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Gaining Managerial Commitment to Sustainable Supply Chain Management Projects

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Abstract

Most companies are under pressure to improve the environmental sustainability of their supply chains. However, there is considerable variance in companies' ability to successfully deploy environmental management projects. One important factor, according to articles in the academic and business press, is the ability of champions of sustainable supply chain management projects within organizations to gain the commitment of colleagues (e.g., other managers from a variety of functions) to help these projects succeed. Therefore, this paper examines variables that affect a project champion's ability to gain this commitment from colleagues. In particular, building on existing research from supply chain management and beyond, this research employs a video-based experimental design to examine the effect of the influence approach that the project champion employs, the values of the person the champion is trying to influence, and the organizational climate. The results suggest that organizational climate and certain individual values directly affect commitment. There are also interactions between values and influence tactics. The research adds to the field's growing knowledge on the antecedents of sustainable supply chain management within companies while providing valuable guidance for environmental champions and for top managers.

Keywords: sustainable supply chain management; commitment; intra-organizational influence theory; laboratory experiment

Introduction

There is mounting evidence that sustainable supply chain management practices can lead to improved firm performance (Golicic and Smith 2013). However, managers who champion sustainable supply chain initiatives are not always successful when it comes to gaining the organizational commitment needed to bring these initiatives to fruition. This research explores how champions of sustainable supply chain management initiatives can more effectively gain the buy-in of other managers within their organization. Using an experimental design, this study assesses the effect of several potential drivers of managerial commitment to such projects. Based on intra-organizational influence theory (Kipnis et al. 1980; Yukl and Falbe 1990), the process of gaining managerial commitment is conceptualized as one or more interpersonal interactions, in which a project champion attempts to gain buy-in from other managers in the company. The antecedents of commitment under investigation are: the influence approach that the project champion employs, the values of the person the champion is trying to influence, and the organizational climate. Specifically, this study attempts to answer the following research questions, which we explain in more depth below: *What is the effectiveness of specific influence tactics for gaining commitment to*

sustainable supply chain management projects? Does the efficacy of a particular influence tactic depend on the values of the manager being influenced – i.e., are some tactics particularly effective with certain types of people and ineffective with others? What is the effect of the company climate on the commitment-seeking process?

Many companies are increasing their efforts and expenditures related to environmental management, both internally and in the supply chain (Haanaes et al. 2011; Makower 2013) in the hope of enhancing operational and financial performance (Carter et al. 2000; Golicic and Smith 2013; Klassen and McLaughlin 1996; Melnyk et al. 2003; Wong 2013) as well as reducing environmental impacts (Parmigiani et al. 2011). However, existing research shows a formidable gap between companies' desire for sustainable supply chains and what they are actually doing – and doing effectively. For example, a 2007 AT Kearny/Institute for Supply Management survey found that only about half of the companies that had a corporate-level sustainability policy had in turn created a more specific sustainability policy at the supply management-level" (Institute for Supply Management 2007). In a recent study of the consumer goods sector, CEOs reported large gaps between "companies should" and "my company does" responses to a wide range of environmental initiatives with "embedding sustainability into strategy and operations of supply chains" having the biggest gap of any of the initiatives (Environmental Leader 2011). Research based on a series of focus group interviews of supply management executives in large firms concludes:

Many companies have ambitious high-level environmental goals and policies; but, companies have not reached the point where buyers and other primary contributors have integrated environmental considerations into day-to-day decision making. Moreover, supply executives are not confident in their ability to reach this end (Gattiker et al. 2008, p 28).

The same research identifies a lack of buy-in across the company as one of the key barriers to implementing environmental management projects.

Indeed, numerous earlier studies have also found that when it comes to supply chain-related environmental projects, a key success factor is the ability of the project advocate or champion to gain *buy-in* or *commitment* of others in the company (Carter et al. 2007; Carter and Jennings 2004; Crane 2000; Drumwright 1994; Handfield et al. 1997; Willard 2008). Cantor et al. (2012) show that buy-in explains almost fifty percent of the variance in frequency of involvement in environmental behaviors. Buy-in is especially important in the environmental arena because these projects are often initiated by individuals who lack the positional power to mandate others' cooperation (Rabin 2004; Cantor et al. 2013).

Although the ability of a change agent to influence others is an important issue, only a few studies address *how* project champions gain the commitment of colleagues to sustainable supply chain management projects. Exploratory (Drumwright 1994; Carter and Dresner 2001) and confirmatory (Gattiker and Carter 2010) studies have yielded insights regarding the processes by which internal champions work to advocate environmental initiatives. Nevertheless, significant gaps within this area remain – both theoretical and methodological. In the next two subsections, we discuss the need for additional research and we describe how this paper endeavors to meet this need.

Theoretical Motivation

The commitment-building process includes a number of elements: (1) the champion or change agent (2) the individual(s) whose buy-in the agent seeks (such individuals are referred to as the *influence target(s)*); (3) the issue or project itself; and (4) the organizational context in which the influence attempt takes place (Kipnis et al. 1980; Yukl and Falbe 1990). Any one of these factors can affect the degree to which individuals give their backing and cooperation to projects when such support is requested. However, existing studies examining why individuals commit to (or do not commit to) environmental projects focus heavily on the change agent with much less attention paid to the other three factors. A systematic understanding of what makes champions successful necessitates studies that take into account all four key elements of the influence process – either by including them in the research model or by holding them constant. To this end, our research model examines the influence tactics used by the project champion, the personal values of the influence target, and the organizational context, while holding the nature of the project constant.

To examine the influence tactics used by the champion, we utilize intra-organizational influence theory (Kipnis et al. 1980; Yukl and Falbe 1990), which is a well developed body of knowledge focusing on how individuals within companies gain the commitment of others for issues that they are advocating. Building on existing literature, we focus on two tactics that merit special consideration when it comes to the natural environment: legitimating and inspirational appeals.

A second key element is the *influence target*. The target has received less research attention than the champion. The target is half of the champion-target dyad, and, as with buyer-supplier dyads it is essential to understand both halves (Johnston et al. 2004; Nyaga et al. 2010). Characteristics of the target may affect the target's tendency to buy-in to particular issues and/or they may interact with other antecedents of buy-in. To help fill in some of the picture, we draw on a well-developed body of literature (e.g., Stern et al. 1993; 1998; 1999) from the psychology and sociology fields dealing with the relationship between "pro-environmental behavior" outside the work place (e.g., recycling, signing a petition) and several fundamental individual values. We extend this inquiry to the workplace by investigating whether there is a systematic relationship between the degree to which a target possesses these values and the target's likelihood of supporting a supply chain environmental project that a champion is attempting to advance. We then assess whether the efficacy of various influence approaches that champions can use depends on the values of the influence target (i.e., do tactics and values interact?). Since champions can often make accurate inferences about colleagues' values from prior interaction or reputation, understanding whether the efficacy of particular influence tactics is affected by the target's values is powerful knowledge for champions to have.

The third key element is the organizational context in which the influence process occurs. An organizational climate which is supportive of organizational learning and employee risk taking has been found to have particularly strong associations with environmental initiatives within firms (Carter 2005; Paulraj 2011). Individuals interpret organizational cues, such as signals from their superiors, to make inferences about whether organizational support for environmental initiatives exists, and this in turn affects their willingness to become involved (Cantor et al. 2012). These findings strongly imply that studies on championing environmental projects need to take into account the organizational context in which the championing occurs. Some organizational cultures are more supportive of environmental management than others (Linnenluecke et al. 2009). When organizational contexts are not supportive of particular issues, involvement in those issues can be personally risky to employees with respect to their workplace images (Grant and Mayer 2009). Therefore the model incorporates the level of image risk (Ashford 1986; Ashford et al. 1998; Mullen 2005) inherent in the organizational climate.

Finally, environmental projects are not all alike. They differ from one another on many dimensions – e.g., product focused vs. process focused, structural vs. infrastructural, etc. – and the type of project can affect project success and likelihood of project implementation (Klassen and Whybark 1999; Orsato 2006; Tate et al. 2011). Research using influence theory has demonstrated that project characteristics can affect the likelihood of target commitment to the project (Kipnis and Schmidt 1985; Yukl et al. 1996). Earlier studies on gaining commitment for environmental projects have not controlled for the nature of the project, thus allowing an important source of unexplained variance. To guard against this possibility, our model controls for the type of project by holding this variable constant – i.e., we focus on one type of pressing environmental initiative.

Methodological motivation

Sustainable supply chain management research has relied on field studies (case study and survey methodologies), thus creating an additional blind spot – methodological homogeneity. However, researchers as a community must bring the full spectrum of methodological tools to bear in order to advance theory-building in the field (Handfield and Melnyk 1998; Wacker 2004). Behavioral experiments are an untapped tool when it comes to understanding sustainable supply chains (Winter and Knemeyer 2013; Knemeyer and Naylor 2011). In comparison with field studies, strengths of experiments include the ability of researchers to manipulate independent variables, to control many sources of confounding variation, and to infer causality (McGrath 1982; Wacker and Sprague 1998; Deck and Smith 2013). An experiment was selected for these reasons. For example, as discussed in detail in the methodology and discussion sections, the experimental design rules out questions about the causal directionality between organizational climate and environmental management; it allows control of the confounding factors, such as the nature of the environmental project; and it allows direct manipulation of the influence tactics that subjects are exposed to, rather than relying on change agents' retrospective self-reports.

Next, the literature is reviewed and the model is explained. Afterwards, the research methodology is described. This manuscript concludes by discussing the results and contributions and by considering the study's limitations and avenues for further research.

Literature review and research model

Antecedents of Sustainable Supply Chain Management

Sustainable supply chain management projects include waste reduction, pollution prevention, material substitution, recycling and reuse, selection of environmentally preferable suppliers, energy conservation, transportation initiatives, and increasing traceability and transparency (Gattiker et al. 2008). There is substantial variance in the degree to which organizations (companies, plants and other facilities) engage successfully in environmental management projects (Haanaes et al. 2011). When it comes to explaining this variance, studies in the supply chain management (SCM) literature have examined three levels of antecedents: industry, firm/facility and individual manager.

Industry level antecedents include the competitive environment (Pagell et al. 2007), the nationality of the company or facility (Corbett and Kirsch 2001), and institutional pressure (Tate et al. 2010). *Firm and facility level* antecedents include top and middle management support (Carter et al. 1998; Carter and Jennings 2004; Drumwright 1994), customers (Simpson et al. 2007, Ehrgott et al. 2013), suppliers (Geffen and Rothenberg 2000; Vachon 2007; Simpson 2012), competitors (Hofer et al. in press), cost reduction pressure (Zhu and Sarkis 2005), access to networks (Simpson 2010), training (Cantor et al. 2012), company culture (Paulraj 2011), regulatory pressure (Guide et al. 2003; Rueter et al. 2010) and exposure to risk (Cousins et al. 2004). Finally, studies of *individual manager level* antecedents have found that "plant manager personal social orientation" (Klassen 2001), top management championing (Lee and Klassen 2008) and championing by environmental professionals (Gattiker and Carter 2010) all positively affect plants' environmental orientation whereas others (Pagell and Gobeli 2009) find that plant managers' attitudes and experiences with environmental management are not associated with plants' environmental performance.

An important issue with the literature to date is that, compared to SCM studies examining plant/company level antecedents, the number of studies looking at individual level antecedents is miniscule. In fact, the literature search identified only the four aforementioned articles (i.e., Klassen 2001; Lee and Klassen 2008; Pagell and Gobeli 2009; Gattiker and Carter 2010). Organization and industry level antecedents are certainly critical; however, the role of individuals (e.g., managers) in advancing environmental initiatives is also essential for the research community to understand (Angell and Klassen 1997). Individuals are the key source of eco-innovation within firms (Beard and Hartmann 1997; Ramus 2001). But as noted recently by Cantor et al. (2012), the number of employees who actually engage in initiating and implementing environmental initiatives is troublingly low. Because the role of the individual in implementing environmental management is an important and under-researched topic, we focus on the individual as the unit of analysis.

Commitment

The research model seeks to evaluate sources of variance in an individual's commitment to an environmental initiative when that commitment is sought by a project champion within his or her organization. The model appears in Figure 1.

Insert Figure 1 Approximately Here

Numerous studies have observed that environmental initiatives often encounter high levels of organizational resistance (Drumwright 1994; Handfield et al. 1997; Crane 2000; Carter and Jennings 2004; Carter et al. 2007; Pagell and Gobeli 2009) – often more resistance than is found with other types of projects (Ramus and Steger 2000). Therefore the ability of project champions to obtain the commitment of others in the organization is a key success factor, as many studies have demonstrated (Drumwright 1994; Handfield et al. 1997; Carter and Jennings 2004; Carter et al. 2007; Willard 2008). Formally speaking, based on the seminal work of Mowday, Steers, and Porter

(1979), commitment is defined as occurring *when an individual internalizes or becomes sympathetic to the project's goals*. Commitment results in persistence and additional effort in bringing a project to completion, particularly when the project faces obstacles (Mowday et al. 1979; Becker et al. 1996).

Intra-Organizational Influence Theory

Focusing on commitment as an outcome, intra-organizational influence theory considers the efforts of individuals to advance projects, initiatives or other issues within the workplace. The theory conceptualizes influence behavior as the degree to which a person (or *agent*) uses various *influence tactics*, which are defined as actions, "... used by people at work to influence their supervisors, co-workers, and subordinates," (Kipnis et al. 1980, p. 440) in order to gain the commitment of another person to the project or issue. The person whom the agent is trying to influence is referred to as the *target* (Kipnis and Schmidt 1985; Yukl and Tracey 1992; Falbe and Yukl 1992; Yukl et al. 1996, 1999; Dutton et al. 2001; Enns et al. 2003; Piderit and Ashford 2003; Blickle 2003). Making the business case is a necessary influence tactic for environmental projects, but one that is generally not sufficient; and therefore champions also need to utilize other influence tactics to successfully obtain commitment (Gattiker and Carter 2010; Anderson and Bateman 2000).

The existing research has identified a variety of influence tactics that an agent can use to attempt to gain a target's commitment. While there are a number of proposed classifications, the two dominant taxonomies of intra-organizational influence tactics are those of Kipnis et al. (1980) and Yukl and colleagues (Yukl and Falbe 1990; Yukl et al. 2005). Given the large number of potential tactics that an agent might employ, researchers have generally included a smaller subset of tactics in any one study— based on theoretical rationale and parsimony. For the same reasons, researchers have grouped influence tactics into "hard" versus "soft" categories (Kipnis and Schmidt 1985; Falbe and Yukl 1992). Hard tactics rely on authority and assertive behavior and making demands (Falbe and Yukl 1992). These tactics include building a coalition and then using the coalition to leverage support, and petitioning sources of legitimate power such as policies and rules. Soft tactics avoid such assertive behavior. Instead, agents "act nice" and may "flatter others" to gain influence (Kipnis and Schmidt 1985). Examples here include ingratiation and the use of inspirational appeals which call upon the target's values and emotions.

Following the extant literature, a subset of influence tactics was selected, based on theoretical interest and a desire to encompass both soft and hard tactics. In particular, we focus on two tactics: inspirational appeals and legitimating. In the sections that follow, the importance of these two tactics to the environmental context is explained. The hypothesized effects of both tactics within the environmental domain are also discussed.

Influencing Others via Inspirational Appeals

The inspirational appeals influence tactic is intended to appeal to a target's values, aspirations, and ideals (Yukl and Tracey 1992). Inspirational appeals often employ symbolic or emotional language; and they attempt to appeal to the target's sense of justice or humanitarianism or their desire to accomplish an important task (Yukl and Falbe 1990). A key aspect of commitment is internalizing a project's objectives (Mowday et al. 1979). Messages that resonate with a person's values, aspirations, goals and other intrinsic factors tend to result in internalization. Thus, influence theory predicts that the use of inspirational appeals during influence attempts will be positively associated with commitment on the part of the target (Yukl et al. 1996; Falbe and Yukl 1992).

Inspirational appeals are a tactic that is particularly worthy of investigation when it comes to implementation of environmental projects due to contradictions between the theory and empirical observations. Even though influence theory predicts that inspirational appeals lead to commitment, case study, survey and anecdotal evidence (Crane 2000; Gattiker and Carter 2010; Juravle and Lewis 2009; Kranhold 2007) all suggest that when advocating for environmental initiatives, individuals within organizations typically *avoid* values-based appeals – instead opting for influence tactics that are more aligned with the profit-maximization and the rational bureaucratic model. This may be rooted in managerial beliefs that values-based speech threatens organizational harmony, efficiency, and managers' reputations for being powerful and/or effective (Bird and Waters 1989). The conventional wisdom is to focus only on the business case when advocating environmental issues, instead of presenting them as "the right thing to do." Advocating for environmental issues using inspirational appeals might make the champion or the issue seem too idealistic, non-pragmatic and out of touch (Catasus et al. 1997).

However, the conventional wisdom may be misguided. Indeed, while inspirational appeals are among the least used influence tactics when it comes to environmental issues, Gattiker and Carter (2010), as well as Anderson and Bateman (2000), find that the tactic can be highly effective.

Because of the foregoing inconsistencies between conventional wisdom, empirical observations and theory, further inquiry (particularly in a controlled setting) regarding the effectiveness of inspirational appeals within the environmental domain is needed. Toward this end, the following hypothesis is presented:

H_{1a}: *The greater an agent's use of inspirational appeals, the greater the target's commitment to the environmental project.*

Influencing Others via Legitimizing

Legitimizing is an influence tactic that is very different from inspirational appeals. Legitimizing means appealing to sources of legitimate power, such as one's job position, organizational policies, and other rules, in order to influence another person (Kipnis et al. 1980; Yukl et al. 1992). Influence theory predicts legitimizing will result in resistance, or at best compliance, rather than commitment, on the part of the influence target. This is because when individuals do things in order to conform to rules and regulations or to obey the dictates of a supervisor, they are responding to *extrinsic* motivators, rather than *internalizing* or becoming sympathetic to project goals. In this case individuals may comply, feeling that they have little choice than to do otherwise, or they may feel resentment at being compelled to do something that they would not otherwise do and they may actively resist as a result (Kipnis et al. 1980; Yukl et al. 1992).

Legitimizing is particularly worthy of study in the environmental domain. All theories have boundary conditions – domains to which they apply and other domains to which they do not apply. There is good reason to believe that environmental issues may be beyond the domain to which core intra-organizational influence theory applies and that within the environmental domain, the effect of legitimizing may actually be opposite of what the theory predicts. Compared to the theory's predictions, empirical results with respect to legitimizing are mixed – i.e., the use of this tactic does not consistently result in resistance and may result in commitment (Falbe and Yukl 1992; Higgins et al. 2003). The equivocality in empirical results may be because the type of issue that is being advocated affects whether or not legitimizing is an effective tactic for gaining commitment. Indeed, it is likely that for environmental issues, legitimizing may be an effective, albeit not entirely sufficient, tactic. After all, when it comes to the natural environment, “command and control” has been the dominant and well-accepted approach in most companies and economies for many years – i.e., most firms' environmental strategies have historically been based largely on complying with regulations (e.g., EPA regulations, RoHS) (Porter and van der Linde 1995; Preuss 2001). This suggests that, when it comes to the environmental area, legitimizing may be sufficient to generate goal internalization – or commitment – on the part of others. Indeed, a recent study of sustainable supply chain management projects (Gattiker and Carter 2010) lends some credence to this thinking. Legitimizing was the second most frequently employed tactic in the study and it was marginally significant ($p < 0.10$) in its relationship with target commitment, in the *positive* direction.

Therefore, based on the above reasoning we hypothesize:

H_{1b}: *The greater an agent's use of legitimizing, the greater the target's commitment to the environmental project.*

Values

A value “serves as a guiding principal in the life of a person” (Schwartz 1994, p. 21). Values are an important individual characteristic to study because values are trans-situational and thus “efficient” – i.e., a small set of values guide an individual's attitudes and decisions towards a large number of issues and behaviors (De Groot and Steg 2007; Schwartz 1994).

Values have been found to motivate a wide variety of workplace decisions and behaviors (Latham and Pinder 2005). Decisions related to environmental management often involve making judgments about competing interests and stakeholders. Personal values can be particularly strong influences in such decisions (Ekbja and Evans 2009).

Existing research on sustainability shows that champions are motivated in part by personal values (Egri and Herman 2000), but the field lacks exploration of whether or how values may motivate the *targets* whom the champion tries to influence.

Existing literature has grouped values into four clusters: self-enhancement, self-transcendence, openness to change, and conservatism (Schwartz 1992; 1994). All four of these types of values could be associated with environmental concern and related actions. We focus on two of the clusters (*self-transcendence* and *self-enhancement*) because, in the literature, these two have been most consistently linked with pro-environmental attitudes and activities (Stern et al. 1998; Dietz et al. 2002). *Self-enhancement* emphasizes “seeking personal success for oneself...security, and esteem” (Schwartz 1994, p. 23-24), while *self-transcendence* emphasizes “acceptance of others as equals and concern for their welfare” (Schwartz 1994, p. 25). The basic rationale for linking these values with pro-environmental stances is that these stances involve avoiding harm to other people or other species and/or maintaining common resources, and that these types of behavior are closely aligned with the distinction between self-transcendence and self-enhancement.

Previous studies in non-workplace contexts indicate that self-transcendence is positively associated with environmentally significant behaviors whereas self-enhancement is negatively associated with these behaviors. The rationale is that pro-environmental actions often involve placing the interests of others (other individuals, communities, non-humans, or entire ecosystems) on the same plane or ahead of one’s own interests, which is consistent with self-transcendence but inconsistent with self-enhancement (Dietz et al. 2002). Empirical studies strongly support this positive association between self-transcendence and pro-environmental attitudes and behaviors; and they moderately support the negative association between self-enhancement and such attitudes and behaviors. For example, Stern et al. (1998) find that self-transcendence is positively related to pro-environmental political behavior and consumer behavior (e.g., pay higher prices); and they find a negative association between self-enhancement and pro-environmental political behavior. Stern et al. (1999) find that self-transcendence is positively associated with pro-environmental consumer behavior, environmental citizenship and intense environmental activism, whereas self-enhancement was negatively associated with environmental citizenship. Shifting the context to the workplace, Egri and Herman (2000) found that leaders of environmental organizations place higher importance on self-transcendence values versus self-enhancement values compared to managers in general.

Therefore, based on the above reasoning and empirical evidence we propose:

H_{2a}: *The greater a target’s self-transcendence values, the greater the target’s commitment to the environmental project.*

H_{2b}: *The greater a target’s self-enhancement values, the lower the target’s commitment to the environmental project.*

Influence Tactics and Values Interaction

As discussed above, the extant results with respect to the legitimating and inspirational appeals influence tactics are somewhat puzzling – in terms of contradictions between theory and empirical results when it comes to the environmental domain. When such inconsistencies result, one explanation is often that a moderating variable plays a role – in this case a third variable that affects the relationship between an agent’s tactic use and a target’s commitment. To investigate this possibility, we consider whether the values of the target alter the effectiveness of legitimating and inspirational appeals. In other words, do a target’s values moderate the tactics-commitment relationship?

Self-enhancement values emphasize one’s own success and prosperity (Schwartz 1992). The legitimating influence tactic focuses on authority, rules, policies, and organizational norms (Yukl and Tracey 1992) – violations of which can threaten one’s well-being and prosperity via possible penalties or diminishment of one’s personal status in the workplace or by sanctions directed by one’s employer. When the legitimating tactic is used to sell an environmental project, it creates a link between the implementation of the project and the target’s individual success and prosperity. We propose that this connection will resonate more strongly with targets who possess strong self-enhancement values as they view personal success as highly important. Such resonance, in turn, contributes to the internalization

of the environmental project, and thus commitment, on the part of the target. Therefore, the expectation is that appeals using legitimating will be effective (or more effective) when used with influence targets who possess strong self-enhancement values.

In contrast with self-enhancement values, self-transcendence values emphasize concern for the welfare of others, equality, and the transcendence of selfish interests (Schwartz 1992). The inspirational appeals influence tactic focuses on ideals, social justice, and high aspirations (Yukl and Falbe 1990; Yukl and Tracey 1992). Since inspirational appeals and self enhancement values are both based on reaching a higher state (i.e., high ideals and aspirations, transcendence) and weighting the interests of other beings the same as one's own interests (i.e., equality, social justice), individuals with strong self-transcendence values are expected to readily internalize messages framed using inspirational appeals with higher levels of commitment being the result. By contrast, since the legitimating influence tactic is based on avoiding sanctions via conforming to rules and authority, legitimating is not expected to be particularly effective when used on individuals with strong self-transcendence values.

The possibility of interactions between tactics and values allows us to potentially provide some very powerful guidance to environmental champions. In other words, it suggests that the champions' job is not merely to seek out individuals who will likely be receptive to supporting environmental projects. Instead it suggests that champions can successfully obtain buy-in from a wide variety of individuals *if* the champion appropriately matches the influence tactic he/she employs to the type of individual he/she is trying to influence.

The third set of hypotheses expresses the relationships between tactics and values that are described above:

H₃: *There is an interaction of influence tactic and values, such that:*

H_{3a}: *The greater a target's self-enhancement values, the greater the effect of legitimating on the target's commitment to an environmental project.*

H_{3b}: *The greater a target's self-enhancement values, the lesser the effect of inspirational appeals on the target's commitment to an environmental project.*

H_{3c}: *The greater a target's self-transcendence values, the greater the effect of inspirational appeals on the target's commitment to an environmental project.*

H_{3d}: *The greater a target's self-transcendence values, the lesser the effect of legitimating on the target's commitment to an environmental project.*

Image Risk

Bansal (2003) demonstrates that successful advocacy of environmental initiatives is a function of not just individual characteristics and processes (such as those we have discussed so far) but also a function of the organizational context in which individual championing and other forms of advocacy take place. The importance of context has been recognized in the supply chain literature as well. Supply chain researchers have linked contextual variables including learning organization, management support, and perceived organizational support to environmental initiatives in organizations (Carter 2005; Carter et al. 1998; Paulraj 2011, Cantor et al. 2012). A related contextual construct, but one that has been overlooked in the environmental management area, is the level of *image risk* (Ashford 1986; Ashford et al. 1998) inherent in the organizational climate. One's image within the organization has many important consequences including power (Leary and Kowalski 1990) and access to resources (Ashford and Tsui 1991).

According to the literature on impression management, individuals try to maintain and manage their workplace images (Schneider 1981; Schlenker and Weigold 1992). Being associated with projects that co-workers and managers view as inappropriate, non-instrumental or not culturally sanctioned can jeopardize one's standing within the organization (Dutton and Ashford 1993; Dutton et al. 2001) by making an individual seem less competent (Ashford et al. 1998). For example, one research subject told Dutton et al (1997, p. 413) that her reluctance to get involved with workplace gender equity issues was because, "People are afraid to say anything these days and they're probably also afraid to bring up an idea for fear someone's going to say 'that's a pretty dumb idea,' you know?"

Organization members are conscious of the importance of image and are unlikely to engage in behaviors when they believe that doing so places their image at risk (Ashford and Northcraft 1992). Therefore, managers and employees look for cues in the organizational climate in order to determine whether it is favorable towards particular issues, and, based on these assessments, these individuals decide whether or not to involve themselves in new initiatives related to these issues (Howell and Higgins 1990; Dutton et al. 2002).

Image risk is especially important when it comes to projects that managers in the organization view as potentially challenging the status quo (Ashford and Northcraft 1992; Grant and Mayer 2009). For example, employees' willingness to participate in safety initiatives and to raise safety issues are associated (inversely) with concerns about maintaining their images of being "tough and competent" workers (Mullen 2005, p. 274; Mullen 2004). It is reasonable to suspect that this relationship would also hold for environmental issues. Individuals may view being publicly linked to environmental initiatives as "going out on a limb" because environmental projects may be considered less central to profitability than other undertakings, even in companies with a stated commitment to environmental sustainability (Ramus and Steger 2000). While this view is changing in many firms, it persists today in many companies and certainly within some departmental and functional sub-cultures within individual companies (Linnenluecke et al. 2009). Therefore, managers will assess the context for cues about riskiness when deciding whether to support environmental projects, and their support for these projects will likely be influenced by these cues.

We define high risk organizational climates as organizational environments in which being associated with an environmental initiative is likely to be detrimental to one's standing in the organization. We define low risk organizational climates as organizational environments in which being associated with an environmental initiative is not likely to be detrimental to one's standing. The expectation is that individuals will be more likely to commit to environmental projects when they perceive that the organizational climate entails low risk, rather than high risk. In other words:

H4: *There is a main effect of image risk, where commitment to an environmental project is higher for low risk climates than for high risk climates (regardless of the influence tactic and the subject's values).*

Methodology

An experimental design was employed to test the study's hypotheses. Extant studies on gaining commitment for environmental management have used case study (Carter and Dresner 2001; Pagell and Wu 2009) and survey (Gattiker and Carter 2010; Cantor et al. 2012) methods. It is important that groups of researchers working in a topic area use a variety of methods to "triangulate" findings (Boyer and Swink 2008; Siemsen 2011). Recent literature also indicates that behavioral experiments are appropriate for research on environment and sustainability issues (Fawcett et al. 2011). Treatment conditions (different influence tactics and different organizational climates) are operationalized using video scenarios (depicting a narrator and a project champion) with human subjects being placed in the role of the target individual.

Gaining commitment is a dyadic process – i.e., it involves a target individual as well as a person that influences the target's level of commitment. Furthermore, the process takes place in an organizational context. A limitation of most surveys on environmental commitment is that they rely on a single individual or informant for data on all variables. For example, Gattiker and Carter (2010) rely on the agent's assessments of the target's commitment after the influence attempt. It is arguable that the agents can misjudge targets' commitment, thus creating significant measurement error (Kerlinger and Lee 2000). An experimental design avoids these weaknesses by allowing researchers to collect commitment data directly from targets, while at the same time directly manipulating both the influence tactic that the champion uses and the organizational climate.

Similarly, factors such as the nature of the project (size, anticipated financial payback) (Thoumy and Vachon 2012; Tate et al. 2011) and the target's job function (Dougherty 1992) can affect the perceptions of attractiveness of environmental projects and thus are likely sources of extraneous variance if not controlled. An experiment allows the researcher to hold these factors constant by creating an artificial context via the project detail and role detail that the video scenarios provide to participants. Finally, additional potential sources of extraneous variance in the

present study include age, religious background, and prior experience with environmental management. Random assignment of subjects to conditions is a way to control the effects of these factors by equalizing them across treatments (Kerlinger and Lee 2000).

Research Design

To operationalize the variables, two conditions for the image risk variable (high risk and low risk) and three conditions for the influence tactic variable (inspirational, legitimating, and a control condition in which no tactic was used) were created (Figure 2). Treatments were operationalized using video scenarios. Each video was comprised of two scenes. The first scene (Scene A) operationalized the level of image risk in the organizational climate; Scene B operationalized the influence tactic variable. Combining scenes A and B in all possible permutations allowed us to create six video combinations—one for each gray rectangle in Figure 2. Participants were randomly assigned to one of the six conditions. Prior to viewing their assigned video, subjects completed the values scales. After viewing the video, subjects completed scales on their level of commitment to the project as well as perceptual measures of the influence tactics that the agent used, image risk, and some demographic questions. Figure 3 provides an overview of the process flow.

Insert Figures 2 and 3 Approximately Here

In order to maximize universality, the environmental project in the scenarios deals with waste reduction and/or recycling. Waste disposal and recycling top the list of most pressing environmental matters facing a majority of organizations (Poirier, Swink and Quinn 2009). A recent McKinsey survey identifies energy use and waste as the top two sustainability issues that companies are addressing (Bonini 2011). Materials efficiency types of projects are also a typical starting point for companies that are relatively early in their embrace of sustainability (Haanaes et al. 2011; Kuhn 2011), when the need for “selling” within the company is usually relatively high. Supply management is often involved in projects of this type, because the need for supplier participation – for example reusable packaging (e.g., reusable, pallet, totes, etc.), recycling packaging (e.g., moving away from non-recyclable materials, such as wax coated boxes or mixed packaging such as protective foam glued to plastic) or reducing packaging volume – means that buyers must typically work with suppliers.

The development of the scenarios followed the pre-design, design, and post-design stage prescriptions of Rungtusanatham et al. (2011). Table 1 shows how cues within each scene were varied in order to create the differences in each treatment; and Appendix A contains a sample script with cues embedded.

Insert Table 1 Approximately Here

In scene A, a narrator tells the viewer that he or she will be participating in a simulated video conference with a fellow employee from the company’s purchasing function. The narrator then explains that, in the conference, the colleague will ask for the viewer’s commitment to support an environmental project. The narrator also gives some company and project background information. There are two versions of the scene. For the high risk treatment, the narrator’s description includes several statements that cue the viewer that the organizational climate is not favorable to environmentally oriented innovation and thus affiliation with such projects may be personally risky. In the low-risk treatment, the description includes statements indicating the climate does not pose such risks (Table 1).

In scene B, the viewer’s colleague (Steve from Purchasing) addresses the viewer. Steve describes the project. Details of the initiative are based on an account in the managerial literature (Mathews 2004). After describing the project, Steve then attempts to “sell” the benefits of the project to the viewer. There are three versions of the scene corresponding to the two influence tactics in the study (inspirational appeals and legitimating), plus a control. As Table 1 indicates, for the inspirational appeals treatment, Steve describes the project using inspirational appeals; for the legitimating treatment, Steve relies on legitimating; and for the control treatment, Steve makes the request but does not use any influence tactic (i.e., the control version of scene B consists only of the non-bold text in appendix A).

To further ensure experimental control, the videos were produced by a professional production company using two professional actors – one who played the part of the narrator in scene A and the second who played the role of Steve in scene B. Using professional actors minimized unintended differences between treatments – i.e., unintended differences between versions of the same scene in mannerisms, inflection, and so on. For the same reason, the actors used a teleprompter to prevent deviation in the scripts from treatment to treatment. The entire treatment administration and data collection process was administered via a web-based interface (Qualtrics) – i.e., Qualtrics presented the pre-treatment measures, randomly chose one of the six videos to show participants and then presented the post-treatment measures. Standardizing the process via automating it eliminated additional sources of unintended variance – for example, differences that might be caused by having multiple data collection sessions, each run by a different research assistant.

Data Collection

The purpose of the study is to better understand how managers react to a sustainable supply chain management project. Since projects of this type tend to be cross-functional (in terms of resources required, departments that must be involved, etc.), a sample was obtained that contained a variety of managers. Study participants were working managers who were current or past members of a large U.S. executive- MBA program or current members of a part-time MBA program at a large U.S. university. Thus, participants in our study were full-time working managers in part-time programs. The two samples were chosen to capture a wide range with respect to experience and seniority, with the executive MBA sample being more senior and the conventional MBA sample being less so. (To guard against the possibility that unintended differences across the two samples are not affecting the results, we compared the mean score (on commitment) across the two samples using a t-test. There was not a significant difference.) Overall, these participants had 14 years of work experience on average and an average age of 36. The sample is representative of the mid-level managers that this study seeks to understand, making the subject pool a good choice with respect to the internal and external validity of the study (Stevens 2011). Participants were solicited during on campus sessions and via email follow up. Forty percent (a total of 141) of invitees participated. The sample size provides a power level of approximately 0.80 with an alpha value of 0.05 (Neter et al. 1996, Table B.5).

Measurement Development and Treatment Validation

The constructs were measured using multi-item (1 to 7) scales adapted from existing research. The commitment scale is based on items from the Occupational Commitment Questionnaire (OCQ) (Mowday et al. 1979; Vandenberg et al. 1994) and on modifications to the OCQ made by Gattiker and Carter (2010) to fit the domain. The values measures are based on Schwartz (1992; 1994), and later researchers' work to consolidate and validate Schwartz's measures. There is some ambiguity in the literature about whether the self-transcendence value as proposed by Schwartz is unidimensional or whether it has two dimensions: Concern for other humans and concern for non-humans. Therefore, we follow the advice of Stern et al. (1998, p. 994), who suggest that when researchers study environmental issues, they should "treat biospheric values [concern for non-humans] and altruistic values [concern for fellow humans] separately to see whether they emerge as distinct value types." The self-transcendence measures (humanistic and biospheric dimensions) are from Dietz et al. (2002), which in turn are based on Schwartz (1992; 1994) as refined by Stern et al. (1998). Based on the pre-test, one item was dropped and replaced with another item (A_10) from Schwartz (1992, 1994). Appendix B shows sources of the other scales.

Even though extant scales were employed, the scales were pretested and purified using a sample of business students (n=113) prior to formal data collection. Exploratory factor analyses (EFA) were performed on this pretest data and items with loadings of less than 0.40 were dropped (Hair et al. 1998). Another objective of the pretest was to perform manipulation checks to assess the efficacy of the treatments (Bordens and Abbott 2007). Each subject was randomly assigned to one of the six treatment conditions in the model. Following administration of the treatments, subjects completed the following seven-point Likert scaled questions: *Legitimizing* – "To what extent did Steve state that his request would help the department comply with organizational policies?" *Inspirational Appeals* – "To what extent did Steve tell you that the project was the right thing to do?" *Image Risk* – "If you decide to commit to the reusable packaging initiative, your image in the company could be hurt." ANOVA analysis was performed to compare the responses of the groups receiving the treatments with the groups not receiving the treatments. The mean scores (treatment group vs. non-treatment group) for inspirational appeals, legitimating and risk respectively were 5.6 vs. 4.3, 3.8 vs. 2.9, and 3.4 vs. 2.3, with all comparisons being significant ($p < 0.05$). All of these manipulation checks were significant indicating that the treatments were successful – i.e., subjects' perceptions of

the organizational climate, and their perceptions of the degree to which the project champion used inspirational appeals and legitimating (the influence tactics) were consistent with the treatments that were assigned to the subjects. We repeated this analysis on the main data set (i.e., the sample of 141 managers) and obtained substantively identical results.

The purified set of scales contained 28 items. The final data set (the dataset of 141 working managers) was evaluated for appropriateness for factor analysis (visual inspection of the correlation matrix, KMO Measure of Sampling Adequacy, Bartlett Test of Sphericity) (Hair et al. 1998). Two items were dropped due to substantial deviations from univariate normality. Confirmatory factor analysis (CFA) was then performed (Anderson and Gerbing 1988) using AMOS. To conform with commonly used sample size to item (Nunnally 1978) and sample size to parameter thresholds (Bentler 1989) for factor analysis (i.e., five and ten respectively), two measurement models were created, each containing a subset of the constructs in the study (Chen and Paulraj 2004). Three items, each with a standardized factor loading of less than 0.50, were dropped. CFA fit statistics and the item loadings for the final 23 items (see Appendix B) show that all three measurement models fit the data well. 20 of the 23 item loadings exceeded 0.70, with only 1 being slightly below 0.60, and the critical ratio for each loading is significant, indicating convergent validity (Andersen and Gerbing 1988). The composite reliability ranged from 0.72 to 0.96, confirming high construct reliabilities (Fornell and Larcker 1981; Bollen 1989). Finally, all possible pairs of latent constructs were formed and each pair was tested by allowing them to freely correlate and then by setting the correlation between the two constructs to 1.00. A significant chi-square difference was discovered between the two nested models for each pair of constructs, demonstrating discriminant validity (Bagozzi et al. 1991). Given the empirical evidence of construct reliability and validity, summated scales were created for hypothesis testing (Little et al. 2002). Table 2 reports the descriptive statistics of these summated scales.

Insert Table 2 Approximately Here

Model Analysis and Results

To evaluate the model, multiple regression using SPSS version 19 was used with the participants' commitment to the fictitious project as the dependent variable and participants' values and perceptions of influence tactics and organizational climate's riskiness as the independent variables. Prior to running the model, we also checked for effects of participant experience; however, these effects were not significant. Data were examined to insure suitability for regression – i.e., homoscedasticity, a normal distribution of the errors, and an independence of the error terms. Scores were standardized prior to creating the interaction term to reduce the possible effects of multicollinearity.

The model explains approximately forty percent of the variance in commitment from participant to participant ($R^2=0.43$). This is a substantial amount of explanatory power by the standards of business research, especially given the model parsimony. The regression results appear in Table 3. As seen in the table, the main effects of the two influence tactics are not significant ($p>0.05$). Therefore H1 is not supported. The main effects of self-transcendence values (both the humanistic and biospheric dimensions) are significant, supporting H2a. There is a significant interaction effect between the legitimating influence tactic and the target's self-enhancement values. This supports H3a. There is also a significant interaction between legitimating and the target's self-transcendence values, supporting H3d. Finally, the main effect of riskiness of the organizational climate is significant, providing support for H4. These results are discussed in detail below.

Insert Table 3 Approximately Here

Discussion and Contributions

Thought leaders have called for more research examining how individuals advance environmental projects within organizations, especially given that some employees view the environment as “someone else's job” (Handfield et al. 1997). “Forwarding the tape” to today, it appears that this need still remains. For example, Cantor et al. (2012) call attention to the low average frequency of employee involvement in environmental projects, and they point out that there is a need for research on how to increase this involvement. This research helps to meet this need by

demonstrating that the way that environmental initiatives are framed (i.e., by the influence tactic the champion uses), the type of persons to whom the environmental effort is presented (i.e., the personal values of targets), as well as the environment in which the framing occurs, all affect individuals' attitudes toward projects.

Supply chain management (SCM) scholars (e.g., Carter et al. 2007; Tokar 2010) have called for greater exploration of behavioral issues. SCM has amassed over fifty studies on environmental management, but few use a behavioral approach and none have as yet used experimental methods (Winter and Knemeyer 2013). By using a new methodology, the present study provides "triangular" confirmation of some extant studies' findings while also suggesting some areas where certain refinements to the existing body of knowledge may be warranted, as described below.

Individual Values

Tate et al. (2011) point out the need for research on the role of values and values-based appeals when it comes to adoption of sustainable supply chain initiatives. Champions can make inferences about a target's values through previous interactions and reputation. The accuracy of these judgments (as with any inference) certainly varies – with factors such as the amount of previous interaction between the parties, the target's length of tenure in the organization, and the champion's social intelligence (i.e., his or her ability to "read" others). Nevertheless, in many cases, individuals can make reasonably accurate estimations about the values of colleagues. Therefore, understanding how values might affect target commitment – and whether and how to approach particular targets – is knowledge that can increase a champion's effectiveness. We hypothesized that a target's personal values would affect their commitment to the project. The section on measurement development above indicated that other researchers have demonstrated that there are two types of self-transcendence values: concern for other people (humanistic self-transcendence values) and concern for the natural environment (biospheric self-transcendence values). Perhaps not surprisingly, the greater an individual's biospheric self-transcendence values, the greater the individual's commitment to the project, regardless of other factors.

However, the situation becomes more nuanced when the other value types in the research model are assessed: Individuals with stronger humanistic self-transcendence values were more likely to commit to the project on average, but this effect is moderated by the influence approach used by the project champion. The effect of self-enhancement values also depends on the champion's influence approach. Both of these interactions are discussed in the next section.

Influence Tactics and Values Interaction

The effect of influence tactics on commitment occurs through the interaction between the legitimating tactic and the targets' values. Figure 4 displays these interaction effects.

Insert Figure 4 Approximately Here

First, the role of legitimating is affected by the degree to which a target person possesses the humanistic type of self-transcendence values (Figure 4a). For targets who have higher than average humanistic values, the relationship between legitimating and commitment is weakly negative. Project champions who use legitimating tactics on these individuals will find that the use of legitimating has little effect on commitment and may even have a negative effect. However, for targets with average and below-average humanistic values, the relationship between legitimating and commitment is positive; legitimating thus appears to be an effective tactic to use with these persons.

Second, the role of legitimating is affected by the degree to which a person possesses self-enhancement values (Figure 4b). The effect here is the opposite of the one just described. For targets with average to strong self-enhancement values, the use of legitimating has a strong positive effect on the target's commitment. For individuals with lower self-enhancement values, legitimating has no effect. The interactions are consistent with our arguments leading to the introduction of Hypotheses 3a and 3d – i.e., people with strong self-enhancement values are sensitive to outcomes that affect their individual well-being, such as penalties or rewards that they receive as employees or penalties that affect them indirectly such as fines against their company. Thus tactics based on conformance and rule adherence (and thus avoiding sanctions) are effective with these individuals.

In contrast to legitimating, the inspirational appeals influence tactic was not significantly associated with commitment – i.e., the main effect of this variable was not significant nor were any of the interactions involving this variable. At first, this finding seems puzzling in light of the fact that several other studies have found inspirational appeals to be an effective tactic (as discussed above). However, there are several factors that may explain why the tactic is not significant in the present study. One reason is the nature of the issue that the agent is advocating. It is likely that inspirational appeals are more effective for some environmental concerns than for others. For example, some environmental problems have immediate and severe consequences whereas others are only felt in the long term. Some issues affect humans or other highly salient mammals whereas others affect “lower level” organisms or they affect living things only indirectly. It is quite possible that inspirational appeals are more effective when the environmental problems being discussed resonate more strongly with influence targets or when the effects are “closer to home.” The issue in our study (packaging reuse) does not have particularly immediate or salient effects compared to issues such as reducing toxic emissions in the local community, eliminating testing products on mammals or saving high profile endangered species. It seems quite plausible that inspirational appeals would have had a more observable effect had the issue in our study been an issue such as one of these – i.e., one with greater resonance and immediacy than package reuse.

Nevertheless, there are many environmental concerns that are similar to package reuse – i.e., not highly “sexy” and perhaps even dull. Without strong resonance and a sense of severity, gaining intra-organizational commitment to such environmental projects can be particularly challenging, making research on advancing these environmental projects especially valuable. In addition, since the majority of environmental efforts of organizations are somewhat run-of-the-mill (e.g., eco-efficiency projects) (Kuhn 2011), findings from this research can inform a great many initiatives.

Judge and Hill (2010) observe, “The lion’s share of research and writing on managing change is about how a company’s CEO or other top executive can lead change effectively. In today’s dynamic global economy, however, companies need effective leaders of change – throughout the organization, including middle-management – who are prepared to lead without formal authority.” Our findings inform these managers. The major take-away for these practitioner environmental champions is that tactics are big difference makers, but they can also backfire depending on whom one is trying to influence. In particular, legitimating (e.g., appealing to rules and policies) is a powerful tactic. However the effects of legitimating are far from straightforward. For targets with high self-enhancement values and/or low humanistic values, legitimating is likely to be a successful influence tactic. Conversely, legitimating is likely to be ineffective when a target has low self-enhancement values and/or high humanistic values. In this latter case, the agent will need to consider alternatives. Taken together, the study’s results demonstrate that it is important to match the influence approach to the colleague whom you are trying to influence.

Riskiness of Organizational Context

There was a direct relationship between the degree to which individuals perceived that the climate was favorable to environmentally-oriented initiatives (e.g., they felt it was not risky with respect to their career prospects and their status in the organization) and the level of support that they reported for the project. This is consistent with existing findings that employees’ willingness to engage in issues, such as those related to safety and gender equity, is related to employees’ perceptions regarding whether or not their participation puts their personal workplace image at risk (Ashford et al. 1998; Mullen 2005).

In the environmental domain, the findings are consistent with another recent supply chain study that finds that employee perceptions of organizational support for environmental behaviors are positively associated with employees’ attitudes toward environmental behaviors and their actual engagement in those behaviors (Cantor et al. 2012). Our findings also reinforce earlier findings that a people-oriented culture that is supportive of purchasing social responsibility initiatives (Carter and Jennings 2004) and that a culture characterized by risk taking and proactiveness with respect to the environment is associated with sustainable supply chain management (Paulraj 2011). This is also in line with research from beyond the environmental domain showing that culture and perceptions of support are associated with success in areas such as JIT and service quality (Mehra and Inman 1992; De Jong et al. 2005).

The findings on image risk have several managerial implications. For champions, the take-away is that the organizational context in which environmental championing takes place is very influential on champions' chances of successfully influencing others; however, the results of this research show that skillful use of influence tactics by champions make a difference even in unfavorable contexts (i.e., both climate and tactics are significant in the model). For managers, the findings underscore the importance of fostering a climate in which innovation and risk taking with respect to the natural environment are tolerated and encouraged.

The experimental methodology is especially valuable when it comes to the findings regarding climate. An innovation-friendly climate may drive pro-environmental behavior (Carter 2005; Paulraj 2011). However, the reverse may be the case: Organizations with a strong track record of environmental management attract employees who are entrepreneurial, growth-oriented and willing to take risks, thus creating an innovation-friendly climate (Brokaw 2009; Montgomery and Ramus 2011; Bhattacharya et al. 2008). Because they are survey-based, prior studies have left some ambiguity about the direction of the "causal arrow." The temporal sequencing in our experiment coupled with random assignment demonstrates that differences in climate (high risk vs. low risk) caused systematic reactions in subjects, not the reverse – i.e., climate was responsible for much of the variance in managers' commitment to the environmental project – not the reverse. This adds validation of the survey findings of Carter (2005), Paulraj (2011) and Cantor et al. (2012).

Limitations and Future Research

To summarize, all three types of hypothesized factors – influence tactics (legitimizing, but not inspirational appeals), values, and image risk – were found to be significant. As can be seen from the standardized coefficients in Table 3, individual values and image risk had roughly equally sized effects on commitment, with the effect of influence tactics (i.e., the interactions involving legitimizing) being somewhat smaller.

This study's research methodology was an experiment using a simulated video conference. Thus, unlike in field-based methodologies (surveys and case studies), data were collected in an artificial setting, rather than gathering data about subjects' actual behavior in their actual workplaces. However, given the prevalence of field-based studies and the paucity of experiments, the advantages of an experiment (e.g., high level of control, ability to triangulate existing findings) seem justified.

In the experiment, the nature of the project was controlled for by holding it constant across all treatments. This eliminated a potential source of error variance that may have affected other studies. However, this may limit generalizability to other types of projects. Therefore an additional avenue for future research would be a study that examines different types of environmental issues (e.g., water scarcity) and perhaps social sustainability issues (e.g., income inequality, worker safety). Additionally, as we suggested in the discussion, the nature of the issue may affect the efficacy of the influence tactics that are used – i.e., compared to issues like recycling and waste reduction, higher profile environmental issues (e.g., animal cruelty) and social sustainability (child labor) issues may be a better fit for inspirational appeals.

Following existing research on the values-environmentalism linkage, this study focused on two of the four value clusters identified by Schwartz (1992, 1994) and others. An excellent avenue for future research would be to investigate the other two types of values in Schwartz's typology: conservatism and openness to change. It seems likely that openness to change (as a main effect) would be associated with commitment to environmental projects. The impact of conservatism may well depend on the nature of the project, with conservation oriented projects (for example, rangeland conservation, as opposed to, say climate related projects) likely to have a positive link with conservatism. In addition to potential main effects, it seems quite possible that the way an initiative is framed (i.e., as a radical departure from the status quo versus as a continuation of an established journey) may well interact with these values in determining target commitment.

This study is a "deep dive" into the antecedents of commitment because lack of commitment has been identified as an important barrier to sustainable SCM in the literature. However, other barriers and potential means of overcoming these barriers have been identified by earlier (largely exploratory studies). Some of these have received in depth treatment (e.g., Sarkis et al.'s (2010) paper on training), but some have not. There remains a need for deep dives into some of these constructs – i.e., on research that focuses narrowly on overcoming one (or a few) barriers to or antecedents of sustainable SCM.

Another interesting area for future research would be to examine the use of influence tactics, and the consensus and decision-making processes across hierarchical levels (Lindman et al. 2001) within the organization (e.g., attempts by the rank and file to influence top management) and across organizations (e.g., collaborative relationships that foster multi-organizational initiatives (Lockström et al. 2011; Fawcett et al. 2012) and leveraging innovation with suppliers (Wagner 2012). A final avenue for further investigation is the use of influence tactics when a personal relationship exists (e.g., Gligor and Autry 2012) versus when such a relationship is absent between the agent and target.

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Appendix A. Sample Video Script

As discussed in the methodology section, each condition (each block in Figure 2) is a unique combination of one of the two versions of scene A and one of the three versions of scene B. This appendix contains the script for the **high risk climate / inspirational appeals** treatment (the top left cell in the body of Figure 2). The bolded statements in the script indicate the treatment cues. These differ from condition to condition (as indicated in Table 1). The non-bold text is parallel across treatments.

Scene A – Introduction

Camera opens on a narrator, dressed in a blue blazer and looking very serious and credible. “You” refers to the viewer.

You are a purchasing manager for Alphexo Corporation, a large manufacturing organization. You are in charge of purchasing several types of hard drives and several other kinds of electronic components which are assembled into the finished goods that Alphexo manufactures. Steve Brown is also a purchasing manager. He works in another division of your company and he also purchases hard drives. You and Steve are both responsible for hard drives that are purchased from Phoenix Electronics. Steve is also in charge of contracting for plant services, including waste hauling.

Steve has scheduled a meeting with you, to discuss the possibility of your participating in a project. You have met Steve a few times in the past, although you haven’t worked with him before.

In a few minutes, you will have a video conference with Steve in which he will describe the project, and ask for your commitment to participate. Before your meeting with Steve, there are a few things you should know.

You are a politically savvy member of your organization. You realize that, above and beyond what Steve has to tell you, you should include other factors when deciding whether to help Steve with the project. In particular: while Alphexo has always been a solid financial performer, **the company is somewhat reluctant when it comes to embracing objectives that are related to environmental sustainability. There is some risk that you might lose face if you engage in projects related to these objectives, as opposed to focusing on activities that some would argue are more central to your organization’s economic bottom line. This means that helping Steve with the project could lead others in your company to think worse of you. Others may even view you as being less competent and less able to perform the activities that you normally engage in.**

In a moment, your meeting with Steve will begin. You can assume that Steve is honest and credible: He is portraying the facts truthfully and his financial analysis is accurate.

Scene B: Video Conference with Steve

Screen shows Steve sitting at desk dressed business casual (in an open collared shirt. This scene has the look and feel of a video conference – i.e.. Steve has a camera attached to his computer monitor and this is what is recording him; the viewer sees his head and shoulders.

Hi. Thanks for meeting with me today. I had a meeting with a Sales Rep and a few other folks from one of our suppliers, Phoenix Electronics. As you know, I buy hard drives from Phoenix for our Z500 product line; and I know that you buy hard drives from Phoenix for the x255 and 355 lines. I’m hoping you and I can work together with Phoenix.

Phoenix wants us to partner with them on a re-usable packaging initiative. Phoenix currently ships hard drives to our plants in packages that consist of a cardboard box and a foam tray. *(Steve shows the viewer a sample of the box and tray).* Currently, all of our plants’ cardboard is picked up by a waste hauler and recycled. But all the foam is thrown away since most recyclers near our plants won’t take it. However, since the cardboard and the packaging almost always show up at our plants in pristine condition, Phoenix thinks it makes more sense for us to send it back to them for re-use. The plan is that after the packaging has been used 8 to 10 times Phoenix will replace it, and

Phoenix will send the old stuff to a recycler—even the foam. It looks like the whole thing nets out to being pretty much cost neutral for us.

There are also some great environmental benefits. **We all need to think of the impact that our water and energy consumption have on others around us.** Remember that we are currently throwing away (not recycling) all the foam that we get from Phoenix. With the new Phoenix proposal all of that material stays out of the landfill. **It is really important for our company to do our part in conserving our community's scarce resources, including our landfill space.** Second, even when it comes to the cardboard, re-using¹ is better than recycling when it comes to energy, water and the consumption of other natural resources. Many of our company's biggest environmental impacts are related to inbound packaging. **Think of how great it will be when our company is recognized as a leader in environmental performance.**

There are also a few other downsides that I want to be really up-front about. First, our plants will have to segregate Phoenix's packaging, instead of treating it like any other packaging – and they'll have to do the work involved in sending it back to Phoenix. This complicates life for the plants and you know they never like having their lives complicated. So what do I want from you? First, I would like you to commit to buying hard drives from Phoenix in the new, re-usable packaging. Second, I know you are busy, but I would like you to help me work with the plants, shipping and engineering to set up the system for getting the packaging back to Phoenix. **I really believe this is the right thing to do.**

Appendix B. Measurement model confirmatory factor analysis results

		Std. Loadings	Composite Reliability
Measurement Model I $\chi^2 = 49.397$, $df = 32$, $\chi^2/df = 1.544$, $IFI = 0.986$, $NNFI = 0.960$, $CFI = 0.986$, $SRMR = .06$, $RMSEA = .062$			
Image risk* Ashford (1986), Mullen (2005)			.88
Risk1	... your boss might think worse of you.	.82	
Risk2	... your co-workers might wonder why you were spending time on this project.	.79	
Risk3	... your image in the company could be hurt.	.90	
Inspirational appeal ** Gattiker and Carter (2010)			.90
IA2	Make an effort to appeal to your values?	.87	
IA4	Try to inspire you?	.93	
IA10	Cite humanitarian reasons for participating in the recycling project?	.79	
Legitimizing** Gattiker and Carter (2010)			.96
LE1	State that the project supports organizational goals?	.95	
LE2	Say that the request was consistent with organizational rules and policies?	.91	
LE91	Try to show you that the project is consistent with organizational guidelines?	.97	
SL3	State that the project was part of a broader company strategy?	.89	
Measurement Model II $\chi^2 = 106.14$, $df = 59$, $\chi^2/df = 1.799$, $IFI = 0.954$, $NNFI = 0.902$, $CFI = 0.953$, $SRMR = .056$, $RMSEA = .076$			
Self-transcendent values: biospheric *** Dietz, Kalof, and Stern (2002)			.89
A1-U	Preventing pollution, conserving natural resources	.76	
A3-U	Unity with nature, fitting into nature	.82	
A5-U	Respecting the earth, harmony with other species	.87	
A6-U	Protecting the environment, preserving nature	.81	
Self-transcendent values: humanistic *** Dietz, Kalof, and Stern (2002)			.72
A4-U	A world of peace, free of war and conflict	.74	
A7-U	Social justice, correcting injustices, care for the weak	.70	
A10-U	Being broadminded	.60	
Self-enhancement values *** Schwartz (1992, 1994)			.79
E5-A	Ambition, drive	.56	
E6-A	Achievement, success	.97	
E7-A	Being capable	.67	
Commitment**** Mowday, Steers and Porter (1979)			.93
Com03	Put in extra effort if it would help the project succeed	.91	
Com04	Really care about the project	.93	
Com11	Buy into the project's goals	.88	

* If you decide to commit to the reusable packaging initiative...

** When seeking your buy-in to the project, to what extent did Steve do the following?

*** To what extent do you agree that each item below is a guiding principle in your life?

**** As a result of my video conference with Steve, I would...

Table 1: Cues in scripts

Image risk (Scene A)	
High Risk	Low Risk
<p>“The company is somewhat reluctant when it comes to embracing objectives that are related to environmental sustainability.”</p> <p>“There is some risk that you might lose face if you engage in projects related to these objectives, as opposed to focusing on activities that some would argue are more central to your organization’s economic bottom line.”</p> <p>“Helping Steve with the project could lead others in your company to think worse of you. Others may even view you as being less competent and less able to perform the activities that you normally engage in.”</p>	<p>“The company is quite open to projects designed to help the company become more environmentally sustainable.”</p> <p>“There is not much risk of a loss of face if you engage in projects related to these objectives, as opposed to focusing on activities that some might argue are more central to your organization’s economic bottom line.”</p> <p>“Helping Steve with the project would probably <i>not</i> lead others in your company to think worse of you. And others would probably not view you as being less competent and less able to perform the activities that you normally engage in.”</p>
Influence tactic (Scene B)	
Legitimizing	Inspirational Appeal
<p>“Alphexo policy is to undertake environmental improvements as long as they make business sense.” (policy)</p>	<p>“We all need to think of the impact that our water and energy consumption have on others around us.” (justice, humanitarianism)</p>
<p>“Our ISO14000 procedures say that when we have to opportunity to re-use materials instead of recycling them or throwing them away, then that’s what we do.” (rules, practices)</p>	<p>“It is really important for our company to do our part in conserving our community’s scarce resources, including our landfill space.” (justice, humanitarianism; desire to excel / to accomplish an important task)</p>
<p>“Remember, the VP of Supply Chain said in our staff meeting last month that he wants to see everybody taking a harder look at projects that reduce waste.” (policies, rules)</p>	<p>“Think of how great it will be when our company is recognized as a leader in environmental performance.” (emotional or symbolic language; aspirations)</p>
<p>“I feel like I have the right to make this request because I have responsibility for plant services, including waste management.” (claiming authority to make request)</p>	<p>“I really believe this is the right thing to do.” (values, justice)</p>

Table 2: Means, standard deviations, and variable inter-correlations

Variable	Mean	SD	Sk	KU	1	2	3	4	5	6
1. Insp. appeals	4.92	1.37	0.50	0.00						
2. Legitimizing	4.15	1.68	-0.24	0.76	0.08					
3. Risk	3.00	1.29	0.41	-0.54	-0.06	-0.29**				
4. Univ-bio	5.04	1.04	-0.53	0.90	0.22*	0.19*	-0.14			
5. Univ-human	5.20	1.02	-0.67	1.04	0.18*	0.13	-0.05	0.63**		
6. Self-Enhancement	6.24	0.70	-1.05	1.48	0.16	0.08	-0.22*	0.19*	0.15	
7. Commitment	5.51	1.08	-1.22	2.30	0.20*	0.26**	-0.39**	0.46**	0.40**	0.23**

* = $p < 0.05$, ** = $p < 0.01$

Table 3: Regression results
(*Dependent Variable = Commitment to the Project, n=141*)

Type of Variable	Variable	Std. Coef. (Std. Error)	t	Sig. (p)	VIF
<i>Influence Tactics Main Effects (H1)</i>	H1a Inspirational Appeals	0.02 (0.08)	0.29	0.77	1.12
	H1b Legitimizing	0.11 (0.08)	1.38	0.17	1.29
<i>Values Main Effects (H2)</i>	H2a Self-Transcendence Biospheric ^	0.26(0.10)**	2.89	0.00	1.67
	H2a Self-Transcendence Humanistic	0.26(0.09)**	2.91	0.00	1.64
	H2b Self-Enhancement	0.09 (0.08)	1.14	0.26	1.21
	H3a Legitimizing X Self-Enhancement	0.14 (0.08)*	1.94	0.05	1.16
<i>Infl. Tactic X Values Interactions (H3)</i>	H3b Insp. Appeal X Self-Enhancement	0.08 (0.08)	1.14	0.26	1.10
	H3c Insp. Appeal X Self-Transcendence Biospheric	-0.05 (0.10)	-0.55	0.58	1.68
	H3c Insp. Appeal X Self-Transcendence Humanistic	0.09 (0.10)	0.94	0.35	1.86
	H3d Legitimizing X Self-Transcendence Biospheric	0.07(0.11)	0.72	0.47	2.05
	H3d Legitimizing X Self-Transcendence Humanistic	-0.24 (0.11)*	-2.28	0.02	2.38
<i>Image Risk Main Effect (H4)</i>	Organizational Climate	-0.33(0.08)**	-4.31	0.00	1.22
R^2		0.43			
Adjusted R^2		0.37			
F for total equation		7.58(12,121)***			

^Self-transcendence had two dimensions, biospheric and humanistic

***: $p < 0.001$, **: $p < 0.01$, *: $p < 0.05$

Figure 1: Research model.

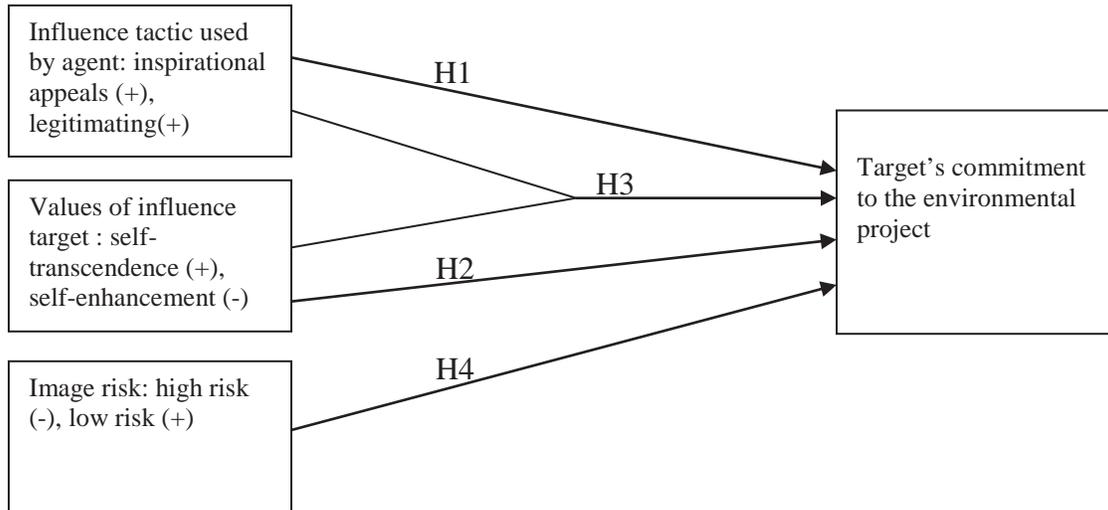


Figure 2: 2x3 experimental design and sample size per treatment condition.

		Influence tactic used by agent		
		<i>Inspirational Appeal</i>	<i>Legitimating</i>	<i>Control (none)</i>
Image risk	<i>High Risk</i>	(21)	(26)	(21)
	<i>Low Risk</i>	(25)	(28)	(20)

Figure 3: Administration of data collection and treatments.

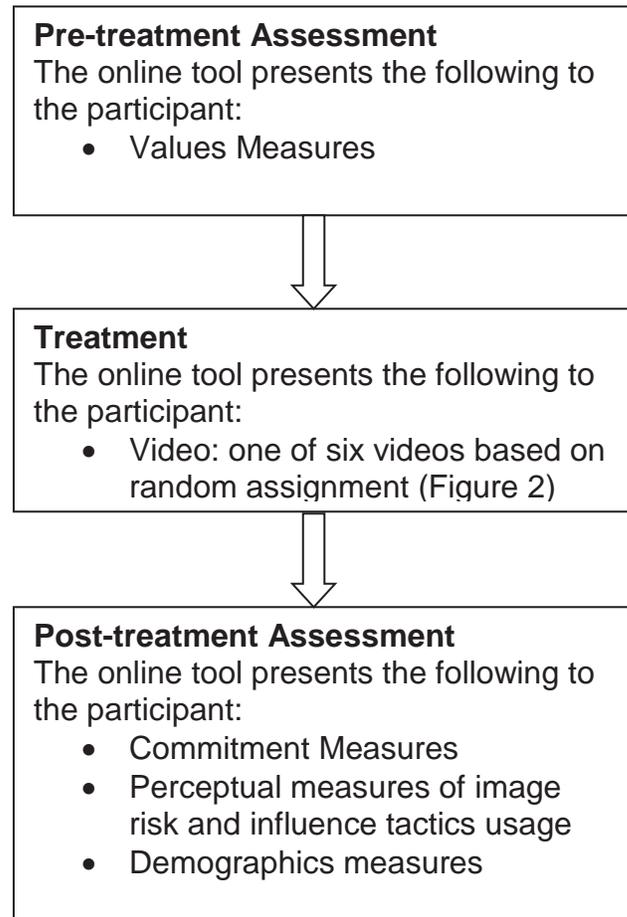


Figure 4: Interaction interpretation.

4a: The effect legitimating depends on the target's level of self-transcendence values (humanistic dimension)

4b: The effect legitimating depends on the target's level of self-enhancement values

