

Leading to Make a Difference: A Field Experiment on the Performance Effects of Transformational Leadership, Perceived Social Impact, and Public Service Motivation

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ABSTRACT

Scholars have recently begun to investigate job design as one of the contingencies that moderates¹ the performance effects of transformational leadership in public sector organizations. Drawing on this stream of research, we used a completely randomized true experimental research design to explore the potential of two extra-task job characteristics—that is, beneficiary contact and self-persuasion interventions—to enhance the effects of transformational leadership on public employee performance. The participants in our field experiment were 138 nurses at a public hospital in Italy. Whereas participants who were exposed to transformational leadership manipulation alone marginally outperformed a control group, the performance effects of transformational leadership were much greater among nurses who were also exposed to either beneficiary contact or self-persuasion interventions. Follower perceptions of pro-social impact partially mediated² the positive interaction of transformational leadership and each of the two job design features on job performance. Moreover, the performance effects of transformational leadership and the interaction effects of transformational leadership and each of the two job design features were greater among participants who self-reported higher levels of public service motivation. The implications of the experimental findings for public administration research and theory are discussed.

INTRODUCTION

Transformational leadership has often been referenced as one of the most powerful factors motivating purposeful action and high public employee performance (e.g., Paarlberg and Lavigna 2010; Park and Rainey 2008; Trottier, Van Wart, and Wang

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1 A moderator is a variable that affects the strength or direction of the relationship between a predictor and an outcome. In other words, the effect of the predictor on the outcome depends on the level of the moderator.

2 A mediator is a variable that accounts for all or some of the observed relationship between a predictor and an outcome.

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2008; Wright, Moynihan and Pandey 2012; Wright and Pandey 2010). However, despite nonexperimental evidence that suggests that transformational leadership is positively correlated with follower performance, experimental and quasi-experimental studies have shown that transformational leaders are not unconditionally successful (Barling, Weber, and Kelloway 1996; Dvir, Eden, Avolio, and Shamir 2002; Grant 2012; Kirkpatrick and Locke 1996).

Scholars have recently begun to investigate job design as one of the contingencies that may moderate the performance effects of transformational leadership (Grant 2012). This study aims to link this highly promising stream of literature with public administration research and theory. Using a completely randomized true experimental research design, we explored whether, how and under what contingencies two job design features—that is, beneficiary contact and self-persuasion interventions—enhanced the performance effects of transformational leadership on a group of nurses at a public hospital in Italy. In the following sections, we begin by situating our research within the relevant literature and illustrating our hypotheses. We then go on to describe the experiment that we conducted to test these hypotheses, and we conclude with a discussion of our findings and their implications for research and theory.

THEORETICAL BACKGROUND AND RESEARCH QUESTIONS

Transformational Leadership in the Context of Public Administration

The conventional conceptualization of transformational leadership encompasses four behavioral dimensions: inspirational motivation, idealized influence, intellectual stimulation and individualized consideration (Bass 1985; Burns 1978). Inspirational motivation involves articulating a vision of the future that is appealing and inspiring to followers. Idealized influence is associated with charismatic actions and modeling behavior that causes followers to identify with their leader. Intellectual stimulation involves soliciting followers' ideas and challenging them to question old assumptions and analyze problems from new perspectives. Finally, individual consideration entails attending to each follower's needs through mentoring, coaching and other similar activities.

At its core, transformational leadership involves motivating followers to transcend their immediate self-interest “for the sake of the team, the organization or the larger polity” (Shamir, House, and Arthur 1993, 579). As noted by Wright and Pandey (2010), this emphasis on the mission may make transformational leadership naturally suited to the public sector, whose employees are inherently required to see beyond self-interest to the well-being of the larger community. Wright and Pandey (2010) note that the mainstream leadership literature is pessimistic regarding the potential for transformational leadership behavior in public organizations compared to private ones. These negative predictions are based on the fact that public organizations rely heavily on bureaucratic control systems (Bass and Riggio 2006; Howell 1997; Pawar and Eastman 1997; Shamir and Howell 1999), which are expected to inhibit transformational leadership behaviors (Lowe, Kroeck, and Sivasubramaniam 1996). However, empirical research has contradicted the expectations of mainstream leadership theory in this regard (Dumdum, Lowe, and Avolio 2002). Wright and

Pandey (2010) provide two alternative explanations for the discrepancy between the theoretical predictions and the empirical evidence: either public organizations are not as bureaucratic as is commonly thought (Boyne 2002; Pandey and Wright 2006; Wright 2004), or bureaucratic control mechanisms do not inhibit transformational leadership behavior.

The Performance Effects of Transformational Leadership in Public Sector Organizations

Abundant observational research has shown that transformational leadership predicts higher levels of job performance among followers (e.g., Bass and Riggio 2006; Judge and Piccolo 2004; Jung and Avolio 2000). Public administration studies on this topic have generally reached the same conclusion. For instance, a cross-sectional empirical study that was conducted using more than 6,900 responses to the Merit Principles Survey 2000 has shown that federal employees who perceive their supervisors as displaying more transformation-oriented leadership tend to self-report higher levels of performance and work quality along with higher job satisfaction and lower turnover intentions (Park and Rainey 2008). Another cross-sectional survey of senior managers working in local US governments has shown that transformational leadership is positively correlated with mission valence—identified as a predictor of higher job satisfaction and work motivation (Wright 2007)—through the mediators of public goal clarity and public service motivation (PSM) (Wright, Pandey, and Moynihan 2012). A different study based on the same cross-sectional data (Moynihan, Pandey, and Wright 2012b) concluded that transformational leaders enhance the use of performance information by their followers—which is “a form of behaviour that is a logical contributor to both higher individual and organizational performance” (Moynihan and Pandey 2010, 859)—through the mediators of goal clarity and organizational culture. Employing the same survey data, Moynihan, Wright, and Pandey (2012) found that perceptions of red tape were lower among agency heads who rated their supervisor, the city manager, as more transformational and that transformational leadership altered perceptions of red tape through the mediators of goal clarity, political support, and internal communication.

Despite this nonexperimental evidence suggesting that transformational leadership is positively correlated with job performance, experimental studies on this topic have provided mixed results. Both field experimental work (Barling, Weber, and Kelloway 1996; Dvir, Eden, Avolio, and Shamir 2002; Grant 2012) and laboratory experiments (Kirkpatrick and Locke 1996) have shown inconsistent evidence of the effectiveness of transformational leaders in motivating higher performance among their followers. To our knowledge, apart from a field experiment in the Israeli military (Dvir, Eden, Avolio, and Shamir 2002), no true experimental work on the performance effects of transformational leadership in public sector organizations has ever been published. Our study takes a step toward filling this gap by testing the following hypothesis using a randomized control group study:

H_1 Transformational leadership has a positive effect on public employee performance.

The Influence of Transformational Leadership and Job Design on the Performance of Public Employees

One possible explanation for the inconclusive results of previous experimental studies of the performance effects of transformational leadership is that transformational leaders are not unconditionally successful in motivating their followers. The contrary has been proposed: that transformational leaders can be effective only insofar as they succeed in moving beyond rhetoric and turning their visions into a tangible reality (Kirkpatrick and Locke 1996). How can leaders reify their vision? Research has shown that an effective method is to heighten their followers' awareness of making a positive difference in other people's lives (Thompson and Bunderson 2003).

At its core, transformational leadership entails motivating followers to go beyond their immediate self-interest by linking an inspiring vision to core values (Shamir, Zakay, Breinin, and Popper 1998). Research in several disciplines has shown that doing good for others is a fundamental human value across cultures, employment sectors, and typologies of workers. In particular, cultural psychological research has demonstrated that benevolence is at the top of the hierarchy of values in many cultures worldwide (Schwartz and Bardi 2001). Similarly, three related fields of study that have blossomed during the last 20 years—that is, pro-social motivation (e.g., Brief and Motowidlo 1986), PSM (e.g., Perry and Wise 1990), and altruism (e.g., Piliavin and Charng 1990)—all emphasize the centrality of other-regarding motives (Perry, Hondeghem, and Wise 2010).

If orientation toward the other is a relevant determinant of organizational behavior in general (De Dreu 2006; Grant 2007; Meglino and Korsgaard 2004), the perception of benefiting others plays an even more relevant role for workers who provide public services (Grant 2008a; Perry and Wise 1990). Consequently, for public leaders who want to make their inspiring messages more concrete in the eyes of their followers, emphasizing the pro-social effects of their vision is particularly important.

Recent experimental research has shown that beneficiary contact (Bellé 2013; Grant 2007; Grant 2008a; Grant et al. 2007) and self-persuasion interventions (Bellé 2013) may nurture the belief among employees that they make a positive difference in other people's lives. In light of this evidence, we investigated the moderating effect that beneficiary contact and self-persuasion interventions may have on the performance effects of transformational leadership.

(a) Beneficiary Contact

Relational job design research has shown that giving employees the opportunity to meet the individuals who benefit from their efforts can greatly enhance their motivation and performance (Bellé 2013; Grant 2008a; Grant et al. 2007) by heightening their perception of themselves as making a difference in other people's lives (Grant 2007). Using quasi-experimental and observational research designs, Grant (2012) has recently demonstrated that giving employees the opportunity to interact with the beneficiaries of their efforts—and thus tangibly illustrating how the leader's vision benefits other people—strengthens the performance effects of transformational leadership.

To corroborate both the external and the internal validity of these findings, we tested the following hypothesis adapted from Grant (2012) in a different country

using a different typology of workers and a completely randomized true experimental research design.

H_{2a} Beneficiary contact strengthens the effect of transformational leadership on public employee performance.

(b) Self-Persuasion

Self-persuasion is an indirect persuasion technique that entails “placing people in situations where they are motivated to persuade themselves to change their own attitudes or behavior” (Aronson 1999, 875). Research on role-playing has long demonstrated the persuasive effect of self-generated arguments: while trying to convince another person, individuals may end up convincing themselves in the process (Janis and King 1954; King and Janis 1956). In a now-classic experiment by Elms (1966), cigarette smokers who were assigned the role of nonsmokers trying to convince a friend to stop smoking found cigarettes more distasteful than did those who received the same information passively.

Wright and Grant (2010) have recently urged public administration scholars to examine techniques that have proven effective in inducing self-persuasion, such as idea reflection (e.g., Gregory, Cialdini, and Carpenter 1982) and advocacy (e.g., Gordijn, Postmes, and de Vries 2001; Miller and Wozniak 2001). In a recent randomized control group experiment with nurses working at a public hospital, a self-persuasion manipulation had a positive effect on the persistence, output, productivity and vigilance of the participants (Bellé 2013). In light of this research, we investigated if putting followers in situations in which they were compelled to persuade themselves of the pro-social influence of the vision of their leaders could strengthen the performance effects of transformational leadership. We therefore formulated and tested the following hypothesis:

H_{2b} Self-persuasion interventions strengthen the effect of transformational leadership on public employee performance.

The Mediating Role of Perceived Pro-Social Impact

Several studies have suggested that nurturing the perception of task significance among employees—that is, the employees’ belief that they are making a positive difference in other people’s lives—can enhance their motivation and effort. These studies identify two possible mediators that may explain the effect of task significance on job performance. On the one hand, research that draws from social information processing theory (Salancik and Pfeffer 1978) and from traditional models of job design that are focused on the task structures of jobs (Hackman and Oldham 1976; Hackman 1980) posits that nurturing employee perceptions of task significance makes them experience their jobs as more meaningful (Zalesny and Ford 1990). This perceived meaningfulness, in turn, can motivate employees to exert more effort (Fried and Ferris 1987; Parker and Wall 1998).

On the other hand, contemporary research on job design (Grant 2007) focuses on perceived pro-social impact as mediating the impact of task significance on job performance (Grant 2008b). Adopting the latter theoretical perspective, we expected

that both beneficiary contact and self-persuasion would strengthen the relationship between transformational leadership and follower-perceived positive influence on others, which, in turn, would positively affect job performance. To examine beneficiary contact, we experimentally tested the following hypothesis adapted from Grant (2012):

H_{3a} *Public employee perceptions of pro-social impact mediate the moderating effects of beneficiary contact on the relationship between transformational leadership and public employee performance.*

For the self-persuasion intervention, we formulated and tested the following hypothesis:

H_{3b} *Public employee perceptions of pro-social impact mediate the moderating effect of self-persuasion interventions on the relationship between transformational leadership and public employee performance.*

The Moderating Role of PSM

During the last two decades, PSM research has thoroughly investigated the uniqueness of “motives grounded primarily or uniquely in public institutions and organizations” (Perry and Wise 1990, 368). Vandenaabeele describes PSM as “the belief, values and attitudes that go beyond self-interest and organizational interest, that concern the interest of a larger political entity” (2007, 547). This conceptualization is closely linked to the construct of transformational leadership, which entails motivating followers “to transcend their own self-interests for the sake of the team, the organization or the larger polity” (Shamir, House, and Arthur 1993, 579).

Transformational leadership rests on an assumption regarding employees that contradicts agency theory (Moynihan, Pandey, and Wright 2012a; Van Wart 2005)—the assumption that, in the terms proposed by Le Grand (2006), individuals are altruistic “knights.” Whereas transaction-based approaches conflict with the other-regarding values of many public employees—and have the potential to turn “knights” into “knaves” by crowding out intrinsic or pro-social motivations (Le Grand 2006; Moynihan 2010; Weibel, Rost, and Osterloh 2010)—transformational leadership may represent a superior fit for a workforce with high levels of PSM. This is particularly the case for public organizations because their employees tend to be motivated by a greater desire to serve others than private sector workers exhibit (e.g., Pandey and Stazyk 2008; Steijn 2008).

Based on previous theoretical work by Paarlberg and Lavigna (2010) and the limited empirical evidence that is available to date (Park and Rainey 2008; Wright, Moynihan, and Pandey 2012), we expected that transformational leadership would be more likely to increase job performance for employees with stronger PSM than for employees with weaker PSM. The rationale governing this hypothesis is that employees with greater PSM care more about doing work that has a positive impact on others (Perry and Wise 1990). The inspiring messages that transformational leaders deliver to motivate their followers to go beyond their own self-interest convey to employees with strong PSM that their jobs have the potential to express and fulfill their values for the benefit of others. Literature on needs-supplies fit posits that workers are more willing to expend

the effort that is necessary for them to perform effectively when their jobs match their values (Edwards et al. 2006). As a result, we expected that employees with stronger PSM would be more likely to improve their job performance in response to transformational leadership—alone or enhanced by job design interventions—to express and fulfill their aim of helping others. We therefore formulated and tested the following hypotheses:

- H₄ *Transformational leadership has a greater performance effect on public employees with stronger public service motivation.*
- H_{5a} *The positive interaction between transformational leadership and beneficiary contact has a greater performance effect on public employees with stronger public service motivation.*
- H_{5b} *The positive interaction between transformational leadership and self-persuasion interventions has a greater performance effect on public employees with stronger public service motivation.*

METHOD

Participants and Design

The participants were 138 nurses from a group of public hospitals belonging to the same local health authority (LHA) in Italy. The 138 nurses had been hired by the LHA during the two previous years and were attending mandatory training for recent hires. At the beginning of 2011, the LHA joined an international cooperation project that was intended to strengthen the healthcare system in a former war zone. The LHA was contributing to the project by collecting surgical tools and drugs donated by several organizations (e.g., pharmaceutical companies, other hospitals, nongovernmental organizations) and assembling surgical kits that were ready for shipment to health practitioners operating in the target area. The 138 recent hires were required to spend four hours on the project as part of their mandatory training.

Procedures

Participants were randomly assigned to one of six equal-sized groups of 23 nurses each: control (group 1), transformational leadership (group 2), beneficiary contact (group 3), combined transformational leadership and beneficiary contact (group 4), self-persuasion (group 5), and combined transformational leadership and self-persuasion (group 6).³ The six groups attended six separate sessions that were led by the Director of Nursing at the LHA and by her assistant. The Director knew that we were conducting a research project on the performance effects of leadership; however, she was unaware of the specific research hypotheses and experimental procedures.

³ Grant (2012) used a similar experimental design with unequal-sized groups ranging from 12 to 26 participants. Power calculations indicated that the size of our groups was adequate to detect effect sizes similar to those found in previous studies in this research area (Bellé 2013; Grant 2012) with statistical power greater than the conventional threshold of .80 at a significance level of .05 (Murphy and Myers 2004).

Group 1 (Control)

The Director of Nursing and her assistant welcomed the participants and showed them a short video that provided basic information about the project's aims along with information on how to perform the assigned task. This task consisted of retrieving a list of items (including surgical tools and pharmaceuticals) from shelves and boxes, checking shelf-life labels and verifying product integrity, storing the items inside a case in a specific order and putting a label on each completed case with a signature and the completion time.

Group 2 (Transformational Leadership)

In addition to showing the tutorial video, the Director of Nursing, who initiated the project and was its main sponsor, talked for approximately 15 min at our instruction, explaining why the project was meaningful to her and communicating her enthusiasm for the project by telling vivid stories of successful operations performed thanks to the surgical kits that had been assembled during the previous phases. Based on her direct experience assembling the surgical kits, the Director also gave the participants some practical tips and encouraged them to identify ways to improve the assembly process. She also urged the participants to contact her directly with any feedback or to suggest ideas for improvements.

Group 3 (Beneficiary Contact)

In addition to receiving the same treatment as the control group, the participants in the beneficiary contact condition were given the chance to have a 15-min meeting with a former patient from the target area, one who had benefited from the surgical kits a few years prior after being injured by an antipersonnel mine. At the time of the experiment, this person was collaborating with the project staff by serving as a liaison with health practitioners operating in the target area thanks to his fluency in Italian. The beneficiary explained how surgical tools similar to those included in the kits had saved his life.⁴

Group 4 (Transformational Leadership × Beneficiary Contact)

In addition to receiving the same treatment as the control group, the participants first heard the Director's speech and then received a visit from the beneficiary. While delivering her speech, the Director was unaware that participants would also receive a visit from a former patient from the target area.

Group 5 (Self-Persuasion)

In addition to receiving the same treatment as the control group, the nurses in the self-persuasion condition participated in a 30-min individual brainstorming session (e.g., [Furnham and Yazdanpanahi 1995](#)) that was designed and led by a psychologist who was unaware of the research hypotheses. These participants were first asked to write a short essay which they were told would be included in a presentation that would be used to campaign for the project. The assignment was to describe how the

⁴ Before meeting the experiment participants, the beneficiary signed an informed consent form that stated that his participation in the study was voluntary. The consent form specified that no information identifying him would be disclosed at any time by the researchers. To provide his consent, the beneficiary had to check an opt-in box.

participants thought their efforts would make a concrete difference in the lives of those who received the kits. The nurses were then invited to silently generate and write down a list of arguments and ideas that might convince other hospitals and pharmaceutical companies to participate in the project. We designed this self-persuasion manipulation following [Wright and Grant \(2010\)](#), who have suggested asking public employees to reflect on the importance of their work and then to explain “why it is critical for each person to engage in public service” (696).

Group 6 (Transformational Leadership × Self-Persuasion)

In addition to receiving the same treatment as the control group, the nurses in the combined transformational leadership and self-persuasion condition first heard the Director’s speech and were then asked to do the same things as the nurses in group 5 to induce the process of idea reflection. While delivering her speech, the Director was unaware that participants would also participate in the individual brainstorming session.

Except for the Director’s speech, the beneficiary’s visit and the interventions intended to induce reflection, the six sessions were identical. The nurses in the various sessions had exactly the same net amount of time (i.e., three hours) to actually perform the assigned task. The nurses were not assigned any specific target number of surgical kits to assemble and were informed that their performance would not be subject to evaluation. The participants in all of the groups answered a pre-experiment questionnaire at the beginning of their session and a postexperiment questionnaire at the end of their shift.

Measures

Performance

We measured performance as the number of surgical kits that each participant correctly assembled during his or her three-hour shift ([Bellé 2013](#)). This metric was meant to capture both participant effort (e.g., [Blumberg and Pringle 1982](#); [Gneezy and Rustichini 2000](#); [Grant 2007, 2008a, 2008b](#); [Schmidt and Hunter 1983](#)) and the participants’ ability to maintain attention and accuracy while performing their jobs (e.g., [Brewer and Brewer 2011](#)).

Whenever possible, we measured variables using multiple-item scales that had been tested and validated in previous studies. Appendix 1 reports the items included in the scales that were employed in our analyses. Unless otherwise indicated, all items used 7-point Likert-type scales with anchors of 0 (disagree strongly) and 6 (agree strongly).

Perceived Pro-Social Impact

As a measure of perceived pro-social impact, the postexperiment questionnaire featured three items that had been previously tested and validated by [Grant \(2008a\)](#).

Public Service Motivation

We measured participant PSM using a popular five-item version of [Perry’s \(1996\)](#) original scale ([Alonso and Lewis 2001](#); [Brewer and Selden 2000](#); [Kim 2005](#); [Pandey,](#)

Wright, and Moynihan 2008; Wright and Pandey 2008; Wright, Moynihan, and Pandey 2012; Wright, Christensen, and Pandey forthcoming) that has recently been validated as a multi-item unidimensional measure of PSM (Wright, Christensen, and Pandey forthcoming). We measured PSM levels as reported by the participants in the pre-experiment questionnaire.

Manipulation Checks

The postexperiment questionnaire featured manipulation checks for transformational leadership, beneficiary contact and self-persuasion (see appendix 1).

Controls

In addition to asking questions regarding age, gender and job experience, we controlled for conscientiousness (Donnellan, Oswald, Baird, and Lucas 2006) and intrinsic motivation (Ryan and Connell 1989).

RESULTS

We conducted a confirmatory factor analysis using Lisrel 8.80 to construct the latent variables from their respective questionnaire items and assess the validity and reliability of the study measures (Jöreskog and Sörbom 2006).⁵ Appendix 1 reports the standardized factor loading of each item on its expected latent variable (λ). Appendix 1 also shows the Cronbach's alpha (α), the construct reliability estimate (ρ), and the average variance extracted (AVE) by each construct. Standardized loadings ranged from .64 to .87, and AVE estimates ranged from .62 to .74. These values indicated that the individual scale items converged on their respective latent variables.⁶ All of the construct reliability estimates were well above .7, which is usually accepted as the threshold for having good construct reliability. The discriminant validity of the measures appeared to be high because all construct AVE estimates were larger than the corresponding squared interconstruct correlation estimates (SIC). Inferential χ^2 statistics and descriptive goodness-of-fit indices suggested that all of the scales used were a reasonable fit for our data ($\chi^2(303) = 284.37, p > .10$; root mean square error of approximation = .06; comparative fit index = .93; Tucker-Lewis index = .92).

The six groups did not differ at the .05 level with respect to participant age, gender, years of experience in nursing, PSM, conscientiousness or intrinsic motivation (table 1). To evaluate the effectiveness of the experimental interventions, we conducted analyses of the manipulation checks reported in table 1. Participants who had heard the Director's speech (groups 2, 4, and 6) rated her as significantly more transformational ($M = 4.98$, Standard deviation [SD] = 1.37) than did those who had not ($M = 3.84$, $SD = 1.02$), $p < .05$. Nurses who had had the opportunity to meet the beneficiary (groups 3 and 4) perceived themselves as having greater beneficiary contact ($M = 5.90$, $SD = .40$) than did those who had not ($M = 1.62$, $SD = .65$), $p < .05$. Finally, participants who had participated in the individual brainstorming session (groups 5 and 6) reported higher levels of reflection on the importance and positive

⁵ Due to the ordinal nature of the data at the item level, we used weighted least squares estimation.

⁶ To suggest adequate convergent validity, standardized loadings estimates should be .5 or higher, and ideally .7 or higher, and the average variance extracted should be .5 or higher (Jöreskog and Sörbom 2006).

Table 1
 Characteristics of Sample and Manipulation Checks by Condition

Condition	Group 1		Group 2		Group 3		Group 4		Group 5		Group 6	
	Control		TL		BC		TL × BC		SP		TL × SP	
<i>n</i>	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Age	28.39	5.28	27.52	4.07	28.70	4.49	27.87	3.36	28.52	5.33	27.39	4.25
Female (proportion)	0.70	—	0.74	—	0.65	—	0.61	—	0.65	—	0.78	—
Years of nursing	4.00	3.10	3.87	2.94	4.09	3.27	4.22	3.16	3.70	2.93	3.78	3.20
Public service motivation	4.55	0.69	4.51	0.74	4.60	0.70	4.57	0.67	4.58	0.67	4.49	0.59
Conscientiousness	4.72	0.69	4.69	0.66	4.78	0.60	4.81	0.63	4.75	0.59	4.67	0.68
Intrinsic motivation	3.67	1.13	3.82	1.24	3.58	1.01	3.61	1.18	3.71	1.11	3.79	1.09
Manipulation checks												
TL	3.73	1.01	4.74	1.54	3.88	1.04	5.17	1.23	3.91	1.00	5.04	1.33
BC	0.22	0.74	5.87	0.46	5.83	0.58	5.96	0.21	0.26	0.75	0.13	0.63
SP	2.77	1.14	3.01	1.21	2.69	1.09	3.06	1.18	5.70	1.02	5.65	0.71

Note. TL, transformational leadership; BC, beneficiary contact; SP, self-persuasion.

pro-social impact of the project ($M = 5.68, SD = .87$) than did those who did not ($M = 2.88, SD = 1.16$), $p < .05$. These results indicate the validity of our experimental manipulations.

Table 2 displays the means and SD for the number of surgical kits assembled correctly by condition. A series of two sample t-tests correcting for unequal variance indicated that all treatment groups but one outperformed the control group at the .05 level of significance. The only exception was the group that was exposed to the transformational leadership manipulation alone (group 2), for which the difference in performance with respect to the control group was only marginally significant ($p = .069$). This result only partially supports hypothesis 1.

A 2 (transformational leadership: yes, no) \times 2 (beneficiary contact: yes, no) factorial analysis of variance (ANOVA) indicated that the performance effect of transformational leadership was significantly stronger for nurses who also met a prior beneficiary of such efforts than it was for nurses who did not meet the beneficiary ($F(1,88) = 4.63, p = .034$). This result provides evidence that supports hypothesis 2a. The positive interaction between transformational leadership and beneficiary contact and their joint influence on participant performance are apparent in the divergence between the two lines in figure 1.

Unlike in a previous quasi-experimental study by Grant (2012), both transformational leadership ($F(1,88) = 13.59, p < .001$) and beneficiary contact ($F(1,88) = 25.49, p < .001$) had a positive main effect⁷ on participant performance in this study.

Another 2 (transformational leadership: yes, no) \times 2 (self-persuasion intervention: yes, no) ANOVA showed that the performance effect of transformational leadership was greater for nurses who also received the self-persuasion intervention than it was for their colleagues who did not ($F(1,88) = 4.43, p = .038$). This result supports hypothesis 2b. The positive two-way interaction between the transformational leadership and self-persuasion conditions is indicated by the difference in slope between the two lines in figure 2.

Table 2
Average Number of Surgical Kits Assembled Correctly by Condition

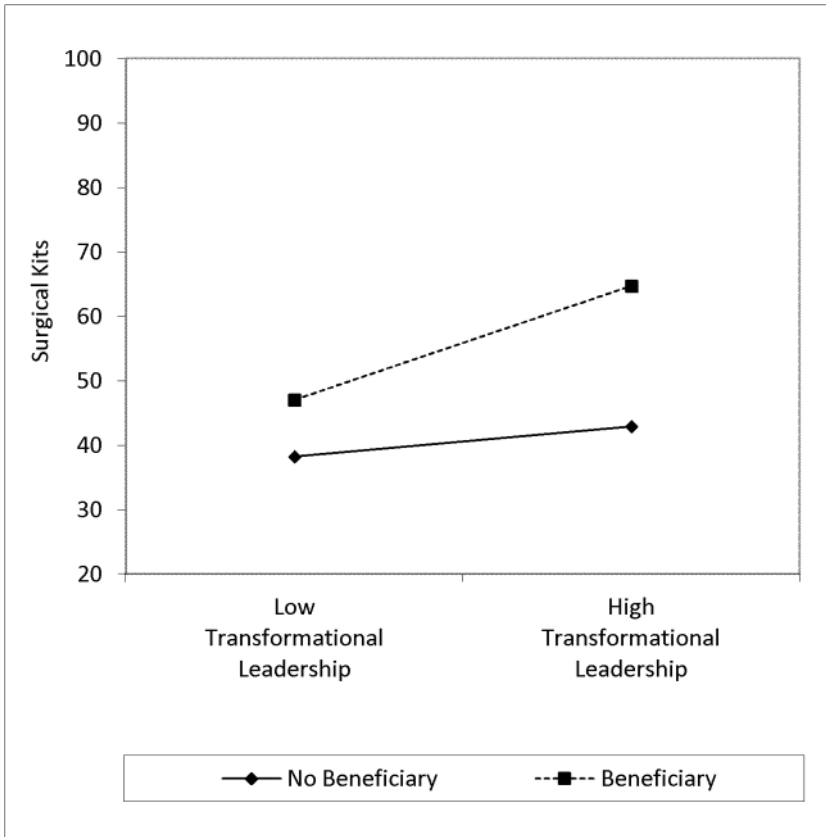
Group	Condition	<i>n</i>	Mean	SD	Δ w.r.t Control
1	Control	23	38.26	8.11	—
2	Transformational leadership (TL)	23	42.91	9.01	4.65*
3	Beneficiary contact (BC)	23	47.04	10.60	8.78***
4	TL \times BC	23	64.74	14.20	26.48****
5	Self-persuasion (SP)	23	45.78	10.47	7.52***
6	TL \times SP	23	63.43	13.91	25.17****

* $p < .10$; ** $p < .05$; *** $p < .01$; **** $p < .001$.

⁷ A main effect is the effect of an experimental manipulation on a dependent variable on average across the levels of the other conditions being experimentally manipulated. A simple effect is the effect of an experimental manipulation on a dependent variable at a single level of the other conditions being experimentally manipulated.

Figure 1

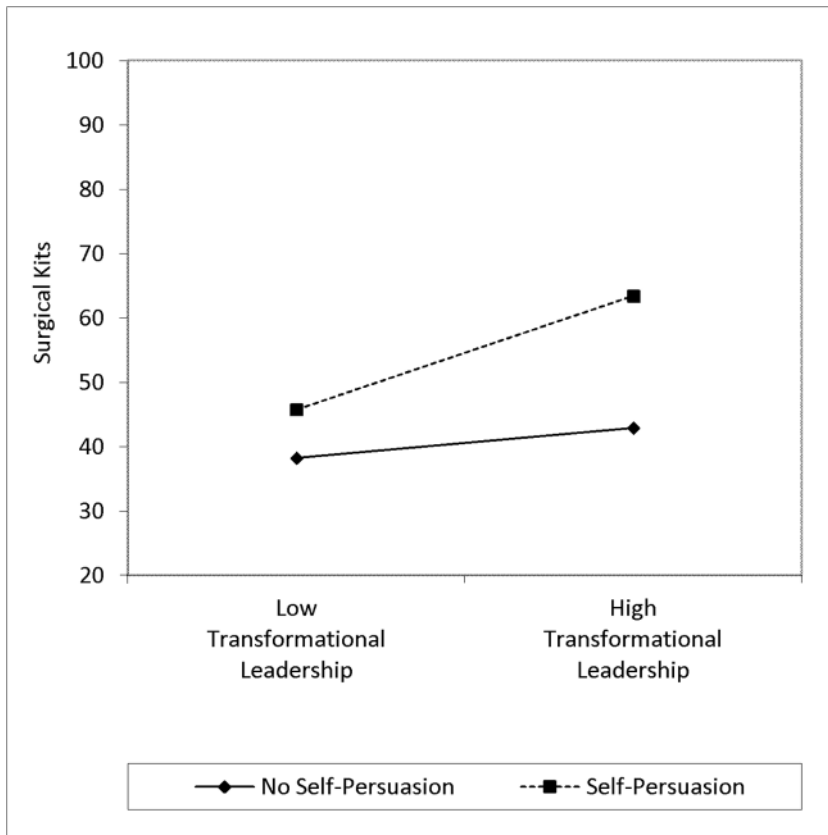
Interaction of Transformational Leadership and Beneficiary Contact on Job Performance



Both transformational leadership ($F(1,88) = 13.04, p = .001$) and self-persuasion manipulation ($F(1,88) = 20.62, p < .001$) had positive main effects on participant performance.

We tested hypotheses 3a and 3b using a three-step moderated mediation procedure suggested by Edwards and Lambert (2007). Both hypotheses posited first-stage moderation; that is, we expected that both the beneficiary contact condition and the self-persuasion intervention would strengthen the relationship between transformational leadership and perceived pro-social impact, and in turn, perceived pro-social impact would positively affect job performance. For both interaction effects—that is, for transformational leadership \times beneficiary contact and transformational leadership \times self-persuasion—perceived impact may be considered a mediator if (1) the interaction generates an increase in perceived impact, (2) the interaction significantly affects job performance when perceived impact is not controlled for, (3) perceived impact has a significant, unique effect on job performance, and (4) the effect of the interaction on job performance becomes insignificant when perceived impact is added to the model (MacKinnon and Dwyer 1993; MacKinnon, Warsi, and Dwyer 1995; Preacher and Hayes 2004).

Figure 2
Interaction of Transformational Leadership and Self-Persuasion on Job Performance



We began the three-step moderated mediation analysis for the beneficiary contact condition (hypothesis 3a) by fitting a regression model that predicts perceived pro-social impact. The first column of [table 3](#) indicates the statistically significant interaction between transformational leadership and beneficiary contact as predictors of perceived pro-social impact ($p = .025$). In step 2, we fitted a regression model that would predict the number of surgical kits that the participants assembled correctly. Although the interaction between transformational leadership and beneficiary contact was positive and significant at the .05 level ([table 3](#), middle column), the interaction was no longer significant once we had added perceived social impact in step 3 ([table 3](#), right column). Instead, perceived social impact significantly predicted ($p < .001$) the number of surgical kits assembled by the participants when transformational leadership, beneficiary contact and their interaction were all controlled for. We conducted further analyses to investigate whether the decrease in the coefficient of the interaction between transformational leadership and beneficiary contact was significant. Sobel-Goodman tests allowed us to confirm the indirect effect of the interaction between transformational leadership and beneficiary contact on performance through

Table 3 Mediation of the Interaction between Transformational Leadership and Beneficiary Contact by Perceived Pro-Social Impact—Robust SE

	STEP 1					STEP 2					STEP 3				
	DV: Perceived Prosocial Impact					DV: Surgical Kits					DV: Surgical Kits				
	Coef.	SE	t	P > t	Beta	Coef.	SE	t	P > t	Beta	Coef.	SE	t	P > t	Beta
IVs															
TL	0.12	0.26	0.45	0.654	0.05	4.65	2.53	1.84	0.069	0.13**	3.65	2.77	1.32	0.191	0.10
BC	0.68	0.33	2.07	0.041	0.27**	8.78	2.78	3.15	0.002	0.25****	2.88	2.83	1.02	0.312	0.08
TL × BC	1.00	0.44	2.29	0.025	0.35**	13.04	6.06	2.15	0.034	0.32**	4.38	4.59	0.95	0.343	0.11
PPI											8.66	1.05	8.24	0.000	0.62****
n	92					92					92				
F(df)	16.51	(3, 88)				9.92	(3, 88)				36.32	(4, 87)			
Prob > F	0.000					0.000					0.000				
R-squared	0.33					0.33					0.59				
Root MSE	1.05					14.54					11.42				

Note. TL, transformational leadership; SP, self-persuasion; PPI, perceived pro-social impact.
 *p < .10, **p < .05; ***p < .01; ****p < .001.

the mediator of perceived pro-social impact ($p < .001$). To reduce concerns about the standard error of the indirect effect, we constructed 95% bias-corrected confidence intervals around the indirect effect by drawing (with replacement) 1,000 random samples from 92 observations from the full sample. The indirect effect of the interaction between transformational leadership and beneficiary contact through the mediator of perceived social impact was significant at the .05 level because the 95% bias-corrected confidence interval (8.66, 18.76) did not include zero (Edwards and Lambert 2007; MacKinnon, Fairchild, and Fritz 2007). These results support hypothesis 3a.

A three-step moderated mediation analysis that we conducted to test hypothesis 3b (self-persuasion) yielded results that were similar to those that we obtained for the beneficiary contact condition. The interaction between transformational leadership and self-persuasion, which significantly predicts job performance in the step 2 model (table 4, middle column), becomes insignificant after perceived social impact is controlled for in the step 3 model (table 4, right column). Sobel-Goodman tests confirmed the indirect effect of the interaction between transformational leadership and self-persuasion on performance through the mediator of perceived social impact ($p < .001$), and the 95% bias-corrected confidence interval (7.85, 17.85) for this indirect effect did not include zero. These results support hypothesis 3b.

To test hypothesis 4, we investigated whether the performance effect of transformational leadership varied across the levels of PSM that participants self-reported in the pre-experiment questionnaire. In figure 3, we plotted the simple slopes at one SD above (dotted line) and below (solid line) the mean for PSM (Aiken and West 1991). As indicated by the divergence between the two lines, the transformational leadership manipulation positively interacted with the levels of PSM of the followers in predicting the number of surgical kits that the participants correctly assembled ($F(1,42) = 5.61, p = .023$). In other words, the performance effect of transformational leadership was stronger for participants who had self-reported higher PSM levels in the pre-experiment questionnaire. This result provides evidence in support of hypothesis 4.

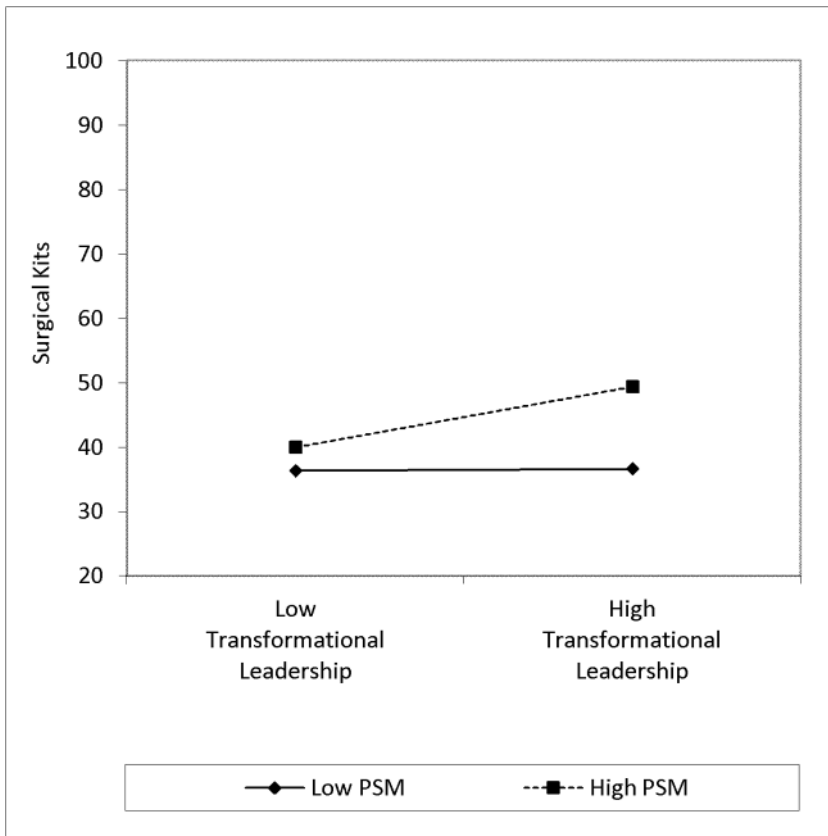
To test hypothesis 5a, we investigated whether the two-way interaction between transformational leadership and beneficiary contact varied across levels of PSM. We conducted an analysis of covariance (ANCOVA) with two between-subject factors (i.e., transformational leadership and beneficiary contact) predicting the number of surgical kits assembled correctly by the participants and a single covariate (mean-centered PSM score). The ANCOVA showed that the positive joint influence of beneficiary contact and transformational leadership on job performance was greater for participants who had higher self-reported levels of PSM than it was for nurses who had reported lower levels of PSM ($F(1,84) = 5.71, p = .019$). This result supports hypothesis 5a. Figure 4 depicts the three-way interaction effect of transformational leadership, beneficiary contact and PSM on job performance. The two lines with hollow markers represent participants who reported high PSM (one SD above the mean), whereas the two lines with solid symbols represent participants with low PSM (one SD below the mean). It can be noted that the divergence between the two lines—which indicates a two-way interaction between transformational leadership and beneficiary contact—is greater for participants with high PSM than it is for participants with low PSM.

Table 4. Mediation of the Interaction between Transformational Leadership and Self-Persuasion by Perceived Pro-Social Impact—Robust SE

	STEP 1				STEP 2				STEP 3						
	DV: Perceived Prosocial Impact				DV: Surgical Kits				DV: Surgical Kits						
	Coef.	SE	t	P > t	Beta	Coef.	SE	t	P > t	Beta	Coef.	SE	t	P > t	Beta
IVs															
TL	0.12	0.26	0.45	0.654	0.05	4.65	2.53	1.84	0.069	0.13**	3.61	2.81	1.28	0.203	0.10
SP	0.62	0.33	1.90	0.061	0.26**	7.52	2.76	2.72	0.008	0.22***	1.92	2.84	0.68	0.501	0.06
TL × SP	0.93	0.43	2.14	0.035	0.29***	12.48	6.18	2.10	0.038	0.27**	4.66	4.69	0.99	0.323	0.12
PPI											9.01	1.10	8.18	0.000	0.65***
n	92					92					92				
F(df)	14.85	(3, 88)				8.27	(3, 88)				32.69	(4, 87)			
Prob > F	0.000					0.000					0.000				
R-squared	0.28					0.30					0.58				
Root MSE	1.04					14.81					11.56				

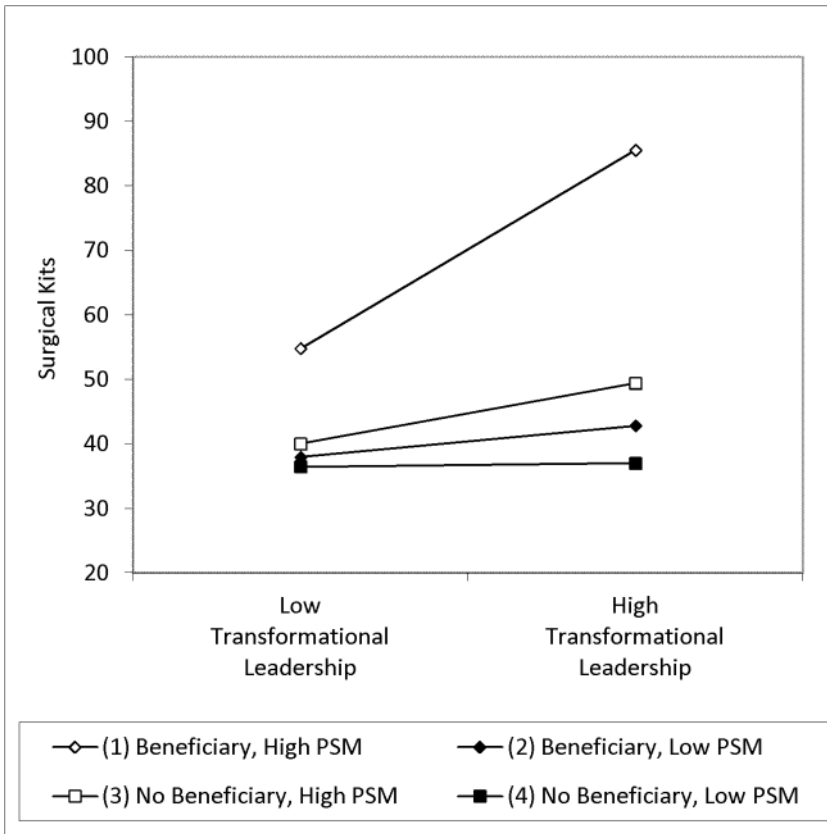
Note. TL, transformational leadership; SP, self-persuasion; PPI, perceived pro-social impact.
 *p < .10; **p < .05; ***p < .01; ****p < .001.

Figure 3
Interaction of Transformational Leadership and Public Service Motivation (PSM) on Job Performance



To test hypothesis 5b, we conducted an analysis of covariance (ANCOVA) with two between-subject factors (i.e., transformational leadership and self-persuasion interventions) predicting performance and a single covariate (mean-centered PSM score). The ANCOVA showed that the positive interaction effect of the transformational leadership and self-persuasion conditions on job performance was greater for participants who had higher self-reported levels of PSM than it was for nurses who had reported lower levels of PSM ($F(1,84) = 4.66, p = .034$). Figure 5 depicts the three-way interaction effect of transformational leadership, self-persuasion interventions and PSM on performance. As in the previous case, the two lines with hollow markers represent participants who reported higher levels of PSM (one SD above the mean), whereas the two lines with solid symbols represent participants with lower levels of PSM (one SD below the mean). Again, the divergence between the two lines—which indicates the two-way interaction between transformational leadership and self-persuasion—is greater for participants with high PSM than for participants with low PSM. This result supports hypothesis 5b.

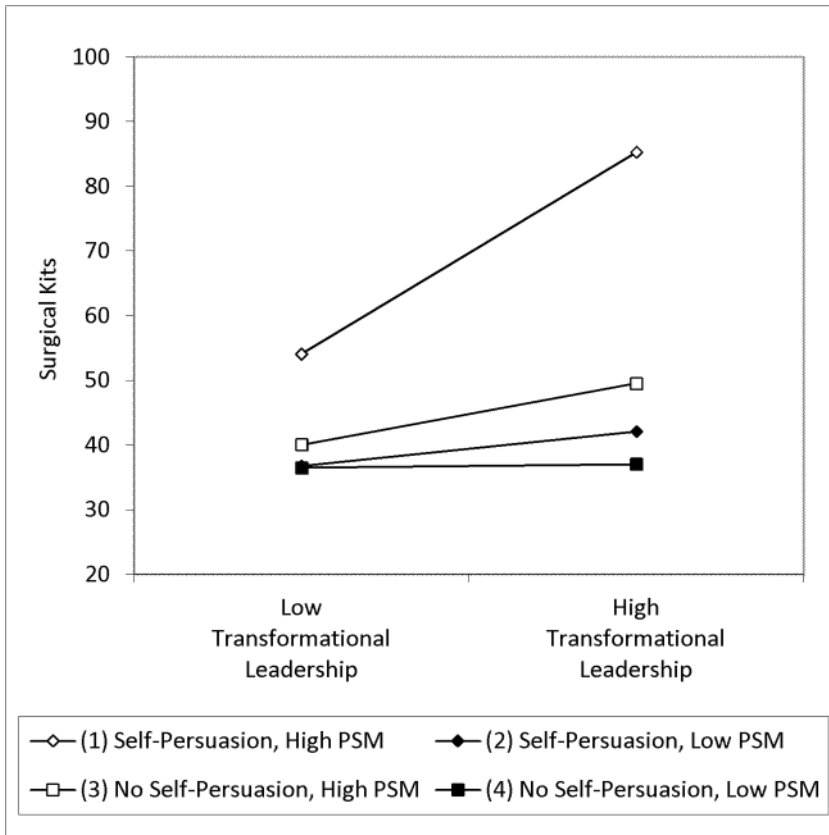
Figure 4
 Three-Way Interaction of Transformational Leadership, Beneficiary Contact, and Public Service Motivation (PSM) on Job Performance



CONCLUSION

This study advances our understanding of whether transformational leadership can boost job performance in public sector organizations and of the contingencies that may affect this relationship. In a randomized control group experiment with nurses working at a large public hospital in Italy, we found that the performance effects of transformational leadership were greatly enhanced by two job design manipulations—that is, beneficiary contact and self-persuasion interventions—both of which were intended to heighten the awareness of the participants that they were making a positive difference in other people’s lives. Whereas the group of nurses who were exposed to the transformational leadership manipulation alone marginally outperformed the control group, the performance effects of transformational leadership were much greater among participants who were also exposed to one of the two job design manipulations. The followers’ sense that they were making a positive difference in other people’s lives mediated the positive interaction of transformational leadership

Figure 5
 Three-Way Interaction of Transformational Leadership, Self-Persuasion, and Public Service Motivation (PSM) on Job Performance



and of each of the two job design conditions on performance. Moreover, the performance effects and the interaction effects of transformational leadership and each of the two job design manipulations were greater among participants who self-reported higher levels of PSM.

Theoretical Contributions

The first contribution of this study is the additional empirical evidence that it has added to the ongoing debate about the performance effects of transformational leadership. Taken together, in the context of public administration, the results of our field experiment corroborate previous mainstream management research that suggests that leaders can be effective only insofar as they succeed in making their messages credible. We identify two specific job design interventions—that is, beneficiary contact and self-persuasion interventions—that public sector leaders can effectively use to turn their visions into a tangible reality. Moreover, we

illuminate the mechanisms through which these interventions may enhance the performance effects of transformational leadership. Our data provide evidence that supports our hypotheses of first-stage moderation: both beneficiary contact and self-persuasion strengthened the relationship between transformational leadership and perceived pro-social impact, and in turn, perceived pro-social impact positively affected job performance. These results contribute to a nascent and highly promising field of study that focuses on job design as one of the contingencies that may moderate the performance effects of transformational leadership. Our contribution to this stream of research is two-fold. First, our findings corroborate the results of recent empirical work by [Grant \(2012\)](#) that has demonstrated the interaction between transformational leadership and beneficiary contact. Our study achieves this by replicating Grant's results using a completely randomized, true experimental research design in a different country and a different industry. Second, to our knowledge, our study is the first to demonstrate that self-persuasion interventions may play a leadership-enhancing role similar to that of beneficiary contact. A second contribution of our research is the evidence that it provides about the moderating role of PSM ([Perry and Wise 1990](#)) in the performance effects of transformational leadership. PSM has this effect independently and when compounded by structural job features that heighten employees' perception that they are making a difference in other people's lives. To our knowledge, this study has been the first to date that has experimentally investigated the relationship between PSM and transformational leadership.

An additional contribution of our research is of a methodological nature and lies in the fact that our study is based on a randomized experiment with real public employees performing a task that was part of their ordinary job. Empirical research in the field of public administration has traditionally relied on correlational designs, which are well suited to testing theoretical predictions in a broad range of populations but fall short with regard to internal validity ([McGrath 1981](#)). Although not completely immune to limitations (e.g., external threats to validity, maturation effects and researcher bias), randomized true experimental research is best suited to achieving high levels of internal validity ([Shadish, Cook, and Campbell 2002](#)). A recent review found only a handful of true experimental studies published in journals that are directly associated with the field of public administration ([Brewer and Brewer 2011](#)). Most of these studies were laboratory experiments on decision-making and used students as surrogates for public sector workers despite of the mixed evidence regarding the external validity of this method (e.g., [Fuchs and Sarstedt 2010](#); [Peterson 2001](#); [Remus 1986, 1989](#)). Our study departs from previous experimental research in public administration because it was conducted with real workers performing a task that was part of their ordinary job. Field experiments have the virtue of establishing internal validity while maintaining more generalizability and contextual realism than laboratory experiments do, although the latter have other virtues stemming from their artificiality ([Henshel 1980](#)). To date, the use of randomized field experimental research is almost unprecedented in public administration ([Bellé 2013](#)). Our study takes a small step toward filling this gap, and we hope that our research design serves as a model for other public management scholars considering field experiments.

Limitations and Future Directions

Our findings should be interpreted in light of several limitations that identify avenues for future research. First and foremost, the use of temporary and experimentally induced manipulations of transformational leadership, beneficiary contact and self-persuasion does not allow our findings to be generalized to more enduring, naturally occurring variations in these conditions. The peculiar professional nature of nursing constitutes an additional threat to the generalizability of our findings from the nurses who took part in the experiment to other public sector employees. Regarding the external validity of our results, we should also note that the participants were recent hires, and thus, our findings cannot be generalized to employees who have been employed by the organization for a longer period of time. Future research might triangulate our results using nonexperimental designs such as longitudinal studies and case studies. Although they are inferior to experiments in terms of internal validity, observational designs may be superior in terms of external validity because they examine intact groups and do not disrupt the preexisting research setting (Dimitrov and Rumrill 2003).

Regarding construct validity and measurement issues, we should note that for some of the study variables, there is no single widely accepted measure. This was especially true for PSM, for which several measures have been used in earlier studies. We opted for a widely used, five-item version of Perry’s (1996) original scale that was recently validated as a multi-item unidimensional measure of PSM (Wright, Christensen, and Pandey forthcoming). Future research may test whether our results are robust to the use of multidimensional scales (e.g., Kim et al. 2013; Perry 1996) that may provide a more nuanced understanding of the interplay among transformational leadership, perceived pro-social impact and individual subdimensions of the PSM construct.

APPENDIX 1

Variables and Measurements

Variable (Source)	Measurements	
Performance	Number of surgical kits assembled correctly	
Age	Years of age	
Gender	0 = male, 1 = female	
Job experience	Years of experience in the field of nursing	
Perceived prosocial impact (Grant 2008a)	Likert-type scales (0 = disagree strongly, 6 = agree strongly)	λ
	$\alpha = .83; \rho = .87; AVE = .68$	
	– I am very conscious of the positive impact that my work has on others	.79***
	– I am very aware of the ways in which my work is benefiting others	.81***
	– I feel that I can have a positive impact on others through my work	.88***

Continued

APPENDIX 1 (continued)

Public service motivation (e.g. Alonso and Lewis 2001; Brewer and Selden 2000)	$\alpha = .75; \rho = .89; AVE = .64$	
	– Meaningful public service is very important to me	.77***
	– I am often reminded by daily events about how dependent we are on one another	.81***
	– Making a difference in society means more to me than personal achievements	.86***
	– I am prepared to make enormous sacrifices for the good of society	.82***
Transformational leadership (Avolio, Bass, and Jung 1999; Northouse 2009)	$\alpha = .89; \rho = .93; AVE = .62$	
	– Provides appealing images about what we can do (inspirational motivation)	.78***
	– Help others find meaning in their work (inspirational motivation)	.84***
	– Instill pride in me for being associated with her (idealized influence)	.70***
	– Specifies the importance of having a strong sense of purpose (idealized influence)	.78***
	– Enable others to think about old problems in new ways (intellectual stimulation)	.81***
	– Seeks differing perspectives when solving problems (intellectual stimulation)	.74***
	– Helps others develop themselves (individualized consideration)	.85***
	– Spends time teaching and coaching (individualized consideration)	.81***
Beneficiary contact (Grant 2008c)	$\alpha = .81; \rho = .85; AVE = .72$	
	– The project gave me the opportunity to meet the people who benefit from my work	.87***
Self-persuasion (Gregory, Cialdini, and Carpenter 1982; Gordijn, Postmes and de Vries 2001)	$\alpha = .77; \rho = .82; AVE = .69$	
	– Before performing the task, I carefully reflected on the ways in which my effort would benefit others	.83***
	– Before performing the task, I carefully reflected on why it is critical for other hospitals and pharmaceutical companies to join the project	.83***
Conscientiousness (Donnellan, Oswald, Baird, and Lucas 2006)	$\alpha = .85; \rho = .87; AVE = .62$	
	– I get chores done right away	.64***
	– I often forget to put things back in their proper place (R)	.80***
	– I like order	.85***
Intrinsic motivation (Ryan and Connell 1989)	$\alpha = .88; \rho = .83; AVE = .63$	
	– I make a mess of things (R)	.84***
	– My job is fun	.73***
	– I find my job engaging	.82***
	– I enjoy my work	.82***

α = cronbach's alpha; ρ = composite reliability values; AVE = average variance extracted.

* $p < .05$, ** $p < .01$, *** $p < .001$.

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