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Understanding and Measuring Shared Leadership in Work Teams

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Abstract

Based on role theory (e.g., Katz & Kahn, 1978) and classic leadership task theory (e.g., Ohio State and Michigan studies), this study develops and presents validity evidence for a measure of shared leadership that comprises 4 factors: planning and organizing, problem solving, support and consideration, and development and mentoring. Confirmatory factor analysis (N=277) provided support for the hypothesized 4-factor model, with higher order task and relationship factors. Analysis of team-level data (N=52) revealed that shared leadership, particularly the development and mentoring dimension, predicted supervisor-rated team performance. Both theoretical and practical implications of shared leadership are discussed.

Understanding and Measuring Shared Leadership in Work Teams

As organizations struggle to adapt to increasingly dynamic and complex environments, significant transformations are taking place in the way in which work is performed (Pfeffer, 1994; Thurow, 1999). One of the primary facets of this change is an increasing reliance on work teams. Indeed, more than 70 percent of large North American organizations have set up some form of self-managed work team (Lawler, 2000). The rationale for this shift is that groups of people working together can accomplish something beyond the capabilities of individuals working alone (Marks, Mathieu, & Zaccaro, 2001). From a strategic perspective, teams can create and maintain social capital as a meta-resource, which in turn has the ability to sustain competitive advantage (Barney, 1991; Grant, 1996; Wernerfelt, 1984). Yet it has also been observed that teams often do not fully meet the performance demands placed on them (Hackman, 1987). Some of the factors differentiating effective from ineffective teams include trust (Edmondson, 1999), cross training and coordination (Marks, Sabella, Burke, & Zaccaro, 2002), pay systems (Lawler, 2000), and member composition (Barrick, Stewart, Neubert, & Mount, 1998).

Another possible explanation of team performance involves the distribution of leadership roles. Specifically, the proposition that the individual model of leadership adopted in many teams is incompatible with current organizational needs and demands should be more fully examined (Hawkins & Tolzin, 2002; Sivasubramaniam, Murry, Avolio, & Jung, 2002). One of the primary questions this research is intended to address is, "Do teams that engage in shared leadership operate more effectively than those grounded in traditional, individualistic assumptions about the leadership role?" In answering this question, the present research is

embedded in two substantial literatures that do not often intersect, leadership and team development (Kozlowski, Gully, Salas, & Cannon-Bowers, 1996).

Some of the tasks that have traditionally been considered part of a formal leadership role include, planning and organizing, solving work-related problems as they emerge, providing support and encouragement to each other, and engaging in peer mentoring and development. Placing such responsibility on an individual leader, however, can create problems of role overload. There are few individual leaders who can successfully meet the complex and numerous challenges of modern work by themselves. Realizing that the formal leader cannot adequately handle all of these increasing demands, organizations have pushed many of the traditional leadership roles onto other members of the team (Katz & Kahn, 1978). For teams to succeed in this environment of shared expectations, the team as a whole needs to integrate its various roles in order to produce 'leadership' as a collective action (Zaccaro & Klimoski, 2002).

The concept of shared leadership is not entirely new, but in some ways is a radical departure from previous views of leadership. The epicenter of shared leadership is not the role of the individual leader, but the interaction of team members to lead the collective by sharing in leadership tasks. Shared team leadership in this view is not a characteristic of the person, but involves the *process* of the entire team, group, or organization (Drath, 1998). Possessing "leader" traits and styles is not bad nor unimportant; indeed these traits and styles are helpful and allow one to more easily think like a leader and be an active participant in creating leadership. Even in presumably stalwart organizations such as government bureaucracies, the demand for innovation and flexibility has solidly taken root, necessitating collective meaning-making (Avolio et al., 1996, Manz & Sims, 1987).

Despite the multitude of measures designed to assess leadership, there currently exists no instrument explicitly designed to measure the concept of *shared* leadership. A perusal of quantitative articles reveals one measure of shared leadership that modified the Multifactor Leadership Questionnaire to have a team referent (Avolio, et al., 1996), but this measure does not capture the propensity for team members to share in the leadership role, as conceptualized in the current research.

Scale Development

Initially, shared leadership constructs were conceptualized on the basis of eleven factors from the Managerial Practices Survey (MPS; Yukl & Lepsinger, 1990), incorporating the idea that effective team shared leadership will have both 'task-oriented' and 'relationship-oriented' components. The idea of task and relationship roles for the individual leader in groups has been supported by much research (Zaccaro & Klimoski, 2002), and has also found support in the context of co-acting teams (e.g. Kozlowski, Gully, McHugh, Salas, & Cannon-Bowers, 1996). The eleven tasks of the MPS were distilled into four factors (removing tasks associated with managing as opposed to leading), two of which are task-related and two of which are relationship-oriented. The final four factors were labeled, planning and organizing, problem solving, support and consideration, and development and mentoring.

The first two dimensions are task-related. Planning and Organizing involves sharing in objective- and strategy- making, which includes participation in the decision-making process. Planning and Organizing involves goal-setting and determining how to use personnel and resources in an efficient manner. Problem Solving involves sharing in identifying and diagnosing task-related problems, carefully using the team's combined expertise to analyze problems, and arriving at effective solutions.

The second two shared leadership dimensions are relationship-oriented. Support and Consideration draws mainly from the MPS dimensions of Support & Mentoring as well as Conflict Management and Team Building. Support and Consideration includes providing support to team members, acting patiently, fostering a collective team atmosphere, and listening to and encouraging other team members. The fourth dimension, Development and Mentoring, borrows from the MPS' Mentoring factor, but includes components of personal development that are scarcely considered in Yukl's framework. Team shared leadership of 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.

It is believed that the four factors (planning and organizing, problem solving, support and consideration, and development and mentoring) are conceptually distinct while having two higher-order (i.e. task and relationship) dimensions.

Specifying the Group Level Model

The current research conceptualizes shared leadership as a team-level construct exhibiting both shared and configural properties (Chan, 1998; Klein & Kozlowski, 2000). That is, both the strength of shared leadership as well as agreement about how much leadership is shared are thought to be related to performance. Performance is enhanced not only by a relatively higher amount of shared leadership (shared property), but also by the extent to which members agree on whether leadership tasks are shared (configural property). While previous research has given sparse attention to the shared and configural properties, Chan (1998) suggests that attention to both models may be particularly helpful in exploratory stages of research.

<div align="center">Method</div>

Scale Refinement

A list of 28 items was generated by the researcher, with 7 items corresponding to each hypothesized factor. Items were developed with the intent of adequately sampling the content domain of each of the four team shared leadership factors. Adequacy of the items was assessed by 12 graduate students and 2 faculty members in Industrial/Organizational Psychology, using a Q-sort task (described by Hinkin, 1995). The final measure of 25 items contained 6 items per factor; 7 for problem solving (see Results for a description).

Sampling Procedure

Data were collected from winter road crew and garage crew members in six counties of a state department of transportation, during work hours. Tasks of the crews included emergency snow clearing, spreading gravel, salt and anti-skid, and general winter road maintenance such as filling in potholes after a thaw. Preliminary interviews with managing employees showed that while crew members don't work together on all tasks, coordination of materials and resources is necessary to keep teams functioning smoothly, particularly during harsh winter weather. Significant coordination between team members was seen as evidence of task interdependence; a necessary condition for a group to be defined as a team (McIntyre & Salas, 1995). Surveys were administered at the end of the winter crew season, when the team had been working together for about six months and was likely to have developed shared perceptions (Eby, Meade, Parisi, & Douthitt, 1999).

Participants

A total of 277 individuals in 77 winter road crews completed the survey. Road crews were composed of 3-13 employees, approximately 5% of whom were female. Approximately 4% of respondents were between 18-28 years old, 20% were between 29-39, 47% were between 40-50, and 29% were 51 or over. Mean tenure with the organization was 14.3 years, and varied

from 4 months to 38.5 years. A total of 74% of crew members within the 52 crews completed the

survey, a response rate similar to other teams research (e.g., Harrison, Price, Gavin, & Florey,

2000; Pelled, Eisenhardt, & Xin, 1999).

Measures

    Shared leadership. The 25-item instrument developed for this study measured shared

leadership dimensions on a 7-point scale with responses ranging from 1 (never) to 7 (always).

Items assessed the frequency that crew members shared in, 1) planning and organizing, 2)

problem solving, 3) support and consideration, and, 4) development and mentoring.

    Supervisor ratings. Foremen completed assessments of their teams' effectiveness on five

dimensions: planning, problem solving, support and consideration, development and mentoring,

and overall effectiveness. An example item is "How effective are crew members at working

together to solve problems." Responses to the five items were measured on a 7-point scale

ranging from 1 (very ineffective) to 7 (very effective).

<center>Results</center>

Preliminary Scale Refinement

    Anderson and Gerbing (1991) have shown that assessments of the substantive validity

and substantive agreement of items in a Q-sort task can be a useful predictor of items that would

be retained in a subsequent confirmatory factor analysis. Of the 28 items, three items that

exhibited both poor substantive agreement (p_{sa}) and substantive validity (c_{sv}) were not retained,

and two items were reworded based on comments from respondents.

Assessing the Measurement Model Using Organizational Data

    The adequacy of the hypothesized four-factor shared leadership model was assessed by

comparison of six nested models using LISREL 8 (Jöreskog & Sörbom, 1993). Model 1

specifies only one shared leadership factor, while Models 2 and 3 are two-factor models, allowing items to load on only task and relationship dimensions. Model 2 specifies task and relationship factors to be uncorrelated, while Model 3 frees the correlation between the two factors. Models 4, 5 and 6 each specify a four-factor model representing the four proposed dimensions of shared leadership. Model 4 specifies that all four factors are orthogonal, while Model 5 allows correlations among the two task dimensions (planning & organizing, and problem solving) and among the two relationship dimensions (support & consideration, and development & mentoring). Model 6 specifies intercorrelations among all four shared leadership factors. Lastly, Model 7 specifies two higher-order constructs to account for the relationships among the four dimensions of shared leadership.

Results of the confirmatory factor analysis are presented in Table 1. Relative fit of the alternative models was assessed using both χ^2 and practical fit indices (e.g. RMSEA, NNFI, CFI). Chi square difference tests and practical fit indices indicate that Models 6 and 7 fit the data well (see Table 1). Both of these models specified four distinct, yet related shared leadership factors. Model 6 demonstrated significantly better fit than either Model 5 [$\Delta\chi^2$ (4, $\underline{N}$= 269) = 255.3, $\underline{p}$ < .05] or Model 3 [$\Delta\chi^2$=(5, $\underline{N}$= 269) = 504.38, $\underline{p}$ < .05]. Model 7 also fit well, even though fit of this model cannot be directly compared to other models because the other models are not nested within it. Factor loadings for each item in Model 6 are presented in Table 2. All items loaded highly on their intended factors.

Correlations among variables are presented in Table 3. Notably, the team rating of shared development and mentoring was related to foreman ratings on all dimensions of effectiveness.

Discussion

Summary of Results

A new measure was developed and tested in the present study based on an emerging theory of shared leadership. Borrowing from early research at Michigan and Ohio State as well as Yukl's work defining essential managerial tasks at the individual level (e.g. Yukl & Lepsinger, 1990), a four-dimensional model of shared leadership was proposed. Confirmatory factor analysis supported a model specifying four correlated dimensions of shared leadership (Model 6). Consistent with expectations, relationships among the four factors are well represented by task and relationship higher-order factors (Model 7).

The utility of shared leadership in predicting organizationally relevant outcomes is also an important consideration. All 20 relationships (correlations) between shared leadership dimensions and foreman ratings of crew effectiveness were in the expected direction, and nine were statistically significant ($p < .05$). Higher mean levels of team-rated shared leadership were associated with higher supervisor ratings of team effectiveness. Team ratings of shared development and mentoring were significantly related to all five supervisor ratings of team effectiveness. This suggests that sharing development and mentoring among team members may be critical for effective team functioning (at least from the point of view of supervisors).

In addition to the mean level of shared leadership, team configural properties (within-group agreement) were also assessed. The largest correlations for within-group agreement arose for the construct of shared planning and organizing. Teams in which members had little to no share in planning and organizing tended to agree that planning was not shared ($r = -.41$). Furthermore, within-group agreement among team members with regard to shared planning was negatively related to team effectiveness and team reports of all shared leadership dimensions.

Why were teams with less agreement on shared planning more effective? Interpretation of these results depends upon one's notion of team agreement as a construct. Kenny (1991) observed that agreement between raters can be a function of length of acquaintance, similar opportunity to observe behavior, and similar meaning systems of the raters. The extent to which agreement on shared planning and organizing reflects some combination of these three constructs is the province of future research. Because agreement on planning and organizing was so consistently related to supervisor ratings of effectiveness and shared leadership itself, further investigation into the construct validity of within-group agreement is certainly merited.

Are organizations ready to move toward a model of shared leadership? The shift toward shared leadership in teams is likely to be tenuous because organizations are comprised of interactions of interrelated systems (Katz & Kahn, 1978), all of which must be considered in successfully implementing change. In addition to the structures that support, reward, and encourage traditional ways of thinking about work and leadership (Avolio et al., 1996), organizations must change their role expectations *and* effectively communicate these changes with employees through both explicit and implicit means (Katz & Kahn, 1978). Second, individuals who previously operated as followers must adjust their leadership schemas to begin to think of leadership as a process that they need to be involved in. Individuals possess strong social-cognitive representations of the characteristics of a "leader" (Lord & Maher, 1991), and if they do not see themselves as having these necessary skills, it will be difficult to succeed in fundamentally shifting role perceptions (Katz & Kahn, 1978).

Implications

The current study contributes early evidence that leadership need not be solely the domain of one person within a team; rather that leadership can be shared among team members other

than the leader. Evidence suggests that the team shared leadership instrument is a reliable and valid measure of the shared leadership construct. Satisfactory internal psychometric properties were exhibited by the four subscales at the individual level, and team level measures were validated against supervisor ratings.

An interesting finding from this exploratory study involves the role of shared team mentoring and development in team functioning. Indeed, development and mentoring activities may be critical to team health. This interpretation then leads to the suggestion that managers need to foster an atmosphere of development and mentoring among crew members. However, the onus in shared leadership is also on crew members themselves, who need to spend time on the interpersonal dimensions of developing and mentoring each other. Exchanging career related advice, helping to develop skills, being positive role models, instructing and teaching skills and helping out others appear to be important to the task, relational, and overall functioning of the team.

Finally, it has often been noted that one of the potential disadvantages of having teams engage in shared leadership is that managers may see this involvement as a threat to their power and legitimacy (e.g., Bartunek, Walsh, & Lacey, 2000). The fact that crews who shared in leadership were actually rated higher by their foreman suggests that supervisors may not, in practice, view shared leadership as threatening.

Future Directions

While an attempt was made to design the shared leadership scale to adequately sample the domain of shared leadership across settings, it is possible that some teams may enact shared leadership in other ways. For example, some autonomous and highly interdependent teams may engage in collective creation of a team vision. The appropriateness of the four shared leadership

dimensions measured by this instrument in capturing the breadth of the essential construct space of shared leadership needs to be assessed in a wider variety of teams and organizations.

The need for a meso-level approach that bridges micro and macro variables is needed (House, Rousseau, & Thomas, 1995) to more fully understand shared leadership. For example, based on Katz & Kahn's (1978) discussion of multiple roles in organizations, clues about understanding and enhancing shared leadership can be focused on three broad factors: organizational, individual, and interpersonal. First, individuals must perceive that a role is required of them and that they are capable of performing in the organizationally suggested manner. This implies that organizations and managers must be deliberate in sending the message that shared leadership is expected and rewarded (Hackman, 1990, p.11), and aligning all organizational systems to encourage shared leadership (Moxley & O'Connor, 1998).

Individual factors, such as personality traits and past history within and outside of the organization, are also likely to affect the extent to which individuals engage in shared leadership. Interpersonal factors (such as person-team fit) affect the interaction of the formal leader with the team, and are thus likely to have downstream effects on the way in which team members receive the role of leadership. Individual and interpersonal factors (e.g. shared meaning systems) are also likely to affect the 'sharedness' (within-group agreement) of shared leadership within a team. Further, it also must be recognized that organizational, individual and interpersonal factors interact with each other. Teams exist within a context and create context, thus variables at one level do not exist in isolation from effects at other levels. A full understanding of shared leadership, and avoidance of model misspecification, will involve a meso approach that analyzes several levels simultaneously (House et al., 1995).

In addition to issues raised in the preceding discussion, other more global questions include: Should all team-based organizations strive to maximize shared leadership, or can shared leadership be detrimental to performance outcomes? How does shared leadership play out in the presence of a strong, transformational leader? How is shared leadership fostered?

Results of this study suggest that shared leadership—particularly in development and mentoring activities—may be an important antecedent of team effectiveness. Given the chorus of unanswered questions, it is clear that further research is needed to understand the nomological network of shared leadership in organizations.

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Table 1.

Fit Statistics for One-, Two-, and Four-Factor Models

Model	Chi-square	df	RMSEA	NNFI	CFI
1. One-factor model	2632.85	275	0.17	0.70	0.73
2. Two-factor orthogonal model	1617.07	275	0.12	0.82	0.84
3. Two correlated factors model	1397.74	274	0.11	0.85	0.87
4. Four-factor orthogonal model	1892.12	275	0.14	0.80	0.82
5. Restricted correlations four factor model	1148.66	273	0.10	0.89	0.90
6. Four correlated factors model*	893.36	269	0.09	0.92	0.93
7. Second-order two factor model*	838.91	267	0.08	0.93	0.94

* Best-fit models. N = 277. RMSEA = root mean square error of approximation; NNFI = non-normed fit index; CFI = comparative fit index; GFI = goodness of fit index.

Table 2.

Factor Loadings for Shared Leadership Dimensions, Confirmatory Four-Correlated-Factors Model (Model 6)

	Factor loading			
How often do team members share in:	1	2	3	4
1. planning how the work gets done.	.86			
2. allocating team resources according to our team's priorities.	.85			
3. setting our team's goals.	.87			
4. organizing tasks so that work flows more smoothly.	.90			
5. deciding how to go about our team's work.	.91			
6. providing helpful input about our team's work-related plans.	.90			
7. deciding on the best course of action when a problem arises.		.89		
8. diagnosing problems quickly.		.90		
9. using our team's combined expertise to solve problems.		.92		
10. finding solutions to problems that affect team performance.		.92		
11. identifying problems before they arise.		.83		
12. developing solutions to problems.		.89		
13. solving problems as they arise.		.87		
14. providing support to team members who need help.			.80	
15. showing patience toward other team members.			.85	
16. encouraging other team members when they're upset.			.88	
17. listening to complaints and problems of other team members.			.81	
18. fostering a cohesive team atmosphere.			.85	
19. treating each other with courtesy.			.71	
20. exchanging career-related advice among our team.				.83
21. helping to develop each other's skills.				.88
22. learning skills from all other team members.				.87
23. being positive role models to new members of the team.				.83
24. instructing poor performers on how to improve.				.84
25. helping out when another team member is learning a new skill.				.85

Factor 1 = planning & organizing. Factor 2 = problem solving. Factor 3 = support & consideration. Factor 4 = development & mentoring.

Table 3.

Correlations among Shared Leadership and Supervisor Rating Dimensions

	N	M	S.D	1	2	3	4	5	6	7	8	9	10	11	12
1 Planning & Organizing	52	3.55	0.87	0.95											
2 Problem Solving	52	3.84	0.86	**0.88**	0.96										
3 Support & Consid.	52	4.09	0.74	**0.74**	**0.79**	0.92									
4 Dev'ment & Mentoring	52	3.91	0.86	**0.70**	**0.74**	**0.78**	0.94								
5 rwg planning	50	0.27	0.43	**-0.41**	**-0.42**	**-0.46**	-0.28								
6 rwg problem solving	51	0.37	0.37	0.06	0.12	0.03	0.15	**0.47**							
7 rwg support and consid	51	0.34	0.32	0.10	0.13	0.01	0.14	0.16	**0.60**						
8 rwg: dev & mentoring	50	0.39	0.28	-0.06	-0.02	-0.10	-0.08	0.22	**0.35**	**0.54**					
9 Supervisor rating: planning	45	39.02	11.21	0.18	0.15	0.24	**0.30**	-0.28	-0.21	-0.20	-0.16				
10 Suprvsr rating: prob. solving	45	33.18	11.82	0.18	0.21	0.23	**0.27**	-0.23	-0.14	-0.24	-0.19	**0.71**			
11 Suprvsr rating: support	45	31.22	13.20	0.29	0.28	**0.44**	**0.45**	**-0.31**	-0.11	-0.14	-0.15	**0.62**	**0.78**		
12 Suprvsr rating: dev. & mentor	45	30.91	13.84	**0.35**	0.22	**0.37**	**0.38**	**-0.39**	-0.20	-0.29	**-0.39**	**0.69**	**0.73**	**0.75**	
13 Suprvsr rating: overall	45	39.49	13.27	**0.31**	0.26	0.25	**0.37**	-0.16	-0.03	-0.10	-0.12	**0.78**	**0.78**	**0.72**	**0.70**

Bold numbers indicate significance at p<.05, bold and underlined indicates significance at p<.01. Reliabilities for the shared leadership dimensions at the individual level are presented in the diagonal using the method advocated by Fornell and Larcker (1981). Shared leadership dimension means have a possible range from 1-7. Within-group agreement values have a possible range from −1 to 1. In order to reduce skew, squared transformations of foreman ratings are presented and used in all analyses, with a possible range of values from 1-49.