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Does ‘walking the talk’ enable pro-environmental behavior at work? The combined effects of value statement and role model

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Resumo/Abstract

This study uses an experimental approach to examine when and how the presence of the environmental value statement can promote divisional managers’ pro-environmental behavior at work. In particular, we investigate the effects of the combined presence of the environmental value statement and the CEO’s pro-environmental role model on divisional managers’ pro-environmental behavior. Our results are consistent with the substitutable rather than the complementary effects of the two informal controls. In addition, our results suggest that the pro-environmental role model creates these detrimental effects because its presence inhibits the activation of pro-environmental social norms that the sole presence of the environmental value statement is otherwise able to activate. The main implication of our findings is that what the CEO says can be more influential than what the CEO does in activating value-relevant social norms and stimulating divisional managers’ intention to follow PEB. Our study provides theoretical and practical contributions.

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ABSTRACT

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Keywords: Informal controls, Value statement, Role model, Social norms, Pro-environmental behavior, CEO.

Introduction

Value statements are informal controls that organizations can adopt to stimulate managers’ desirable behavior (Marginson, 2009; Berry, Coad, Harris, Otley, & Stringer, 2009). They convey prioritized goals that communicate relevant behavioral norms and can exert social pressure on managers to perform value-consistent behaviors (O’Reilly, Chatman, & Caldwell, 1991; Hannah, 2016). Hence, organizations can communicate a value statement prioritizing environmental protection (*environmental* value statement) to affect managers’ intention to follow pro-environmental behavior (PEB). Fostering managers’ PEB at work is essential since organizations are being required to undertake considerable measures to mitigate long-term risks arising from climate change and environmental damage (Lülfes & Hahn, 2013; World Economic Forum & PwC, 2020). In addition, divisional managers are primarily responsible for several decisions that affect organizational performance and environmental outcomes (Wells, Gregory-Smith, & Manika, 2018). Despite the importance of motivating managers’ PEB, the management control literature is still scarce on understanding the effects of an organization’s management systems on managers’ PEB (González-Benito & González-Benito, 2006; Lülfes & Hahn, 2013). This paper addresses this research gap by examining when and how the environmental value statement can promote divisional managers’ PEB at work.

While the communication of the value statement can motivate value-consistent behavior, its behavioral effects occur mainly contingent on the presence of other variables, such as incentives (Kachelmeier, Thornock, & Williamson, 2016). When multiple control mechanisms are combined to solve a particular control problem, such as fostering PEB, their interdependent effects can be complementary or substitutable (Bedford, 2020). Prior studies have shown that, in the presence of a piece-rate scheme, the value statement can be detrimental to the organization and have a substitutable effect by inhibiting the overall productivity that the sole presence of the incentive scheme can create (Kachelmeier et al., 2016). Additionally, an increased salience through an active delivery method can augment the detrimental effects of the value statement (Akyniele, Arnold, & Sutton, 2020). However, when combined with other control mechanisms, the behavioral effects of the value statement can depend on which type of other controls are present in the research setting as well as the particular control problem the combined controls are expected to solve (Kachelmeier et al., 2016; Hannah, 2016; Bedford,

2020). In this study, we examine an environmental setting and investigate whether, in the presence of another control mechanism, namely, a pro-environmental role model, the environmental value statement is beneficial or detrimental to the organization in promoting or suppressing divisional managers' PEB.

Role models communicate relevant values and social norms through significant others' actions to which followers are expected to support (House, 1977). A role model can act as an informal control that influences managers' behavior through shared values, social norms, and beliefs (Norris & O'Dwyer, 2004; Berry et al., 2009). Managers tend to mimic the behavior of attractive role models (Mayer, Kuenzi, Greenbaum, Bardes, & Salvador, 2009; Shin, 2012). Specifically, the role model in this study is characterized by a salient PEB from the organization's Chief Executive Officer (CEO) expressing normative information that promotes environmental protection through enhanced environmental reputation (*pro-environmental* role model). The CEO's pro-environmental role model can ensure that a significant member of the organization is following organizational values, increasing the salience of social norms toward environmental protection (*pro-environmental* social norms) (Cialdini & Goldstein, 2004) and reducing the chances that managers perceive the environmental value statement as 'cheap talk', that is, an empty and cynic management tool (Urbany, 2005; Winkler, Etter, & Castelló, 2020). Based on the potential enabling effects of multiple controls (Bedford, 2020), the pro-environmental role model can create the conditions for the environmental value statement to foster divisional managers' PEB. Hence, we argue that the combined use of the environmental value statement and the pro-environmental role model will benefit the organization by increasing the salience of pro-environmental social norms, and thus motivating the divisional managers' intention to follow PEB. In other words, we expect a complementary effect from combining the two informal controls to affect divisional managers' PEB at work.

This study uses an experimental design where participants assume the role of a large mining company's divisional manager. Participants face a trade-off between incurring costs to comply with an environmental agreement or not incurring in the agreement costs at first and potentially suffering the financial consequences later. In this setting, the environmental value statement and the pro-environmental role model are manipulated between-participants in two levels (absence versus presence). Results indicate that the sole adoption of either the environmental value statement or the pro-environmental role model cannot motivate divisional managers to follow PEB. Consistent with the substitutable and detrimental effects of multiple adoption of management controls, the pro-environmental role model does not create the conditions for the environmental value statement to promote divisional managers' PEB, but rather the conditions for the environmental value statement to suppress divisional managers' intention to follow PEB. In addition, the results show that the presence of the environmental value statement relative to its absence indirectly increases intention to follow PEB through the activation of pro-environmental social norms, but only when the pro-environmental role model is absent.

Results of this study provide theoretical and practical contributions. First, our results contribute to the still incipient research on the behavioral effects of the value statement when combined with other management controls (Hannah, 2016). Prior studies have revealed that the value statement has substitutable effects when combined with a piece-rate scheme (Kachelmeier et al., 2016) and when actively delivered (Akyniele et al., 2020). We add to this literature by showing the substitutable effects of the combination of the environmental value statement and the pro-environmental role model in a research setting where the control problem can be regarded as highly important since it involves the design of control systems to mitigate the long-term risks arising from climate change and environmental damage (Lülfes & Hahn, 2013; Jones & Saad, 2020). In particular, consistent with the substitutable effect of multiple controls (Bedford, 2020), the pro-environmental role model instigates the environmental value statement to suppress divisional managers' intention to follow PEB.

Second, this study contributes to understanding how the value statement affects managers' behavior (Hannah, 2016). While prior studies have suggested underlying processes through which the value statement can affect behavior, such as how employees perceive and represent the task (Kachelmeier et al., 2016) and the development of value-consistent attitudes (Aguiar, 2021), they do not test for the indirect effects of value statements on individual behavior. Our results suggest that the environmental value statement can activate pro-environmental social norms that, in turn, motivate divisional managers' intention to follow PEB. In addition, the presence of the pro-environmental role model inhibits the ability of the environmental value statement to activate the value-relevant social norms. Our results suggest that the detrimental effects associated with the value statement when combined with other controls, as reported in this and prior studies, can be explained by this inhibitory effect of other controls on the capacity of the value statement to activate value-relevant social norms.

This paper also contributes to designers of control systems in organizations willing to promote divisional managers' PEB at work. Our results suggest that organizations should be cautious about using multiple controls to stimulate divisional managers' PEB at work since the combined controls do not necessarily complement each other to promote desirable behavior; they can instead have substitutable effects. Moreover, organizations should consider with care the CEO acting as an influential role model for PEB at work. Consistent with the literature in aspirational talk (Christensen, Morsing, & Thyssen, 2013; Christensen, Morsing, & Thyssen, 2015), our results suggest that what the CEO says is more influential than what the CEO does in stimulating value-relevant social norms and divisional managers' intention to follow PEB. According to the results of this study, what the CEO does can actually inhibit the process through which the environmental value statement promotes PEB at work even if the CEO's prior actions are consistent with organizational values.

Theory and Hypotheses

Pro-environmental behavior and management controls

We are significantly faced with several long-term risks arising from climate change and environmental damage (Jones & Saad, 2020). A consensus exists that organizations should be required to undertake considerable measures to mitigate these risks (Lülfs & Hahn, 2013; World Economic Forum & PwC, 2020). Nonetheless, in their business decisions, organizations (and their managers) are frequently torn between financial and environmental concerns since short-term financial returns are a far more pressing matter today than environmental deterioration's future risks (World Economic Forum & Boston Consulting Group, 2020). One initiative organizations can take to foster PEB at work is to ensure that management controls embed PEB characteristics that are effective in motivating managers' PEB (Paillé & Boiral, 2013; Feder & Weißenberger, 2021).

The management control literature is still scarce on understanding how an organization's management systems affect divisional managers' PEB at work (González-Benito & González-Benito, 2006; Lülfs & Hahn, 2013). This understanding, however, is essential as divisional managers are primarily responsible for several decisions that affect organizational performance and environmental outcomes (Wells et al., 2018). Organizations often implement formal and informal controls to stimulate behavioral change and managers' goal-consistent behavior (Merchant & Otley, 2007). Formal controls can induce cooperation (Tenbrunsel & Messick, 1999; Coletti, Sedatole, & Towry, 2005; Tayler & Bloomfield, 2011), but they can also lead to unbalanced managers' effort allocation (Christ, Emmett, Summers, & Wood, 2016). This unbalanced effort allocation can be increased in complex organizational contexts where managers' actions are less quantifiable and monitored (Rowe, 2004), as is the case for the long-term benefits of environmental initiatives.

As an alternative to formal controls, organizations use informal controls. Informal controls comprise unwritten policies, shared values, social norms, socialization processes, and corporate culture (Ouchi, 1979; Norris & O'Dwyer, 2004; Feder & Weißenberger, 2021). They exert social pressure on managers' behavior by communicating organizational values, rules, and behavioral norms (Berry et al., 2009; Kachelmeier et al., 2016). Organizations willing to foster PEB at work can integrate PEB-related aspects into informal controls so that managers read and interpret these signals and follow courses of action consistent with the attainment of PEB-related goals (Norris & O'Dwyer, 2004). Case study findings reveal that informal controls can be more important than formal controls to stimulate socially and environmentally conscious behavior (Durden, 2008; Norris & O'Dwyer, 2004). Hence, given the importance that informal controls can have to motivate PEB at work, we examine a setting where there are no formal controls and verify whether informal controls can guide organizational desired behavior in the absence of formal controls (Andrejko, Berger, & Guo, 2019). Precisely, in the research setting of this study, we examine when and how the combined use of two informal controls—environmental value statement and pro-environmental role model—have beneficial or detrimental effects on divisional managers' PEB at work.

Combination of management controls

The management control literature is prolific over the differences between management control practices as systems (Ferreira & Otle, 2009) or packages (Malmi & Brown, 2008), with more in-depth discussions focused on their conceptual aspects and the role of interdependence on management control practices (Grabner & Moers, 2013). Particularly, Grabner and Moers (2013) posit that management control practices interdependence is only relevant to the systems approach since the package perspective represents the complete set of controls that are in place. With a different viewpoint, Demartini and Otle (2019) elaborate on a loose coupling perspective focusing on the nature of the control dynamics and not on the practices' interdependence per se. Coupling types, responsiveness, and distinctiveness are applicable when choosing management control practices, but interdependence of controls is somewhat forgotten when determining outcomes (Demartini & Otle, 2019).

Regardless of the adopted perspective on management control combinations, organizations' primary focus when adopting control mechanisms should be over how these combinations, either interdependently or independently, can affect control problems (Bedford, 2020). When used interdependently, effects of management control combinations can be complementary or substitutes, consistent with the management control systems approach (Grabner & Moers, 2013). If complementary, combined control practices can have compensating, reinforcing, or enabling effects over one another to deal with the control problem (Bedford, Bisbe, & Sweeney, 2019; Bedford, 2020; Choi, 2020; Henri & Wouters, 2020). If substitutes, they can inhibit, exacerbate, or instigate the effects of other controls on resolving the control problem (Bedford, 2020; Choi, 2020; Henri & Wouters, 2020; Schedlinsky, Schmidt, & Wöhrmann, 2020).

Specifically, given the investigation over causal effects, experimental studies are critical to detect whether the combination of controls are complementary or substitutes to each other (Choi, 2020). For example, reinforcing controls can strengthen each other's effectiveness to solve the control problem, while inhibiting controls can diminish the effectiveness of one another (Bedford, 2020). These effects are not of the same magnitude, which means that one control can predominate and exert a greater influence on another (Choi, 2020). In sum, considering the interdependence effects, the presence of two controls to solve the same control problem can have complementary or substitutable effects and these effects can differ across different settings (Bedford, 2020). In particular, this study examines the combined effects of two informal controls—value statement and role model—on divisional managers' PEB.

Value statements are informal control mechanisms that communicate “The values, beliefs and social norms which are established to influence employees’ behavior” (Malmi & Brown, 2008, p. 292). Value statements communicate prioritized goals and values that wield social pressure on managers to perform value-consistent behaviors (O’Reilly et al., 1991; Simons, 1995; Berry et al., 2009). They influence behaviors by expressing the relevant social norms for the organization (Marginson, 2009; Hannan, 2016). In other words, they communicate and make salient relevant normative information defining organizational beliefs, establishing what is approved by the organization, and signaling how managers should behave (Collis & Rukstad, 2008; Hannan, 2016). As such, a value statement can stimulate value-consistent behavior by activating value-consistent social norms (Kachelmeier et al., 2016; Akinyele et al., 2020).

As to the role model, the concept of role modeling is initially associated with the theory of charismatic leadership and suggests that successful leaders have a significant effect on followers’ behavior because leaders communicate through their actions and decisions relevant organizational values and beliefs they expect adherence from followers (House, 1977). Charismatic leaders act as role models for followers by demonstrating the desired and appropriate courses of action (Mayer et al., 2009; Holten & Brenner, 2015). Managers tend to emulate the significant and positively regarded role models existing in the organization (Rich, 1997; Shin, 2012). In particular, the CEO tends to serve as a significant role model to managers, with the CEO’s role model being of great importance in shaping the organizational ethical climate (Mayer et al., 2009; Shin, 2012). Hence, a CEO’s role model can increase the salience of relevant social norms by communicating CEO’s prior actions (House, 1977).

Overall, an environmental value statement communicating that the organization is ‘committed to promote an environmentally sustainable society’ can promote divisional managers’ intention to follow PEB by making more salient the prioritized goal toward PEB. Similarly, the provision of information indicating that the CEO ‘built a reputation of taking actions that reduce the negative impact of business on the environment’ can make divisional managers emulate the CEO as a significant pro-environmental role model, ultimately affecting their intention to follow PEB at work by increasing the salience of relevant social norms in the organization. As developed below, we expect that, in the presence of the pro-environmental role model, the environmental value statement is beneficial to the organization in terms of enabling divisional managers’ PEB at work, supporting a complementary hypothesis.

Walking the talk: The complementary effects

The main argument developed in this paper is that the combination of the environmental value statement and the pro-environmental role model will benefit the organization by increasing the salience of pro-environmental social norms, and thus promoting divisional managers’ intention to follow PEB. In other words, we expect a complementary effect from combining the two informal controls to affect divisional managers’ PEB at work. According to prior studies, the behavioral effects of the value statement are more likely to occur as an interaction with other variables (Kachelmeier et al., 2016; Akinyele et al., 2020). In particular, when combined with other management controls to affect individual behavior, the effects of the value statement are detrimental to the organization and substitutable with the other controls. For instance, Kachelmeier et al. (2016) show that the value statement can inhibit the overall productivity that the sole presence of a piece-rate scheme can create for the organization. Akinyele et al. (2020) provide additional support to the detrimental and substitutable effects of the value statement by indicating that these effects are increased when the salience of the value statement is higher.

The combination of the value statement with other control mechanisms, however, may not necessarily be detrimental to the organization as the behavioral effects of the value statement will depend on the type of the other controls used by the organization to solve the same control

problem as well as on the magnitude of the control problem (Kachelmeier et al., 2016; Hannah, 2016; Bedford, 2020). In Kachelmeier et al. (2016) and Akyniele et al. (2020), the other control mechanism is either a fixed pay or a piece-rate scheme, and the control problem is to stimulate employees to increase overall productivity by focusing on the most productive strategy. In their research settings, deviations from the goal prioritized in the value statement are less harmful to the organization. In our research setting, the value statement is combined with the role model and the control problem is to motivate divisional managers to increase their intention to follow PEB by focusing on the value-relevant social norms. In this setting, deviations from the goal prioritized in the value statement can be harmful to both the organization and the society (Hussainey & Salama, 2010; Jones & Saad, 2020). Hence, we expect that in our research setting, the environmental value statement will be beneficial to the organization when combined with the pro-environmental role model.

The presence of the CEO as the pro-environmental role model can ensure that a significant member of the organization is following organizational values. According to the focus theory of normative conduct, individual behavior is more likely to be affected by normative information when “the information is highlighted prominently in consciousness” (Cialdini & Goldstein, 2004, p. 597). Moreover, prior studies have shown that the activation of relevant social norms is an influential predictor of PEB (Biel & Thøgersen, 2007; Steg & Vlek, 2009). Hence, the joint presence of the environmental value statement and the pro-environmental role model can be beneficial to the organization in promoting divisional managers’ PEB because the two informal controls communicating the importance of environmental protection can increase the salience of the normative information towards environmental protection.

In the absence of the pro-environmental role model, the environmental value statement might be permeated with negative effects such as ‘cheap talk’, cynicism, and perceived management hypocrisy (Urbany, 2005; Winkler et al., 2020). In other words, managers may not believe that the CEO is actually following courses of actions that are consistent with the values, beliefs, and norms communicated through the value statement. As a consequence, when the environmental value statement is not combined with the pro-environmental role model, the salience of the pro-environmental social norms will be lower and managers will less likely activate the pro-environmental social norms. Hence, based on the potential enabling effects of multiple controls (Bedford, 2020), the presence of the pro-environmental role model can create the conditions for the environmental value statement to stimulate divisional managers’ PEB at work. In sum, we expect that the environmental value statement and the pro-environmental role model will complement each other to increase divisional managers’ intention to follow PEB by increasing the salience and activating pro-environmental social norms. Thus, the research hypothesis predicting the combined effect of the two informal controls on divisional managers’ intention to follow PEB at work is formulated as follows:

Hypothesis: The combined presence of the environmental value statement and the pro-environmental role model have complementary effects on divisional managers’ intention to follow PEB at work so that divisional managers’ intention to follow PEB is higher when both informal controls are present than when only either informal control is present.

Method

Participants and procedures

We recruit 119 participants through Prolific, a web-based platform focused on connecting researchers with targeted samples. Research shows that Prolific provides higher quality response data compared to similar web-based platforms (Peer, Brandimarte, Samat, & Acquisti, 2017). We pre-screen participants that have (1) between 30 and 70 years of age, (2) previous work experience, (3) a higher education degree, (4) English as the first language, and (5) an

approval rate¹ of a minimum 85 percent. We randomly assigned participants to different experimental conditions through Qualtrics® software, where the task is hosted.

Participants are 50.4 percent female (49.8 percent male), with an average age of 37.8. The majority of them hold a Master's degree (81.5 percent), followed by undergraduate degree (13.5 percent), MBA (4.2 percent), and Post-Doctoral degree (0.8 percent). Their average work experience is of 14.3 years, and the majority of respondents are from the United Kingdom (65.3 percent), followed by United States citizens (17.8 percent), Canadian (5.1 percent), Irish (4.2 percent), and other English-speaking nationalities (7.6 percent).

The experimental procedures are the same in all conditions. Participants are first presented with general information and the consent form². After accepting it, we kindly remind them to pay full attention on every step of the study. Specifically, we ask participants the following: "Before you start, we recommend you to put away your mobile / music / email so you can focus on this study." We later provide general instructions about all the study's parts—Part 1, Part 2, and Part 3. After that, participants are directed to the next screen (Part 1), where they answer questions about individual characteristics, as well as demographic questions. In Part 2, participants receive specific instructions and read the case scenario. Part 3 depicts post-experimental questions, including a comprehension question and questions about their decision making process (i.e., social norms). The comprehension question asks participants to indicate if, as the divisional manager of the Mineco Co. Iron Division, they have autonomy to make operational decisions affecting their division's profits. 97.5 percent of participants correctly answer that they have the autonomy to make operational decisions affecting their division's profits. We do not exclude participants who fail the comprehension check since the main results are not significantly different³. Finally, at the end of the study, we ask participants whether they have any questions or suggestions, which provided us feedback on participants' understanding of the study⁴.

Research instrument and experimental task

The research instrument consists of an experimental case scenario, adapted from Tenbrunsel and Messick (1999). Participants assume the role of divisional managers of one of Mineco Co. divisions, a large mining company. Each company's division is highly independent, which means that managers have complete autonomy and responsibility for the decisions that affect divisions' profits, each corresponding to a different profit center.

In the experimental scenario, participants face an environmental problem in their division. During the production process, their division (which is part of the Iron Division) is emitting a toxic gas called VS-1. Since the problem has taken concerning proportions, environmentalists are now involved and demanding some action from the company. This means that there is a possibility of a legislation approval, lobbied by the environmentalists, to force the company to

¹ Approval rate is the percentage of studies for which the participant has been approved by previous researchers that used Prolific.

² We design the study so participants would have to click on the "continue" button to go on to the next screen, after every described part. Participants are not able to go back to a previous screen after clicking the "continue" button. We want to have participants full attention on every step so we decide to not allow them to go back and forth reading it several times. Our manipulation checks show that the majority of participants are able to understand the case fully by reading it only once.

³ The most important difference in our main results is that the significant simple effects of the pro-environmental role model on intention to follow PEB in the present environmental value statement conditions drops and becomes marginally significant ($p = 0.104$) when we exclude participants who fail the comprehension check.

⁴ We do not have any particular question that was considered confusing in order to change the case scenario due to understanding issues. We conducted a pre-test to attest for participants understanding, with no failures in the manipulation tests. However, participants gave us some useful comments on the experimental design and their impressions of the case scenario. These comments were overall positive.

take full measures to stop the problem. These measures involve running every smokestack (100%) with scrubbers, preventing it from harming the environment. As an alternative, the same environmentalists are proposing an agreement, where the company’s Iron Division could run the scrubbers for only 80 percent of the time.

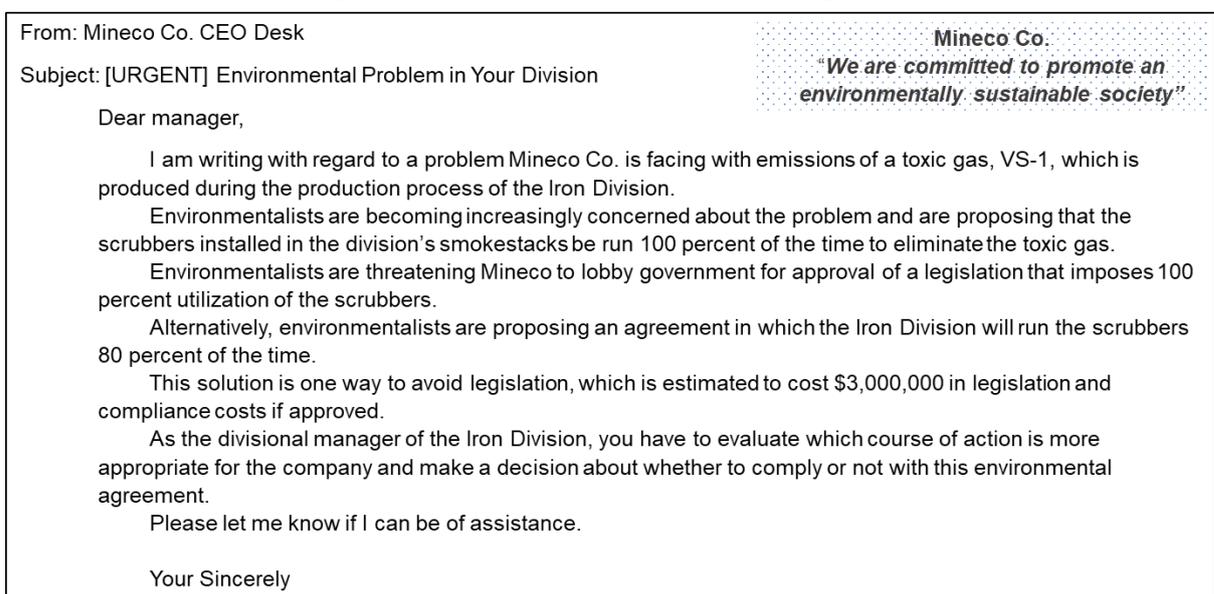
Participants have two possible alternatives to explore: (1) comply with the environmental agreement by running the scrubbers 80 percent of the time at an estimated cost of \$1,200,000 or, (2) do not comply with the agreement by not running the scrubbers 80 percent of the time, facing the risk of legislation being approved and then having to pay the estimated cost of \$3,000,000 in legislation and compliance costs. Participants have a trade-off between incurring in costs to comply with the agreement, knowing that they have financial responsibility for their division, or not incurring in the agreement costs at first but suffering the consequences later if most of the other companies do not comply with the agreement.

Variable manipulation

We embed the manipulations in the case scenario. First, after the company’s description, we add information about the CEO related to his history inside the company: “The Chief Executive Officer (CEO) of Mineco has been working in mining companies for a long time. He has joined Mineco as a management executive ten years ago and rose to become the CEO a couple of years ago.” Participants in all conditions read this part. Next, we add the pro-environmental role model manipulation for participants in the present condition. These participants read the following excerpt about the CEO’s reputation to take actions into protecting the environment: “As management executive, he built a reputation of taking actions that reduce the negative impact of business on the environment. As for last year, he has been nominated as a finalist for the Most Environmentally Friendly Executive of the Year Award and has actually won the prize for the second time in a row.”

After further explanations about participants’ role as divisional managers, we embed the second manipulation—environmental value statement—as part of a company’s email. On this email, the CEO describes the gas emission problems, the legislation approval threat, and the possible course of action with the environmental agreement. Participants in all conditions read the same message. Only participants in the environmental value statement present condition receive a message in the right corner of the email displaying the company’s values as follows: “Mineco Co.: We are committed to promote an environmentally sustainable society.”. Figure 1 depicts the email.

Figure 1 – Email with Value Statement Manipulation



Dependent Variable

We capture pro-environmental behavior by asking participants about their intention to comply with the environmental agreement. We asked participants to answer: “As the divisional manager of Mineco Co. Iron Division, indicate how likely you intend to comply with the environmental agreement by running the scrubbers 80 percent of the time.” They answer this question on a seven-point Likert scale: (1) extremely unlikely to (7) extremely likely. We use behavioral intentions because they represent a valid assessment for actual behavior (e.g., Ajzen, 1991; Sheeran, 2002). Several theoretical approaches and prior studies advocate for the alignment between actual behavior and behavioral intentions (Rogers, 1975; Ajzen, 1991; Sheeran, 2002). In addition, social desirability bias is a typical concern for case scenarios, especially the ones that investigate ethical problems (Wason, Polonsky, & Hyman, 2002). Therefore, we decide on a less direct measurement approach that can result in less biased participants’ answers.

Results

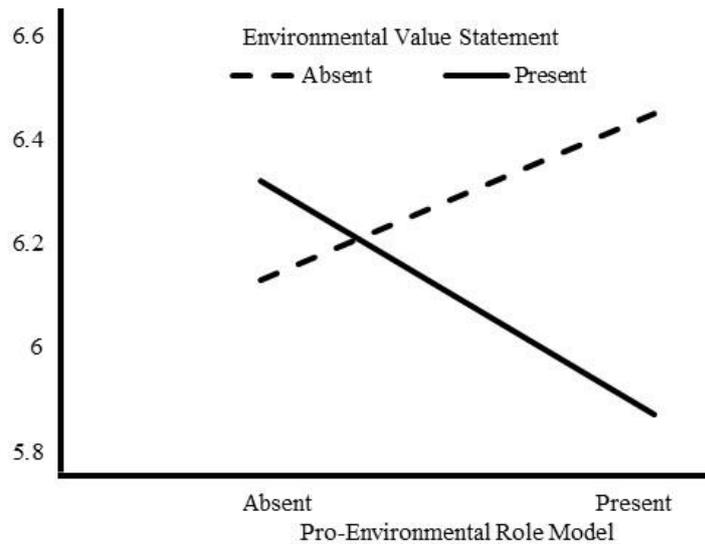
Descriptive statistics

Table 1 and Figure 2 present descriptive statistics for intention to follow PEB. Looking first at average intention to follow PEB across value statement conditions, intention to follow PEB is higher when the environmental value statement is absent ($M = 6.29$) than when it is present ($M = 6.09$). As to the pro-environmental role model conditions, the average intention to follow PEB is higher when the pro-environmental role model is absent ($M = 6.22$) than when it is present ($M = 6.16$). We also examine that, in the absence of the pro-environmental role model, the average intention to follow PEB is higher in the presence of the environmental value statement ($M = 6.32$) than in its absence ($M = 6.13$). In the absence of the environmental value statement, average intention to follow PEB is higher when the pro-environmental role model is present ($M = 6.45$) than when it is absent ($M = 6.13$). Finally, consistent with the substitutable effects of multiple controls (Bedford, 2020), the average intention to follow PEB is lower when both the environmental value statement and the pro-environmental role model are present ($M = 5.87$) than when only the environmental value statement is present ($M = 6.32$) or only the pro-environmental role model is present ($M = 6.45$).

Table 1 –Descriptive: Intention to follow PEB

Environmental Value Statement	Pro-Environmental Role Model		Total
	Absent	Present	
Absent			
Mean	6.13	6.45	6.29
Standard Deviation	(0.25)	(0.14)	(0.14)
Number of Participants	[30]	[31]	[61]
Present			
Mean	6.32	5.87	6.09
Standard Deviation	(0.14)	(0.21)	(0.13)
Number of Participants	[28]	[30]	[58]
Total			
Mean	6.22	6.16	6.19
Standard Deviation	(0.14)	(0.13)	(0.10)
Number of Participants	[58]	[61]	[119]

Figure 2 – Environmental Value Statement x Pro-Environmental Role-Model



Hypotheses tests

The research hypothesis of this study predicts complementary effects on divisional managers' intention to follow PEB at work of the combined presence of the environmental value statement and the pro-environmental role model. Precisely, we predict that intention to follow PEB is higher when both the environmental value statement and the pro-environmental role model are present than when only one of them is present. To test this hypothesis, we first conduct an ANOVA with environmental value statement conditions, pro-environmental role model conditions, and the interactive term as the independent variables, and the intention to follow PEB as the dependent variable. We observe in Panel A of Table 2 that neither the environmental value statement ($F = 1.08$, two-tailed, $p = 0.301$) nor the pro-environmental role model ($F = 0.13$, two-tailed, $p = 0.722$) has a main effect on participants' intention to follow PEB. In addition, results reveal a significant interactive effect between the two informal controls on intention to follow PEB ($F = 4.09$, two-tailed, $p = 0.045$).

Table 2 – ANOVA results

Panel A				
Factor	df	MS	F	P-value
Environmental value statement (absent or present)	1	1.17	1.08	0.301
Pro-environmental role model (absent or present)	1	0.14	0.13	0.722
Environmental value statement x pro-environmental role model	1	4.44	4.09	0.045
Error	115	1.10		
Panel B				
	df	MS	F	P-value
Simple effect of environmental value statement in the absence of pro-environmental role model	1	0.51	0.42	0.517
Simple effect of environmental value statement in the presence of pro-environmental role model	1	5.22	5.39	0.024
Simple effect of pro-environmental role model in the absence of environmental value statement	1	1.54	1.25	0.269
Simple effect of pro-environmental role model in the presence of environmental value statement	1	3.00	3.25	0.077

Simple effects are examined to better understand the interaction between the environmental value statement conditions—absent and present—and the pro-environmental role model conditions—absent and present. We first examine the differential effects of environmental value statement on intention to follow PEB for participants in the absent versus present pro-environmental role model conditions. Panel B of Table 2 shows that intention to follow PEB

for participants in the absent pro-environmental role model condition does not significantly differ ($F = 0.42$, two-tailed, $p = 0.517$) between the two environmental value statement conditions. In contrast, participants in the present pro-environmental role model condition have significantly higher intention to follow PEB in the absent ($M = 6.45$) than in the present ($M = 5.87$) environmental value statement condition ($F=5.39$, two-tailed, $p = 0.024$).

We also examine the differential effects of pro-environmental role model on intention to follow PEB for participants in the absent versus present environmental value statement conditions. Panel B of Table 2 indicates that the intention to follow PEB for participants in the absent environmental value statement condition does not significantly differ ($F = 1.25$, two-tailed, $p = 0.269$) between the two pro-environmental role model conditions. Results also reveal that participants in the present environmental value statement condition have a marginally significant higher intention to follow PEB in the absent ($M = 6.45$) than in the present ($M = 5.87$) pro-environmental role model condition ($F = 3.25$, two-tailed, $p = 0.077$).

These results suggest that the sole adoption of either the environmental value statement or the pro-environmental role model cannot motivate employees to follow PEB at work. While in the absence of the pro-environmental role model, participants' average intention to follow PEB increases in the present versus absent environmental value statement conditions, the increase is not significant. Similarly, for participants in the absent environmental value statement condition, while there is an increase in the average intention to follow PEB in the present versus absent pro-environmental role model conditions, the increase is not significant. More importantly, results do not provide support to the complementary hypothesis. On the contrary, results favor the substitutable effects by revealing that, when the two informal controls are jointly present relative to when only either one is present, participants' intention to follow PEB is the lowest. Overall, results indicate that the combined presence of the environmental value statement and the pro-environmental role model have detrimental effects on the organization in not stimulating divisional managers' PEB at work.

Mediation analysis

The main argument developed in this paper is that the environmental value statement and the pro-environmental role model will benefit the organization by increasing the salience of pro-environmental social norms and, thus, motivating the divisional managers' intention to follow PEB. Since our results show that the combined presence of the two informal controls signaling the importance of environmental protection results in a reduced intention to follow PEB, a likely explanation for these results is that the combined presence of the two informal controls leads participants to not activate pro-environmental social norms to the same extent as those in the experimental conditions where only either informal control is present.

To examine this potential explanation for our main results, we examine whether the activation of pro-environmental social norms can explain the effects of the environmental value statement and the pro-environmental role model. We adapt an instrument from Leeuw, Valois, Ajzen, and Schmidt (2015) to measure pro-environmental social norms. Participants indicate their agreement level to four items in a five-point Likert scale: (1) totally disagree to (7) totally agree. The items are: (i) In general, the CEO of Mineco Co. expects me to adopt pro-environmental behaviors on a regular basis during the next months; (ii) I feel motivated to comply with the expectations of the CEO of Mineco Co.; (iii) The CEO of Mineco Co. will perform pro-environmental behaviors on a regular basis during the next months; and (iv) I consider that the CEO of Mineco Co. is a role model. We create an overall measure for pro-environmental social norms using principal component analysis.

Table 3 exhibits descriptive statistics for pro-environmental social norms across experimental conditions. The highest level of pro-environmental social norm activation is when the environmental value statement is present and the pro-environmental role model is absent

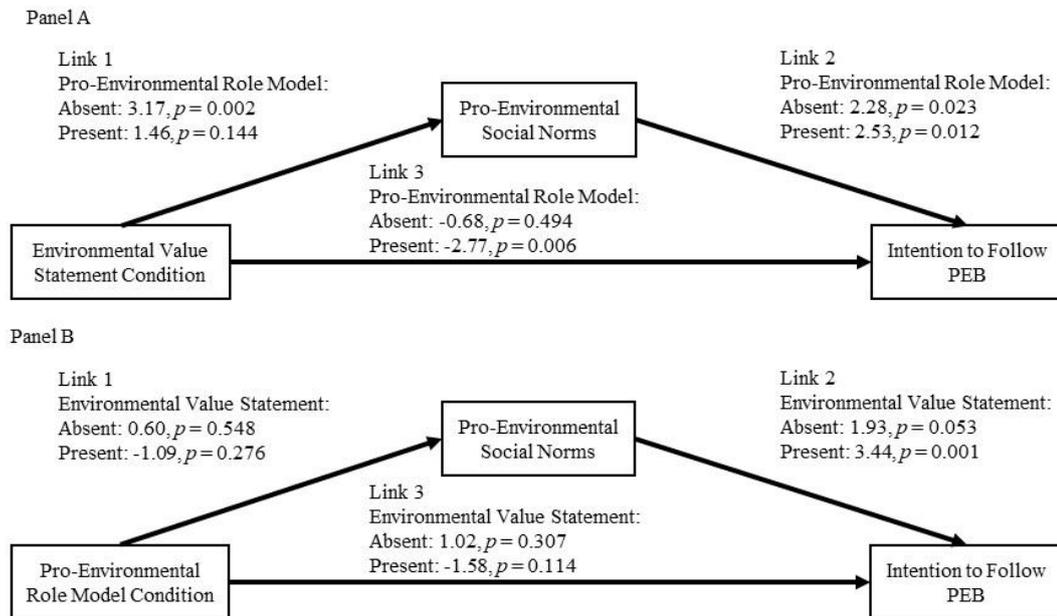
($M = 0.64$), while the lowest level of pro-environmental social norm activation is when both informal controls are absent ($M = -0.54$). To test whether the pro-environmental social norms can explain our main results, we conduct structural equations-based path analysis using robust estimation⁵ with environmental value statement and pro-environmental role model as independent variables, pro-environmental social norms as the mediating variable, and intention to follow PEB as the dependent variable.

Table 3 – Descriptive: Pro-environmental social norm

Environmental Value Statement	Pro-Environmental Role Model		
	Absent	Present	Total
Absent			
Mean	-0.54	-0.30	-0.42
Standard Deviation	(0.27)	(0.29)	(0.20)
Number of Participants	[30]	[31]	[61]
Present			
Mean	0.64	0.25	0.44
Standard Deviation	(0.26)	(0.25)	(0.18)
Number of Participants	[28]	[30]	[58]
Total			
Mean	0.03	-0.03	0.00
Standard Deviation	(0.20)	(0.19)	(0.14)
Number of Participants	[58]	[61]	[119]

Panel A of Figure 3 shows the path analysis of the effects of the environmental value statement for participants in the absent versus present pro-environmental role model conditions, while Panel B of Figure 3 displays the path analysis of the effects of the pro-environmental role model for participants in the absent versus present environmental value statement conditions. Overall, the goodness of fit is confirmed with a standardized root mean squared residual below 0.08 for all the models.

Figure 3 – Mediation analysis: Pro-environmental social norms



⁵ We use robust standard errors rather than default standard errors given the non-normality of the dependent variable—intention to follow PEB (Yuan & Bentler, 1998; Savalei, 2014). 96.6 percent of the participants indicate intention to follow PEB above or equal to ‘5’ in the seven-point Likert scale.

We first observe that, in the absent pro-environmental role model condition, pro-environmental social norms are significantly higher in the presence ($M = 0.64$) than in the absence ($M = -0.54$) of the environmental value statement (z -test = 3.17, two-tailed, $p = 0.002$, Link 1). In addition, results reveal a significant positive effect of pro-environmental social norms on participants' intention to follow PEB (z -test = 2.13, two-tailed, $p = 0.023$, Link 2). The environmental value statement does not have a direct effect on participants' intention to follow PEB (z -test = -0.68, two-tailed, $p > 0.494$, Link 3). Finally, results indicate that the presence of the environmental value statement relative to its absence indirectly increases participants' intention to follow PEB through its positive effect on pro-environmental social norms when the pro-environmental role model is absent (z -test = 1.70, two-tailed, $p = 0.089$).

Next, we observe that, in the present pro-environmental role model condition, pro-environmental social norms do not significantly differ across environmental value statement conditions (z -test = 1.46, two-tailed, $p = 0.144$, Link 1). Results also reveal a significant positive effect of pro-environmental social norms on participants' intention to follow PEB (z -test = 2.53, two-tailed, $p = 0.012$, Link 2). Consistent with the main results, in the presence of the pro-environmental role model, intention to follow PEB is significantly lower in the present ($M = 5.87$) than in the absent ($M = 6.45$) environmental value statement condition (z -test = -2.77, two-tailed, $p = 0.006$, Link 3). Finally, results indicate that the presence of the environmental value statement relative to its absence has no indirect effect on participants' intention to follow PEB through the pro-environmental social norms in the presence of the pro-environmental role model (z -test = 1.27, two-tailed, $p = 0.204$).

Next, we examine the path analysis of the effects of the pro-environmental role model for participants in the absent versus present environmental value statement conditions. These results indicate that, in the absent environmental value statement condition, pro-environmental social norms do not significantly differ across the pro-environmental role model conditions (z -test = 0.60, two-tailed, $p = 0.548$, Link 1). Further, results reveal a significant positive effect of pro-environmental social norms on participants' intention to follow PEB (z -test = 1.93, two-tailed, $p = 0.053$, Link 2). The pro-environmental role model does not have a direct effect on participants' intention to follow PEB (z -test = 1.02, two-tailed, $p = 0.307$, Link 3). Moreover, results indicate that the presence of the pro-environmental role model relative to its absence has no indirect effect on the intention to follow PEB through the pro-environmental social norms in the absence of the environmental value statement (z -test = 0.55, two-tailed, $p = 0.585$).

Finally, we observe that, in the present environmental value statement condition, pro-environmental social norms do not significantly differ across pro-environmental role model conditions (z -test = -1.09, two-tailed, $p = 0.276$, Link 1). Further, results show a significant positive effect of pro-environmental social norms on participants' intention to follow PEB (z -test = 3.44, two-tailed, $p = 0.001$, Link 2). The pro-environmental role model does not have a direct effect on participants' intention to follow PEB at standards level of significance (z -test = -1.58, two-tailed, $p = 0.114$, Link 3). Furthermore, results indicate that the presence of the pro-environmental role model relative to its absence has no indirect effect on participants' intention to follow PEB through the pro-environmental social norms in the presence of the environmental value statement (z -test = -1.03, two-tailed, $p = 0.304$).

Results reveal that the presence of the environmental value statement relative to its absence only activates pro-environmental social norms in the absence of the pro-environmental role model. In addition, it is only when the pro-environmental role model is absent that the presence of the environmental value statement increases employees' intention to follow PEB through the activation of the pro-environmental social norms. When the pro-environmental role model is present, the presence of the environmental value statement relative to its absence does not activate pro-environmental social norms and there is only a negative and direct effect on employees' intention to follow PEB, consistent with the main results. As to the effects of the

pro-environmental role model on pro-environmental social norms and intention to follow PEB, results indicate that the presence of the pro-environmental role model relative to its absence does not affect employees' intention to follow PEB neither directly nor through the pro-environmental social norms, whether the environmental value statement is absent or present. Overall, the presence of the pro-environmental role model to solve the same control problem of promoting divisional managers' intention to follow PEB inhibits the activation of value-relevant social norms that otherwise are activated by the sole presence of the environmental value statement. The ultimate effect of the combined presence of the two informal controls is then the decreased divisional managers' intention to follow PEB at work. On the other hand, participants do not perceive the CEO's pro-environmental role model as a significant source for the identification of the relevant social norms, whether the environmental value statement is absent or present.

Supplemental analysis

Separating pro-environmental injunctive and descriptive norms

A focus theory of normative conduct suggests that the activation of social norms in specific situations can involve two different sources that give rise to two types of social norms (Kallgren, Reno, & Cialdini, 2000; Jacobson, Mortensen, & Cialdini, 2011). One source is the behavior of group members in a decision situation which indicates what behaviors are appropriate or not in that situation (Pillutla & Chen, 1999). This type of social norm is called *descriptive norm* or the norm of "is" and refer to what group members typically do in a situation and motivate norm-consistent behavior via example of which behaviors are likely to be effective and appropriate (Cialdini, Demaine, Sagarin, Barrett, & Winter, 2006). The other source of social norms is called *injunctive norm* or the norm of "ought" which indicates what group members frequently approve or disapprove in a situation and stimulate norm-consistent behavior via the provision of informal rewards or punishments (Cialdini et al., 2006)

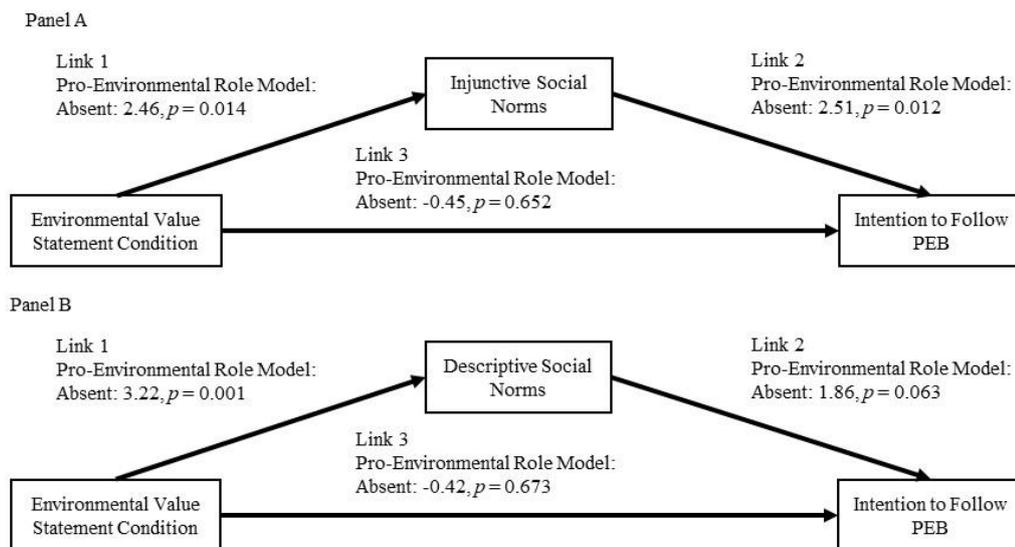
We disentangle these two sources of the pro-environmental social norms to examine if the effects of the environmental value statement in the absence of the pro-environmental role model differ based on the different types of social norms. Based on Leeuw et al. (2015), the two items capturing injunctive social norms are: "In general, the CEO of Mineco Co. expects me to adopt pro-environmental behaviors on a regular basis during the next months" and "I feel motivated to comply with the expectations of the CEO of Mineco Co." We create an overall measure for injunctive social norms using principal component analysis. As to the descriptive social norms, the two items are (Leeuw et al., 2015): "The CEO of Mineco Co. will perform pro-environmental behaviors on a regular basis during the next months" and "I consider that the CEO of Mineco Co. is a role model". We also create an overall measure for descriptive normative beliefs using principal component analysis.

We conduct two separate structural equations-based path analysis using robust estimation with environmental value statement and pro-environmental role model as independent variables, injunctive social norms or descriptive social norms as the mediating variable, and intention to follow PEB as the dependent variable. Panel A of Figure 4 shows model results for the first analysis with injunctive social norms as the mediating variable. The goodness of fit is confirmed with a standardized root mean squared residual below 0.08. Results show that, in the absent pro-environmental role model condition, the environmental value statement has a significant positive effect on injunctive social norms (z -test = 2.46, two-tailed, $p = 0.014$, Link 1). Results also reveal a significant positive effect of injunctive social norms on intention to follow PEB (z -test = 2.51, two-tailed, $p = 0.012$, Link 2). The environmental value statement does not have a direct effect on participants' intention to follow PEB (z -test = -0.45, two-tailed, $p = 0.652$, Link 3). Finally, the presence of the environmental value statement relative to its absence has no indirect effect on the intention to follow PEB through the injunctive social

norms in the absence of the pro-environmental role model at standards level of significance (z -test = 1.52, two-tailed, $p = 0.128$).

Panel B of Figure 4 shows model results for the second analysis with descriptive social norms as the mediating variable. The goodness of fit is confirmed with a standardized root mean squared residual below 0.08. Results indicate that the environmental value statement also has a significant positive effect on descriptive social norms (z -test = 3.22, two-tailed, $p = 0.001$, Link 1). Results also reveal a significant positive effect of descriptive social norms on intention to follow PEB (z -test = 1.86, two-tailed, $p = 0.063$, Link 2). The environmental value statement does not have a direct effect on participants' intention to follow PEB (z -test = -0.42, two-tailed, $p = 0.673$, Link 3). Lastly, results show an indirect and positive effect of the presence of an environmental value statement relative to its absence on participants' intention to follow PEB through the descriptive social norms in the absence of the pro-environmental role model (z -test = 1.65, two-tailed, $p = 0.099$). Overall, consistent with prior studies suggesting that the value statement can communicate behavioral norms and exert social pressure on employees (O'Reilly et al., 1991; Hannah, 2016), we find that the environmental value statement can activate value-relevant social norms and promote norm-consistent behavior. Particularly, while the environmental value statement activates both types of social norms, its indirect effect occurs only through the activation of the norm of "is" or descriptive social norm indicating what behaviors are appropriate or not in that situation (Pillutla & Chen, 1999; Cialdini et al., 2006)

Figure 4 – Mediation analysis: Injunctive and descriptive social norms



Personal values and intrinsic motivation

Prior research shows that individual characteristics can affect engagement to PEB, such as personal values (Karp, 1996) and intrinsic motivation (De Groot & Steg, 2010). To make sure that this possibility does not impair our results, we assess participants' intrinsic motivation and personal values. Both scales are presented before the experimental task, to avoid any contaminations from the manipulations.

First, to measure participants' personal values, we use a scale from Nilsson et al. (2004). Participants indicate their level of identification from environmental personal values (i.e., unity with nature and protecting the environment) in a seven-point Likert scale: (1) this not describe me at all to (7) this describes me very well. We create an overall measure for unity with nature and protecting the environment's items using principal component analysis. We run an ANOVA with the environmental value statement conditions, the pro-environmental role model conditions, the interaction between both manipulations, and with environmental personal values

as a covariate as the independent variables, and the intention to follow PEB as the dependent variable. Our results show that environmental personal values are indeed significant to participants' intention to follow PEB ($F = 4.58$, two-tailed, $p = 0.034$), however, effects from the interaction between environmental value statement and pro-environmental role model remain significant with the addition of the covariate ($F = 6.73$, two-tailed, $p = 0.01$). Additionally, we test for a three-way interaction between environmental value statement, pro-environmental role model, and environmental personal values and find no significant results ($F = 0.27$, $p = 0.60$). Which confirms that our manipulations' influence in the dependent variable is not bounded to the participants' environmental personal values.

Second, to measure individuals' intrinsic motivation, we use an adapted scale from Miao et al. (2007). Participants indicate their level of agreement from 8 sentences in a seven-point Likert scale: (1) strongly disagree to (7) strongly agree. Consistent with the components of intrinsic motivation, the first four sentences address participants' task enjoyment, and the last four address challenge seeking. We create an overall measure for the full scale with principal component analysis. We run an ANOVA with the environmental value statement, pro-environmental role model, the interaction between the manipulations, and with intrinsic motivation as a covariate for the independent variables, and with intention to follow PEB as the dependent variable. Our results show that intrinsic motivation is not significant for the participants' intention to follow PEB ($F = 1.59$, $p = 0.21$), while the interaction remains significant ($F = 4.33$, $p = 0.03$), confirming our prior results. Overall, these additional tests confirm our main results.

Conclusion

We investigate whether the combination of the environmental value statement and the pro-environmental role model is complementary so that the combined use of these two informal controls addressing the same control problem of stimulating divisional managers' PEB can be beneficial to the organization. Our results do not provide support to this expectation; on the contrary, they suggest that the combined adoption of these two management controls have substitutable and detrimental effects to the organization; that is, the presence of the pro-environmental role model creates the conditions for the environmental value statement to suppress divisional managers' intention to follow PEB. Moreover, our results suggest that the reason the presence of the pro-environmental role model creates these instigating effects (Bedford, 2020) is that it inhibits the activation of pro-environmental social norms that the sole presence of the environmental value statement is otherwise able to activate.

Research in management control has provided empirical evidence showing that the combined presence of the value statement with an incentive scheme promoting the same performance dimension has substitutable and detrimental effects on employees' overall productivity (Kachelmeier et al., 2016; Akyniele et al., 2020). This paper provides supporting evidence of the same detrimental effects of the environmental value statement on divisional managers' intention to follow PEB when combined with the pro-environmental role model. Specifically, the findings of this study extend prior results on the behavioral effects of the value statement by showing that in an environmental setting where deviations from the communicated values can be highly harmful to both the organization and the society (Hussainey & Salama, 2010; Jones & Saad, 2020), the combined use of the environmental value statement and the pro-environmental role model can also be detrimental and result in a net loss to the organization.

Moreover, we add to prior results the caveat that these detrimental effects can be caused by the fact that the pro-environmental role model inhibits the ability of the value statement in activating value-relevant social norms that otherwise would be activated if the environmental value statement were the sole control mechanism in place to stimulate divisional managers' PEB. In this respect, the findings of this paper add to the accounting literature interested in

understanding the interrelationships between management controls and descriptive and injunctive norms (e.g., Altenburger, 2017; Chen, Nichol, & Zhou, 2017). In particular, based on a focus theory of normative conduct (Kallgren et al., 2000; Jacobson et al., 2011), our results show that the sole presence of the environmental value statement can activate value-relevant social norms, specifically, the norm of “is” or descriptive social norms indicating what behaviors are appropriate in that situation (Pillutla & Chen, 1999; Cialdini et al., 2006). By activating value-relevant social norms, the environmental value statement promotes divisional managers’ intention to follow PEB, but only when the pro-environmental role model is absent.

This study also provides insights to organizations on the potential roles CEOs can play in stimulating PEB at work. On the one hand, CEOs can help motivate divisional managers’ PEB by communicating and disseminating organizational values throughout the organization (Fiske, 2011; Sull, Turconi, & Sull, 2020), such as by adding the organizational values as watermark to emails, memorandums, and other formal and informal channels of communication between the CEO and divisional managers. As our results indicate, the environmental value statement as part of the CEO’s email message can motivate PEB because they help divisional managers’ activation of pro-environmental social norms. On the other hand, CEOs are frequently regarded as a significant role model because they can communicate through their actions and decisions relevant organizational values and beliefs they expect divisional managers to adhere (Mayer et al., 2009; Shin, 2012). However, as our results show, the fact that the CEO acts as the pro-environmental role model by communicating a reputation to take actions into protecting the environment can create the conditions for the environmental value statement to suppress divisional managers’ PEB through the inhibition of divisional managers’ activation of pro-environmental social norms. Overall, these results go against the calls for the CEO walking the talk (Urbany, 2005; Ng & Sears, 2020). At least in an environmental setting, our findings imply that is more important for the CEO talking the talk than walking the talk in order to promote divisional managers’ PEB at work.

This study has limitations that provide opportunities for future research. The research setting of this study only explores situations where the two controls are adopted to solve the same control problem of promoting PEB at work. However, organizations typically use multiple controls to solve a diversity of control problems that are not always consistent with each other (Bedford, 2020; Choi, 2020). Future studies can then examine research settings with conflicting demands and investigate the effects of multiple controls on divisional managers’ PEB. For instance, future studies could examine divisional managers’ intention to follow PEB when the value statement is adopted to solve the control problem of promoting PEB at work, while the role model is used to solve the control problem of increasing short-term financial returns.

We examine the behavioral effects of two informal controls in the absence of formal controls. In reality, organizations typically combine formal and informal controls to motivate desirable behavior such as PEB at work (Norris & O’Dwyer, 2004; Feder & Weißenberger, 2021). Prior studies have already provided empirical evidence of the behavioral effects of the value statement on employees’ productivity in the presence of the piece-rate scheme in a setting where deviations from the communicated values are not harmful (Kachelmeier et al., 2016; Akyniele et al., 2020). Future studies could examine the joint effects of informal controls—e.g., the value statement—and formal controls—e.g., incentive schemes—on divisional managers’ PEB in an environmental setting where deviations from the communicated values can be harmful to the organization and the society.

Finally, our results indicate that participants do not perceive the CEO as a significant pro-environmental role model for the identification of relevant social norms, whether the environmental value statement is absent or present. Future studies could investigate why the CEO as the environmental role model does not activate value-relevant social norms and, more importantly, why the pro-environmental role model inhibits the activation of pro-environmental

social norms that the sole presence of the environmental value statement can activate. A promising avenue in this direction is to examine whether divisional managers are more likely to learn the organization's relevant social norms from peers rather than from the CEO (Dannals, Reit, & Miller, 2020). Despite the above limitations, this study advances in the understanding of theoretical and practical implications of the value statement for PEB at work in the presence of the role model as well as the process through which the value statement can have behavioral effects.

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