	.79
Deciding on best course of action when problems arise.	.89	.79	
Diagnosing problems quickly.	.90	.81	
Using our team's combined expertise to solve problems.	.92	.85	
Finding solutions to problems affecting team performance.	.92	.85	
Identifying problems before they arise.	.83	.69	
Developing solutions to problems.	.89	.79	
Solving problems as they arise.	.87	.76	
Support and consideration	–	.93 <sup>a</sup>	.67
Providing support to team members who need help.	.80	.64	
Showing patience toward other team members.	.85	.72	
Encouraging other team members when they're upset.	.88	.77	
Listening to complaints and problems of team members.	.81	.66	
Fostering a cohesive team atmosphere.	.85	.72	
Treating each other with courtesy.	.71	.50	
Development and mentoring	–	.94 <sup>a</sup>	.72
Exchanging career-related advice among our team.	.83	.69	
Helping to develop each other's skills.	.88	.77	
Learning skills from all other team members.	.87	.76	
Being positive role models to new members of the team.	.83	.69	
Instructing poor performers on how to improve.	.84	.71	
Helping out when a team member is learning a new skill.	.85	.72	

Item stem for all items was "How often do team members share in...".

<sup>a</sup> Denotes composite reliabilities.

Table 3  
Team-level correlations among collective leadership, values, and supervisor-rated performance dimensions

Variable	N	M	SD	1	2	3	4	5	6	7	8	9	10	11
1. Planning and organizing	52	3.55	0.87	.95										
2. Problem solving	52	3.84	0.86	.88 *	.96									
3. Support and consideration	52	4.09	0.74	.74 *	.79 *	.92								
4. Development and mentoring	52	3.91	0.86	.70 *	.74 *	.78 *	.93							
5. Collectivism	52	4.75	0.65	.41 *	.39 *	.44 *	.46 *	.76						
6. Power distance	52	2.82	0.56	.12	.08	.10	.11	-.21	.63					
7. SR: planning	45	39.02	11.21	.18	.21	.24	.30 *	.26	-.07					
8. SR: problem solving	45	33.18	11.82	.18	.15	.23	.27	.25	.10	.71 *				
9. SR: support and consideration	45	31.22	13.20	.29 *	.28	.44 *	.45 *	.27	.23	.62 *	.78 *			
10. SR: development and mentoring	45	30.91	13.84	.35 *	.22	.37 *	.38 *	.11	.17	.69 *	.73 *	.75 *		
11. SR: overall	45	39.49	13.27	.31 *	.26	.25	.37 *	.21	.07	.78 *	.78 *	.72 *	.70 *	
12. Composite supervisor rating	45	34.76	11.20	.30 *	.26	.35 *	.41 *	.24	.12	.85 *	.90 *	.88 *	.88 *	.90 *

Reliabilities are Cronbach alphas. Collective leadership dimension means have a possible range from 1 to 7. In order to reduce skew, squared transformations of foreman ratings are presented and used in all analyses, with a possible range of values from 1 to 49. SR=Supervisor rating of effectiveness.

\*  $p < .05$ .

dimensions or any of the dependent measures, and thus was not considered in any of the analyses. In order to investigate the possible effects of member agreement about collective leadership,  $r_{wg}$  values were entered into a regression equation after mean level of collective leadership;  $r_{wg}$  values were not incrementally significant and are not reported.

Table 4  
Hierarchical regression analyses predicting supervisor performance ratings from team-rated collective leadership dimensions

Dependent variable	Step 1	Step 2	Step 3
Effectiveness at planning and organizing			
Planning and organizing	.18	.00	-.06
Problem solving		.22	.06
Support and consideration			.02
Development and mentoring			.25
$R^2$	.03	.04	.08
$\Delta R^2$		.01	.04
Effectiveness at problem solving			
Problem solving	.15	-.03	-.29
Planning and organizing		.20	.11
Support and consideration			.10
Development and mentoring			.35
$R^2$	.02	.03	.11
$\Delta R^2$		.01	.08
Effectiveness at support and consideration			
Support and consideration	.44 *	.22	.39
Development and mentoring		.27	.35
Problem solving			.04
Planning and organizing			-.32
$R^2$	.19 *	.22 *	.25 *
$\Delta R^2$		.03	.03
Effectiveness at development and mentoring			
Development and mentoring	.38 *	.25	.30
Support and consideration		.16	.28
Planning and organizing			.52
Problem solving			-.67 *
$R^2$	.15 *	.16 *	.25 *
$\Delta R^2$		.01	.09

All regression coefficients in the table are standardized regression coefficients.

\*  $p < .05$ .

To examine the unique predictive contributions of the various components of collective leadership, all four dimensions were entered into separate step-wise hierarchical regressions predicting supervisor ratings of effectiveness in carrying out planning and organizing, problem solving, support and consideration, and development and mentoring (Table 4). In the first step of each regression, a collective leadership dimension was used to predict the corresponding supervisor-rated effectiveness dimension, and in the second step the other “task” or “relationship” dimension was entered. In the third step, the remaining two collective leadership dimensions were entered. Results indicated that Support and Consideration, and Development and Mentoring were significant predictors of effectiveness on the corresponding supervisor-rated dimension. Furthermore, adding other collective leadership dimensions did not account for significant incremental variance in the team effectiveness ratings. Taken together, these findings provide evidence of convergent and discriminant validity of the collective leadership dimensions.

## 7. Discussion

Based on role theory, collective leadership was conceptualized and measured as an enacted, shared role across team members and was examined as a possible contributor to team effectiveness in a sample of road maintenance teams. Because of the nature of the sample (e.g., medium level of team-member interdependence, presence of a formal leader, and some disagreement about the level of shared leadership within teams), this study demonstrates the existence of collective leadership in perhaps unexpected places. As such, it could be considered a conservative assessment. Confirmatory factor analysis at the individual level supported a four-factor oblique model. Each dimension in this model showed high composite reliability and variance extracted, and each item loaded highly on its intended factor, suggesting that the scales adequately capture the underlying constructs. Consistent with expectations, confirmatory factor analysis showed that relationships among the four factors were well represented by task and relationship higher order factors and that all four dimensions of collective leadership were related to individualism/collectivism.

The finding that collective leadership was not significantly related to power distance is surprising. One possibility is that our assessment of collective leadership was not perceived by team members as being about “leadership”, but as simply tasks that they might perform. If this was the case, we might expect little or no relationship between the extent that individuals make a leader/follower distinction (i.e., power distance) and their enactment of leadership roles. Low coefficient alpha reliability of power distance (.63) might have also attenuated observed relationships, and the presence of a leader in a bureaucratic hierarchy might have stifled behavioral expression of power distance, resulting in no observed relationships. Finally, although a number of researchers have found significant variability in power distance within a country, power distance was originally conceptualized as a between-countries variable, and thus there might be conceptual flaws in using this within cultures, which in turn, could have affected our results.

The utility of collective leadership in predicting organizationally relevant outcomes is also an important component of validity evidence. Higher mean levels of team-rated collective leadership were associated with higher supervisor ratings of team effectiveness; 12 of 24 possible relationships were significant. Collective problem solving, however, was not significantly related to any foreman ratings of effectiveness, bringing into question the validity of this dimension. On the other hand, sharing in the planning and organizing, support and consideration, and development and mentoring of team members might be critical for effective team functioning. Step-wise regression analyses indicated no incremental contributions of other collective leadership dimensions beyond the effects of Support and Consideration and Development and Mentoring on their respective team performance dimension ratings.

For this type of team, the correlation and regression results suggest that the relationship-oriented leadership dimensions are more consistently related to team effectiveness than the task-oriented dimensions. This raises the interesting possibility that, at least from a supervisor’s perspective, sharing in the relationship-oriented leadership behaviors is more important for team effectiveness than task-behavior sharing. One possible explanation, in line with Bales & Slater (1955), is that team members have greater discretion to share in the responsibilities of meeting the socio-emotional (but not task) functions. In other words, planning, organizing, and problem solving might largely be under the control of foremen. Another possible explanation as to why task-oriented dimensions displayed a lower relationship with team effectiveness measures is that task-oriented roles are cognitive in nature, and less readily observable (and rateable) by other team members (Marta, Leritz, & Mumford, 2005). Thus, team members might not have been able to rate collective problem solving enactment, for example, as accurately as mentoring.

Aggregation of individual collective leadership, collectivism, and power distance data to the team-level was justified based on the conceptualization and measurement of collective leadership as a group-level phenomenon, and was also



justified based on empirical support for aggregation. The empirical support, however, was borderline, and is a limitation of our study. Team members might not have possessed a shared understanding of team operations and norms, particularly because their tasks were not highly interdependent.

### 7.1. Implications

This study offers preliminary evidence that leadership need not be solely the domain of one person; leadership can be enacted collectively and informally by team members, even in larger teams. Further, collective leadership is positively related to team effectiveness.

In addition to the scientific value of the current study, there is potential practical value in our findings. In particular, development and mentoring activities might be especially critical to team success, even in blue-collar work teams. Because teams in this study are reconstituted semi-annually, there are regular opportunities to enhance team performance by, for example, encouraging more experienced team members to exchange career related advice, teach skills, and be a positive role model to other team members.

### 7.2. Future directions

It is possible that teams other than those studied here might enact collective leadership in other ways. For example, some autonomous and highly interdependent teams might engage in the collective creation of a team vision or external environment monitoring (Yukl et al., 2002). In addition, the appropriateness of the four collective leadership dimensions in capturing the breadth of the essential construct space of collective leadership should be assessed in a wider variety of teams and organizations. To minimize sources of common method bias (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003) and provide a more complete picture of the effects of collective leadership, both independent and “objective” measures of a variety of team processes and outcomes should be utilized. Future research might also address the extent to which the collective leadership items and dimensions are interpreted by those performing the roles as “leadership” activities, or simply as part of their job tasks.

Caution should be exercised in interpreting individual regression coefficients of the collective leadership dimensions in this study due to the potential problems of multicollinearity, and further investigation should consider the degree to which collective leadership dimensions are separate factors (Yunker & Hunt, 1976). Whereas high correlations between the dimensions suggest a single factor, both confirmatory factor analysis and the finding that collective leadership dimensions differentially predict supervisor-rated effectiveness suggest that the dimensions should be examined individually. At this early stage, it would be prudent to further test the underlying factor structure in multiple samples and at the team-level of analysis.

Teams in some other settings are more highly interdependent than the medium level of interdependence in this sample. When team members work together on highly interdependent tasks, team properties are considered increasingly crucial (Tesluk, Mathieu, Zaccaro, & Marks, 1997), suggesting that collective leadership in highly interdependent teams might be even more important than found in the present study. Future research should address this possibility.

Results of the present study suggest that collective leadership might be an important component to team effectiveness. Researchers are encouraged to think about leadership in teams as a set of distributed role requirements, rather than always being located in a single individual leader. By broadening the conceptual lens around leadership (and beyond existing measures of shared leadership), we might better understand the various ways in which leadership, including collective leadership, contributes to team effectiveness.

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