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Contrasting the nature and effects of environmentally specific and general transformational leadership

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Abstract

Purpose – The purpose of this paper is to report findings from two studies that compare the nature (construct validity) and relative effects (incremental predictive validity) of environmentally specific transformational leadership (ETFL) to general transformational leadership.

Design/methodology/approach – The nature of ETFL was investigated in an empirical study based on a sample of 185 employees. The relative effects of ETFL were examined in an experimental study based on a sample of 155 university students.

Findings – A confirmatory factor analysis showed that environmentally specific and general transformational leadership are empirically distinct but related. Findings from the experimental study revealed that compared to general transformational leadership and a control condition, participants exposed to ETFL held confederate leader's environmental values and priorities more highly and engaged in higher levels of pro-environmental behaviors.

Research limitations/implications – Questions concerning ecological and external validity arise out of the experimental study. Future research should contrast the relative effects of environmentally specific and general transformational leadership across various organizational and cultural conditions. Limitations associated with demand characteristics are also of concern in the experimental study. Future research should include an environmental focus in the control condition to exclude any possible threats related to demand characteristics.

Practical implications – Results from these two studies provide useful information regarding within-organization environmental leadership training by suggesting that maximal individual and organizational environmental change may best be achieved by training leaders to be as specific as possible regarding their values, priorities and goals.

Social implications – This research suggests that leaders should engage in ETFL behaviors to have the greatest positive impact on corporate environmental sustainability, and by extension, climate change.

Originality/value – In two separate studies, the construct and incremental predictive validity of ETFL were assessed.

Keywords Transformational leadership, Environmental leadership, Environmentally specific transformational leadership, Organizational environmental sustainability

Paper type Research paper

Organizations' widespread and deep impact on the natural environment has increasingly attracted the interest of environmental activists, employees, the media and public policy officials. As a result, organizations world-wide have begun to embrace environmental sustainability (Robertson and Barling, 2015a). The success of many environmental initiatives rests, to some degree, on organizational leaders. Indeed, leaders are now recognizing environmental sustainability as a critical concern as many are implementing environmental governance issues

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into their business strategy (Lacy *et al.*, 2012; Ones and Dilchert, 2012). Accordingly, a growing body of literature recognizing the importance of leadership to both organizational and individual level environmental performance has emerged (e.g. Bansal and Roth, 2000; Egri and Herman, 2000; Metcalf and Benn, 2013; Portugal and Yukl, 1994; Sharma, 2000; Shrivastava, 1994). One stream of this research has investigated the leadership styles environmental leaders typically exhibit, with the findings isolating several types, including both general transformational leadership (e.g. Egri and Herman, 2000; Gilstrap and Gilstrap, 2012; Graves and Sarkis, 2012; Ng and Burke, 2010; Portugal and Yukl, 1994), and more recently, environmentally specific transformational leadership (ETFL; Graves *et al.*, 2013; Robertson and Barling, 2013).

What remains missing, however, is any direct comparison of the nature and relative effects of ETFL and general transformational leadership. As a result, an understanding of whether ETFL is empirically distinct from general transformational leadership (i.e. construct validity), or leads to improved environmental outcomes beyond those attained by general transformational leadership (i.e. incremental predictive validity) is lacking, thereby raising questions about the necessity for ETFL. That is, we do not know if studying the effects of ETFL is unnecessary, given the conceptual similarity between ETFL and general transformational leadership and the documented links between general transformational leadership and environmental leadership (e.g. Egri and Herman, 2000; Gilstrap and Gilstrap, 2012; Graves and Sarkis, 2012; Ng and Burke, 2010; Portugal and Yukl, 1994). The purpose of the current research is to fill this gap in knowledge by conducting two studies that examine the construct and incremental predictive validity of ETFL. Specifically, we first investigate the empirical distinctiveness of ETFL and general transformational leadership, and subsequently, whether ETFL has greater effects on employees' perceptions of their leaders' environmental values, which in-role behaviors they prioritize, and on employees' workplace pro-environmental behaviors. In doing so, the current study contributes to the nascent literature on the microfoundations of corporate environmental sustainability (Andersson *et al.*, 2013) by providing insight into the conceptual, empirical and practical utility of ETFL. Specifically, we suggest that continuing to focus on general transformational leadership in future research might limit our understanding of the potential effectiveness of transformational leadership in affecting organizational environmental sustainability, and by extension, climate change.

Environmentally specific and general transformational leadership

Transformational leadership has been the most widely studied of all leadership theories in the last 20 years (Barling, 2014). Overwhelmingly, this research has focused on what we refer to as general transformational leadership, a type of leadership that is comprised of four diffusely targeted positive behaviors: idealized influence (i.e. focusing on and encouraging ethical behavior), inspirational motivation (i.e. elevating employees' motivation, passion and optimism), intellectual stimulation (i.e. encouraging and allowing employees to think for themselves in novel ways), and individualized consideration (i.e. demonstrating concern for individual's needs; Bass and Riggio, 2006). One innovation in the way in which transformational leadership was traditionally conceptualized and studied was the move away from this focus in which transformational leadership behaviors are presumed to affect outcomes across different contexts, to a focus in which the same set of transformational behaviors focus on influencing a specific target (e.g. Barling *et al.*, 2002; Graves *et al.*, 2013; Mullen and Kelloway, 2009; Robertson and Barling, 2013, 2015b).

The first form of target specific transformational leadership (i.e. transformational leadership, in which the behaviors that are expressed focus on influencing a specific outcome; Robertson and Barling, 2015b) to be subjected to empirical investigation was safety specific transformational leadership (Barling *et al.*, 2002), which reflects expressions of the four components of transformational leadership targeted specifically at emphasizing

safety behaviors and issues (Barling *et al.*, 2002; Mullen and Kelloway, 2009). Subsequent research has directly and indirectly linked safety specific transformational leadership to various safety outcomes (e.g. Barling *et al.*, 2002; Conchie and Donald, 2009; Conchie *et al.*, 2012; Kelloway *et al.*, 2006; Mullen *et al.*, 2011). More recently, researchers (e.g. Graves *et al.*, 2013; Robertson and Barling, 2013, 2015b) have conceptualized ETFL by extending the focus of target specific transformational leadership further to include environmental sustainability, and define ETFL as “a manifestation of transformational leadership in which the content of the leadership behaviors are all focused on encouraging pro-environmental initiatives” (Robertson and Barling, 2013, p. 177).

Based on this definition, Robertson and Barling (2013) suggest that through the enactment of the four transformational leadership behaviors, environmentally specific transformational leaders encourage their subordinates to engage in workplace pro-environmental behaviors. In manifesting idealized influence, environmentally specific transformational leaders are guided by and demonstrate a moral commitment to an environmentally sustainable planet (the collective good). In doing so, these leaders serve as role models for subordinates. Leaders high in inspirational motivation encourage their employees through their own passion and optimism to go beyond what is good for themselves by engaging in pro-environmental behaviors. Intellectually stimulating leaders encourage subordinates to think about environmental issues in different ways, question their own and their organization’s environmental practices, and address environmental problems in an innovative manner. Finally, leaders who exhibit individualized consideration establish close relationships with followers within which they can transmit their environmental values, model their environmental behaviors, and raise questions about environmental assumptions and priorities (Robertson and Barling, 2013).

Research on general transformational leadership and ETFL has separately shown that both types of leadership matter in the context of organizational environmental sustainability. For example, several empirical studies have linked general transformational leadership to environmental leadership (e.g. Egri and Herman, 2000; Gilstrap and Gilstrap, 2012) and organizational and individual environmental performance (e.g. del Brío *et al.*, 2008; Ng and Burke, 2010). ETFL, on the other hand, has been directly and indirectly related (through employees’ autonomous motivation and environmental passion) to employees’ workplace pro-environmental behaviors (Graves *et al.*, 2013; Robertson and Barling, 2013). Given that both leadership styles have been linked to organizational environmental sustainability, it is important to examine their empirical distinctiveness to determine whether focusing on both leadership styles is necessary, which is the goal of our first study.

Study 1: Distinguishing between environmentally specific and general transformational leadership

As with any new field of inquiry, it is not uncommon first to establish whether the construct under investigation exerts its presumed effects, and only then to examine the nature of the construct thoroughly. This is the situation to date with ETFL: research has linked ETFL to employees’ pro-environmental behaviors (e.g. Graves *et al.*, 2013; Robertson and Barling, 2013), however, the nature of the construct remains to be investigated (Robertson and Barling, 2015b). Our first study, therefore, more fully investigates the nature of this construct by focusing on the construct validity of ETFL.

As indicated by the descriptions of ETFL and general transformational leadership, there is considerable theoretical overlap between these two types of leadership because both are comprised of the same four behaviors, which together represent an active and positive form of leadership that is focused on motivating followers to achieve extraordinary outcomes (Bass and Riggio, 2006; Robertson and Barling, 2013, 2015b). Thus, to be of any conceptual, empirical or practical utility, it is important to investigate whether ETFL is distinguishable from general transformational leadership. While the basis underlying general

transformational leadership and ETFL are similar, they differ inasmuch as the way in which they inspire follower outcomes: general transformational leadership is diffusely targeted at influencing a number of different organizational behaviors, while ETFL is oriented specifically to the idiosyncratic nature and needs of a particular setting (i.e. environmental sustainability). Findings showing that general and safety specific transformational leadership are separate but related constructs (Mullen and Kelloway, 2009) provide some support for the notion that general transformational leadership and ETFL will be related but separable constructs. Following this research and for the reasons discussed above, we make the following hypothesis concerning construct validity:

- H1.* Environmentally specific transformational leadership will be positively related to but empirically distinct from general transformational leadership.

Method

Sample and procedure

Participants consisted of employed adults in the USA and Canada who were recruited through the StudyResponse Panel Service (The StudyResponse Project, 2004). Specifically, to identify eligible participants from this panel, we required that participants were over the age of 18, employed full time and had an immediate supervisor with whom they interact at least once per week. Based on these criteria, StudyResponse invited 260 employees enrolled in their panel to participate in our study by providing them with a link to our online survey. In total, 198 eligible participants completed the online surveys. After deleting cases because of missing data, we retained 185 participants (M age = 39.88 years, SD = 10.52; 57.3 percent males) for analyses, yielding an effective response rate of 71.2 percent. On average, participants' interacted with their supervisors 10.2 times per week (SD = 11.62). In total, 17.3 percent of participants had not completed high school, 17.3 percent had a high school diploma, while 65.5 percent had completed some form of post-secondary education (e.g. technical or college diploma, undergraduate or graduate education).

Measures

ETFL. To measure employees' perceptions of their supervisors' ETFL, we administered the same seven items used in previous research (e.g. Robertson and Barling, 2013). Like other research (e.g. Barling *et al.*, 2002; Jung and Avolio, 2000), these items were selected from the Multifactor Leadership Questionnaire[1] (Avolio and Bass, 1995) on the basis that they reflect each of the four behaviors of transformational leadership, and were modified to ensure that they were appropriate for the context of influencing environmental sustainability. Employees rated how frequently their supervisor engaged in each specified behavior (0 = not at all, 4 = frequently if not always).

General transformational leadership. To ensure similarity in the length of the leadership questionnaires, and to avoid item overlap, we measured employees' perceptions of their supervisors' general transformational leadership with seven different items (i.e. not used to measure ETFL) from the Multifactor Leadership Questionnaire (Avolio and Bass, 1995). Each of the four behaviors of transformational leadership were captured in these seven items and were rated in terms of frequency (0 = not at all, 4 = frequently if not always).

Analyses

We compared the results from two confirmatory factor analyses, namely, a two-factor oblique model (i.e. with items from general transformational leadership and ETFL each loading on a separate factor) and a single factor model (i.e. all items from both scales loading on a single factor). Analyses were estimated with maximum likelihood estimation as implemented in AMOS 21, and were based on the covariance matrix.

Results

Descriptive data, intercorrelations and reliability information appear in Table I.

The two-factor oblique model with correlated error terms provided a good fit to the data, $\chi^2(74, n = 185) = 165.69, p < 0.01$; $\chi^2/df = 2.24$; CFI = 0.95; NFI = 0.92; PNFI = 0.75; RMSEA = 0.08; PCLOSE = 0.00; the disattenuated correlation between the two factors was $r = 0.51$ (see Figure 1). In contrast, the single factor model provided a poor fit to the data. Moreover, the χ^2 difference test showed that the two-factor model provided a significantly better fit to the data than the single factor model, $\Delta\chi^2(1, n = 185) = 466.35, p < 0.01$ (see Table II).

Discussion

As a necessary first step, this study assessed the construct validity of ETFL. Findings from this study support our construct validity hypothesis that ETFL is distinguishable from but

	<i>M</i>	<i>SD</i>	1	2	3	4	5	6
1. Gender			–					
2. Age	39.88	10.52	–0.12	–				
3. Education	3.08	1.39	–0.17*	–1.4	–			
4. Interaction with manager	10.20	11.62	–0.01	–0.07	–0.01	–		
5. ETFL	1.58	1.13	–0.21**	–0.10	0.10	0.05	<i>0.95</i>	
6. TFL	2.47	0.89	–0.07	0.06	0.00	0.05	0.49**	<i>0.90</i>

Notes: $n = 185$. ETFL, environmentally specific transformational leadership; TFL, general transformational leadership. Internal consistency coefficients (α) are given in italic and appear along the diagonal. * $p < 0.05$; ** $p < 0.01$

Table I.

Descriptive statistics, intercorrelations and reliabilities (Study 1)

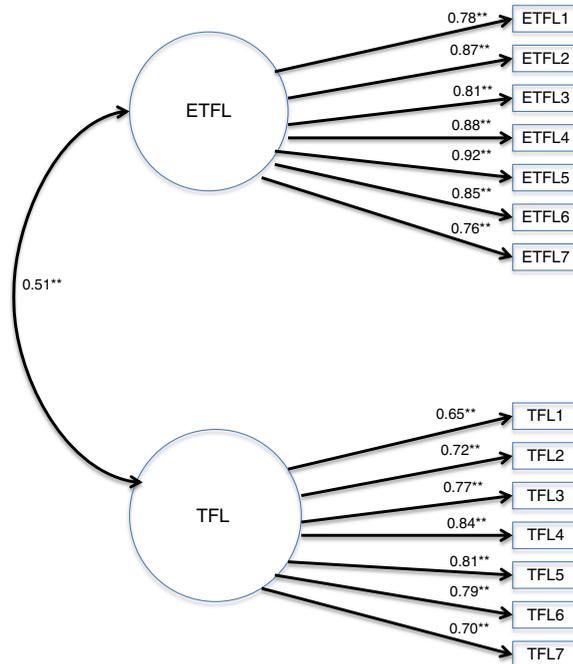


Figure 1.
Statistical model

related to general transformational leadership. These results replicate those of Mullen and Kelloway (2009) who demonstrated that general and safety specific transformational leadership are separate constructs. Given that target specific and general transformational leadership have been shown to be unique but related constructs across two different contexts, the next step in investigating whether ETFL is different from general transformational leadership, and thus worthy of study as a unique construct, is to contrast whether it provides incremental predictive validity over-and-above general transformational leadership on relevant outcomes. Accordingly, we test whether ETFL might exert greater effects on relevant outcomes than general transformational leadership in Study 2.

Study 2: Contrasting the effects of environmentally specific and general transformational leadership

As noted above, comparing the effectiveness of target specific and general transformational leadership is an important step for research on this topic, as continuing to focus on general transformational leadership might limit our understanding of the potential effectiveness of transformational leadership in attaining targeted behaviors. Kelloway *et al.* (2006) argue that examining target specific transformational leadership is necessary because leaders may display transformational leadership behaviors in one work-related domain (e.g. productivity goals) and passive leadership behaviors in another (e.g. safety goals). In addition, we suggest that target specific transformational leadership behaviors may be uniquely effective with targeted outcomes because of the specificity of the information provided to employees. We now turn our attention to discussing how ETFL leads to improved environmental outcomes beyond those attained by general transformational leadership.

ETFL and followers' perceptions

Attaining any targeted behavior requires that followers unambiguously know which behavior their leader values and prioritizes. Researchers have continuously noted the importance of environmental values in influencing employee and organizational environmental performance (e.g. Bansal and Roth, 2000; Egri and Herman, 2000; Fryxell and Lo, 2003), while others have shown that emphasizing safety-related behavior as a priority has an impact on workplace injuries (Zohar and Luria, 2004). Support for this notion can be seen in the decades of research on role ambiguity (House and Rizzo, 1972; Kahn *et al.*, 1964). Role ambiguity occurs when there is insufficient information from the organizational environment and its representatives (role senders) about appropriate and effective in-role behaviors (Gilboa *et al.*, 2008; Rizzo *et al.*, 1970). Faced with role ambiguity, satisfactory job performance is thwarted (Gilboa *et al.*, 2008; King and King, 1990). For example, meta-analytic findings across several studies have consistently shown that role ambiguity is negatively related to self, other (e.g. supervisor) and objective (e.g. sales volume) ratings of job performance (Gilboa *et al.*, 2008; Jackson and Schuler, 1985; Tubre and Collins, 2000).

Extending this to an environmental context means that to achieve satisfactory environmental performance, followers must have access to clear verbal and behavioral cues as to which in-role behaviors their leaders value (i.e. which behaviors leaders think are

	χ^2	df	χ^2/df	CFI	NFI	PNFI	RMSEA	PCLOSE
Two factors	165.69	74	2.24	0.95	0.92	0.75	0.08	0.00
One factor	632.05	75	8.43	0.72	0.70	0.57	0.20	0.00

Notes: $n = 185$. CFI, comparative fit index; NFI, normed fit index; PNFI, parsimonious normed fit index; RMSEA, root mean square error of approximation; PCLOSE, test of RMSEA significance

Table II.
Measurement model
(Study 1)

important) and prioritize (i.e. which behaviors leaders demonstrate are more important than others). Clearly communicating values and in-role behavioral priorities is best achieved through ETFL because environmentally-specific transformational leaders provide followers with clear and specific information that environmental sustainability is valued and prioritized. This can best be appreciated when reflecting on the components of ETFL. Environmentally specific expressions of idealized influence would involve leaders sharing their own environmental values and behaving in ways that are consistent with those values. Similarly, environmentally specific expressions of inspirational motivation involve leaders motivating employees to work in more environmentally friendly ways, while environmentally specific intellectual stimulation would see leaders emphasizing the importance of thinking about environmental issues in new and innovative ways. Last, environmentally specific demonstrations of individualized consideration would consist of helping employees develop their skills and abilities to contribute to organizational environmental performance and recognizing each individual employee's contributions to enhance environmental performance (Robertson and Barling, 2013, 2015b). In contrast, while general transformational leadership has been associated with a broad array of positive outcomes (Barling, 2014), it does not convey as clearly the specific values and priorities of a particular leader. For example, while general transformational leaders value and role model "high standards of moral and ethical conduct" (Bass and Riggio, 2006, p. 6), they do not clearly emphasize which particular types of moral and ethical behaviors are valued. On this bases, we make the following incremental predictive hypotheses:

- H1a.* Environmentally specific transformational leadership will result in incrementally higher levels of follower's perceptions of their leader's environmental values than the general transformational leadership condition or the control condition.
- H1b.* Environmentally specific transformational leadership will result in incrementally higher levels of followers' perceptions of their leader's in-role behavior priorities than the general transformational leadership condition or the control condition.

ETFL and followers' environmental performance

In addition for providing explicit cues of values and in-role behavioral priorities, as evidenced above, by enacting the four behaviors associated with ETFL, environmentally specific transformational leaders articulate and demonstrate which behaviors are expected from followers, in this case, pro-environmental behaviors. In contrast, general transformational leadership provides no such information. For example, through inspirational motivation, general transformational leaders motivate employees to "perform beyond expectations" (Barling, 2014, p. 7) but do not provide any cues as to which aspects of organizational performance employees should target. As a result, followers lack sufficient knowledge to enact targeted behaviors. Providing some support for this, research has shown that target specific leadership behaviors evoke higher levels of the targeted behaviors than general leadership behaviors. For example, environmentally specific supervisory supportive behaviors were more effective in influencing employees' eco-initiatives (actions that improve organizations' environmental performance) than were general supervisory supportive behaviors (Ramus and Steger, 2000). Thus, we hypothesize:

- H2.* Environmentally specific transformational leadership will evoke incrementally higher levels of workplace pro-environmental behaviors than will the general transformational leadership condition or the control condition.

General transformational leadership and pro-environmental behaviors

Although we hypothesize that ETFL will be more effective than general transformational leadership, general transformational leadership might still exert some influence on

workplace pro-environmental behaviors when compared to a control group. Through the four behaviors that comprise general transformational leadership, leaders motivate and inspire their employees to achieve desired outcomes (Bass and Riggio, 2006), which could include behaviors that improve the quality of the natural environment. They do this by acting as role models, stimulating creativity and focusing on employees' abilities and needs to do what is right for the collective good (Bass and Riggio, 2006). As climate change and environmental degradation pose significant problems for humankind (Kazdin, 2009; Stern, 2011; Swim *et al.*, 2011), doing what is right for the collective good should include positively affecting climate change and preventing further environmental degradation by encouraging pro-environmental behaviors.

Supporting this rationale, empirical research has linked general transformational leadership behaviors to environmental leadership (Egri and Herman, 2000; Gilstrap and Gilstrap, 2012) and support for environmentally sustainable business practices (Ng and Burke, 2010). General transformational leadership also exerts widespread effects beyond performance-based outcomes (Barling, 2014). For example, companies in which CEOs were higher in the intellectual stimulation component of general transformational leadership were more likely to have a strategic CSR focus (although similar findings did not emerge for the charisma component; Waldman *et al.*, 2006). Thus, while recognizing the unique benefits that might emerge from target specific transformational leadership, we hypothesize that:

H3. General transformational leadership will evoke higher levels of workplace pro-environmental behaviors than a control condition.

Method

Recruitment and sample

Participants. Following other leadership research (e.g. Christie *et al.*, 2011; Howell and Frost, 1989; Kirkpatrick and Locke, 1996), we conducted an experimental study using a convenience sample of undergraduate students to provide a rigorous and comparative test of ETFL and general transformational leadership, and to allow inferences about causality. The sample initially consisted of 196 participants, all of whom gave informed consent before participating in this study. To control for demand characteristics, we asked students the purpose of the study and omitted data from those participants who guessed the real purpose of the study. Deleting data resulted in a sample size of 155 participants. Participants were randomly assigned to one of three conditions: control ($n = 57$) general transformational leadership condition ($n = 56$), or ETFL condition ($n = 42$). The average age of participants (40 percent male) was 18.75 years. Over half of participants were Caucasian (57.4 percent), and most were in their first or second year of study (92.3 percent).

Confederate. A male confederate was recruited to participate in this study. The confederate was trained to display ETFL and general transformational leadership behaviors as well as control leadership behaviors while he was recorded giving a video message that was to be watched by study participants. Only one confederate was used to control for individual differences and behavioral inconsistencies that might occur with multiple confederates.

Experimental design

This study involved a randomized between-subjects experimental design, in which general transformational leadership and ETFL were manipulated separately in a video message watched by the student participants. There also was a control group.

Procedure

Confederate training and video recording. The confederate received in-person training with the first author that followed several prior laboratory experimental studies that manipulated

various leadership behaviors using trained actors (e.g. Christie *et al.*, 2011; Howell and Frost, 1989; Kirkpatrick and Locke, 1996).

Training began by providing the confederate with a general overview of what was expected of him and what the experiment entailed. Following Christie *et al.* (2011), general transformational leadership and ETFL theory and behaviors (i.e. idealized influence, inspirational motivation, intellectual stimulation, individualized consideration) were first reviewed. The confederate was then provided with three scripts developed by the researchers in which all three leadership styles were manipulated.

Once the confederate memorized all three scripts, the confederate practiced each of the three manipulations in front of the first author and received feedback after each practice trial. After several practice sessions, the confederate was sufficiently proficient in each leadership style, and video recording began. After several practice recordings, the three videos effectively portrayed their respective condition.

Script development. As noted above, the two leadership styles and the control leadership were manipulated in scripts that were recited verbatim by the confederate in three separate video messages. The scripts were developed based on general transformational leadership and ETFL theory, Christie *et al.*'s (2011) manipulation of general transformational leadership, and the context of this experiment.

Script review. To maximize procedural equivalence across the three conditions (Cooper and Richardson, 1986), the three scripts were first presented to a group of six graduate students familiar with general transformational leadership and ETFL. The graduate students reviewed each script to ensure that the leadership styles were consistent with their respective theories, the ETFL and general transformational leadership scripts were manipulated with equal strength, and all three scripts were equivalent in the quantity and richness of content. The scripts were revised based on the feedback, and reviewed a second time by the same graduate students who then agreed that the scripts were manipulated appropriately.

Experimental procedure. Participants completed the experiment in groups of seven to ten within the condition to which they had been assigned randomly. Upon arrival at the lab, students were told that the experimenters were working with a fast-food organization that was restructuring its operating budget in order to expand its operations into a new market. To ensure a successful expansion and effective management of their financial resources, participants were told that the organization was seeking feedback from various interest groups across Canada, including business students, with respect to how they could develop an effective operating budget for an organization expanding into a new market.

Participants were told that to do so, the organization was requesting participants to complete a budget task. Before starting this task, information was shared about the organization, the nature of the budget task and each portion of the budget (e.g. marketing expenditures, training and development, environmental performance and development, safety performance and development, product research and development). Thereafter, participants watched a video message presumably from a leader of the organization's top management team (i.e. the confederate) that contained information that would help students complete the task. After watching the video message, participants filled out an online survey that contained the budget task and measures for all study variables.

Script content. To manipulate idealized influence, the confederate mentioned in the general transformational leadership condition that he shared the values of his organization and tries to develop budgets that are in the best interest of his company. In the ETFL condition, the confederate mentioned that he values the natural environment and creates budgets that take into consideration the organization's environmental performance.

To convey inspirational motivation, participants in the general transformational leadership condition heard the confederate use language that demonstrated enthusiasm and excitement about completing the budget task and express optimism that participants would

do so in a way that helps his organization with their expansion. The confederate also motivated participants to develop a budget that is best for the organization. In the ETFL condition, the confederate used language that demonstrated enthusiasm and excitement for the organization's environmental performance and he motivated participants to consider the environmental performance/development portion of the budget. The confederate also expressed optimism that participants would build a budget that contributes to his organization's environmental performance.

Intellectual stimulation was manipulated through the way in which the confederate sought advice for developing an effective operating budget. For example, in the general transformational leadership condition, the confederate urged participants to think about what constitutes an effective budget from different perspectives. In the ETFL condition, participants were encouraged to think creatively about the environmental performance/development portion of the budget, and to do so in different ways.

Finally, individualized consideration was manipulated in the general transformational leadership condition with the confederate demonstrating his confidence that each participant would provide the company with useful information, and reminded participants that his organization values each participant's feedback. In the ETFL condition, the confederate expressed confidence that each participant would develop a budget that recognizes the organization's environmental priorities. The confederate assured participants that his company values each individual's suggestions for the company's environmental performance and development.

In the control condition, the leader only provided information about the organization, the nature of the task, and generic suggestions on task completion.

Measures

Demographic variables. Students indicated their age, race and gender.

ETFL. We selected and modified eight items from the Transformational Teaching Questionnaire (Beauchamp *et al.*, 2010) such that two items reflected each of the four behaviors of transformational leadership, and all eight items were appropriate for the context of the experiment, and promoting workplace pro-environmental behaviors. Sample items include "the representative was optimistic that I could help improve the organization's environmental performance" and "the representative showed that he valued the environment." Items were rated in terms of frequency (0 = not at all, 4 = frequently).

General transformational leadership. To avoid item overlap, general transformational leadership was measured with the remaining eight items from the Transformational Teaching Questionnaire (Beauchamp *et al.*, 2010). In this case, items were only modified to ensure that they were appropriate for the experimental context (e.g. "the representative acted as a person that I could look up to" and "the representative was energetic and passionate"). Items were again rated in terms of frequency (0 = not at all, 4 = frequently).

Leader's environmental values. To measure participant's perceptions of the leader's environmental values, participants were presented with four items measuring biospheric values (e.g. "protecting natural resources"; "fitting into nature") from Stern *et al.*'s (1999) short version of Schwartz's (1992) value scale. On a scale of 1 (not at all important) to 5 (extremely important) participants rated how important they thought each value was to the leader in the video.

Perception of leader's in-role behavioral priorities. To measure participants' perceptions of the leader's in-role behavior priorities, six items were generated and adapted from Zohar and Luria's (2004) safety priority sub-dimension of group level safety climate. We adapted items to ensure that they were appropriate for the experimental context and for the budget task (e.g. "the representative felt strongly about allocating money to a

specific portion of the budget”; “the representative paid considerable attention to one specific portion of the budget”). Items were rated in terms of agreement (1 = strongly disagree; 5 = strongly agree).

Workplace pro-environmental behavior. Workplace pro-environmental behavior was measured by the percentage of money participants allocated to the environmental performance and development portion of the budget. Second, an unobtrusive measure was used to minimize participant reactivity, demand characteristics and researcher expectancies (Webb *et al.*, 1966). Specifically, participants were given the option to donate money to an environmental charity and/or a humanitarian charity. Following de Groot and Steg (2010), participants’ workplace pro-environmental behavior was measured by the percentage of money (out of \$5) that they chose to donate to an environmental charity. In an effort to control for name recognition and prior support for existing charities, both charities were fictitious. Controlling for order effects, the order in which each charity was presented was randomized. To retain anonymity in their choice, participants made the decision to donate money privately (i.e. within the online survey).

Liking of the leader. We assessed liking of the leader using Brown and Keeping’s (2005) four-item scale, all of which are rated on a five-point rating scale (1 = strongly disagree, 5 = strongly agree). Items were modified slightly to fit the purpose of this study (e.g. “I get along well with my supervisor” was changed to “I think I would get along well with the representative”).

Filler variable. To enhance the likelihood that participants would believe that the purpose of the study was to gain insight into how an organization can successfully expand into a new market, one additional question was included. Specifically, participants were asked to indicate key differences between the new market the organization was expanding into and the market in which it currently operates.

Results

Descriptive data, intercorrelations and reliability information appear in Table III.

Order effects

To test if the order in which each charity was presented influenced the percentage of money donated, an independent sample *t*-test was conducted. Results from this test showed that donations to either the environmental charity ($t(150) = -0.50, p > 0.05$) or the humanitarian charity ($t(152) = 0.93, p > 0.05$) were not influenced by the order in which they were presented.

	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8
1. Condition	1.90	0.80	–							
2. Age	18.75	0.96	–0.02	–						
3. Gender	1.60	0.49	0.02	–0.06	–					
4. Liking of the leader	3.18	0.81	0.21**	–0.07	–0.11	<i>0.92</i>				
5. Leader’s e-values	3.11	0.77	0.62**	–0.08	–0.06	0.25**	<i>0.89</i>			
6. Priorities	2.70	1.22	0.69**	0.06	0.06	0.00	0.59**	<i>0.97</i>		
7. EBudget	13.71	6.33	0.35**	–0.11	0.13	0.12	0.20*	0.30**	–	
8. ECharity	30.20	33.12	–0.04	–0.12	–0.04	0.07	–0.15	–0.07	0.09	–

Notes: *N* = 155. Leader’s e-values, leader’s environmental values; EBudget, percentage of money allocated to the environmental portion of the budget; Echarity, percentage of money donated to the environmental charity. Internal consistency coefficients (α) are given in italic and appear along the diagonal. * $p < 0.05$; ** $p < 0.01$

Table III. Descriptive statistics, intercorrelations and reliabilities (Study 2)

Manipulation check. Results from the manipulation checks suggest that both general transformational leadership ($F(2, 152) = 23.51, p < 0.01$) and ETFL ($F(2, 152) = 86.55, p < 0.01$) were manipulated successfully. When rating the leader depicted in the videos on ETFL, *post hoc* Bonferroni tests revealed significant differences between the ETFL ($M = 4.31, SD = 0.50$), general transformational leadership ($M = 3.09, SD = 0.60$) and the control group ($M = 2.83, SD = 0.61$). When rating the leader depicted in the videos on general transformational leadership, significant differences emerged between the general transformational leadership condition ($M = 3.88, SD = 0.54$) and the control group ($M = 3.18, SD = 0.58$). However, as might be expected, there was no difference between the general transformational leadership condition ($M = 3.88, SD = 0.54$) and the ETFL condition ($M = 3.85, SD = 0.70$) when participants rated general transformational leadership, as both leaderships displayed in these two conditions contain transformational leadership behaviors.

Hypothesis tests. We computed a multivariate analysis of covariance, controlling for gender and liking of the leader: gender was controlled in all analyses because females tend to be more environmentally concerned than males (Kollmuss and Agyeman, 2002; Torgler *et al.*, 2008), while liking of the leader was controlled as assessments of transformational leadership may be confounded by raters' positive affect toward the confederate (Brown and Keeping, 2005).

A significant multivariate effect emerged between the three experimental conditions: Pillai's Trace, $F(292) = 23.69, p < 0.01$. As a result, we probed further using one-way ANOVA's to assess whether significant differences emerged between environmentally specific and general transformational leadership on participants' perceptions of the leader's values and in-role behavioral priorities and their own workplace pro-environmental behaviors (see Table IV).

First, significant between-group differences emerged in terms of perceptions of the leader's values ($F(2, 152) = 61.98, p < 0.01$) and in-role behavioral priorities ($F(2, 152) = 185.31, p < 0.01$). *Post hoc* Bonferroni's confirmed that perceptions of the leader's environmental values were significantly higher in the ETFL condition ($M = 3.95, SD = 0.56$) than both the general transformational leadership condition ($M = 2.91, SD = 0.51$) and the control group ($M = 2.71, SD = 0.64$). Likewise, *post hoc* Bonferroni's showed that perceptions of the leader's in-role behavioral priorities were significantly higher in the ETFL condition ($M = 4.38,$

	$F(2, 152)$	Control		General transformational leadership		Environmentally specific transformational leadership	
		M	SD	M	SD	M	SD
<i>Manipulation check</i>							
Transformational leadership	23.51**	3.18	0.58	3.88	0.54	3.85	0.70
ETFL	86.55**	2.83	0.61	3.09	0.60	4.31	0.50
<i>Covariate</i>							
Gender	0.05	–	–	–	–	–	–
Liking of the leader	9.33**	2.85	0.82	3.47	0.72	3.22	0.74
<i>Main effects</i>							
Leader's environmental values	61.98**	2.71	0.64	2.91	0.51	3.95	0.56
Leader's priorities	185.31**	2.12	0.63	2.02	0.70	4.38	0.66
EBudget	11.28**	11.50	5.35	13.34	5.79	17.20	6.87
ECharity	0.22	32.5	30.35	28.55	34.82	29.29	34.94

Notes: $n = 155$. * $p < 0.05$; ** $p < 0.01$

Table IV.
Univariate ANOVA
results for covariates
and main effects
(Study 2)

SD = 0.66) than both the general transformational leadership condition ($M = 2.02$, $SD = 0.70$) and the control group ($M = 2.12$, $SD = 0.63$).

Significant effects also emerged in terms of the workplace pro-environmental behaviors as measured by percentage of money allocated to the environmental portion of the budget ($F(2, 152) = 11.28$, $p < 0.01$). *Post hoc* comparisons using the Bonferroni test again indicated that the percentage of money allocated to the environmental portion of the budget was significantly higher in the ETFL condition ($M = 17.20$, $SD = 6.87$) than either the general transformational leadership condition ($M = 13.34$, $SD = 5.79$) or the control group ($M = 11.50$, $SD = 5.35$). No differences emerged, however, between the transformational leadership and control conditions.

There were no significant between-group differences for workplace pro-environmental behaviors as measured by percentage of money donated to the environmental charity ($F(2, 150) = 0.22$, $p > 0.05$).

Discussion

The results of this study provide support for the incremental predictive validity of ETFL on relevant environmental outcomes compared to general transformational leadership. Participants' perceptions of the leader's environmental values, and clarity about the priorities of the confederate leader were significantly higher among participants who viewed the confederate enact ETFL than participants who viewed the confederate enact general transformational leadership and the control leadership, supporting *H1a* and *H1b*.

Partial support emerged for *H2*. Participants in the ETFL conditions allocated more money to the environmental portion of the budget than their counterparts in either the general transformational or control conditions. These findings gain added importance because the potentially confounding effects of gender and liking of the leader were controlled statistically in this study.

The question of why similar effects did not emerge with respect to the amount of money allocated to the environmental charity must be confronted. We suggest that this finding does not weaken any conclusions; instead, it emphasizes the context-specific nature of ETFL: when leaders draw attention to in-role targeted outcomes by what they say and do, employees may choose to change their pro-environmental behaviors in the workplace. Failure to find any effects on allocation of funds to the environmental charity is consistent with the behavior of the confederate in the ETFL condition. Recall that the confederate explicitly drew attention to the workplace-based nature of the focal environmental initiative (i.e. the environmental portion of the budget); following that, employees allocated more money to the environmental portion of the budget but did not allocate proportionately more money to a non-workplace based environmental initiative (i.e. the environmental charity). Whether this is an advantage or disadvantage of target specific transformational leadership would be determined by the context in which the leadership takes place, and the goals of the leadership.

In contrast, *H3* was not supported, as no differences emerged between participants in the general transformational leadership and control conditions in terms of both pro-environmental behaviors. This result is somewhat surprising given that several studies have linked general transformational leadership to environmental leadership and leader support for organizational environmental initiatives (e.g. Egri and Herman, 2000; Gilstrap and Gilstrap, 2012; Ng and Burke, 2010). These differing results may be explained by the fact that though transformational leadership behaviors are associated with environmental leadership (as is proposed in the theory of ETFL), unless these behaviors are enacted in a way that focuses on influencing workplace pro-environmental behaviors specifically (and thus are of the ETFL kind), they are unlikely to affect those outcomes.

General discussion

A growing body of research has identified the role of both general and target specific (i.e. safety specific and environmentally specific) transformational leadership in influencing targeted employee outcomes (see Barling *et al.*, 2011; Robertson and Barling, 2015b for reviews). Extending this research, two studies were conducted to provide preliminary support for the construct and incremental predictive validity of ETFL. Replicating Mullen and Kelloway's (2009) research on safety specific transformational leadership, our first study showed that environmentally specific and general transformational leadership are related but separable constructs. The results of our second study provide initial support for the notion that where specific outcomes are sought, target specific transformational leadership might well be more effective than general transformational leadership. Taken together, these findings offer several theoretical and practical implications and provide further avenues for future research.

Theoretical and practical contributions

With respect to theoretical contributions, results from Study 1 suggest that transformational leadership is a broad construct that includes various target-specific sub-dimensions. Extending this, future research could examine whether different types of target specific transformational leadership (e.g. safety and environmental) are empirically distinct from each other, and which might have differential effects. One possibility is that prior findings regarding general transformational leadership research (e.g. Barling, 2014) might well have underestimated its potential impact on target-specific outcomes, and future research should examine different foci of transformational leadership on different outcomes.

While previous research has linked ETFL to employees' workplace pro-environmental behaviors, results from Study 2 also provide some support for a causal relationship given that we used a randomized control-group design. The next step is to replicate this finding in longitudinal field experiments across organizational contexts to gain confidence that leaders' ETFL behaviors do in fact cause changes in employees' occupational environmental initiatives.

Understanding the different outcomes of ETFL has further implications for future theorizing about the relationships between ETFL and employees' environmental performance. Specifically, it may be especially useful for isolating mediating variables that help explain how ETFL affects workplace pro-environmental behaviors. For example, given that findings from study two suggest that ETFL affects followers' perceptions of their leaders' environmental values, it is possible that target-specific leadership enables followers to appreciate that their leaders value the environment more readily, enabling them to align their values with those of the leader. Likewise, future research could also examine the mediating effects of pro-environmental climate (Norton *et al.*, 2012, 2014; Russell and Griffiths, 2008). Safety specific transformational leadership shapes group members' safety climate perceptions, which in turn affect their safety-related behaviors (e.g. Barling *et al.*, 2002; Kelloway *et al.*, 2006). Extending this to an environmental context may suggest that ETFL, but not general transformational leadership behaviors, influence employees' pro-environmental climate perceptions, which in turn, may lead to more workplace pro-environmental behaviors.

In addition, several practical implications emerge from this research. First, results from Study 2 provide some evidence that ETFL can be trained, given that an actor learned to enact ETFL behaviors while giving a video message. This finding raises the question: might leadership development be more readily accomplished with organizational leaders whose motivation to change and learn is likely much higher than that of a trained confederate? This finding also suggests that ETFL training initiatives could constitute workplace environmental sustainability interventions that enhance organizations' and employees' environmental performance. Finally, the relative advantages accruing to target-specific rather than general transformational leadership could provide useful information regarding

within-organization leadership training, and the design of leadership interventions. Specifically, maximal individual and organizational change may best be achieved by ensuring that leaders are specific as possible regarding their values, priorities and goals.

Limitations

Like all research, this study has several limitations that should be addressed by future research. First, given the experimental nature of this study, questions concerning ecological and external validity remain. Future research should contrast the relative effects of general and target specific transformational leadership on employees' attitudes and behaviors, and relevant performance indicators (e.g. organizational environmental performance) in other conditions. Specifically, it is important to move beyond a student sample and replicate these findings within various organizational contexts and across cultures using both field experimental and longitudinal methodologies.

At the same time, the majority of research on the relative effects of general vs target-specific leadership has been limited to transformational leadership (for an exception see Ramus and Steger, 2000), and future research might extend this research to other forms of organizational leadership. For example, servant leadership (Greenleaf, 1977) has increasingly begun to receive scholarly attention (see Van Dierendonck, 2011 for a review). Much like general transformational leadership, servant leadership is wide-ranging in its focus on affecting various outcomes by serving others (Greenleaf, 1977). Through empowerment, acceptance, humility, acting authentically, providing direction and working toward the common good, servant leadership is thought to diffusely affect a variety of consequences (Van Dierendonck, 2011). With its focus on a concern for others, it is not surprising that servant leadership theory has been highlighted as being particularly useful in predicting sustainability activity (Christensen *et al.*, 2014). Future research should extend the focus of servant leadership to the environmental context (i.e. a focus on a concern for and need to serve the natural environment) and examine the relative effects of a general or environmentally specific servant leadership style in affecting targeted environmental outcomes. Moreover, research should begin to examine other leadership styles (e.g. ethical leadership; Brown *et al.*, 2005) as antecedents to employees' environmental performance.

Second, the positive effects of ETFL may be a function of demand characteristics (Orne, 1962), as neither of the other two conditions had a similar target-specific focus. While we attempted to control for demand characteristics by providing a fictitious story regarding the purpose of the study and deleting responses of participants who correctly guessed the real purpose of the research, future research should include an environmental focus in the control condition to exclude the possibility that demand characteristics threaten any conclusions about the relative superiority of target-specific leadership.

Conclusion

About a decade ago, Barling *et al.* (2002) extended the focus of general transformational leadership to include safety specific transformational leadership. Recently, others (e.g. Graves *et al.*, 2013; Robertson and Barling, 2013) have expanded the focus of this leadership further, to include ETFL. The goal of this study was to build on this research by investigating the construct and incremental predictive validity of ETFL. To this end, two studies were conducted to show that: ETFL and general transformational leadership are separate but related constructs, and ETFL exerts greater effects on environmental outcomes than general transformational leadership. More is now needed to be understood about why ETFL exerts greater effects. If future research replicates these findings, uncovers the mechanisms through which ETFL exerts its effects, and identifies the boundary conditions to such effects, a better understanding of why, when and how environmental leadership influences corporate environmental performance will be gained.

Note

1. Due to copyright restrictions, sample items from the MLQ or the modified version of the MLQ to measure ETFL cannot be provided.

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Appendix. Study 2 general and environmentally specific transformational leadership measures

General Transformational Leadership

Items adapted and slightly modified from the Transformational Teaching Questionnaire (Beauchamp *et al.*, 2010).

The representative acted as a person that I could look up to.
The representative inspired me to look at developing an effective budget from different sides.
The representative was enthusiastic that the group was capable of developing an effective budget.
The representative demonstrated that the organization would listen to each individual's ideas.
The representative seemed predominately concerned for the best interest of his organization.
The representative was energetic and passionate.
The representative encouraged us to think about allocating money in different ways.
The representative demonstrated that the organization would take into consideration each individual's feedback.

Environmentally specific Transformational Leadership

Items adapted and slightly modified from the Transformational Teaching Questionnaire (Beauchamp *et al.*, 2010).

The representative recognized each person's ability to effectively allocate money to help the organization's environmental performance.
The representative showed a commitment to the natural environment.
The representative was optimistic that I could help improve the organization's environmental performance.
The representative encouraged actions that would benefit the organization's environmental performance.
The representative urged us to think creatively about the environmental performance and development portion of the budget.
The representative demonstrated that each individual's suggestion for the organization's environmental performance were important.
The representative showed that he/she valued the environment.
The representative challenged me to think about the organization's environmental performance in different ways.

Leaders' Biospheric Values (Stern *et al.*, 1999).

Protecting natural resources.
Fitting into nature.
Harmony with other species.
Preserving nature.

Clarity of Role Behavior Priority

Items adapted and generated from Zohar and Luria's (2004) safety priority sub-dimension of group-level-safety climate scale.

The representative felt strongly about allocating money to a specific portion of the budget.
The representative paid considerable attention to one specific portion of the budget.
It was clear what portion of the budget the representative prioritized.
I feel certain that the representative favored one portion of the budget.
The representative clearly defined what portion of the budget should receive significant amounts of money.
The representative left us with no doubt as to what portion of the budget (s)he valued the most.

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