Consensus among group members' shared leadership ratings polarizes group performances

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Abstract

We examined whether the extent of perceived variability (i.e., consensus) among group members' shared leadership ratings polarize group performances. Through using data from 39 classes in school settings, we explored the relationship between students' shared leadership behavior and group performance as moderated by the extent of variability among group members' shared leadership ratings. Study results, based on hierarchical multiple regression analyses, were consistent with the hypothesized conceptual scheme of moderation in that the slope of the relationship between shared leadership and group performance was stronger (and positive) for classes with high consensus than ones with low consensus. This indicates consensus among group members' shared leadership ratings polarizing group performance.

Introduction

The extent of perceived variability (i.e., consensus) among group members' shared leadership ratings may polarize group performance. Shared leadership is defined as interaction of group members to lead the group by sharing leadership responsibilities (Hiller, Day, & Robert, 2006). Over recent years, theoretical and empirical studies have been conducted on consequences of shared leadership (Bligh, Pearce, & Kohles, 2006; Yammarino, Salas, Serban, Shirreffs, & Shuffler, 2012). However, in these studies, researchers have not considered consensus of members' ratings of leadership quality. Consensus is the degree in which ratings of concept among group members are consistent (James, Demaree, & Wolf, 1984). This study, while taking the consensus into account, examined whether the consensus influences the relationship between shared leadership and its consequences. We used team satisfaction (group performance) for one of the consequences. Figure 1 illustrates our hypothesis model as we provide rationale for the model in the following.

Figure 1 Hypothesized model

Previous studies examined the outcomes of shared leadership. For example, one of the outcomes is team learning. Liu, Hu, Li, Wang, and Lin (2014) found that shared leadership enhanced team learning and Wang Han, Fisher, and Panet (2017) found the relationship in a longitudinal study. Furthermore, another typical outcome is task performance (Zhu, Liao, Yam, & Johnsonet, 2018). Hoch and Kozlowski (2014) examined the effectiveness of shared leadership in virtual teams and found that shared leadership was positively related to task performance. Additionally, Karriker, Madden, and Katell (2017) investigated shared leadership-task performance relationships in student teams and found the positive link between them. The other outcome is a more participative and innovative culture in the organization (Buchanan, Addicott, Fitzgerald, Ferlie, & Baeza, 2007). In a group setting where shared leadership works well, individuals are willing to engage in activities. Such a setting promotes creation of innovative ideas, which leads to formation of innovative culture. Thus, empirical results have shown a positive relationship between shared leadership and team outcomes, and meta-analyses have demonstrated that shared leadership has a more predictive power of group outcomes than hierarchical leadership (D’Innocenzo, Mathieu, & Kukenberger, 2016; Wang, Waldman, & Zhanget, 2014).

We anticipate that shared leadership is positively associated with group satisfaction (Figure 1 a). Several studies examined the relationship between shared leadership and team satisfaction (e.g., Wood & Fields, 2007; Wu, Wu, & Wu, 2013). By way of example, Wood & Fields (2007) collected data from 200 top management team members working in Christian church organizations. The results suggested that teams composed of members sharing leadership responsibilities had relatively low levels of conflict and stress while relatively high levels of team satisfaction. Additionally, Wu et al. (2013) gathered a study sample consisting of 557 vocational high school faculty members. Wu et al. (2013) found out that shared leadership has a significant

and positive effect on job satisfaction. These findings suggest that shared leadership may facilitate group satisfaction.

Hypothesis 1 Shared leadership has a positive impact on team satisfaction.

Shared leadership consensus is likely to influence the relationship between shared leadership and its effectiveness (Figure 1 b). Prior research has investigated the relationship between leadership and its effectiveness. The vast majority of researchers viewed the mean level of leadership ratings as an indicator of leadership quality (Bass, Avolio, Jung, & Berson, 2003). However, consensus among raters has not yet been explored in relation to shared leadership. Consensus refers to the degree in which ratings of concept among group members are consistent (James et al., 1984). As an example, there is a three-member group participating in an experiment. The experimenter asks them to evaluate a concept on a seven-point scale. Their same or similar responses, such as 5, 5, 5, indicates a high level of consensus in the group. According to Lindell & Brandt (2000) and Ford and Seers (2006), an absence of agreement in team members' leadership attributions has the potential to harm team processes. Low consensus means members are less likely to experience the same reality. If those members interact with one another, they may increase experiences of situational ambiguity. These experiences may cause negative responses such as conflict, less coordination, and hostility, which harms the team process. In fact, Harrison & Klein (2007) found that even if leaders are rated moderate to high in transformational leadership, in teams where consensus is lacking, team processes would adversely affect the association between transformational leadership and team empowerment. Furthermore, Cole, Bedeian, and Bruch (2011) found the joint effects of transformational leadership behavior and consensus about

transformational leadership on team empowerment. Based on these findings, we posited that the low levels of shared leadership consensus cause negative responses to groups reporting moderate to high levels of shared leadership behavior (on average).

Hypothesis 2 Group members' consensus about shared leadership will moderate the positive relationships between absolute mean levels of shared leadership behavior and group performance (satisfaction), such that when consensus is high, the relationship between the shared leadership and group performance will be positive, and when consensus is low, this relationship will be weakened (and possibly negative)

This study also investigated whether demographic homogeneity can be predictors of intragroup consensus. Homogeneity in demographic characteristics predicts intragroup consensus (Ford & Seers, 2006). Organizational demography theory and research (e.g., Wiersema & Bird, 1993; Williams & O'Reilly, 1998) suggests that individuals who are similar in demographic characteristics are likely to share similar experiences and values. This similarity in turn fosters attraction and interaction amongst them. Additionally, similarity in attributes facilitates mutual attraction and liking (Byrne, 1971). Furthermore, differences in demographic characteristics are less likely to develop cooperative norms (Chatman & Flynn, 2001). Therefore, the more similar the demographic characteristics are, the more the group members perceive the surrounding environment in the same way and the higher the consensus within the group.

Hypothesis 3 The greater the demographic homogeneity of the group, the greater the level of within-group agreement on perceptions of the environment will be.

Method

Participants

Data was collected from 39 high school classes in six schools. A total of 1452 students (751 males and 699 females) provided usable responses to the survey. The average age of class students was 16.56 years, with a standard deviation of 0.97. We delegated collaborators at each school to distribute and collect questionnaires.

Measures

1. Shared leadership

We asked participants to rate how often classmates share leadership responsibilities. Shared leadership was assessed using 24 items developed by Hiller et al. (2006) except for one item that we thought were not appropriate to sample (“Allocating resources according to team's priorities”). Example items include, “Deciding how to go about our group’s work” and “Providing support to team members who need help”. The scales used a seven-point Likert-type scale (“1” = never, “7” = always; $\alpha = .95$). Analysis of variance tests (ANOVAs) using class as the independent factor demonstrated that students’ ratings on shared leadership differed significantly across classes ($p < .01$). Computing intraclass correlation of shared leadership, we obtained the values justifying aggregation of the data to the group level (ICC (1) = .28, ICC (2) = .95; Bliese, 2000; LeBreton & Senter, 2008).

Shared leadership consensus was assessed with standard deviation. Researchers have used many indices to gauge within-team consensus or agreement (e.g., r_{wg} , a_{wg} , and standard deviation). However, Roberson, Sturman, & Simons (2007) argued that, despite their having similarities, with an average correlation of $|.943|$, the consensus indices function differently when used as independent variables. They found that when examining interaction effects (as in the present study), the standard deviation is the most effective index to assess within-group consensus. Thus, we

measured consensus scores for shared leadership on the basis of the square root of the variance for each set of class scores. Low scores represent high consensus or agreement.

2. Group satisfaction

We measured group satisfaction using six items from Kawamura (1999). This was composed of two factors, “approval” and “non-outrage and maladaptation”. The latter may be so much psychological burden that respondents are reluctant to answer the questions, which may cause a bias bringing about floor effects. What’s worse, there was a possibility that collaborators may deny our request for a survey. Accordingly, we selected 6 items from the approved factor. Example items include, “I feel fulfilled and satisfied with my class” and “I think I have a strong presence”. The scales used a five-point Likert-type scale (“1” = not at all, “7” = strongly agree; $\alpha = .86$).

3. Demographic homogeneity

We measured demographic heterogeneity using Blau's (1977) index. The larger the value of this index, the greater the variability in the team's gender composition.

Results

Table 1 and Table 2 show the means, standard deviations, and correlations among the aggregated variables used to test Hypothesis 1 and Hypothesis 3.

Table 1 Descriptive statistics among study variables

Variables	<i>M</i>	<i>SD</i>	<i>N</i>
Group size	41.44	4.15	39
Demographic homogeneity	0.45	0.09	39
Shared leadership (SL)	4.51	0.46	39
SL consensus	0.95	0.18	39
Satisfaction	2.93	0.20	39

Note. *N* = 39 classes. Consensus is measured by the standard deviation; smaller scores indicate greater agreement.

Table 2 Inter-correlations among study variables

	1	2	3	4	5
Group size	-				
School grade	-.199	-			
Demographic homogeneity	-.029	-.225	-		
Shared leadership (SL)	-.136	-.127	.280 ⁺	-	
SL consensus	-.181	.132	-.190	-.195	-
Satisfaction	-.043	-.099	-.395 [*]	.529 ^{**}	.093

^{**} $p < .01$, ^{*} $p < .05$, ⁺ $p < .10$

The results as presented in Table 2 provide support for Hypothesis 1. As predicted in Hypothesis 1, the higher the average level of shared leadership reported in the group, the higher the level of group satisfaction ($r = 0.53$, $p < .01$). Hypothesis 3 is not supported in Table 2, with no significant relationships between shared leadership consensus and demographical homogeneity.

We used the regression analysis to investigate the influence of the independent variables simultaneously on group satisfaction to test Hypothesis 1 and Hypothesis 2. In the first step, the control variables (i.e., group size and grade) and the mean of shared leadership were used to predict

class satisfaction, and in the second step consensus of shared leadership was added. In the third step, the mean-by-consensus of shared leadership cross-product term was entered.

Table 3 Team-level moderated multiple regression (MMR) models towards class satisfaction

	Step1	Step2	Step3
Size	0.001	0.003	0.006
School grade	-0.006	-0.010	-0.030
Shared leadership (SL)	0.226 **	0.246 **	0.246 **
SLSD		0.238	0.224
SL*SLSD			-0.795 *
R^2	0.282 **	0.327 **	0.426 **
$Adj.R^2$	0.220 *	0.248 **	0.339 **

** < .01 * < .05 + < .10 Consensus is measured by the standard deviation. Unstandardized regression coefficients (b) are shown.

As Table 3 illustrated, in the first step, shared leadership ($b = 0.226, p < .01$) had a positive predictive power to class satisfaction. In the second step, shared leadership again showed predictive power toward class satisfaction ($b = 0.246, p < .01$). Lastly, in the third step, the two-way interaction of shared leadership by shared leadership consensus was significantly related to class satisfaction ($b = -0.795, p < .05$). Figure 2 illustrates these interaction effects. High levels of consensus correspond to low standard deviation levels below the mean standard deviation, while low levels of consensus correspond to that of high ones.

Figure 2 Plot of interaction between shared leadership and its consensus in predicting class satisfaction. Low= -1 standard deviation below the mean. High= $+1$ standard deviation above the mean

As shown in Figure 2, consistent with our prediction, the slope of the relationship between shared leadership and class satisfaction was relatively strong (and positive) for classes with high consensus (Figure 2a), whereas the slope was not significant for classes with low consensus (Figure 2b). Consequently, class satisfaction was lowest when a class group's perceptions of their shared leadership were in agreement and the absolute mean level was low; whereas class satisfaction is highest when a team's perceptions about shared leadership are aligned and the absolute mean level is high.

To sum it up, these findings indicate that for a group to have group satisfaction, individuals in the group need to share leadership responsibilities as well as perception of the responsibilities so that consensus of shared leadership responsibilities will be higher.

Discussion

Previous research has repeatedly shown that shared leadership is linked to group outcomes. However, shared leadership research has tended to focus on the absolute level of group members' leadership ratings and outcomes. To put it differently, it has not been considered a consensus of members' ratings of leadership quality. We examined whether the consensus influences the relationship between shared leadership and its consequence. Our findings support both a positive relationship between shared leadership and its outcome as well as the expectation that the extent of the consensus concerning shared leadership moderates the relationship between shared leadership and its outcome. That is to say, the attribution of shared leadership to a group depends on both the group sharing a set of leadership responsibilities as well as also fostering consensus among group members in their perceptions of the group.

Theoretical and practical implication

This study provides theoretical and practical implications. First, we extended shared leadership literature by demonstrating the relationship between shared leadership and group satisfaction. Previous studies tend to focus on performance outcome variables related to shared leadership (Nicolaidis et al., 2014; Wang et al., 2014), except for a handful studies (e.g., Drescher & Garbers, 2016). Nevertheless, effective outcome variables, such as satisfaction, is widely recognized as a facet of team effectiveness in models of team functioning (Hackman, 1987; Serban & Roberts, 2016). The finding that shared leadership enhances group satisfaction is consistent with prior studies (e.g., Drescher & Garbers, 2016; Robert & You, 2018) and emphasizes the relevance of shared leadership for team effectiveness.

Second, more importantly, we contribute to the contingency model of shared leadership by identifying a boundary condition under which shared leadership can be strongly effective. As you can see in our results related to the positive slope for the high consensus condition (see Figure 2), the results indicated that consensus among group members' shared leadership responses polarized group performance. The slope of the relationship between shared leadership and class satisfaction (group performance) was stronger (and positive) for classes with high consensus than in classes with low consensus. Despite appearing consistent with prior theory and research (e.g., Cole et al., 2011; Harrison & Klein, 2007), this result may make a unique contribution by expanding recent theoretical advancements on shared leadership consensus. More precisely, from a theoretical perspective, group polarization or attitude polarization theory posits that individuals' initial attitudes toward a situation may shift, strengthen, and intensify after group interaction (Myers & Lamm, 1975). As aforementioned, members in a low consensus group are likely to increase experiences of situational ambiguity. These experiences may cause negative responses, which harm team processes. Therefore, when absolute levels of shared leadership are low, low consensus among group members is likely to harm group performance (e.g., satisfaction) through interactions, whereas when absolute levels of shared leadership are high, high consensus among group members is likely to benefit group performance. These findings suggest that consensus among group members' responses is likely to polarize the relationship between group shared leadership and group performance. This study expands the theoretical framework on shared leadership research.

This study has practical implications for teachers addressing students' leadership in school. Results in our study can be used for reference data when a teacher in charge of a class measures students' leadership at a class level. For instance, we obtained data from 39 high school classes in six schools, and the average shared leadership score was 4.51. Though we hope future studies can

collect more samples for determining a standardized point of students' shared leadership, the shared leadership score 4.51 can be used for a tentative criterion. We strongly recommend practitioners as well as researchers to check its consensus (i.e., standard deviation) as well. Even if one obtains a shared leadership score in a class higher than the reported average score, when its consensus is lacking, stress, less coordination, and conflict may be increasing.

Limitation and Future Research

There are several limitations in this study that need to be addressed in future research. First, although we did not obtain the result supporting effect of gender homogeneity on shared leadership consensus, this may be due to the fact that most groups in our sample were heterogeneous. Usually, the ratio of boys and girls in Japanese school classes is roughly half and half. This means it is possible that most classes in this study were heterogeneous. As evidence of this, Blau index in Table 1 shows a relatively high average score and little variance. This may have influenced the results regarding the relationship between demographic homogeneity and shared leadership consensus. Additionally, another reason for no effect of gender homogeneity is that, more or less, students in heterogeneous classes may have reached consensus about their own shared leadership through daily interactions. Schneider and Reichers (1983) argued that it is through social interactions that group members perceive their own context in a similar fashion. Indeed, Klein, Conn, Smith, & Sorra (2001) found social interaction was positively related to within-group agreement regarding perceptions of the work environment. Accordingly, it would be interesting to explore exactly how members in heterogeneous groups reach shared leadership consensus.

The second limitation is that we adopted the cross-sectional design in this study. We also used the use of self-report measures to assess all focal variables, which raises the issue of common-

method bias. Considering these issues, we cannot strongly claim causal direction between shared leadership and group satisfaction. For example, as previous researchers on leadership argued (Day, Gronn, & Salas, 2004; Serban & Roberts, 2016), shared leadership could be interpreted as not only an antecedent but also a consequence of group satisfaction. To mitigate these issues, remedies proposed by Podsakoff, MacKenzie, Lee, and Podsakoff (2003), such as temporal separation of measurement, may help future researchers establish causal direction.

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