
Remote transformational leadership

E. Kevin Kelloway

Department of Management, Saint Mary's University, Halifax, Nova Scotia, Canada

Julian Barling

School of Business, Queen's University, Kingston, Ontario, Canada

Elizabeth Kelley

Department of Management, Saint Mary's University, Halifax, Nova Scotia, Canada

Julie Comtois

School of Business, Queen's University, Kingston, Ontario, Canada

Bernadette Gatien

Department of Psychology, Saint Mary's University, Halifax, Nova Scotia, Canada

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Abstract

We present two studies of remote transformational leadership. In the first, 175 students read a vignette depicting either a *laissez-faire*, management by exception, contingent reward, or transformational leadership style communicated by electronic mail (e-mail). Results showed that students could distinguish between the various leadership styles, and both interpersonal justice and supervision satisfaction were perceived to be higher when a transformational style was presented. In the second study, 105 undergraduates completed individual and group problem solving tasks after reading an e-mail containing either an intellectually stimulating or charismatic message in a 2 × 2 design. Participants properly identified the leadership style intended by the e-mail. Motivation was higher, and both individual and group performance greater, in the leadership conditions.

Remote transformational leadership

In the last ten years, more research has been conducted on transformational leadership than on all other leadership theories combined (Judge and Bono, 2000). As a result, the idea that the dimensions comprising transformational leadership affect critical organizational attitudes and outcomes is now well established in the leadership literature (Avolio, 1999; Bass, 1998). Importantly, the associations between transformational leadership and organizational outcomes such as task and financial performance have been substantiated in both laboratory (e.g. Howell and Frost, 1989; Kirkpatrick and Locke, 1996) and field studies (e.g. Barling *et al.*, 1996; Howell and Avolio, 1993) that go beyond correlational findings (e.g. Howell and Hall-Merenda, 1999).

The importance of transformational leadership has also been demonstrated in non-business settings. For example, principals' use of transformational leadership is indirectly related to student performance (Koh *et al.*, 1995). Athletic performance among student athletes is indirectly associated with coaches' transformational leadership (Charbonneau *et al.*, 2001). Moreover, several studies have demonstrated the relationship between union stewards' transformational leadership and members' participation in local union activities (e.g. Fullagar *et al.*, 1992; Kelloway and Barling, 1993).

More generally, the dynamics of transformational leadership involve followers having a strong personal identification with the leader, a shared vision for the future, and working collectively for the benefit of the group. Yammarino and Dubinsky (1994) describe transformational leaders as heightening

awareness and interests in groups, increasing employee confidence, and gradually moving the followers' interests from the importance of their personal existence to the existence of the group. Leaders achieve this by illustrating four main characteristics:

- 1 idealized influence;
- 2 inspirational motivation;
- 3 individual consideration; and
- 4 intellectual stimulation.

Leaders manifest idealized influence when they make improvements in performance by participating in risks with their followers, maintain consistency in their behaviour, and are dependable. Through inspirational motivation, leaders bring meaning and purpose to the work being done, and introduce challenges and maintain motivation. Charisma, a process where leaders arouse followers by being visionary, motivational and powerful, confident and captivating their followers (Bass, 1985), is the sum of inspirational motivation and idealized influence. Leaders who display charismatic leadership are able to use expressive language that is emotionally appealing and communicate a clear vision that is related to the need and values of the followers (Yukl and Van Fleet, 1992). Leaders display intellectual stimulation when they help their followers develop new ideas, motivating them to take alternative routes to problem solving and take a closer look at all possible solutions. Finally, individualized consideration occurs when leaders pay individual attention to their followers, providing support and acting as coach.

Remote leadership

Most previous studies of transformational leadership have focused on leadership in face-to-face interactions (e.g. Barling *et al.*,

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1996; Howell and Avolio, 1993; Koh *et al.*, 1995) in which the leader is physically present with the followers. Indeed, some authors have suggested that this degree of contact is necessary for leadership to occur (Kerr and Jermier, 1978). However, with the advent of globalization, extended spans of control and advanced communication technology (Avolio *et al.*, 2001), organizational leaders are frequently tasked with "leading" employees who work in remote locations, or with leading so many employees that direct face-to-face contact on a regular basis is difficult. As a result, leaders increasingly rely on technologically-based communication with subordinates including the use of electronic mail (e-mail) and video/teleconferencing. Leadership interactions that are characterized by electronically-mediated communication between geographically and physically isolated leaders and followers are what we term "remote" leadership, and constitutes the focus for our current research.

Although there is little doubt that organizations are increasingly reliant on remote leadership, there is some concern that these interactions may be less than optimal. For example, as noted above, Kerr and Jermier (1978) suggested that effective leadership would be impossible under conditions that limit close interpersonal contact between leaders and followers. At least two studies have found that the effect of leadership on performance was negatively affected by the geographical distance between the leader and the follower (Howell and Hall-Merenda, 1999; Podsakoff *et al.*, 1984).

The more general difficulties of electronically mediated communication are vividly illustrated by recent events at Cerner Corp. An inter-office e-mail from the CEO to managers was "leaked" and posted on an Internet Web site. The e-mail read in part:

We are getting less than 40 hours of work from a large number of our K.C.-based EMPLOYEES. The parking lot is sparsely used at 8 a.m.; likewise at 5 p.m. As managers – you either do not know what your EMPLOYEES are doing; or you do not CARE.

It went on to threaten harsh punishment (including layoffs) if the situation was not improved within the following two weeks (*Business and Health*, 2001, May). The subsequent 23 per cent decline in company share price over the next three days was largely attributed to the hostile and belligerent tone of the company's leader.

Empirically, and consistent with this anecdotal evidence, there are also data suggesting that electronically-mediated

communication may be less than optimal. In their laboratory-based study (using a procedure parallel to that used in our second study), Foster and Coovert (2000) found that there were communication problems among team members using computer-mediated communications, and that there were higher recorded inaccuracies in the computer-mediated teams than in teams that met face-to-face.

Study 1

Research on electronically-mediated leadership is in its infancy. Accordingly, in our first study we chose a vignette approach that maximizes experimental control and internal validity. In this study, we were primarily interested in two questions. First, can recipients perceive and accurately identify leadership "styles" communicated by e-mail? Second, is receiving an e-mail with a positive (i.e. transformational) leadership message as opposed to a negative message (i.e. management-by-exception or *laissez-faire*) perceived to be associated with positive outcomes?

These are important questions, because in defining transformational leadership, Bass (1985, 1998) made it clear that other components need to be considered. Therefore, we include a focus on two additional leadership behaviors. First, management-by-exception takes place when standards are not met and is a form of negative performance monitoring, usually punitive, and is typically associated negatively with employee performance (e.g. Howell and Hall-Merenda, 1999). Second, a *laissez-faire* style literally reflects non-leadership, and is manifested when managers avoid taking any action, deny their responsibilities, and procrastinate whenever possible (Bass, 1985).

We suggest that both *laissez-faire* and management-by-exception styles may be especially relevant to a remote leadership environment. In the case of the *laissez-faire* style, it may be more appropriate to speak of a medium in which no leadership takes place. In such situations, e-mails would only be transmitted from leaders to their direct reports when absolutely necessary, and would be brief and devoid of any positive or negative statements. Leaders adopting this style would be both geographically and psychologically "remote" from their subordinates.

In contrast, where physical distance precludes frequent interpersonal contact, e-mail may be a suitable medium for the

practice of management-by-exception (Howell and Hall-Merenda, 1999; Podsakoff *et al.*, 1984), because e-mail may be particularly appropriate for leaders who wish to monitor and control their subordinates' behaviors (Shamir and Howell, 1999). In such cases, e-mails from leaders would focus on the consequences for mistakes by their subordinates. Consistent with previous findings on the full range of transformational leadership (Avolio, 1999), we would suggest that e-mails from supervisors that are characterized by a *laissez-faire* style would have no effects on direct reports, whereas e-mails that typify management-by-exception would have negative effects. In contrast, when the content of e-mails is characterized by transformational leadership, the effect on subordinates would be positive.

For this first study, we focus on the perceived effects of transformational leadership, management-by-exception, and *laissez-faire* on two aspects of employee morale that have been shown in prior research to be positively affected by transformational leadership, namely interpersonal justice and job satisfaction. These outcome measures were chosen because of research showing their importance to organizations. For example, interpersonal injustice has recognized negative effects for the organization (e.g. Greenberg, 1996). Several decades of research have shown that job dissatisfaction is associated with higher rates of absence and turnover (Spector, 1997).

To address these two questions, we use a vignette approach, in which groups of students each read one vignette, with one type of leadership message embedded. Two methodological issues warrant comment. First, because all of the data gathered are based on self-reports, we include a third outcome variable as a measure of divergent validity. That is, we also assessed continuance commitment (Meyer and Allen, 1997). Continuance commitment reflects employees' choosing to stay with their organization not because they want to, but because they have limited options. Continuance commitment is not plausibly associated with leadership. Thus, we predict that receiving the transformational leadership vignette would be associated with high levels of interpersonal justice and job satisfaction, but should have no effect on continuance commitment. Second, vignette studies maximize internal validity at the expense of generalizability, which is appropriate in the initial stages of a research program such as this. It is critical, however, that the vignettes themselves manifest

internal validity, and to this end, we first conducted a pilot study.

Pilot study: development of vignettes

Separate vignettes had to be created to reflect an e-mail representing transformational leadership (charisma, intellectual stimulation, individualized consideration), management-by-exception, and *laissez-faire*. To enhance ecological validity, all these vignettes were carefully designed to resemble real e-mails. First, the layout was similar to a typical e-mail (e.g. the heading included the name of the sender and the recipient, the date and the subject matter). Second, the content was similar to regular e-mails (i.e. the message was short and to the point). Third, the e-mail deliberately included missing words, spelling and grammatical errors.

All three vignettes in which a "leader" responded to an "e-mail from the subordinates" were read by eight graduate students who had participated in course work on transformational leadership. Each vignette depicted one of the three leadership styles as shown below:

1 *Transformational leadership*

Hi Jeff,

I can see the problem . . . This is not an easy situation, but I know you can solve it. Start by thinking of other times when a similar situation happened . . . What did we do. I think this is going to be a good learning opportunity for you and that you are ready for it. But I'm here to support you and if you want I can leave my things aside and work with you on this. Trust me we will achieve this :-)

2 *Management-by-exception*

Jeff - WE CAN'T MISS THIS ORDER I will be actively monitoring your actions and checking to see if you make mistakes. If you can't find a solution I will have to reconsider your capability to handle the responsibilities of the order desk. Don't do anything without telling me first. No mistake will be tolerated. Mark.

3 *Laissez-faire*

OK Jeff. No time now to talk more about it now. I'm going to be away of the office until monday. This really is on your shoulder. Do as you please. Mark.

The internal validity of the leadership manipulations was assessed by having eight expert judges categorize the vignettes. All vignettes except the management-by-exception one were correctly classified. The difference between this type of leadership and the other types was strengthened by making some changes to the vignettes used for the main study.

Before conducting the main experiment, a final manipulation check was conducted. Participants were 12 MBA students who had

received lectures on transformational leadership. They were given the same instructions and had to answer the same questionnaire as the graduate students who participated in the previous manipulation check.

For ecological validity, the realism of the hypothetical situation presented in the vignette was assessed during the last manipulation check. In addition to the manipulation check, the MBA students were asked to rank each vignette from 1 to 7 according to how realistic they believed the e-mail was in an organizational setting (1 – I don't believe it is realistic, 7 – I strongly believe it is realistic). All vignettes were correctly classified by the MBA judges. In terms of realism, the three vignettes used for the main experiment were ranked at or above the mid-point of the scale (*Ms*: transformational leadership = 4.67; management-by-exception = 3.92, *laissez-faire* = 4.67).

Participants

A total of 132 undergraduate students (*M* age = 22.99 years, *SD* = 5.96, range = 17-50; 57 per cent female) from one Canadian university voluntarily and anonymously participated in the main experiment. None of the students had received any classes in organizational behavior in general, or leadership in particular prior to the conduct of the study.

Procedure

Participants read the hypothetical situation containing the e-mail from Jeff, and Mark's Thompson's reply before completing the questionnaires containing scales we describe below. This material was administered during class, and distributed in a systematic order so that all respondents sitting next to each other received different vignettes. A total of 42 respondents read the management-by-exception, 43 read the *laissez-faire*, and 45 read the transformational leadership vignette.

Dependent variables:

Satisfaction with supervision was measured by the appropriate subscale from the job descriptive index where the name of the supervisor was added to the item (e.g. Mark Thompson is influential). The scale was highly reliable ($\alpha = 0.84$). Interpersonal justice in the organization was measured with the 14 first items of Donovan *et al.*'s (1998) perceptions of fair interpersonal treatment scale. The internal consistency of the scale was satisfactory ($\alpha = 0.91$). Meyer and Allen's (1997) six items were used to assess continuance commitment. The first person pronouns were replaced by third

person singular. The internal consistency of the scale was satisfactory: $\alpha = 0.75$.

Continuance commitment was ranked on a seven-point scale (where 1 = strongly disagree and 7 = strongly agree). Job satisfaction and interpersonal justice were responded by "Yes" (3), "No" (0) or "?" (1).

Results

Descriptive statistics for respondents' age and all study variables appear in Table I.

Interpersonal justice and supervisor satisfaction were significantly and substantially correlated. Accordingly, we conducted a one-way, multivariate analysis of variance to assess whether viewing the different aspects of transformational leadership in e-mails would be perceived to exert different effects. Neither age nor sex were controlled in the analyses: age was not associated with any of the four outcome variables (see Table I), and there were no gender differences on any of these four variables ($p > 0.05$).

A significant multivariate effect was yielded, Pillai's trace $F(6,242) = 10.77$, $p < 0.001$. Examination of the univariate F ratios (see Table II) suggested significant differences for both interpersonal justice, $F(2, 122) = 17.28$, $p < 0.001$ and job satisfaction, $F(2, 122) = 27.96$, $p < 0.001$, while the effect of leadership message on continuance commitment was not significant, $F(2,122) = 0.31$, $p > 0.05$.

Discussion

Work in modern organizations is increasingly done between people located in different geographic locations. Previous research has indicated that this makes the leadership function more difficult. We used a vignette methodology to assess, in the first instance, whether recipients could identify leadership messages when presented in e-mails. The results of this study show that individuals can indeed differentiate between different leadership styles within e-mails. Second, consistent with our expectations, e-mails containing transformational leadership messages were associated with greater interpersonal justice and satisfaction compared to messages based on the management-by-exception or *laissez-faire* styles.

Our choice of a vignette methodology and perceptual variables raises the possibility that mono-method or mono-source bias is a threat to our findings. There are at least three features of our study that mitigate this threat. First, mono-method bias would serve

Table I

Descriptive statistics and intercorrelations for all study 1 variables ($n=122$)

Variable	M	SD	A	1	2	3
1. Age (in years)	22.90	5.90	-			
2. Interpersonal justice	1.43	0.84	0.91	-0.10		
3. Job satisfaction	1.29	0.62	0.84	-0.10	0.74*	
4. Continuance commitment	4.18	1.06	0.75	-0.16	0.15	0.16

Note: * $p < 0.01$

Table II

Means and standard deviations for the vignettes for each of the outcome variables in study 1

	F^a	Transformational leadership		Management by exception		Laissez faire	
		M	SD	M	SD	M	SD
Interpersonal justice	17.27	1.88	0.77	1.64	0.76	0.82	0.58
Job satisfaction	27.96	1.70	0.62	1.22	0.56	0.98	0.46
Continuance commitment	0.31	4.28	0.91	4.11	0.99	4.13	1.24

Note: ^a $df = 2, 122$

to artifactually inflate all correlations of self-report measures, and we note that this is not the case in our study (see Table I). Second, unless one posits a complex interaction of method bias and treatment, the effect of mono-method bias would be to suppress group differences and our results are based on the presence of group differences. Finally, we included a measure of continuance commitment to assess divergent validity. As hypothesized, continuance commitment did not vary across the leadership conditions as did interpersonal justice and job satisfaction.

Nonetheless, by their very nature, vignette studies reflect a minimal intervention, reducing the extent to which lessons can be generalized. The purpose of the second study was to expand on and constructively replicate our initial findings.

Study 2

Although promising, the results of our first study do not provide a firm basis for inferring that remote leadership can be effective. The purpose of the second study was to build on these results by examining the effects of remote leadership on motivation and performance using a laboratory-based investigation. As in most areas of investigation, the use of a laboratory-based procedure is most appropriate in the early stages of research when the questions of interest focus on internal validity. Only after establishing the existence of an effect do questions of external validity or generalizability become particularly important.

The purpose of the current research study is to broaden our understanding of remote transformational leadership, specifically the effects of intellectual stimulation and charisma in remote leadership contexts. We focus on these two aspects of leadership for several reasons. First, previous research has associated both charisma (e.g. Kirkpatrick and Locke, 1996) and intellectual stimulation (e.g. Barling *et al.*, 1996) with task performance. Second, most research on transformational leadership has been correlational in nature, and the substantial correlations between the separate components of transformational leadership (Bycio *et al.*, 1995) has precluded an examination of their unique effects. In contrast, such an assessment is possible when using an experimental design. Third, both of these aspects of transformational leadership can be taught (Barling *et al.*, 1996; Kelloway *et al.*, 2000), lending considerable utility to research in these areas.

We hypothesized that individuals exposed to e-mail messages containing a charismatic or intellectually stimulating message would express higher levels of task motivation, and demonstrate higher levels of performance on a laboratory task than individuals who received e-mail instructions that did not contain these aspects of transformational leadership. Based on previous experimental research on transformational leaders (e.g. Kelloway *et al.*, 2000), we hypothesize main effects for both intellectual stimulation and charisma but no additive effect between the two dimensions of transformational leadership.

Method

Participants/setting

Data were collected from 105 undergraduate psychology students at a Canadian university. Each participant received two bonus points towards their course grades in return for their participation.

Measures and procedure

The experiment involved the use of a group problem solving exercise similar to the well-known "NASA exercise" (Lau and Jellinek, 1984). The task required participants to read a short scenario describing a survival situation in which they have become stranded on a mountain with limited supplies during a winter storm. The task is to rank order a list of supplies in terms of importance for survival (1 – most important, 12 – least important). Participants complete the rankings individually and then work in groups to derive a consensus ranking. By subtracting individual and group scores from the rankings assigned by survival experts, individual and group performance scores are derived. The performance scores are discrepancy measures with high scores representing worse performance (i.e. greater discrepancy from the "correct" rankings).

Participants arrived individually and completed informed consent forms. As consent forms were signed and returned to a facilitator, each participant was given a copy of the "e-mail" containing either a charismatic, intellectually stimulating, neutral (neither charismatic nor stimulating), or transformational (both charismatic and stimulating) message. The charismatic message outlined the leaders "vision" for the task and expressed confidence in the participants' abilities. The intellectually stimulating message encouraged participants to "think outside the box" and to approach the problem from several different angles.

Participants completed the survival task (i.e. rankings) on an individual basis and then were assigned randomly to groups according to which message they had received. Groups had approximately 25 minutes to complete the task collectively. Groups ranged between three and six members with an average of four members per group.

After the group task, individual participants were asked to complete a brief post-task questionnaire. As manipulation checks, the intellectual stimulation ($\alpha = 0.72$) and charisma ($\alpha = 0.73$) of the remote leader were assessed with the appropriate scales from the MLQ-5. Motivation to complete the

task was assessed with the willingness to exert extra effort scale from the same measure ($\alpha = 0.82$). Finally, both individual and group performance scores were derived by subtracting the expert rankings.

Results

Manipulation checks

Participants who received an e-mail in which the leader expressed intellectual stimulation rated that leader as being more intellectually stimulating ($M = 3.6$, $SD = 0.60$) than when the leader did not express intellectual stimulation ($M = 3.0$, $SD = 0.72$), $t(99) = 4.28$, $p < 0.01$. As predicted, no differences emerged between these two groups for charisma ($M = 3.7$ vs 3.8). Participants who received an e-mail in which the leader expressed charisma rated that leader as being more charismatic ($M = 3.9$) than when the leaders did not express charisma ($M = 3.5$), $t(99) = 0.50$, $p < 0.01$. There was no effect of the charisma manipulation on the measure of intellectual stimulation ($M = 3.3$ vs 3.2).

Motivation and performance

Descriptive statistics and intercorrelations for the study variables are presented in Table III. To assess the main hypotheses of the study, we conducted a 2×2 multivariate analysis of variance with leadership condition (intellectual stimulation or not, charisma or not) as the independent variables and the measures of motivation and individual performance as the dependent variables. Significant multivariate main effects emerged for both intellectual stimulation ($F(2,94) = 8.19$, $p < 0.01$) and charisma ($F(2,94) = 3.42$, $p < 0.05$). The interaction was not significant.

Inspection of the univariate results suggested that motivation was higher when participants read an intellectually stimulating e-mail ($M = 3.4$) than when they did not ($M = 2.9$), $F(1,95) = 9.13$, $p < 0.01$. Similarly, individual performance was better when the e-mail was from an intellectually stimulating leader ($M = 34.4$) than when it was not ($M = 39.2$), $F(1,95) = 8.93$, $p < 0.01$.

An e-mail from a charismatic leader had no significant effect on motivation but was associated with better individual performance ($M = 38.6$ vs 35.4), $F(1, 95) = 4.62$, $p < 0.01$.

Group performance

Finally, to analyze the effect on group performance, we conducted a 2×2 analysis of covariance with intellectual stimulation and charisma as the independent variables,

Table III

Descriptive statistics and intercorrelations for study 2 variables ($n=99$)

Variable	1	2	3	4	5	6
1. Intellectual stimulation (assigned condition)	-					
2. Charisma (assigned condition)	-0.01	-				
3. Intellectual stimulation (measured)	0.40**	-0.04	-			
4. Charisma (measured)	0.10	0.33**	0.30**	-		
5. Motivation	0.30**	0.13	0.33**	0.36**	-	
6. Individual performance	-0.28**	-0.21*	-0.22*	-0.06	0.11	
Mean	0.49	0.47	3.27	3.70	3.10	36.87
Standard deviation	0.50	0.50	0.71	0.53	0.82	8.68

group size ($M=4.33$, $SD=0.73$) as the covariate, and the group performance score as the dependent variable. Neither the covariate nor the interaction attained statistical significance.

Group performance was greater when the groups had read an intellectually stimulating e-mail ($M=26.0$) than when they did not, ($M=32.3$), $F(1,19)=5.84$, $p<0.05$. Similarly, group performance was better when the groups had read an e-mail from a charismatic leader ($M=26.2$) than when they did not ($M=32.1$), $F(1,19)=4.47$, $p<0.051$.

Discussion

Many of the research findings in the area of leadership indicate that various aspects of transformational leadership can influence task and attitude related outcomes (e.g. Barling *et al.*, 1996; Kirkpatrick and Locke, 1996). The current study extends this research by suggesting that the same effects may well be obtained when the leader-follower communication is electronically mediated rather than transmitted directly.

The results of our manipulation check showed that participants appropriately identified the intended characteristics of the remote leader. That is, individuals who read an intellectually stimulating e-mail rated the leader as being more intellectually stimulating than did individuals who read a non-intellectually stimulating e-mail. Similarly, participants who read a charismatic message rated the leader as being more charismatic than those who read a non-charismatic message. These results support those reported in study 1, suggesting that individuals can detect, and thereafter respond to different leadership styles expressed through an electronically-mediated channel of communication.

We hypothesized and found that performance on a problem-solving task would be better (in comparison to a control group) when groups were presented with an e-mail from a remote leader that contains

specific intellectually stimulating and/or charismatic leadership characteristics. Both individual motivation and individual performance as well as group performance scores varied as a function of the main effects of intellectual stimulation. There was also a main effect of charisma on individual performance. These results are consistent with previous research suggesting that both intellectual stimulation (Barling *et al.*, 1996) and charisma (Kirkpatrick and Locke, 1996) resulted in improved task performance. Consistent with the results of previous experimental research, (Kelloway *et al.*, 2000), there was no significant effect attributable to the combination of intellectual stimulation and charisma.

Our results did not support an effect of a charismatic leadership message on individual motivation (e.g. Kirkpatrick and Locke, 1996). Future research in this area will need to consider whether this null finding is plausibly attributable to the specific message we used, or whether charisma is not easily transmitted through electronic means. We note that the manipulation reported by Kirkpatrick and Locke (1996) went beyond a simple verbal message and it may be that nonverbal cues are important to communicate the motivating aspects of charismatic leadership.

One final comment should be made about the role of experimental studies in research on transformational leadership. Separate outcomes are ascribed conceptually to the different components of transformational leadership (Bass, 1998). As noted earlier, however, the substantial correlations that typically emerge between these components in correlational research (Bycio *et al.*, 1995) have inhibited the ability to test these ideas empirically. Our second study shows that it is possible to manipulate separate components of transformational leadership, and future research can now address the unique outcomes of idealized influence, inspirational motivation, intellectual stimulation and individualized consideration.

In a related vein, one unintended consequence of our results is to provide support for the hypothesized components of transformational leadership and their measurement. Based on substantial intercorrelations between subscales (Bycio *et al.*, 1995) and factor analytic research (e.g. Carless, 1998), that suggests a unidimensional structure, researchers have questioned whether the measure of transformational leadership is construct valid. However, it is unclear whether these results reflect a problem with the measurement or whether, in actuality, the components of transformational leadership co-occur (i.e. individuals who are "high" on one dimension tend to be "high" on the others). Our results provide support for construct validity by showing that when it is possible to manipulate the dimensions of transformational leadership in an experimental design the measure is sensitive to these manipulations.

In summary, the present findings suggest that remote transformational leadership can still have the same positive effects on performance and attitudes that occurs within face-to-face interaction. Moreover, our findings suggest that electronically mediated communication channels may be used to convey the same leadership "message" as in face-to-face interaction, which questions the suggestion that leader-follower distance has a negative effect on performance and followers' perceptions of their leader. While these findings await replication in field settings, they suggest considerable promise for the effectiveness of remote transformational leadership.

Note

- 1 Marginal means are estimated at the mean value of the covariate ($M = 4.28$).

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