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When Proenvironmental Behavior Crosses Contexts: Exploring the Moderating Effects of Central Participation at Work on the Work-Home Interface

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When Proenvironmental Behavior Crosses Contexts:

Exploring the Moderating Effects of Central Participation at Work on the Work-Home Interface

Bryn E. D. Chighizola

A dissertation submitted in partial fulfillment of the requirements of the degree of

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Abstract

As evidence of human impact on climate change continues to build, understanding the conditions that enable the transfer of proenvironmental behavior (PEB) between life's two major domains (home and work) is essential to take meaningful steps forward. Building on border theory and the work-life interface literature, this study explored the nature of the relationship between PEB at home and at work (cross-context PEB) when facilitated by an individual's sense of identity and influence (central participation) at work. Border theory adopts an agentic perspective whereby individuals can actively manage the transfer of behaviors from one domain (home) to a second domain (work) when they experience central participation within the second. An American sample of 530 Mechanical Turk participant results indicated moderate to strong effects for cross-context PEB (R_2 = .20 and .55), and linear relationships between central participation facets (decision-making autonomy; r = .42 and .35), supervisor support for PEB; r = .56 and .82), and affective organizational commitment; r = .50 and .54) and workplace PEB. Although small, each facet showed distinct moderating influences that can either strengthen (i.e., decision-making autonomy; β = .098, 95% CI [.024, .164], p < .01 and affective commitment; β = .084, 95% CI [.017, .144], p = .020) or slightly dampen (i.e., supervisor support for PEB; β = -.045, 95% CI [-.097, .002], p = .063) cross-context PEB. Post hoc analyses continued to build evidence for the organizational context (specifically organizational climate for PEB) as an importance predictor in workplace PEB (β = .380, 95% CI [.311, .436], p < .01 and β = .812, 95% CI [.766, .852], p < .01). Outcomes from the study help provide practical guidance on how to increase environmental workplace behavior and cross-context PEB, while evidence for border theory within the empirical proenvironmental research was expanded.

Keywords: proenvironmental behavior, decision-making autonomy, supervisor support, affective commitment, border theory, green human resource management, work-home interface, environmental workplace behavior, organizational citizenship behavior for the environment, organizational climate

Chapter I

Introduction

"Climate change is no longer some far-off problem; it is happening here, it is happening now."

—Barack Obama, *GLACIER Conference,* 2015

Currently, there is clear scientific evidence (Wackernagel et al., 2002) and general acceptance that human behaviors significantly contribute to environment degradation (Vlek & Steg, 2007). Furthermore, there is a standing call to action for applied psychologists (Osbaldiston & Schott, 2012) and specifically I-O practitioners (e.g., Ones & Dilchert, 2012) to aide in the proenvironmental movement. As a growing interest within the field of human resources management seeks to include an environmental focus, the concept of green human resource management (GHRM) facilitates individual environmental practices that align with the environmental organizational strategy (Muster, 2011). However, a continuing challenge cited within the literature is the incongruity between GHRM environmental policies and environmental behavior patterns of employees (e.g., Daily et al., 2009; Ramus, 2001). As a result of these discrepant outcomes, GHRM is beginning to target environmental workplace behaviors and the work-home interface, which draws from a holistic view of employees as humans that develop and transfer their behaviors and attitudes within and between home and work contexts. It is a shift towards supporting individuals (as both consumer and producer roles) to develop and engage in proenvironmental behavior (PEB) in both prominent domains, not just the work setting (e.g., Mazur, 2015). A recent study found roughly 75% of the PEB initiatives across approximately 650 organizations were voluntary and proactive (D'Mello, et al., 2011). By further understanding the commonalities that support individuals to engage in PEB across contexts, the capacity to create positive movement on climate change is strengthened.

While there is substantial research on PEB, it tends to be siloed; that is, focused on either work PEBs or non-work PEBs with little research examining under what conditions PEBs transfer across life roles. Traditionally, the research has primarily been limited to understanding individual attitudes, intentions, and behaviors within the private (home/consumer) domain (e.g., Black et al., 1985; Clark & Finley, 2007), and more recently the public (work/producer) domains (Ciocirlan, 2017), separately. A recent expansion in PEB research has begun to consider the relationships between PEBs (spillover; Nilsson, 2017), by conceptualizing three different areas focusing on how an initial PEB influences a subsequent PEB that is (1) different (e.g., behavioral transfer of an individual who recycles cans is then more likely to start powering down electronics at the end of the day), that is (2) the same but done at another time (temporal transfer), or that is (3) the same but done in a different context (transfer across different domains). Most of this research to date has focused on the first two. Transfer of PEBs across contexts (e.g., from home to work) is limited and typically not the primary focus of studies that include home and work PEB (e.g., Lamm et al., 2013). Furthermore, there is a need to better understand not only the behaviors, but the factors that facilitate or inhibit PEB transfer between life roles. The purpose of this research study is to expand previous work on contextual PEB research by proposing a set of moderators within the organizational setting that influence the nature of transfer between PEB carried out at home and work.

In the following sections, the bidirectional work-home interface literature sets the cross-context background. Then a discussion of the theoretical framing of border theory introduces the rationale for the factors that should facilitate or inhibit the transfer. The theoretical framing is followed by the proposed hypotheses and study model (see Figure 1) including sections for the predictor (home PEB), the outcomes (environmental workplace behavior), and the workplace

moderators that are most likely to facilitate/inhibit the transfer of PEBs from home to work

(supervisor support for PEB, decision-making autonomy, and affective commitment).

Figure 1

Proposed Cross-Context Moderated Proenvironmental Behavior Model
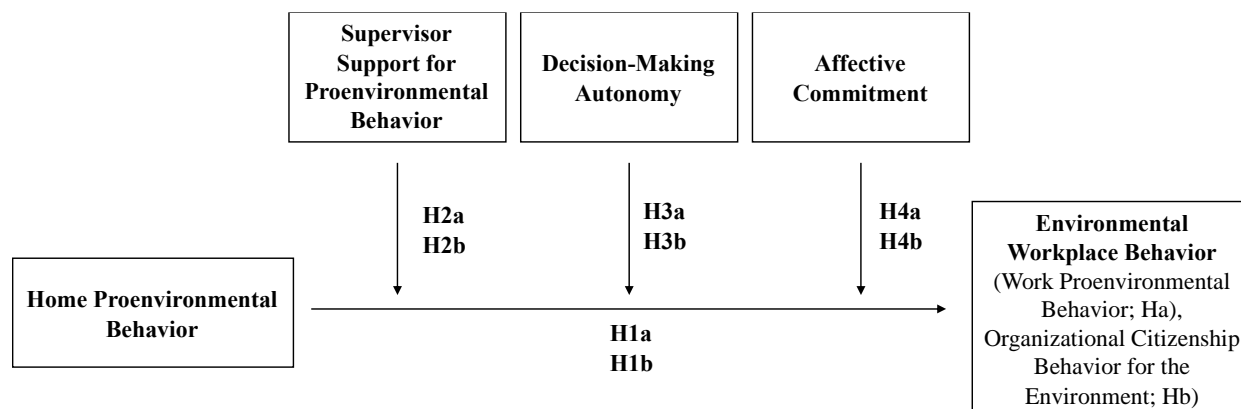
Note. Label Ha represent hypotheses for the work proenvironmental behavior outcome, while Hb represents

hypotheses for the outcome of organizational citizenship behavior for the environment. Covariates include age,

gender, and proenvironmental identity.

Chapter II

Literature Review and Theoretical Framework

"By encouraging employees to bring their private environmental self into the workplace, positive spillover effects for the individual and the organization can occur."

—C. E. Ciocirlan, *Organization & Behavior* (2017, p. 55)

The Work-Home Interface: Conflict, Balance, Enrichment, or Management?

As the boundaries in the current economy become more blurred (Briscoe & Hall, 2006 ; Hall, 1996), society is experiencing a shift away from segmented life roles back towards integration between home and work domains and the blurring of these boundaries (Kanter, 1977; Nippert-Eng 1995; Rothbard et al., 2005), in part due to technological advances and a growing body of research supporting the benefits of a holistic/integrated approach to home and work roles (Thompson et al., 2006). The concept of work-life balance is not new, but studying the relationships between the two life roles as they relate to environmental outcomes is an emerging research domain. The traditional labels of work-life and work-family balance is often disputed due to the inherent assumptions that life excludes work, everyone has a family, and that balance is attainable (Brummelhuis & Bakker, 2012). An updated label (i.e., work-home interface) for the concept of work-life balance is used, to reflect the two primary domains, not the structure within the domain, and emphasize the connection between the domains not the extent to which balance occurs.

The historical body of research regards the individual in a passive nature and focuses on negative interaction effects between work and home (i.e., conflict and/or balance; Rothbard, 2001). However, a recent shift has begun to emphasize that positive interactions (i.e., integration, enrichment, and positive spillover) also occur and the transfer of PEB has the potential to

provide a positive impact at many levels, including, the environment, employees, and society (Datta, 2015). One significant limitation, as seen from the available body of literature is that the study of home-work positive spillover, tends to focus on the transfer of affective outcomes, while Greenhaus and Powell's (2006) other spillover dimensions—behaviors, skills, and values—are not as well understood. Furthermore, while the research has shown a bidirectional relationship between work to home and home to work spillover (Grzywacz & Marks, 2000), the magnitude between these relationships and relationships to the outcomes differ by path. Specifically, researchers found the behavior and values subscales within each path (i.e., work to home and home to work) were significantly related to the outcomes (e.g., increased job satisfaction) and that values and behavioral positive spillover occurred more frequently from home to work (Hanson et al., 2006). For example, participants stated the behaviors that helped them be successful in their family lives were more likely to help them be more effective at work, instead of vice versa. This suggests a further rationale to clarify key factors that influence behavior transfer from home to work.

One theory that provides an alternative explanation to the traditional passive models of the work-home interface is border theory (Clark, 2000). Border theory regards individual agency as a primary driver in the transfer of behaviors across borders and into domains. In addition to, the influence of contextual factors and key individuals within each context, to ultimately experience work-home interface. With the individual's role as an active manager in behavior transfer, border theory has shown evidence of its application within work-home interface research (e.g., Clark, 200l; 2002a) and more specifically, GHRM literature (Muster, 2011) and contextual PEB research (Paille et al., 2017; Uzzell & Rathzel, 2018).

Border Theory and Central Participation at Work

Border theory (Clark, 2000) assumes individuals are active participants that manage the transition between domains and have influence over the extent to which blending (integration or transfer) occurs. This theory posits that home and work are separate domains with varying differences in purpose and culture. As a result, these differences in purpose and culture often present the need for individuals (border-crossers) to think and behave differently within the domains. The role of the border-crosser is to find a balance, defined by Clark (2000) as satisfaction within each domain and minimized role conflict. However, evidence from subsequent research found that role conflict was not necessarily minimized when other facets of home-work 'balance' outcomes are positively significant (Clark, 2002b), or that role conflict is related to work-home interface outcomes (Clark, 2001). These outcomes suggest that while the concept of roles is important to the construct of work-home interface, role conflict may not be a focal aspect to experiencing 'balance.' As noted earlier, individual's appear to be equally motivated to seek positive spillover and how the roles can enhance (Greenhaus & Beutell, 1985) and promote growth (Kalliath & Brough, 2008).

Clark proposes that border-crossers can influence their setting through ongoing negotiation and communication. Border theory builds from Kurt Lewin's (1936) concept of "life space" in which different life space regions (psychological, situational, or environmental contexts) are separated by varying degrees of border permeability. The underlying assumption of border theory is that balance is on a continuum that can result in integrated domains facilitated by permeable borders with high transference of behaviors, emotions, and attitudes; to segmented domains created by impermeable borders that do not permit transfer across domains. Border theory emphasizes four elements, the influence of domains (e.g., home and work), borders (i.e., physical, temporal, or psychological), border crossers (i.e., employees), and border-keepers (i.e.,

managers and family partners). Within this framework, organizations and individuals are capable of influencing role interfaces. Clark posits that central participation (influence and identification) within a domain facilitates increased agency over domain borders compared to individuals that embody peripheral domain participation (lack of influence and identification). Thus, central participants are more likely to consciously exhibit control over the extent to which emotions, thoughts, and behaviors transfer across domains. A similar relationship of central participation was proposed by Ciocirlan (2017), regarding the referent power (i.e., perceived identification or regard for an individual; French & Raven, 1960) of an employee and their positive relationship with liberty taking behaviors (Sturm & Antonakis, 2015) suggesting an increased likelihood for an employee to control and behave with increased agency.

Across the border theory literature, it is generally used as a descriptive lens to frame studies, while the operationalization and testing of the theoretical propositions is less common (e.g., Clark, 2001; Donald & Linington, 2008; Lambert et al., 2006). As a result, the central tenets of border theory still remains largely untested. Clarke (2000) posits that transfer is more likely when one perceives a sense of control over one's work, receives support from leadership, and develops a strong affiliation for one's work; that, in turn, facilitates a sense of influence and identity (central participation), in which an individual's agency to integrate or carry over behavior's across borders from one domain (home) into another domain (work) is enhanced. The underlying rationale is that the carryover of behavior stems from experiencing the central participant role which empowers individuals to transfer meaningful actions done within one domain into a domain in which they experience a sense of influence and identity. While the opposite would hold true for the potential carryover of meaningful behaviors into a domain where employees experience peripheral participation with low influence and identity.

Within the small body of empirical research, there is building evidence for the potential role that central participation plays in managing the work-home interface. Key facets of central participation have been tested in a variety of relationship combinations as predictors, mediators, and outcomes. Results from the research indicate constructs around work autonomy (Clark, 2002a; 2002b; Lambert et al., 2006), work affiliation (Paille et al., 2017; Karassvidou & Glaveli, 2015), and supervisor support for a specific purpose (family needs, Clark, 2001; 2002b; PEB, Paille et al., 2017) show the strongest influence in predicting work-home interface outcomes such as employee citizenship, role conflict, job satisfaction, and home satisfaction, while temporal flexibility (operationalized as a subscale of work autonomy) often lacks evidence that it is related to the above outcomes (Clark, 2001; Lambert et al., 2006). Therefore, more work is needed to understand how the nature of the work-home interface relationship is influenced by the facets of central participation, particularly by expanding outcomes to include behaviors addressing the global issue of climate change.

Within the literature, only one study was found that incorporated facets of central participation at work (affective commitment and supervisor support for PEB) and the relationship between behavior (this study did use PEB) transfer from home to work (Paille et al., 2017). However, due to the study methodology (logistic regression), the direct relationship of behaviors across contexts is limited. To further understand the capacity of central participation facets to influence behaviors, the current study will test a set of boundary conditions to assess the extent to which home PEBs are related to environmental workplace behaviors. To begin, established operationalizations of home PEB and environmental workplace behaviors will be discussed to define the behaviors that are most significant and most likely to be transferred from home to work.

What is Proenvironmental Behavior?

Arguably, the first challenge associated with PEB is how to define and name it. The most widely used definition of PEB are behaviors that result in the least amount of harm to the environment or produces a benefit (Steg & Vlek, 2009). Researchers use a variety of terms to refer to the PEB construct (e.g., environmentally significant behaviors, ecological behaviors, responsible environmental behaviors; see Hines et al., 1987; Kaiser, 1999; Stern, 2000). Historically, PEB was conceptualized as a unidimensional construct (e.g., Kaiser, 1999), however, the current consensus has shifted to a multi-dimensional approach (e.g., Larson et al., 2015; Stern, 2000). The current rationale for the multidimensionality of PEB is predicated upon the inconsistency of individual PEB and evidence of behaviors influenced by a variety of individual, social, and structural factors (Steg & Vlek, 2009). Because there are many known differing antecedents that result in differing expressions of behavior, understanding and measuring PEB is challenging (e.g., Osbaldiston & Schott, 2012). A recent meta-analysis on PEB and interventions by Osbaldiston and Schott (2012) highlights this challenge in two different ways. For example, these researchers found the most effective interventions for home-energy conservation (i.e., verbal or written commitment to engage in the behavior) and public-energy conservation (i.e., prompts of informational reminders) did not overlap. However, the interventions included within each type of study also rarely overlapped (i.e., no public-energy conservation studies included a commitment intervention) which limits the conclusions that can currently be made regarding intervention effectiveness across PEB studies (and across domains). This suggests that more work is needed to assess individual elements of the transfer; for example, the extent to which similarly defined behaviors transfer between contexts (e.g., home versus work).

Proenvironmental Behavior at Home (predictor) and Work (outcome). Because this study focuses on the domains of home and work, only PEB with the capacity to take place within each of these settings will be included. Within the spillover literature, contextual spillover is defined as the extent to which engaging in a behavior in one setting influences the same behavior in another setting. For example, recycling paper at home influencing the extent to which an individual then, recycles paper at work. To understand the extent to which the same PEBs transfer from home to work, a measure of discretionary conservation behaviors for recycling and energy use at home and work is required to isolate contextual transfer. While there are arguably more impactful PEBs capable of transferring across domains (i.e., meat consumption), this consistent behavior transfer is better explained by an individual's identity (e.g., PEB identity, vegetarian), which is not as likely to be influenced by factors attributed to a specific context. The validation study of the work PEB (outcome) measure created by Lamm et al. (2013) can be adapted as the home PEB (predictor) measure, to specifically assess the extent of contextual spillover. The focus of this study centers on PEB and builds from a small body of literature that shifts the overarching research question from what are the variables influencing PEB to what are the variables that influence PEB transfer across contexts. The relationship between PEB across the two major life domains is the focus of this study, with the home domain acting as the antecedent and the work domain as the outcome.

While there is evidence of a cyclical relationship between home and work within the broader work-home interface literature (e.g., Kalliath & Brough, 2008), the rationale for a home PEB to work PEB study stems from a potential for greater societal impact, momentum of the GHRM movement, and a narrowed focus on behavior transfer across domains. First, one of the greatest sources of environmental degradation is from organizations and employees (specifically

organizational infrastructure) which highlights a specific context (Stern, 2000). Research that seeks to further understand constructs that influence PEB within an organizational setting can potentially contribute in a meaningful way to global climate change. Second, there is an expanding focus within human resources to encourage PEB among employees, and specifically, to take a holistic approach to encouraging a PEB lifestyle capable of transferring across home and work (e.g., GHRM). By further understanding the conditions in which PEB crosses contexts, GHRM efforts can create targeted strategies and interventions. Finally, research specific to behavior transfer (not the more commonly studied affect or cognitions) shows evidence of the pathway from home to work behaviors showing greater significance than vice versa (Hanson et al., 2006). Furthermore, contextual PEB research (e.g., Lee et al., 1995; Manika et al., 2015; Tudor et al., 2007) in addition, to a recent environmental workplace behavior literature review (Norton et al., 2015) found evidence of the behavioral factor of private/home PEB as a reoccurring antecedent to environmental workplace behavior. Measuring the conservation behaviors of recycling and energy will strengthen the empirical evidence on PEB, by including the less frequently studied (but important) PEB of energy use. Based on evidence from the current literature suggesting there is a positive relationship between conservation type behaviors at home and work and to provide a formal test of cross-context PEB, I hypothesize that:

Hypothesis 1a: Home PEB will have a positive relationship with Work PEB.

      Organizational Citizenship Behavior Towards the Environment (outcome). In an effort to continue to build out research that addresses a societal concern and further understand the application of this study into the uniqueness of the context, the outcome of environmental workplace behavior will also include a set of PEBs specific to organizations. The same challenges associated with the broader construct of PEB carries over into PEB at work, in which

there are a wide variety of names and definitions of these behaviors. Some recent examples of

PEB at work are commonly cited as employee green behavior (Ones & Dilchert, 2012), green

practices of employees (Chan et al., 2014) environmental workplace behaviors (environmental

workplace behavior: Ciocirlan, 2017), and organizational citizenship behaviors towards the

environment (OCBE: Boiral & Paille, 2012). While traditionally viewed as extra-role behaviors,

a recent framework of environmental workplace behavior suggested by Ciocirlan (2017),

includes extra-role (OCBEs), in-role (mandatory), and environmental counterproductive work

behaviors, in which each individual behavior is labeled with a high or low intensity distinction.

While this expanded framework is a helpful graphic organizer, this research study pulls from the

agency rationale of border theory, in an effort to further understand the conditions under which

employees choose to translate their home PEBs into voluntary behavior at work. Furthermore,

particularly within the US, organizations do not typically require employee environmental

practices, however, if they were mandated, it is likely employees would engage in the PEBs

(D'Mello, et al., 2011). Therefore, a measure of organizational citizenship behavior towards the

environment (OCBE) will be used as a second outcome to capture the types of PEB that are

specific to the workplace context. Additionally, OCBEs include higher impact behaviors (e.g.,

developing organizational initiatives and engaging in PEB conversations; see Ciocirlan, 2017;

Markle, 2013; Stern, 2000) which are assumed to create the potential for a greater ecological and

societal effect. Given the importance of the OCBE construct, a more in depth discussion follows.

The concept of OCBE, is closely aligned to organizational citizenship behavior (OCB)

and is defined as "individual and discretionary social behaviors that are not explicitly recognized

by the formal reward system and that contribute to a more effective environmental management

by organizations" (Boiral, 2009, p. 223). These behaviors extend beyond the more common

consumption/conservation behaviors (described as home and work PEB), to create, support, and/or engage in eco-initiatives, programs and activities, and encourage colleague PEBs. Most of the OCBE research is focused on predicting the outcome, not on the nature of behavior transfer. Many factors have been tested for direct relationships with OCBE across personal (e.g., private/home PEB, motivation) and within one contextual domain (e.g., supervisor support, organizational policies; Norton et al., 2015). While both types of environmental workplace behavior outcomes (consumption/conservation behaviors and OCBEs) have been used within the contextual PEB literature, OCBE, is used much less frequently. Of the three studies found within the literature that included OCBE (i.e., Alsuwaidi, 2014; Paille et al., 2017; Rashid & Mohammad, 2011), all found significant relationships between PEB at home and OCBE. Because OCBEs carry the potential for impactful movement of our societal need to reduce climate change and there is evidence that workplace PEB initiatives are more likely to be driven by voluntary and proactive behaviors (D'Mello et al., 2011), conducting research that continues to build the body of evidence for OCBE is pragmatic. Based on previous studies that show a positive relationship between different types of proenvironmental behavior across contexts, I hypothesize that:

Hypothesis 1b: Home PEB will have a positive relationship with OCBE.

Conditions for Behavior Transfer

Border theory suggests that behaviors do not automatically transfer across roles. Instead, behaviors are facilitated or inhibited by the extent to which individuals are central participants of a domain are characterized by experiencing a sense of identity and influence. Individuals with autonomy, commitment, and support within the work setting experience greater latitude to create a permeable border (if desired) to transfer behaviors across the domains. In the case of the

transfer of PEBs from home to work, three elements are particularly likely to play a role: supervisor support for PEB, decision-making autonomy, and affective commitment.

Supervisor Support for PEB (moderator). The capacity for leaders to influence employees has been extensively studied (e.g., Eisenberger & Stinglhamber, 2011). Leaders or immediate supervisors are often regarded as one of the most proximal sources of employee perceptions within the levels of organizational concepts that expand to climate and culture (Christensen, 2006). There are many established relationships within the literature relating to perceptions of leadership support and employee outcomes (including extra-role behaviors; e.g., Podsakoff et al., 2000).

Within the context of PEB transfer from home to work the evidence for supervisor support and employee PEB has not yet been established. Supervisor support for PEB is a behavioral concept defined as the extent to which an employee perceives support from their supervisor (or immediate leadership) to engage in PEB at work (Priyankara et al., 2018). Supervisor support for PEB can include a variety of behaviors including support of employee PEB focused learning and competency building (e.g., encourage employees to learn about local environmental challenges), encouraging communication that is environmentally focused in nature (e.g. communicating organizational green initiative opportunities), and being open to innovation and ideas to support environmental efforts (e.g., support employee environmental problem solving; Ramus, 2001).

There is evidence that the specificity of leadership support influences employee behavior. For example, when general supervisor support was measured, the relationship with environmental workplace behavior resulted in a negative correlation (Paille et al., 2013). Additionally, a study on responsible leadership (not specific to environmental behavior) did have

a significant positive correlation with environmental workplace behavior, but was fully mediated by autonomous and external motivation. However, more specific concepts of supervisor support for PEB (Cantor et al., 2015; Priyankara et al., 2018; Paille et al., 2017; Raineri & Paille, 2016; Zibarras et al., 2012) and the leadership style of environmentally specific transformational leadership (Robertson & Carleton, 2018) have shown consistent positive outcomes with environmental workplace behavior. The importance of distinguishing between general and specific PEB supervisor support for environmental workplace behavior was examined by Ramus (2001), who found manager support for environmental behavior was a stronger predictor of PEB by employees than general manager support.

According to border theory, supervisor support plays a key role in the capacity for behaviors to transfer across contexts, not just to support behaviors within the workplace (Clark 2002b; 2001). This is a critical distinction because all of the proenvironmental research to date has focused on the role of supervisor support as an independent factor and almost always as a predictor of work behavior, while not considering the possibility of supervisor support for PEB as a moderator between home and environmental workplace behavior. Two studies found evidence of a relationship between supervisor support for PEB and home PEB (Rashid & Mohammad, 2011; Paille et al., 2017). Specifically, supervisor support for PEB significantly predicted home PEB, but was fully mediated by employee organizational identification and partially mediated by work PEB (Rashid & Mohammad, 2011), indicating the importance of context-related factors in PEB transfer. Finally, a logistic regression study by Paille et al. (2017), found supervisor support for PEB was the strongest predictor within the models that moved participants from inconsistent PEB transfer between home and work to consistent transfer and high levels of PEB reported within the home and work settings. This study highlights initial

support for the application of border theory into PEB. The next step is to clarify whether the

nature of the relationship between PEB at home and environmental workplace behavior changes

as a result of supervisor support for PEB. As such it is reasonable to expect that supervisor

support for PEB will enhance the cross-context relationship.

Hypotheses 2a & 2b: Supervisor Support for PEB will synergistically moderate the relationship

between Home PEB and Environmental Workplace Behaviors (see Figures 2 & 3).

Figure 2

H2a: Home & Work Proenvironmental Behavior, moderated by Supervisor Support for

Proenvironmental Behavior
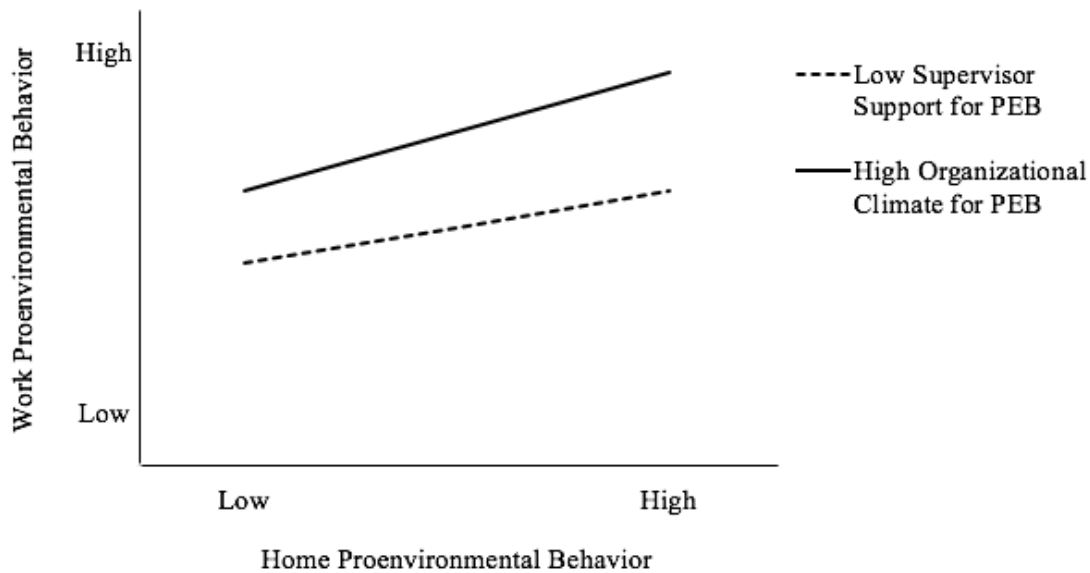
Figure 3

H2b: Home Proenvironmental Behavior & Organizational Citizenship Behavior for the

Environment, moderated by Supervisor Support for Proenvironmental Behavior
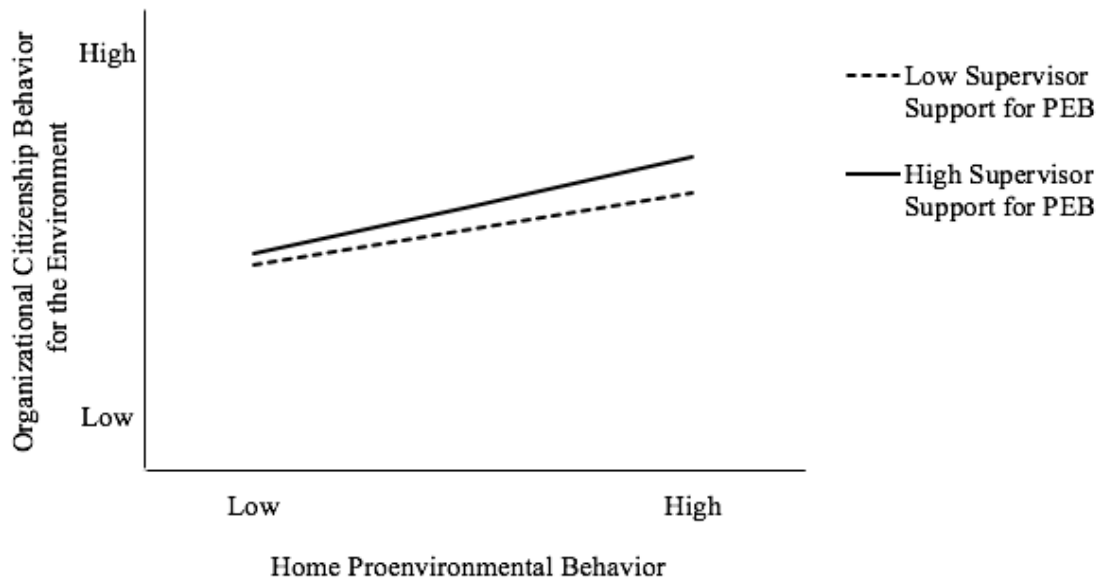
Decision-Making Autonomy (moderator). The concept of autonomy at work is deeply

rooted within the organizational literature. Autonomy is a key tenet of several longstanding

theories and models explaining individual, team, and organization level behavior (e.g., Self-

Determination Theory: Deci & Ryan, 2000; Resource Dependence Theory: Pfeffer & Salancik,

1978; Job Characteristics Model: Hackman & Oldham, 1975). Historically, work autonomy was

defined as a unidimensional construct encompassing the extent "to which the job provides

substantial freedom, independence, and discretion to the employee in scheduling his work and

determining the procedures to be used in carrying it out (Hackman & Oldham, 1974, p. 9)."

However, current research suggests work autonomy is made up of several facets which further

differentiate the nature of autonomy experienced at work (e.g., Morgeson & Humphrey, 2006;

Muecke & Iseke, 2019). Autonomy as an external work design characteristic includes three

dimensions: latitude in temporal scheduling, control over work methods, and decision-making autonomy. The latter focuses on an employee's freedom to control work decisions and is the facet of work autonomy that is predicted to influence the transfer of behaviors across contexts (Clark, 2001). Evidence suggests that autonomy at work is a product of both individual motivation (Slemp et al., 2015) and work design (Morgeson & Humphrey, 2006).

Within the work-home interface research utilizing a border theory rationale, decision-making autonomy emerged as a significant predictor in outcomes (e.g., decreased home/work interface conflict; decreased role conflict, Clark 2002a; 2002b; Karassvidou & Glaveli, 2015) and the strongest facet when other forms of work autonomy were included (i.e., Clark 2001). Recent additions to the job characteristics model found evidence of decision-making autonomy as the strongest job characteristic predictor of employee satisfaction (Morgeson & Humphrey, 2006; Humphrey et al., 2007). Additionally, empirical evidence has expanded the mechanisms through which work autonomy leads to work outcomes (including behavioral, attitudinal, role perception, and well-being outcomes) from the traditional sole mediator of experienced responsibility to also include experienced meaningfulness (Humphrey et al., 2007). As decision-making autonomy leads to an environment where employees experience an increased sense of responsibility and meaningfulness at work there is an opportunity to explore if those experiences act as boundary conditions for individuals' home experiences of responsibility and meaningfulness of PEB, to work.

While empirical evidence for decision-making autonomy and PEB across contexts is scant, there is a developing rationale for the relationship. Three studies (one qualitative) found employee's perceptions of responsibility and/or sense of control at work were important factors in the extent to which PEB was consistent across contexts (Dolnicar & Grun, 2009; Littleford et

al., 2014; McDonald, 2011). Within one study, employees reported discrepancies between PEB at home and work resulting from transferring their feelings of responsibility onto their organization (McDonald, 2011), while other research found stronger correlations between home PEB and environmental workplace behavior within a study sample that reported significantly higher control over their work behaviors compared to another study sample (Littleford et al., 2014). By testing decision-making autonomy as a moderator, empirical evidence can further our understanding of whether the relationship between home PEB and environmental workplace behavior is more consistent when decision-making autonomy is added. Based on theory and past evidence of the positive nature of cross-context PEB and perceived control over work related behaviors, it is hypothesized that:

Hypothesis 3a & 3b: Decision-making autonomy will synergistically moderate the relationship between Home PEB and Environmental Workplace Behaviors (see Figures 4 & 5).

Figure 4

*H3a: Home & Work Proenvironmental Behavior, moderated by Decision-Making Autonomy*
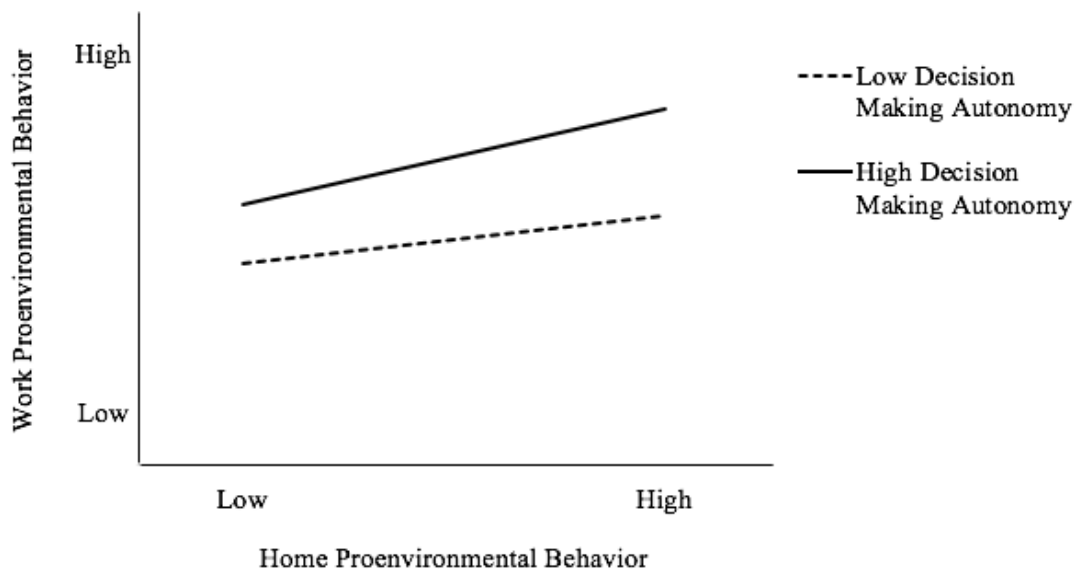
Figure 5

H3b: Home Proenvironmental Behavior & Organizational Citizenship Behavior for the

Environment, moderated by Decision-Making Autonomy
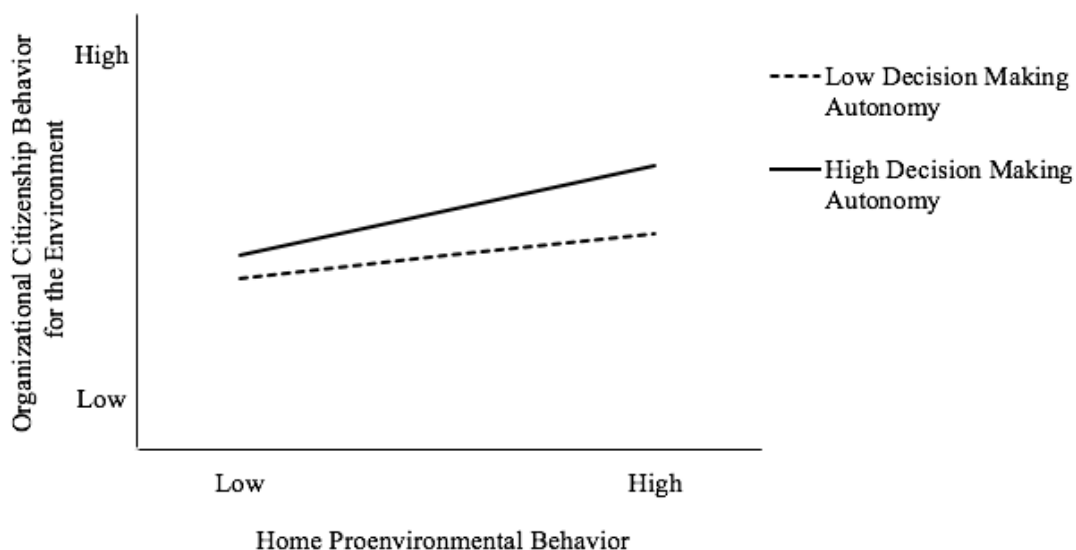
Affective Commitment (moderator). Affective commitment is considered one of three

distinct organizational commitment factors which encompasses the extent to which employees

are emotionally attached, identify with, and are involved in their organization (Meyer et al.,

2002). There is a robust history of research showing relationships between affective commitment

and organizational outcomes, particularly for extra-role behaviors (i.e., OCBs; Meyer et al.,

2002). Beyond the established association of affective commitment with extra-role behaviors,

recent research shows the connection extends to environmentally focused extra-role behaviors as

well (Glavas & Goodwin, 2013; Lamm et al., 2013); Paille & Boiral, 2013; Totsi-Kharas et al.,

2017). However, most of the PEB research has been limited to exploring relationships specific to

a single context. Affective commitment has shown evidence as a significant predictor

(Temminck et al., 2015; Totsi-Kharas et al., 2017), partial mediator (e.g., perceived

organizational support to OCBE: Paille & Mejia-Morelos, 2014; Temminck et al., 2015), full mediator (e.g., corporate social responsibility perceptions to OCBE: Cheema et al., 2019), and mixed evidence as a moderator (i.e., perceived organization focused eco-rationale versus eco-centric rationale to OCBE: Totsi-Kharas et al., 2017) in environmental workplace behavior outcomes. Additionally, affective commitment emerged as an important predictor when comparing individuals who reported lower levels of home PEB than environmental workplace behavior (Paille et al., 2017), suggesting the importance of feeling a sense of identification to a specific context and engaging in extra-role behaviors within that context.

Furthermore, there is growing evidence of a relationship between feeling committed at work and carryover into work-home interface outcomes. Meta-analytic evidence from Meyer et al. (2002) highlighted the positive relationships between individual roles and sense of affective commitment to an organization. Specifically, researchers found as affective commitment increased role conflict and ambiguity decreased. Additionally, the meta-analysis reported a moderately significant relationship between work-home conflict and affective commitment, such that, increased affective commitment was related to decreased work-home conflict. Taken together, this evidence suggests affective commitment can help explain the transfer of attitudes between home and work; however, the extent to which affective commitment explains when home PEB is more likely to transfer into PEB at work has not been tested. Border theory posits that individuals who develop a sense of attachment within a context will increase their agency to transfer behaviors across contexts. Based on the empirical evidence of affective commitment influencing the nature of the relationship between work-home interface outcomes, it is hypothesized affective commitment will boost the carryover of environmental workplace behavior across contexts.

Hypothesis 4a & 4b: Affective commitment will synergistically moderate the relationship

between Home PEB and Environmental Workplace Behaviors (see Figures 6 & 7).

Figure 6

H4a: Home & Work Proenvironmental Behavior, moderated by Affective Commitment
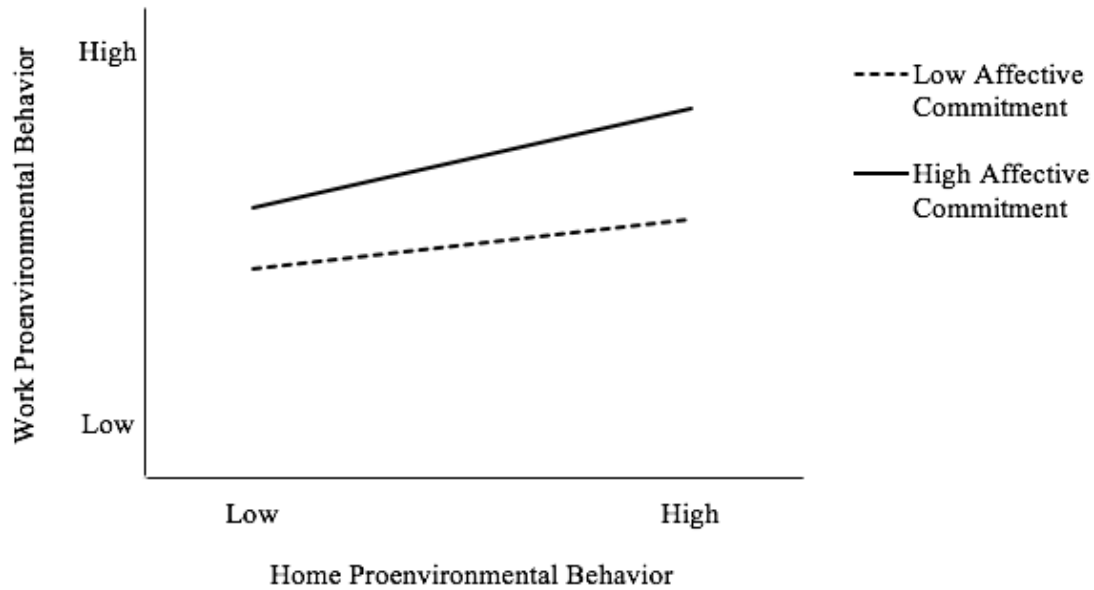
Figure 7

H4b: Home Proenvironmental Behavior & Organizational Citizenship Behavior for the

Environment, moderated by Affective Commitment
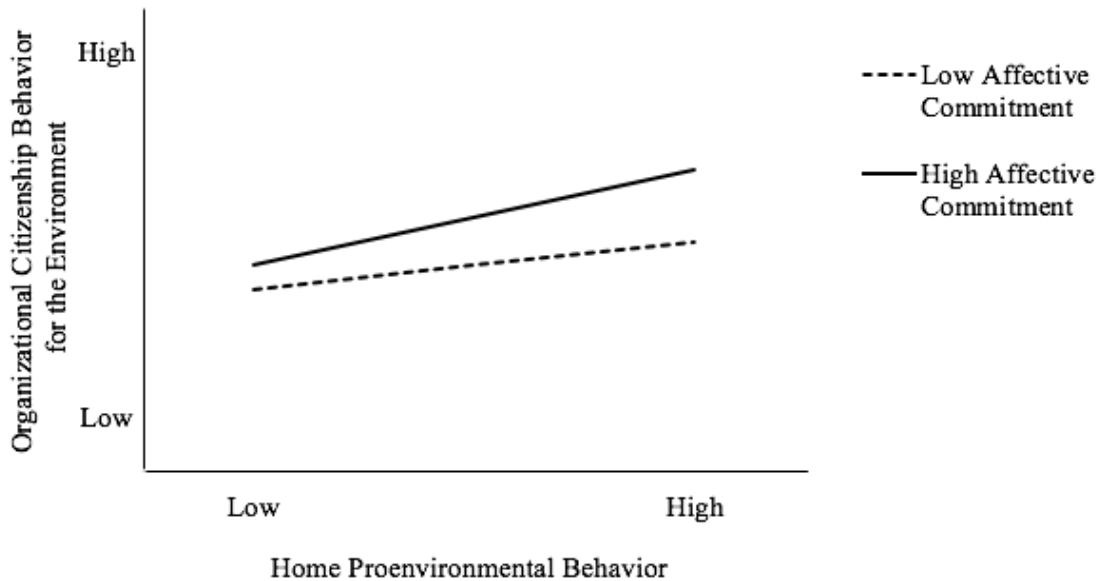
Proposed Cross-Contextual Moderated Proenvironmental Behavior Model

    While the three study factors have shown positive relationships with PEB at work, understanding whether these factors influence when PEB transfers across the contexts of home to work has not been tested. Therefore, the facets of central participation will be tested as separate moderators (i.e., *Hypotheses 2-4*), to further articulate whether the organizationally focused factors change the nature of the relationship between home PEB and environmental workplace behavior (see Figure 1). Specifically, a synergistic interaction is expected for each moderation, such that high levels of each of the moderators will result in higher PEB transfer (i.e., significant and stronger correlations), whereas low levels of each of the moderators will result in diminished relationships between home PEB and environmental workplace behavior (i.e., smaller correlation).

Even though each hypothesis predicts a positive and/ or enhancing relationship for cross-context PEB, it is anticipated outcomes associated with work conservation behaviors (i.e., work PEB; *H1a, H2a, H3a*, and *H4a*) will be stronger than the extra-role work behaviors (i.e., OCBE; *H1b, H2b, H3b,* and *H4b*), because work PEBs represent a straightforward link from home PEB, in addition to, the relative ease of carrying out conservation behaviors in comparison to OCBEs. Among the central participation facets, supervisor support for PEB is expected to emerge as the strongest moderator due to the specific focus on PEB support and the known role of border-keepers in cross-context behavior transfer. Recent reviews of PEB literature highlights a need to further explore and test moderators in relationships between predictors and environmental workplace behavior (Norton et al., 2015) and moderators within the context PEB research (Nilsson et al., 2017).

Post Hoc Analysis for Organization Climate for PEB (control and moderator). While study outcomes focus on discretionary behaviors which are not considered part of formal employee work behaviors, it is quite likely that employee perceptions of environmentally focused organizational policies, practices, and procedures within an organization, that indicate the perceived organizational priorities (i.e., organizational climate for PEB) influences voluntary PEB at work (i.e., Magill et al., 2020; Ones & Dilchert, 2012). Past research indicates organizational climate can act as a type of situational moderator of employee behavior (Bowen & Ostroff, 2004), such that, like a border-keeper (e.g., supervisor), contextual factors within an organization can encourage or hinder PEB (e.g., Daily et al., 2009). However, it is important to understand the extent that an organizational climate for PEB influences the outcomes of central participation relating to PEB crossover. Recent research suggests mixed evidence for the moderating role of an environmentally focused organizational climate to dampen (e.g., personal

norms to environmental workplace behavior; Chou, 2014) or enhance (e.g., moderated mediation of autonomy support to environmental workplace behavior through autonomous PEB motivation; Hicklenton et al., 2019) employee workplace behaviors. In addition to testing the facets of central participation, a post hoc including organizational climate for PEB is included as a control to retest hypotheses 1- 4, and as a moderator of the cross-context PEB relationship. As a control, it helps to understand how an established organizational context variable influences the role of central participation facets. As a moderator, it helps to understand if organizational climate influences the nature of cross-context PEB. It is expected the organizational climate for PEB moderation will reflect similar outcomes as supervisor support for PEB, because leadership is an integral component of creating organizational climate (and culture) perceptions (Christensen, 2006). Therefore it is hypothesized that:

Post Hoc Hypotheses 5a & 5b: Organizational Climate for PEB will synergistically moderate the relationship between Home PEB and Environmental Workplace Behaviors (see Figures 8 & 9).

Figure 8

*Post Hoc H5a: Home & Work Proenvironmental Behavior, moderated by Organizational*
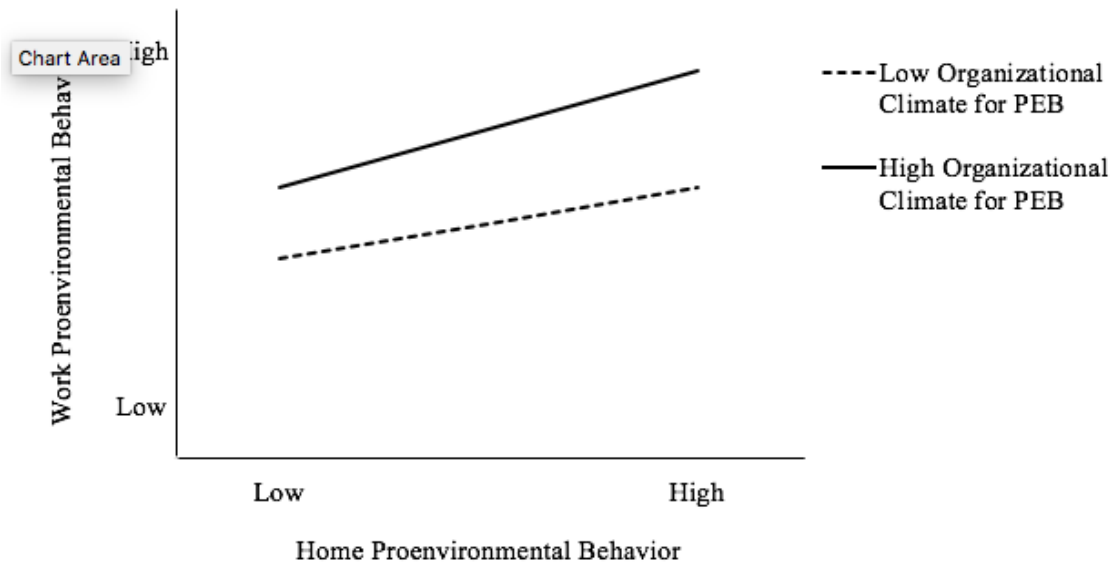
Climate for PEB

Figure 9

Post Hoc H5b: Home Proenvironmental Behavior & Organizational Citizenship Behavior for the Environment, moderated by Organizational Climate for PEB
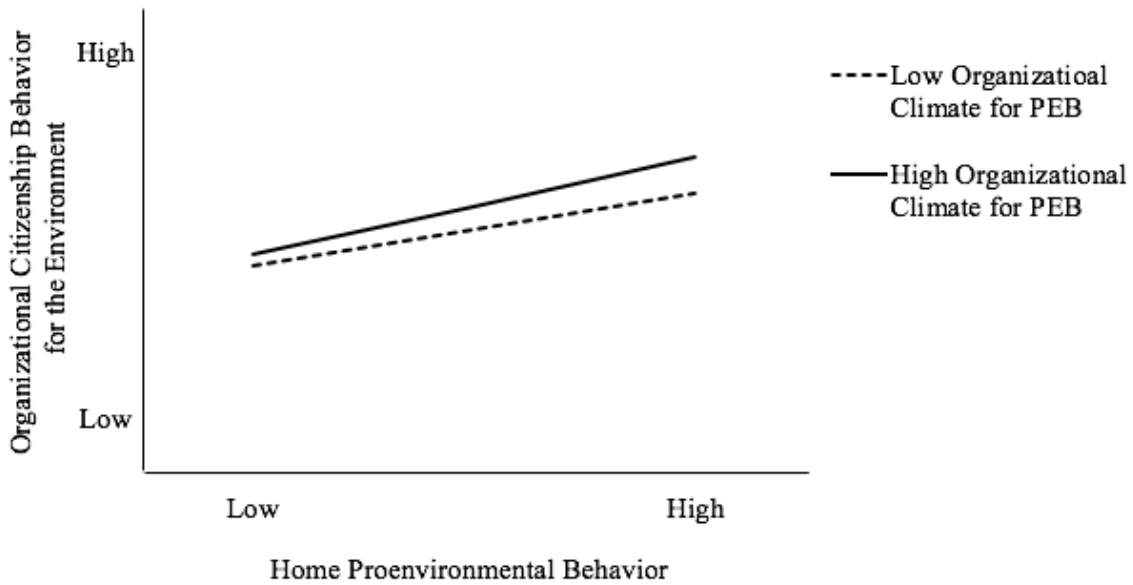
Chapter III

Method

The concurrent correlational design utilized a cross-sectional self-report survey. This design is appropriate because this research seeks to understand the prevalence of behaviors (i.e., moderators of contextual PEB spillover) within a sample, without manipulation or intervention by the researcher (Sedwick, 2014). Additionally, recent meta-analytic evidence suggests there is a moderate to large effect size between self-report and objective measures of PEB (e.g., observed mean effect size $r = .46$; Kormos & Gifford, 2014), suggesting that the use of self-report data is appropriate for measuring the construct of PEB.

Participants and Procedures

Participants were recruited through the Amazon Mechanical Turk (MTurk) crowdsourcing web service. Past research indicates MTurk workers comprise a large and diverse set of demographic characteristics that are more representative of the US population than traditional (college students) and standard internet samples (Buhrmester et al., 2011; Paolacci et al., 2010). Additionally, utilizing an MTurk sample can improve the validity of study outcomes by increasing the feasibility of obtaining an adequately powered sample through access to a large workforce.

Preliminary Screening Criteria

Four screening criteria were applied for participant inclusion. Only MTurk workers who are located within the US and have a 95% or higher Human Intelligence Task (HIT) approval rate (number of successfully completed HITs, typically a survey, divided by the number of HITs submitted) had the opportunity to take part in this study, as both of these qualifications are established guidelines for data quality (Feitosa et al., 2015; Peer et al., 2014). MTurk workers

who did not meet these two criteria were not able to access this study HIT. The sample was limited to US-based respondents because PEBs from this population have an inordinate effect on global environmental outcomes (e.g., #2 in CO_2 emissions; Union of Concerned Scientists, 2018) which warrants research focused on PEB specific to this population. Three additional screening criteria were applied before participants received the survey link by asking if they were employed at least part-time, if they work at a physical office outside of their place of residence, and if they work at an organization with five or more employees. Participants were required to work at least part-time outside of their home in a physical office in order to assess contextual PEB transfer between two domains, home and work.

MTurk workers who met the preliminary screening criteria were provided a link to complete a self-report cross-sectional survey hosted in Qualtrics. The survey included measures of covariates, the independent variable, moderators, dependent variables, and demographic data questions. All items required close-ended Likert-style responses. Due to the survey length (67 items), the sequence in which each participant were given the scales was randomized to help minimize response bias resulting from participant fatigue and tendency for consistency (Chan et al., 2015).

Survey Screening Methods

While participants only received the survey link after agreeing they meet study criteria (i.e., US location, 95% HIT approval, part-time employment in a physical office, and organization size greater than 5), participants were asked to self-report this information as part of the demographic section of the survey for verification. Forty-two participants did not answer in alignment with the identified criteria and were deleted from the sample prior to data analysis.

Participant Sample

A total of 650 participants surveys were collected from MTurk. One-hundred and twenty

participants were deleted from the original sample because they did not meet study criteria

stipulated within the consent form (42), had greater than 24% missingness (4), or completed less

than 70% of the items within any measure (74). The final sample included 530 participants (see

Table 1 for participant demographics). The sample was composed of females (38.5%) and males

(61.5%), aged 20 to 71 (M = 35.96, SD = 9.77), who identified primarily as White (75.7%).

Additionally, participants indicated they spend an average of 41.5 hours (SD = 5.75) each week

at work largely within for-profit organizations.

Table 1

Participant Demographics

	Mean	SD	Range	%
Gender				
Female				38.5
Male				61.5
Other				0.0
Age	35.96	9.77	20-71	
Race				
American Indian or Alaska Native				0.6
Asian				5.3
Black or African American				7.2
Hispanic, Latino, or Spanish Origin				6.4
Pacific Islander				0.2
White				75.7
Two or more Races				4.7
Average Hours Spent Weekly at Work	41.57	5.75	30-72	
Work Industry				
Educational Institution				10.6
For-profit business				75.8
Government				5.3
Non-profit or NGO				5.3
Military				0.0
Other				3.0

Note. (*N*=530).

Sample Size, Power, and Precision

The power analysis based on Cohen (1988) calculated using G*Power, indicated a

sample of 602 represents an adequate sample size for the proposed study (Faul et al., 2009). The

final sample size was below the 602 threshold; however, this was an estimate to test the entire

model with all three moderators are present. As a result, each individual hypotheses was

adequately powered (i.e., suggested sample of 460) to detect a small effect. Underpowered

studies and/or failure to report power statistics is a common weakness across social science

literature (Maxwell, 2004). In their meta-analysis of experimental PEB spillover research, Maki

et al. (2019) indicated that most of the studies included within their analyses were underpowered.

Additionally, results indicated there is a small effect size for PEB spillover (i.e., d = -.01-.14),

which substantiates the need for a large sample size to reach adequate statistical power. Specific

to contextual proenvironmental spillover research, there is a wide range in effect sizes among the

mostly correlational research (e.g., *r* = .11-.64; Littleford et al., 2014; Maki, & Rothman, 2017).

Measures

To test the hypotheses, the following measures included; the predictor home PEB (Lamm

et al., 2013); the moderators, supervisor support for PEB (Ramus, 2001), decision-making

autonomy (Moregson & Humphrey, 2006), and affective commitment (Meyer et al., 1993); and

the environmental workplace behavior outcomes of work PEB (Lamm et al., 2013) and OCBE

(Boiral & Paille, 2012). Additionally, covariate measures and demographic information were

collected.

Covariates

Four covariates were included within the research model to account for known empirical

relationships and theoretical relevance.

Age and Gender. Two variables that have shown persistent relationships within PEB research, include age (e.g., Wiernik et al., 2016) and gender (e.g., Klein, 2015). Past research (including two meta-analyses; $r =.075$ & .11; Hines et al., 1987; Zelezny et al., 2000) consistently found females engage in more PEB compared to men. A recent meta-analysis by Klein (2015) also found females were more likely to engage in general PEB (i.e., conservation; d $=.27$; $\sim r =.13$) at a somewhat stronger magnitude, in addition to green workplace behavior (d $=.10$; Klein et al., 2010). Contrary to past stereotypes regarding age and PEB, a meta-analysis by Wiernik et al. (2016), found a small positive relationship ($\rho = 0.10$) between age and general PEB. However, evidence suggests these age differences were only significant within conservation focused behaviors (i.e., reduce, reuse, recycle) which are a set of behaviors assessed as both a predictor and outcome for this study (i.e., home and work PEB).

Proenvironmental identity. One additional variable with theoretical importance to spillover research is the extent to which an individual describes themselves as proenvironmental (i.e., proenvironmental identity; Nilsson et al., 2017; Van der Werff et al., 2014). Meta-analytic evidence suggests proenvironmental identity shows a large effect (r = .53) on PEB (composite including private, public, general ecological, self-report, and observed; Mackay & Schmitt, 2018). While this current study focused on contextual variables that influence proenvironmental spillover, proenvironmental identity was included to control for its effects. Additionally, while social desirability is historically associated with proenvironmental research, it is not included within this study due to evidence of a persistently weak to non-existent relationship with self-reported PEB (e.g., Kaiser et al., 1999; Milfont, 2009; Raineri & Paille, 2016). Recent meta-analytic evidence suggests social desirability showed a slight tendency toward over-reporting. However, researchers described the wide variation of outcomes within the meta-analysis

indicates there is a lack of overall systematic bias (e.g., social desirability) present in self-reports of PEB (Kormos & Gifford, 2014).

Proenvironmental identity was assessed using a 3-item scale adapted from previous research (Van der Werff et al., 2014; Fielding et al., 2008; Terry et al., 1999) to determine the degree to which participants perceive themselves as proenvironmental. Participants rated the extent to which they agree with each statement on a 7-point Likert-type scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). An example item includes "Acting environmentally friendly is an important part of who I am." For the current study, scale reliability was acceptable (*CR*= .925).

Marker variable. Due to the capacity for cross-sectional studies to include bias relating to measurement error, a marker variable (i.e., internet usage for financial information) was retained for inclusion within primary analyses to provide a statistical correction if estimates of method bias exceeded acceptable standards. The tendency to search the internet for financial information was assessed using a 3-item scale from (Hansen, 2012). This measure was used as a marker variable based on recommended selection criteria to consider (1) similar scaling, (2) causes of common method bias, and (3) theoretically/ and substantively unrelated measures to the main study variables of interest (e.g., Richardson et al., 2009; Willams et al., 2010). Specifically, this measure shared similarity in Likert-type scaling (behavior based), number of items, and was the most likely marker variable found within published studies measuring marker variable outcomes to not be practically or theoretically related to the main study variables (Simmering et al., 2015).

Main Study Variables

This study asked participants to report on their PEB at home and work in addition to three work context variables (i.e., decision-making autonomy, affective commitment, and supervisor support for PEB) to understand whether the nature of the relationship between PEB at home and work changes as a result of the work context variables. The work context moderators are proposed facets of the central participation construct posited within Clark's (2000) border theory to facilitate the agency individuals have in managing their work-home interface.

Proenvironmental behavior. To understand the extent to which individuals engage in proenvironmental behavior transfer from home to work, the organizational citizenship behavior toward the environment scale created by Lamm and colleagues (2013) was adapted for use as the independent variable (home PEB) measure and one of the dependent variables (work PEB). This measure was selected because the scale items are capable of occurring in both a home and work setting. The organizational citizenship behavior toward the environment scale (hereafter referred to as work PEB to minimize confusion with the OCBE dependent variable) measures the extent to which individuals tend to engage in small, discretionary conservation (i.e., recycling, energy, consumption) behaviors. Each 12-item instrument, asked participants to rate their level of agreement using a Likert-type scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*), with the starting prompt of "At home"… for the home PEB scale and "At work"… for the work PEB. Sample items include "I recycle my bottles, cans, and other containers" and "I turn off the lights in a vacant room." Participant responses were averaged into an overall scale score, with higher averages indicating higher engagement in proenvironmental conservation behaviors. For the current study, scale reliabilities were home PEB ($CR = .82$) and work PEB ($CR = .85$).

Organizational citizenship behavior for the environment. Organizational citizenship behavior for the environment was assessed with the original instrument (OCBE: Boiral & Paille,

2012). The 10-item instrument measured the extent to which employees engage in individual and voluntary organizational citizenship behaviors for the environment across three factors, *eco-initiatives, eco-civic engagement,* and *eco-helping*. Each factor focuses on a different avenue of environmental engagement. *Eco-initiatives* focuses on personal initiatives, a sample item from this scale (3 items) includes, "In my work, I weigh the consequences of my actions before doing something that could affect the environment." *Eco-civic engagement* focuses on supporting organizational commitments. The *eco-civic engagement* scale includes four items, "I volunteer for projects, endeavors or events that address environmental issues in my organization." Lastly, the *eco-helping* scale focuses on providing support for colleagues. A sample item from the *eco-helping* scale (3 items) includes, "I encourage my colleagues to adopt more environmentally conscious behavior." Participants were asked to rate the extent to which they agree with each statement, using a Likert-type scale ranging from 1 (*completely disagree*) to 5 (*completely).* For the current study, scale reliability was (*CR= .95*).

Supervisor support for proenvironmental behavior. Supervisor support for proenvironmental behavior assesses the extent to which an employee perceives their immediate supervisor as encouraging and facilitating proenvironmental activities in the workplace. The Supervisory Support Behavior Toward the Environment Scale (Raineri & Paille, 2016; selected from Ramus, 2001) was used for this study. The five-item measure asked participants to rate their level of agreement about their immediate supervisor using a 5-point Likert-type scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Items included, "My supervisor listens carefully to and values inputs on environmental topics" and "My supervisor involves employees in environmental problem solving." Responses for each of the items were averaged, with higher

scores indicating stronger perceptions of supervisor support for PEB. For the current study, scale reliability was (*CR*= .95).

Decision-making autonomy. The extent to which employees have freedom to make decisions regarding their work was assessed using the original Decision Making Autonomy subscale from the Work Design Questionnaire (Morgeson & Humphrey, 2006). Decision-making autonomy items asked participants to rate their level of agreement with each statement using a 5-point Likert-type scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Items included, "This job gives me a chance to use my personal initiative or judgment in carrying out the work", "The job allows me to make a lot of decisions on my own", and "The job provides me with significant autonomy in making decisions." Scale items were averaged to create a composite decision-making autonomy score, with higher averages indicating stronger decision-making autonomy at work. For the current study, scale reliability was (*CR*= .90).

Affective commitment. Affective commitment for the organization was assessed using the revised Affective Commitment scale of the Organizational Commitment Scales (Meyer & Allen, 1991; Meyer et al., 1993). The six-item instrument captures perceptions of an individual's emotional attachment, involvement, and identification within an organization (Meyer & Allen, 1991). Affective commitment items asked participants to rate their level of agreement with each statement using a 7-point Likert-type scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). Sample items included, "I am proud to belong to this organization" and "I do not feel emotionally attached to my organization" (reverse scored). Scale items were averaged to create a composite affective commitment score, with higher averages indicating stronger affective commitment to the organization. For the current study, scale reliability was (*CR*= .89).

Post Hoc Study Variable

One post hoc study variable, organizational climate, was included to determine the extent to which the main study variable relationships change when perceived expectations of organizationally focused PEB are considered.

Organizational climate for PEB. The Organizational Climate for PEB Scale (Magill et al., 2020) assesses the extent to which the events, policies, practices, and procedures employees experienced and the behaviors they see being rewarded, supported, and expected support an organizational climate for PEB. Items for the climate scale were adapted from Schneider et al.'s (1998) Service Climate Scale. The climate items asked participants to rate their level of agreement with each statement using a 5-point Likert-type scale ranging from (1) *strongly disagree* to (5) *strongly agree*. Sample items included, "Employees have the necessary job knowledge and skills to carry out organizational environmental objectives," and "My organization has a formal recognition and reward system for employee environmentalism." Scale items were averaged to create a composite organizational climate for PEB score, with higher averages indicating stronger organizational climate for PEB at work. For the current study, scale reliability was (*CR* = .95).

Chapter III

Preliminary Analyses

To inform the appropriate imputation method and subsequent hypotheses testing, study variables were tested for missingness, relevant assumptions, reliability, method bias, and measurement model fit.

Missing Data

Data were analyzed for missingness with tools in SPSS 26. The total sample size was 604 before missingness was assessed. The missing analyses indicated 92.54% (62) of the variables had some missing data, 45.07% of participants had missing data, and 2.71% of values had missingness. Across the data, missingness was mostly due to items that were marked N/A, such as, "I print double-sided at home." Participants without a printer or without double-sided printing capabilities would answer N/A. This missingness suggests that nonresponse was reflective of applicability of the question instead of intentional nonresponding. The most common pattern of missingness was no missing data (86.08%), while the second most common pattern was participants that left only one item blank (3.35%). Two items (one each from OCBE and work PEB) had missingness above 12%, and were deleted. To further explore the item-level missingness, a reliability analysis was conducted by comparing scales with and without items that had 9% or higher missingness and no further item reduction was warranted. Finally, four participants were deleted due to having greater than 24% missingness within their data (Olinsky et al., 2003).

Little's MCAR test indicated a significant result ($\chi^2_{(11775)} = 13459.28$, $p < .00$) suggesting that the data is not missing completely at random. To clarify the missingness mechanism (why data are missing) and the extent to which missingness is related to the variables of interest,

following recommendations from Field (2013), the data was coded for any missingness on the

independent variable (home PEB). Outcomes across all Mann-Whitney U analyses were

nonsignificant, indicating there were no significant differences between the samples with and

without missingness. This outcome provides evidence that the data is not MNAR, and that the

missingness is more likely MAR, in which case, the use of multiple imputation to manage the

missingness is warranted (Pederson et al., 2017).

Assumption Testing

A review of whisker plots indicated no outliers were present within the data with the

exception of one participant on the home PEB measure. Scales were not normally distributed and

a visual inspection of the data confirmed the presence of non-normal distributions, which is a

common outcome from real-world data. Data showed skewness and kurtosis within acceptable

parameters (i.e., +/- 3; Kline, 2005), at the item and scale levels. All scales showed negative

skew indicating a general pattern of more positive responses (i.e., agree versus disagree),

however, subsequent tests of normality indicated some issues with multivariate normality which

is discussed within the AMOS Assumptions section. While several variables indicated the

presence of curvilinear relationships, there was sufficient linearity (i.e., linearity explained the

most variance and was significant). Homoscedasticity of residuals were relatively equally

distributed represented by a consistent shape (no funneling/fanning) around the fit line.

Reliability and Multicollinearity

Reliability was assessed using composite reliability (*CR*; see Table 2). Adequate reliability

was found across all measures. Additionally, multicollinearity was assessed for all predictor

variables using the variance inflation factor (VIF). Regarding the primary analyses variables, the

control variable, proenvironmental identity, showed moderately high VIFs. Furthermore,

regarding the post hoc analyses which included organizational climate for PEB as a predictor, supervisor support for PEB and organizational climate for PEB consistently showed inflated VIFs. These outcomes suggest there is potential multicollinearity when proenvironmental identity is included as a predictor, and when organizational climate for PEB and supervisor support for PEB are both predictors. Remedies for multicollinearity most often require withholding the variable from analysis due to the redundancy (interconnectedness) of explained variance when both variables are included (Allen, 1997). Therefore, as discussed later, proenvironmental identity was so strongly related to the measures of proenvironmental behaviors that it was withheld from the analyses to better detect moderators at play. The potential for proenvironmental identity to be a foundation for PEB across roles is highlighted within the discussion.

Method Bias

Because the study data was obtained through a single method and cross-sectional design, there is potential for common method bias to influence study outcomes by inflating the strengths of the observed variable relationships. Two analyses were conducted to assess method bias (1) Harman's single-factor and (2) the unmeasured latent method factor technique. Results from the Harman's single-factor analysis indicated approximately 32% of the variance across all study items were attributable to a single factor solution which is below the recommended cutoff of 50% (Podsakoff et al., 2003). Similarly, results from the more conservative unmeasured latent factor approach indicated approximately 39% of the variance was explained by a common factor, which was again below the 50% threshold. Both tests indicated that method bias was not posing a significant threat to study outcomes, as such, the marker variable was excluded from the study analyses.

Multiple Imputation

Multiple imputation was used to complete the data for all participants with approximately 70% scale data (N=530). Due to evidence of non-normal distributions and likely MAR missingness (Pedersen et al., 2017) the multiple imputation by chained equations (MICE) function was used. The MICE function in R and specifically the predictive mean matching method are documented as appropriate analyses for imputing data when these violations are present (van Ginkel et al., 2019), because data is imputed by pulling from other similar predictive case scores within the data. Five iterations of data were completed (and pooled) within each of the five imputations. A comparison of the five imputations showed integrity was maintained between the original data set and imputations. Specifically, mean scores between the original data set and each imputation varied by +/- .01 or less.

AMOS Assumptions

In addition to the assumptions tested for regression analyses, AMOS analyses assumes multivariate normality. Because the multivariate normality assessment indicates the majority of study items exceed Byrne's (2010) recommended kurtosis critical ratio threshold, and four items fell within the "extreme" range indicated by Kline (2011), the data was further managed for non-normality. Therefore, bootstrapping was utilized because it is considered a superior method for managing non-normal data in AMOS (Byrne, 2010, 2016). For all subsequent analyses, results are reported using bias corrected bootstrapping outcomes including beta (β) weights, standard error estimations (*SE*) and 95% confidence intervals (95% CIs) with p-values. As a result of applying bootstrapping to all analyses the capacity to accurately estimate summary outcomes across imputations are less feasible (i.e., estimating 95% CIs). Therefore, outcomes are reported within the manuscript for a randomly selected imputation (i.e., Imputation 2).

Measurement Model

Initial model fit was adequate with the exception of low CFI (.820). Model fit is influenced by a variety of factors. Within this measurement model, the poor fit was a result of two factors; several low correlations among the latent variables in addition to a complex model with a large number of variables, both of which are known to decrease CFI estimates (Kenny, 2015). While the measurement model is capable of being significantly improved through adjustments (e.g., allowing error terms/residuals to covary, deleting items/variables), to meet the much debated (e.g., Hair et al., 2014) current "good" model fit guidelines, the higher priority is to contribute to the foundation of theory application. Because this study represents an initial theoretical application of border theory into the PEB literature, evidence of strong relationships between the study variables has not yet been established. Specifically, when taking a theoretical testing approach, particularly for new areas of research model trimming/adding is advised against (e.g., Kline, 2005; 2016). In part, this is because during the early stages of theory testing the capacity for replication is particularly important and the extent to which sample specific variation may be contributing to model adjustments is unknown. Therefore, adjustments to the measurement model were only taken where reasonable evidence of method effects were taking place. Similarly, when transitioning to path analysis, hypothesis testing only reflected outcomes from the initial test and did not undergo model (theory) trimming in order to develop a baseline understanding of the relevance of border theory and relevant controls within cross-context PEB.

One modification was made to the measurement model in which one set of error terms were allowed to covary. These items showed substantially large modification indices (i.e., over 220) and were the only reverse scored items within the survey. The negatively worded aspect of these two items is likely contributing to measurement error specific to the item wording and

therefore was modified. The final measurement model fit was $\chi^2_{(1105)} = 3988.68$; $\Delta\chi^2 = 295.841$; CMIN/DF = 3.610; CFI = .838; RMSEA = .070; SRMR = .081.

Reliability and validity. Reliability and validity of the measurement model was assessed in a variety of ways. The traditional estimates of composite reliability (*CR*) indicated each measure had strong internal consistency with estimates greater than .70 (Hair et al., 2010). Additionally, estimates of convergent (AVE > .50) and discriminant validity (MSV > AVE and absolute values of intercorrelations with other study variables $< \sqrt{AVE}$) among study measures fell within acceptable ranges, with the exception of two measures, home PEB and work PEB. This outcome of low validity was somewhat anticipated, because the measures for home PEB and work PEB are the same measure with the exception of contextualizing the location of the PEB. Furthermore, the formative measures of home and work PEB, include a variety of behaviors conceptualized as conservation PEB. The low discriminant and convergent validity between home PEB and work PEB highlights the additive (not necessarily reflective) nature of PEB theorized to create an overall conservation score. An assumption of using a formative (conservation) construct, is that traditional reliability and validity requirements are not expected because the items in a formative scale are not expected to be highly correlated (Bollen, 2011; Jarvis et al., 2003; Wang et al., 2015). Instead they represent facets that combine to form the construct. For example, at home, there was a nonsignificant relationship between the conservation behaviors of turning off electronics at the end day and regular use of a reusable water bottle. In contrast, there was a significant relationship at home, between turning off electronics at the end of the day and turning off one's computer when they are away for more than three hours. This highlights the reflective nature of some pairs of inter-items. However, these types of relationships were not consistently found. For example, conservation items

focused on reusing materials like paper and beverage containers showed stronger (or as strong) correlations with reusing materials across contexts, whereas items relating to energy behaviors, specific to turning lights off (e.g., when leaving a room, when a room is vacant), showed stronger correlations with other conservation items within the same context. These associations across the home PEB and work PEB measures are directly related to the overall study purpose which is to further understand if and when PEB crosses contexts.

Primary Analysis

During hypothesis testing, evidence of net suppression from proenvironmental identity (i.e., β weight greater than zero-order correlations, flipped predictor signs) was found across all hypotheses (including post hocs) and was removed as a covariate from analyses. Specifically, when proenvironmental identity was included it explained too much overlapping variance with home PEB and environmental workplace behaviors (meaning proenvironmental identity was a good predictor of both home and work PEB). The shared variance among the constructs further highlights the importance of understanding the role of proenvironmental identity within the cross-context literature. Before further hypothesis testing continued, the measurement model was respecified by deleting the proenvironmental identity measure. The overall measurement model fit decreased slightly which is due to the removal of a variable with strong correlations across many of the study variables, which indicates a better fitting model relating to CFI in particular. Final measurement model fit was $\chi^2_{(973)} = 3771.408$; $\Delta\chi^2 = 295.896$; CMIN/DF = 3.876; CFI = .825; RMSEA = .074; SRMR = .086. Similarly, overall patterns of reliability and validity estimates stayed the same or slightly decreased with the removal of proenvironmental identity from the measurement model. Additionally, the bivariate correlations and means largely remained the same (see Table 2).

Table 2

Zero-order Correlations, Descriptives, and Reliabilities

	Mean (*SD*)	Range	1	2	3	4	5	6	7	8	9
Controls											
1. Age	35.96(*9.77*)	20-71									
2. Gender	1.62(*.49*)	0-1	-.102								
3. Proenvironmental identity	5.20(1.22)	1.25-6.94	-.038	-.043	**.925**						
Predictor											
4. Home PEB	4.68(*.72*)	.93-5.87	.149	-.090	.749	**.816**					
Moderators											
5. Supervisor support for PEB	3.53(*1.24*)	1.03-5.33	-.145	.027	.588	.308	**.950**				
6. Decision-making autonomy	4.09(*.85*)	1.00-5.00	.054	-.017	.290	.349	.427	**.897**			
7. Affective commitment	4.88(*1.27*)	1.01-6.70	-.018	-.035	.445	.359	.582	.641	**.885**		
Outcomes											
8. Work PEB	5.21(*1.08*)	1.38-7.06	.001	-.032	.659	.736	.558	.419	.501	**.853**	
9. OCBE	3.78(*1.18*)	1.12-5.55	-.139	-.009	.814	.443	.816	.347	.538	.646	**.946**

Note. (N =530). Gender was coded where 0=female. Proenvironmental identity estimates reflect the original measurement model and are included for reference. All other variables reflect outcomes from the measurement model without proenvironmental identity, in which small changes were observed. OCBE= organizational citizenship behavior for the environment. Composite reliabilities appear in bold on the diagonal. Correlations greater than |.101| are significant at *p* < .01 and correlations greater than |.084| are significant at *p* < .05.

Hypothesis Testing with Path Analysis Models

Each hypothesis was modeled in AMOS using path analysis. Within AMOS, all predictor and control variables are covaried. Additionally, all outcome variables contain a residual to account for unexplained error. One key advantage of AMOS is the ability to test multiple relationships at the same time. Each hypothesis was tested on both dependent variables

simultaneously to understand the influence of border theory variables on multiple types of

environmental workplace behaviors. Because the dependent variables were expected to have a

relationship (and reinforced by a moderate correlation), the error terms were allowed to covary.

Testing in AMOS usually includes a discussion of fit at global and local levels. The global level

reflects model fit indices described for the measurement model which determines fit of the

overall hypothesis path analysis model to the data, while local fit is specific to the paths within

the model and is evaluated in the same manner as typical regression analyses (e.g., β weights,

explained variance (R_2), and p-values. At the global level, all hypotheses showed similar

outcomes of model fit by being within adequate ranges across the indices, (e.g., H1, $\chi_{2(1)}$ =

28.218; CFI = .963; RMSEA = .227; SRMR= .0558), with the exception of RMSEA estimates

which ranged from .101 to .239. However, global fit indices are known to be particularly

sensitive to degrees of freedom (number of unknown paths). When degrees of freedom are low,

RMSEA has artificially large values. Kenny (2015), argues not to report RMSEA in these

circumstances. Additionally, the RMSEA (badness of fit) index is influenced by nonsignificant

local paths, which were present within each model (hypothesis). The remainder of the results

focus on outcomes of local fit. Figure 16 displays the cross-context PEB model results and Table

4 displays the results for each hypothesis.

Hypothesis 1: The relationship between Home PEB and Environmental Workplace

Behavior. Hypotheses 1a & 1b - home PEB will be positively related to environmental work

place behaviors was supported (see Tables 3 & 4). This outcome indicates evidence of direct

cross-context spillover of home PEB (home conservation behaviors) onto environmental

workplace behavior tested as work conservation behaviors (work PEB; H1a, R_2=.546, 95% CI

[.468, .609], p = .008) and environmentally focused extra-role behaviors (OCBE; H1b, R_2=.197,

95% CI [.134, .256], p = .009). Furthermore, evidence of the independent variable, home PEB's, positive cross-context relationship with environmental workplace behavior was found for every hypothesis, suggesting conservation behaviors at home influence proenvironmental behaviors in the work context. Home PEB explained approximately double the amount of variance in work PEB (55%) versus OCBE (20%), indicating conservation behaviors at home share a stronger relationship with similar conservation behaviors at work, than extra-role green behaviors.

Hypothesis 2: The moderation of Supervisor Support for PEB between Home PEB and Environmental Workplace Behavior. Hypotheses 2a & 2b- supervisor support for PEB will synergistically moderate the relationship between home PEB and environmental workplace behaviors was partially supported (see Tables 3 & 4). Hypothesis 2a was not supported, β = -.046, 95% CI [-.104, .009], p =.109 (see Figure 10), while hypothesis 2b was partially supported, β = -.045, 95% CI [-.097, .002], p=.063 (see Figure 11). Interestingly, hypothesis 2b resulted in an antagonistic instead of the hypothesized synergistic interaction effect. This type of interaction indicates that supervisor support for PEB dampens the positive relationship between home PEB and work PEB. Indicating at high levels of supervisor support for PEB, the relationship between home PEB and work PEB is slightly weaker than the relationship between home PEB and work PEB at low levels of supervisor support for PEB. These outcomes suggest that while supervisor support is always a positive main effect, this support (or no-support) can hinder the carryover of PEB at the highest levels (see Figure 11). Additionally, supervisor support for PEB emerged as the strongest main effect of the central participation variables and these models explained the most overall variance in each environmental workplace behavior (i.e., 67% of the variance in work PEB and 71% of the variance in OCBE). Implications of this on practice and future research are outlined in the discussion section.

Figure 10

The Antagonistic Moderation of Supervisor Support for PEB between Home PEB and Work PEB
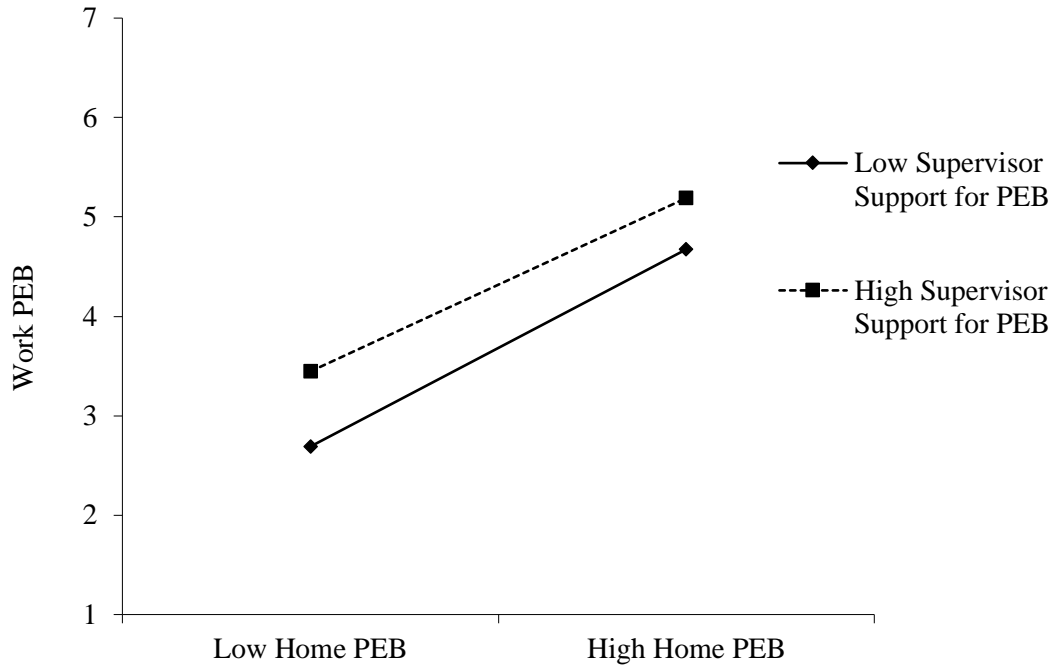
Figure 11

The Antagonistic Moderation of Supervisor Support for PEB between Home PEB and OCBE
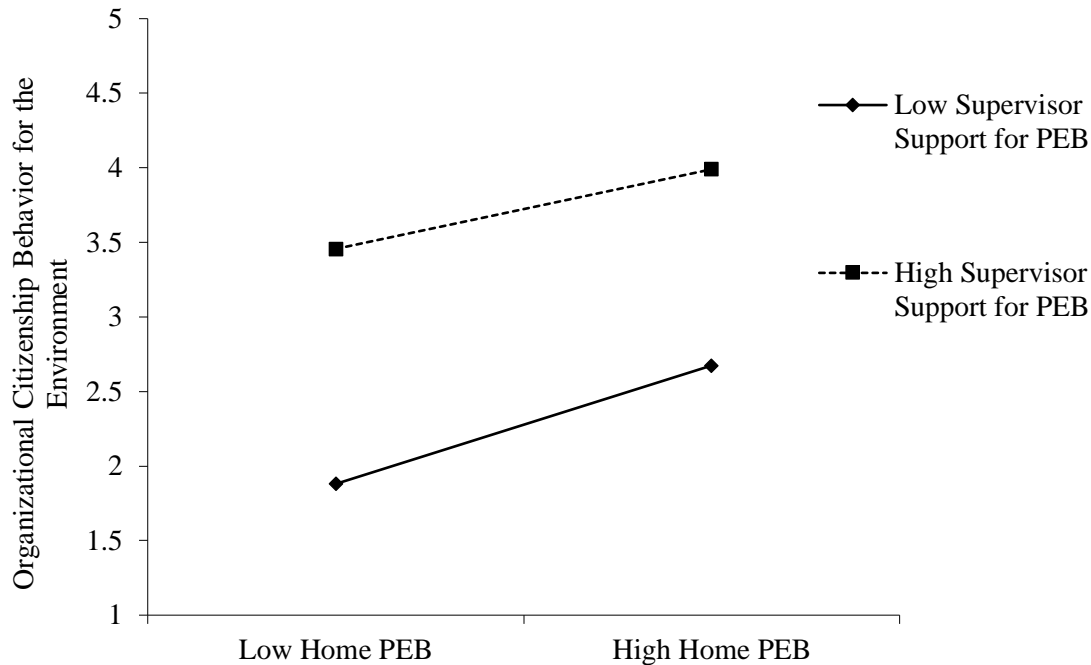
Hypothesis 3: The moderation of Decision-Making Autonomy between Home PEB and Environmental Workplace Behavior. Hypotheses 3a & 3b – Decision-making autonomy will synergistically moderate the relationship between home PEB and environmental workplace behaviors was partially supported (see Tables 3 & 4). Hypothesis 3a was not supported, $\beta = .043$, 95% CI [-.014, .118], p=.135 (see Figure 12), while hypothesis 3b was supported, $\beta = .098$, 95% CI [.024, .164], p=.009 (see Figure 13). These results indicate decision-making autonomy enhances the cross-context home PEB to OCBE relationship, suggesting that while both home PEB and decision-making autonomy positively influenced OCBEs, when combined, there was an even stronger effect (see Figure 13). Furthermore, the capacity to make decisions related to one's work (i.e., decision-making autonomy), emerged as significant predictors of both

environmental workplace behavior outcomes, by explaining 58% of the variance in work PEB

model and 24.9% of the variance in the OCBE model.

Figure 12

The Synergistic Moderation of Decision-Making Autonomy between Home PEB and Work PEB
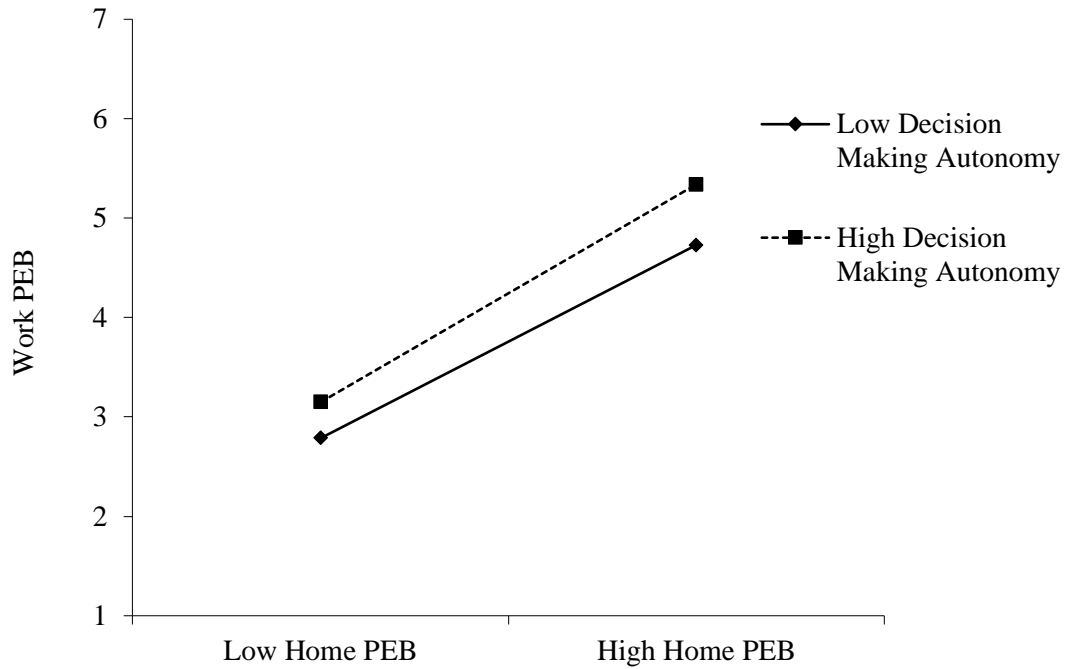
Figure 13

The Synergistic Moderation of Decision-Making Autonomy between Home PEB and OCBE
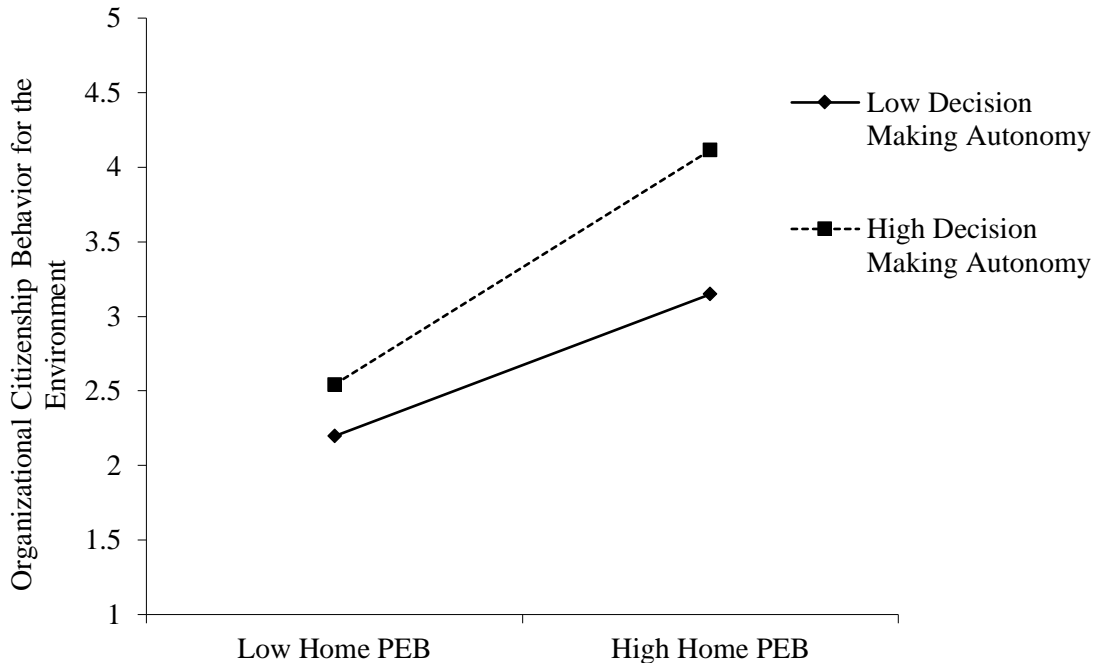
Hypothesis 4: The moderation of Affective Commitment between Home PEB and

Environmental Workplace Behavior. Hypotheses 4a &4b – Affective commitment will

synergistically moderate the relationship between home PEB and environmental workplace

behaviors was partially supported (see Tables 3 & 4). Hypothesis 4a was not supported, $\beta = .017$,

95% CI [-.039, .074], p=.544 (see Figure 14), while hypothesis 4b was supported, $\beta = .084$, 95%

CI [.017, .144], p=.020 (see Figure 15). These results indicate that the main effects of affective

commitment on environmental workplace behavior were significant across hypothesis 4, while

affective commitment also strengthened the nature of the relationship between home PEB and

OCBE (see Figure 15; Hypothesis 4b). Specifically, when affective commitment was high,

results indicated a significantly stronger spillover effect from home PEB to OCBE than when

affective commitment was low. This central participation facet followed the same pattern for decision-making autonomy.

Figure 14

The Synergistic Moderation of Affective Commitment between Home PEB and Work PEB
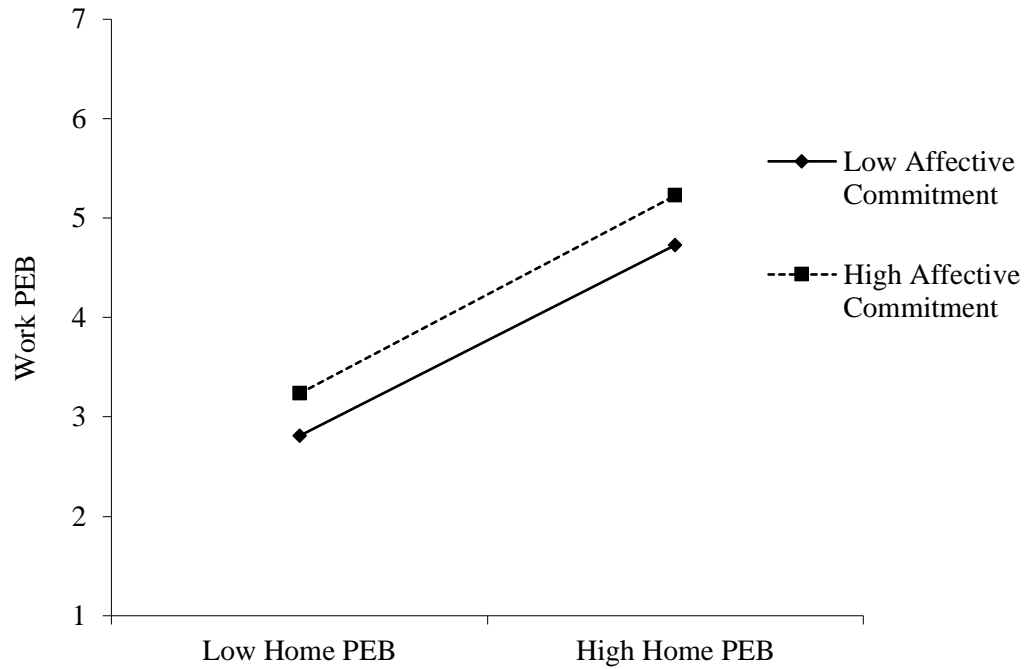
Figure 15

The Synergistic Moderation of Affective Commitment between Home PEB and OCBE
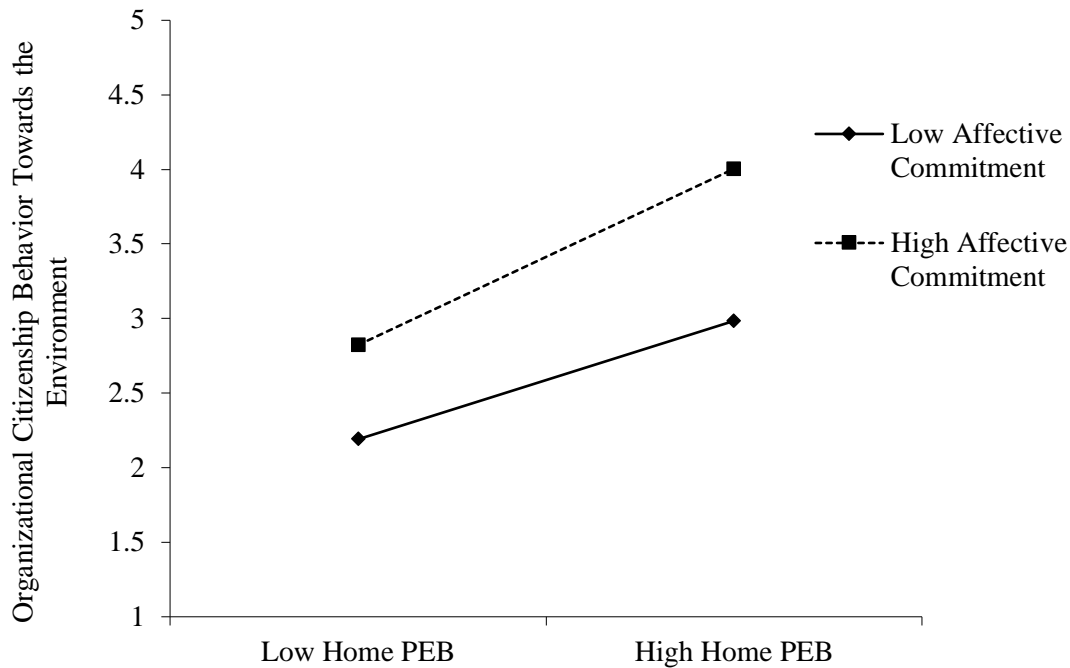
Figure 16

Cross-Context Moderated PEB Path Analysis Model
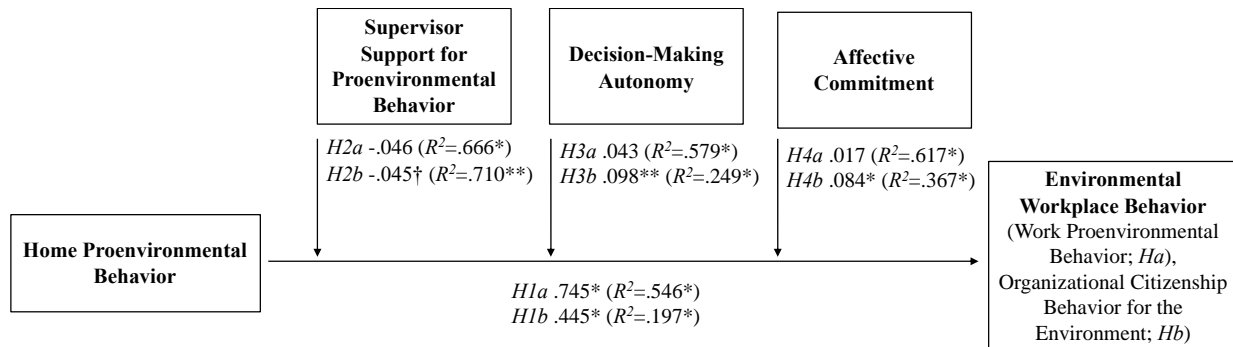
Note. Label *Ha* represent hypotheses for the work proenvironmental behavior outcome, while *Hb* represents hypotheses for the outcome of organizational citizenship behavior for the environment. Covariates include age and gender. All estimates reflect *ß* weights and R_2 from independent hypotheses. **p<.01; *p<.05; †p<.09.

Table 3

Primary Outcomes for Cross-Context PEB

	Environmental Workplace Behavior							
	Work Proenvironmental Behavior				Organizational Citizenship Behavior for the Environment			
	H1a	H2a	H3a	H4a	H1b	H2b	H3b	H4b
	β (SE)	β (SE)	β (SE)	β (SE)	β (SE)	β (SE)	β (SE)	β (SE)
Controls								
Age	-.028 (.028)	-.022 (.028)	-.035 (.028)	-.031 (.027)				
Gender	.032 (.029)	.013 (.024)	.028 (.028)	.033 (.027)	.031 (.042)	-.011 (.023)	.025 (.041)	.034 (.037)
Predictors								
Home PEB	.745* (.024)	.622** (.030)	.688** (.029)	.650** (.030)	.445* (.033)	.202* (.029)	.384** (.039)	.301** (.038)
Supervisor Support for PEB		.363** (.031)				.756** (.024)		
Decision-Making Autonomy			.192** (.034)				.236** (.045)	
Affective Commitment				.271** (.042)				.443** (.042)
Moderations								
Home PEB* Supervisor Support for PEB		-.046 (.030)				-.045† (.025)		
Home PEB* Decision-Making Autonomy			.043 (.036)				.098** (.035)	
Home PEB* Affective Commitment				.017 (.027)				.084* (.031)
	$R^2=$ .546* (.029)	$R^2=$ .666* (.029)	$R^2=$ .579* (.034)	$R^2=$ .617* (.034)	$R^2=$ .197* (.035)	$R^2=$ .710** (.027)	$R^2=$ .249* (.031)	$R^2=$ .367* (.035)

Note. (N = 530). Gender was coded where 0=female. **p<.01; *p<.05; †p<.09. All estimates reflect bias corrected bootstrapping, 95% CIs.

Table 4

Primary Hypotheses and Results for Cross-Context PEB

Hypothesis	Expectation	Supported	Sig.
H1a: Home PEB > Work PEB	+ correlation	Yes, R_2=. 546, CI [.468,.609]	p=.008
H1b: Home PEB > OCBE	+ correlation	Yes, R_2=. 197, CI [.134,.256]	p=.009
H2a: Supervisor support for PEB moderates Home PEB > Work PEB	synergistic	No, β = -.046, CI [-.104, .009]	p=.109
H2b: Supervisor support for PEB moderates Home PEB > OCBE	synergistic	Partial, antagonistic interaction, β = -.045, CI [-.097, .002]	p=.063
H3a: Decision-making autonomy moderates Home PEB > Work PEB	synergistic	No, β = .043, CI [-.014, .118]	p=.135
H3b: Decision-making autonomy moderates Home PEB > OCBE	synergistic	Yes, β = .098, CI [.024, .164]	p=.009
H4a: Affective commitment moderates Home PEB > Work PEB	synergistic	No, β = .017, CI [-.039, .074]	p=.544
H4b: Affective commitment moderates Home PEB > OCBE	synergistic	Yes, β = .084, CI [.017, .144]	p=.020

Post Hoc Analyses

Post hoc analyses were carried out with the same process as the primary analyses, in which

a measurement model was tested with the organizational climate for PEB variable included. Post

hoc hypothesis testing included retesting each primary hypothesis with organizational climate for

PEB added as a control (hypotheses 1-4), then as a moderator (hypothesis 5). Because

organizational climate for PEB is expected to be related to supervisor support for PEB,

multicollinearity was reexamined across the predictor variables. Post hoc hypothesis 2a and 2b

(i.e., controlling for organizational climate for PEB, supervisor support for PEB will moderate

the relationship between home PEB and environmental workplace behavior) was not conducted,

due to the very high correlation (and evidence of multicollinearity) between organizational

climate for PEB and supervisor support for PEB (r = .91). Interestingly, this indicates that

participants saw the two as virtually identical; that is, supervisory support and organizational

climate mirrored each other.

Post Hoc Measurement Model

Rationale for changes to the measurement model from the primary analyses were maintained during post hoc analyses. Additionally, the same single modification, of covarying error terms for the two items that were reverse coded, was taken. The final measurement model fit indices were, $\chi_{2(1303)} = 4556.208$; $\Delta\chi_{2(1302)} = 295.574$; CFI=.838; RMSEA = .069; CMIN/DF = 3.497; SRMR=.084. Overall, the post hoc measurement model fit was better compared to the primary measurement model due to stronger correlations among the variables and more variables within the model. However, validity estimates among the variables were weaker, due to the high correlation between organizational climate for PEB and supervisor support for PEB (.91), as well as the strong associations between organizational climate for PEB and OCBE (.87) and supervisor support for PEB and OCBE (.82). Because organizational climate for PEB was added to the measurement model, small changes across study variable correlations and descriptives occurred. Within AMOS, composite variable calculations are weighted by the implied covariance matrix and any addition or subtraction to the measurement model (e.g., including a new measure) influences composite variable scores (IBM, 2018). Therefore, reanalysis of post hoc variable correlations, descriptives, and reliability estimates were conducted. Outcomes from reanalysis were adequate (see Table 5).

Table 5

Post Hoc Zero-order Correlations, Descriptives, and Reliabilities

	Mean (*SD*)	Range	1	2	3	4	5	6	7	8	9
Controls											
1. Age	35.96 (*9.77*)	21-70									
2. Gender	1.62 (*.49*)	0-1	-.102								
3. Organizational climate for PEB	3.44 (*1.14*)	1.01-5.16	-.141	.023	**.936**						
Predictors											
4. Home PEB	4.64 (*.72*)	.92-5.81	.149	-.091	.302	**.816**					
5. Supervisor support for PEB	3.57 (*1.23*)	1.10-5.37	-.144	.028	.908	.308	**.950**				
6. Decision-making autonomy	4.09 (*.85*)	1-5	.053	-.017	.392	.349	.426	**.897**			
7. Affective commitment	4.89 (*1.27*)	1.07-6.72	-.018	-.035	.579	.359	.581	.642	**.885**		
Outcomes											
8. Work PEB	5.22 (*1.08*)	1.07-6.72	.001	-.032	.574	.737	.558	.419	.501	**.853**	
9. OCBE	3.83 (*1.18*)	1.19-5.60	-.137	-.009	.871	.443	.818	.348	.540	.646	**.946**

Note. (N =530). Gender was coded where 0=female. OCBE= organizational citizenship behavior for the environment. Composite reliabilities appear in bold on the diagonal. Correlations greater than $|.101|$ are significant at *p* < .01 and correlations greater than $|.084|$ are significant at *p* < .05.

Post Hoc Hypothesis Testing Path Analysis

Global fit was similar to primary analyses with fit indices showing adequacy with the exception of RMSEA, again, which is influenced by the small degrees of freedom (i.e., 1) within each tested path analysis and nonsignificant paths. For example, global fit for post hoc hypothesis 1 was $\chi^2_{(1)}$ =7.623; CFI=.996; RSMEA=.112; SRMR=.012, CMIN/DF = 7.623.

Outcomes from post hoc analyses confirmed hypothesis 1, while post hoc hypotheses 3-5 were not supported (see Table 6; Appendix: Figures 17-22). Overall, organizational climate for PEB was a strong predictor, particularly for OCBE. In general when organizational climate for

PEB was included it overwhelmed all other relationships by leaving very little variance to be predicted, this indicates that organizational climate for PEB may overpower the other relationships which has important implications for practice that will be discussed further in the discussion section. One exception, was the relationship between home PEB and work PEB, in which the β weights remained relatively stable with and without organizational climate for PEB. Specifically, models without organizational climate for PEB (H1b, H2b, H3b, and H4b) explained a range of 21-71% of the variance in OCBE (see Table 3), whereas, in models with organizational climate for PEB (Post hoc H1b, H3b, H4b, and H5b) approximately 79% of the variance in OCBE was explained (see Table 6). The influence of organizational climate for PEB was less evident between home PEB and work PEB. Between 55-67% of the variance was explained in work PEB without organizational climate for PEB but explained approximately 68% of the variance in work PEB when organizational climate for PEB was included. Outcomes of moderation testing showed facets of central participation (decision-making autonomy and affective commitment) no longer significantly (either as main effects or moderators) explained variance in OCBE when organizational climate for PEB was controlled for (i.e., H4b, Affective commitment β = .000, 95% CI [-.057, .061], p=.994; and home PEB*affective commitment β = .010, 95% CI [-.048, .070], p=.768). Finally, when organizational climate for PEB was tested as a moderator (post hoc hypothesis 5) results were not significant. Moderation results for hypothesis 5a were β = -.042, 95% CI [-.100, .011], p=.147 and for hypothesis 5b were β = -.029, 95% CI [-.076, .026], p=.303 (see Table 6; Appendix: Figures 17-22). Overall, outcomes from the addition of organizational climate for PEB show similar results to the central participation facet of supervisor support for PEB (i.e., strong predictors, similar β weights for environmental workplace behavior). Like supervisor support for PEB, organizational climate for PEB and

environmental workplace behavior share a strong relationship but this relationship did not

necessarily influence the carryover of PEB from home to work.

Table 6

Post Hoc Outcomes for Cross-Context PEB

	Environmental Workplace Behaviors							
	Work Proenvironmental Behavior				Organizational Citizenship Behavior for the Environment			
	H1a β (SE)	H3a β (SE)	H4a β (SE)	H5a β (SE)	H1b β (SE)	H3b β (SE)	H4b β (SE)	H5b β (SE)
Controls								
Age	-.028 (.028)	-.033 (.028)	-.030 (.028)	-.028 (.028)				
Gender	.014 (.026)	.013 (.026)	.016 (.026)	.014 (.026)	.014 (.020)	-.010 (.020)	-.009 (.020)	-.009 (.020)
Organizational Climate for PEB	.380** (.031)	.357** (.033)	.335** (.037)		.812** (.021)	.825** (.019)	.811** (.022)	
Predictors								
Home PEB	.628** (.031)	.613** (.032)	.608** (.032)	.623** (.031)	.197** (.028)	.211** (.031)	.199** (.031)	.193** (.030)
Decision Making Autonomy		.069* (.031)				-.046† (.027)		
Affective Commitment			.088** (.034)				.000 (.030)	
Organizational Climate for PEB				.383** (.031)				.814** (.021)
Moderations								
Home PEB* Decision Making Autonomy		.006 (.031)				.013 (.029)		
Home PEB* Affective Commitment			-.013 (.025)				.010 (.028)	
Home PEB* Organizational Climate for PEB				-.042 (.028)				-.029 (.026)
	$R_2=$ .680* (.028)	$R_2=$ .684* (.028)	$R_2=$ .686* (.028)	$R_2=$ .682* (.029)	$R_2=$ .794** (.020)	$R_2=$ .796** (.019)	$R_2=$ .794** (.020)	$R_2=$ .795** (.020)

Note. (N=530). Gender was coded where 0=female. **p<.01; *p<.05; †p<.09. All estimates reflect bias corrected

bootstrapping, 95% CIs.

Chapter IV

Discussion

The purpose of this study was to explore the facets that may affect when individual PEB crosses contexts from home to work. Overall, the results indicated that, consistent with previous research, home PEB (e.g., Lamm et al., 2013; Rashid & Mohammad, 2011), supervisor support for PEB (e.g., Paille et al., 2017; Priyankara et al., 2018), decision-making autonomy (e.g., Littleford et al., 2014; McDonald, 2011), affective commitment (e.g., Paille et al., 2014; Temminck et al., 2015), and organizational climate for PEB (e.g., Hicklenton et al., 2019; Magill et al., 2020) were directly related to the extent to which individuals engaged in environmental workplace behavior. Furthermore, some support was found for the moderating roles of each central participation facet (i.e., supervisor support for PEB, decision-making autonomy, and affective commitment) on the cross-context relationship between home PEB and OCBE. The study did not find evidence that central participation facets, or organizational climate for PEB moderate the relationship between home PEB and work PEB.

The current exploration of the potential cross-over of PEB from home to work builds on the mixed outcomes within the literature (e.g., Manika et al., 2015; Wells et al., 2016). This study indicates that type of behavior showed a stronger relationship than behavior within the same context. Specifically, conservation behaviors across the contexts of home and work showed a stronger relationship than different PEB at work. Several rationale help to explain this outcome, including the relative ease of conservation behaviors compared to OCBE and the similarity (or similar resources required) of conservation behaviors across contexts (e.g., time or socioemotional; Margetts & Kashima, 2016). Furthermore, the nature of the relationship between home and work conservation behaviors, was not significantly influenced by facets of central participation (i.e., supervisor support for PEB, decision-making autonomy, and affective

commitment), which may emphasize the role of agency in purposefully carrying behaviors between settings. This outcome suggests that cross-context PEB is differentiated by type of PEB. It is possible that cross-context conservation focused PEB may be better explained by less consciously driven predictors such as habit (Lulfs & Hahn, 2014; Smith & Sullivan, 2012).

Theoretical Implications

A Border Theory Application of Cross-Context PEB. When cross-context PEB is considered with a border theory background, there is evidence that each facet of central participation at work shares a role in explaining context specific behavior (i.e., environmental workplace behavior) and the crossover of PEB from home to work. However, the central participation facets show distinct influences that can either strengthen (i.e., decision-making autonomy and affective commitment) or slightly dampen (i.e., at high levels of supervisor support for PEB) the relationship between contexts.

The central participation facets of decision-making autonomy and affective commitment showed a straightforward application to cross-context PEB, by enhancing the positive relationship from home to work. On a theoretical level, these outcomes expand the bounds of border theory to help understand the conditional nature in which positive (and slightly negative) environmentally focused behavior transfer occurs between home and work. The concept of central participation as a conduit for agentic actions was supported for more impactful environmental workplace behaviors (i.e., OCBEs), while central participation did not play a role in explaining when conservation focused behaviors at home cross over to conservation behaviors at work.

Within border theory, a focal tenet revolves around the influential role of border-keepers (i.e., partners at home and supervisors at work) to act as facilitators and/or inhibitors of thoughts,

feelings, and behaviors across contexts. Interestingly, supervisors who showed stronger support for employee PEB slightly inhibited the extent to which individuals with the highest levels of home PEB transferred their behaviors to work. While this was the opposite outcome expected, these results emphasize the role of border-keepers in their capacity to influence individual behavior. Past research (e.g., Priyankara et al., 2018) and this research, indicates supervisor support specifically focused on PEB is a strong predictor of environmental workplace behaviors; however, the relationship may be more nuanced when behaviors between multiple contexts are taken into account. When supervisors support employees who are already highly committed to PEB at home to engage in PEB at work, perhaps the focus shifts to behaviors that are important specifically to desired organizational outcomes, instead of support that encourages individuals to consider themselves outside of the organization and pull relevant behaviors to integrate into the organizational setting.

Furthermore, the relationship between border-keepers and cross-context PEB is likely influenced by the type of motivation an individual pulls from to engage in PEB coupled with perceptions of the border-keepers messaging. Individuals that experience internal motivation to engage in a behavior can be hindered by actions that support external motivation if the individual perceives a loss of self-control and competence (e.g., SDT; Ryan & Deci, 1985). It is possible individuals reporting high levels of supervisor support perceived a diminished (instead of enhanced) sense of control and competence by the messaging of expectations for PEB at work, which in turn decreased the positive relationship between PEB that individuals carry over from their private lives to work. Similarly, a positive relationship for cross-context PEB was found when supervisor support was low, in which case, individuals may be more likely to maintain a sense of control and competence in the absence of a strong external lever. Finally, study

outcomes may reflect potential ceiling effects of environmental workplace behaviors. When supervisor support is included, it produces such a strong main effect in which outcomes of extra-role work behaviors fell within the upper bounds of the instrument measure. This is particularly evident for participants who reported high home PEB and supervisor support, which shows the capacity for substantial incremental variance specifically for the environmental workplace behaviors of OCBEs, are limited.

The Roles of Organizational Climate for PEB and PEB Identity. In the conceptualization of this study on cross-context PEB, two additional constructs were considered likely key contributors, including organizational climate for PEB and PEB identity. Post hoc analyses with organizational climate for PEB largely mimicked the outcomes of the central participation facet of supervisor support for PEB by showing strong main effects on environmental workplace behavior, but not influencing when cross-context PEB occurs. While organizational climate for PEB was not a significant moderator of the relationship between cross-context PEB, the effect if it had been significant was antagonistic in nature, like supervisor support for PEB, again suggesting that organizational climate for PEB at high levels may have a tendency to slightly dampen the positive cross-context PEB relationship. This trend in type of interaction was also found, when the moderating effects of organizational climate for PEB between proenvironmental motivation (Magill et al., 2020), personal proenvironmental norms (Chou, 2014) and a variety of home and work PEBs were assessed. These interaction effects, including supervisor support for PEB, suggest organizational leaders and practitioners should not assume that these strong relationships with environmental workplace behaviors automatically support individuals in a holistic fashion. In fact, these outcomes suggest that personal PEB related factors such as motivation, identity, and norms can have a stronger influence on PEB than

organizational climate, however, organizational climate for PEB can bring a situational strength to the work context where the role of personal PEB factors can lessen and vice versa.

Specifically, when the strength of a context is taken into account, subsequent outcomes can be predicted with greater accuracy. The extent to which ambiguity exists among individual interpretations of an event defines the relative strength of the situation. High ambiguity represents a weak context where there is greater variability in how individuals respond, whereas, a low level of ambiguity represents a strong situation in which a high level of consensus and similarity among individual interpretations and actions is expected (Mischel, 1973; Whitman et al., 2012). Under this framing of situational strength, the concept of organizational climate for PEB can capture the extent to which individuals perceive ambiguity (stemming from competing climate messages, or poor communication) surrounding the organizational PEB message, and ultimately informs the consistency in which employees are likely to engage in environmental workplace behavior.

It is likely that with greater intentionality around supervisor support which encourages individuals to bring home behaviors to work and subsequently fosters a strong situation in which the organizational climate explicitly draws from individual motivations beyond the work context, individual behaviors may be further strengthened. The powerful impact of organizational climate for PEB on environmental workplace behaviors suggest it may need to be considered as a central theoretical element in all future work related PEB studies.

Study outcomes suggest PEB identity was such a powerful predictor of both home and environmental workplace behaviors that it overwhelmed other relationships and therefore was excluded to test the border theory hypotheses. However, the strength of PEB identity has important theoretical implications as well. Past research indicates self-identity can influence

positive (Whitmarsh & O'Neill, 2010) and negative PEB spillover (Miller & Effron, 2010). That is, when an individual defines themselves as a type of person who engages in PEB, it can potentially both increase the likelihood of a PEB leading to another PEB, and decrease the likelihood of a PEB leading to avoidance of another PEB.

Interestingly, research indicates PEB identity can be fostered through developing biospheric values (i.e., make judgements/align values based on how they are perceived to influence the biosphere) and past environmental behavior (Van der Werff, et al., 2013). The capacity for previous PEB to influence PEB identity and subsequently promote future PEB, may explain the overlapping nature of PEB and PEB identity found within this study, and further highlights the central role PEB identity likely plays across life roles. However, further research is still needed to understand the boundaries of PEB identity. For example, like the multifaceted nature of PEB, PEB identity does not necessarily predict all types of PEB, and some researchers have suggested individual PEB identity may be better understood at a more specific level (e.g., carbon-offsetting identity; Whitmarsh & O'Neill, 2010).

Implications for Practice

On a practical level, study findings build on the already well documented benefits of supervisor support, decision-making autonomy, and affective commitment. Specifically, when organizational frameworks foster the facets of central participation among employees, the benefits expand beyond environmentally focused outcomes. For example, many positive outcomes (e.g., job satisfaction and role conflict; Meyer et al., 2002; decreased turnover and job performance; Humphrey et al., 2007) are associated with central participation facets. Furthermore, considering central participation may benefit the development of GHRM strategies, as human resource efforts strive to support individuals through a holistic perspective to engage in

environmental workplace behaviors. The following three examples suggest practical ways organizational leadership can foster environmental workplace behavior:

Draw on the influence of leadership for environmental workplace behavior. Leadership plays an important role in facilitating environmental workplace behavior and cross-context PEB. Specifically, when supervisors show support for employees to act in environmentally friendly ways, employees engage in more environmentally friendly behavior. Supervisors (leadership) can show support for individual PEB through a variety of actions which include:

Regularly engage employees in environmentally focused conversations and communication (e.g., ask employees about ways they practice environmental behaviors at home and how those behaviors can be supported in the work setting; seek out employee knowledge and solicit help in environmental problem-solving; update employees on environmentally relevant information).

Encourage employee involvement in environmental initiatives and activities (e.g., communicate opportunities for employee involvement in initiatives and activities; show recognition for employees who engage in environmental activities).

Provide opportunities for supervisors and employees to engage in periodic environmentally focused professional development (e.g., equip supervisors with tools and strategies to effectively support employee PEB; develop learning opportunities for employees to encourage informed environmental behavior).

Foster employee decision-making autonomy. Employee autonomy is well-known for its capacity to support a wide variety of positive outcomes (e.g., job satisfaction and performance) and decrease many negative outcomes (e.g., turnover, role stress; Spector, 1986). Outcomes from

this study extend on the known benefits of decision-making autonomy to include increased environmental workplace behaviors and enhanced cross-context PEB. Organizational efforts to foster employee decision-making autonomy include:

> ***Identify potential barriers to employee decision-making autonomy and opportunities to increase employee flexibility*** (e.g., audit employee job designs for enhanced decision-making autonomy; solicit employee ideas to support their autonomy at work).
>
> ***Support employee capacity to manage autonomy*** (e.g., provide time management training; share best practices and other resources to encourage successful work autonomy outcomes).
>
> ***Implement processes and systems that support autonomy*** (e.g., implement effective communication processes; create expectations for setting and monitoring smart goals).

Make measuring environmental workplace behavior a priority. Measuring progress is a vital step in any organizational effort. Applying the longstanding adage of "what gets measured gets done" to our understanding of environmental workplace behavior, including barriers (e.g., lack of communication), supports (e.g., GHRM), and outcomes (e.g., financial performance) is still incredibly relevant. Organizational climate for PEB is emerging as a powerful construct in organizational sustainability and should be considered in organizational environmental efforts.

> ***Frame organizational sustainability under the umbrella of climate*** (e.g., utilize an assessment of organizational climate for PEB to capture employee perceptions and interpretations relating to the organization; identify areas of strength and weakness across climate facets to target sustainability efforts).
>
> ***Create your own business case for environmental behavior*** (e.g., identify a variety of organizational outcomes to measure that include both an environmental focus and that

allow further clarification of relationships between environmental behavior and desirable

results).

Build expectations around monitoring and communicating progress (e.g., create both

short and long term targets for progress monitoring; communicate growth and celebrate

small changes).

Limitations and Opportunities for Future Research

As with any research study, particularly within a developing field there are limitations.

The potential for future research to expand on this study's parameters will provide a contribution

to cross-context PEB knowledge and target ways to strengthen its validity. Three specific areas

that can be strengthened in follow-up studies relate to internal, construct, and external validity.

While this study discussed transfer of proenvironmental behaviors from home to work (based on

previous research that indicates this is the most likely causal direction), it is likely individual

PEB is capable of showing a bidirectional and most realistically a cyclical relationship. The

cross-sectional design of this study is consistent with but does not provide evidence that PEB

transfer goes from home to work. Future studies could further explore PEB directionality by

considering options for an experimental design such as utilizing an experimental group that is

prompted to identify and carry out one new PEB they can do every day at home as the

manipulation. Pre and post assessments for the experimental (separated into multiple conditions

based on type of PEB) and control groups would include home and work PEB measures. The

experimental group would also report on type of new PEB and frequency of this PEB they

implemented at home. Changes in the experimental group post work PEB (in comparison to the

control group), would bring a clearer understanding to contextual PEB spillover, in which a

behavior at home precedes a behavior at work.

Testing the cross-contextual relationship in other settings, will also expand evidence of external validity, to understand if study findings hold across different populations. The current study utilized an MTurk sample of convenience. All participants had the option to self-select into the study based on the prompt and meeting the study criteria. While this study moved the study of cross-context PEB forward by utilizing an American sample, testing the capacity for central participation to influence behavior across settings among different American samples (e.g., different organization sectors, geographic locations) is still unknown. Replicating the study across different samples will continue to build out evidence for the role of central participation at work in carrying PEB across the major life domains.

A final limitation that provides opportunity for more understanding is more clarity about the construct of PEB. Proenvironmental behavior is a multidimensional and complex construct that can vary along a number of dimensions including, type of PEB (e.g., conservation vs. transforming; Ones & Dilchert, 2012a), type of measurement (e.g., reflective vs. formative; Steg & Vlek, 2009), and impact (e.g., recycling vs. eco-helping; Stern, 2000). This study explored the relationship of conservation behaviors at home and environmental workplace behaviors. Furthermore, future research can continue to expand our understanding of the relationship between different PEBs across contexts. For example, how do home behaviors that more closely resemble extra-role work behaviors influence work related conservation and OCBE? Can certain home PEB catalysts be identified that are more likely to result in higher impact work behaviors?

Conclusion

Within science, the capacity for a seemingly small change to have a cumulatively larger effect can occur (e.g., butterfly effect; Lorenz, 2000). Relationships that support the carryover of PEB over the lifetime of one's career, can have longstanding environmental effects. The benefits of fostering central participation in employees not only supports environmental and

nonenvironmental outcomes but also extends to an increasingly strong competitive advantage (Nidumolu et al., 2009). Environmentally focused management and behaviors within organizations predicts positive financial performance (e.g., Albertini, 2013; Dixon-Fowler et al., 2013; Molina-Azorin et al., 2009; Orlitzky et al., 2003) capable of influencing the entire business system from an expanded selection pool, decreased overhead costs by using sustainable goods or reducing inputs, financial investor interest (Morgan Stanley, 2017), increased organizational and technological innovation (Nidumolu et al., 2009), and expanded customer base (Biddle, 1993). Outcomes from this study help to further understand the differentiated roles of central participation at work, in which environmental workplace behaviors are strengthened and the carryover of PEB from home to work can be dampened or enhanced. Applications of encouraging central participation at work can help facilitate the building movement of GHRM to support individuals holistically, to encompass the more realistic and complex system where behavior is considered with multiple contexts at play.

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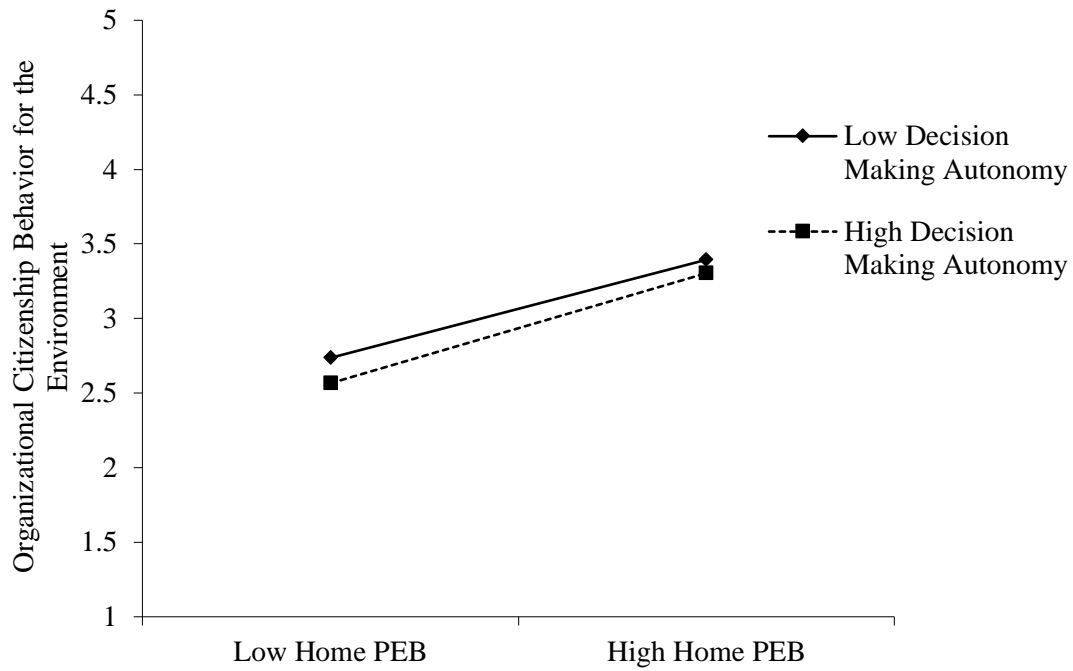**Appendix: Post Hoc Hypotheses Moderation Figures**

Figure 17

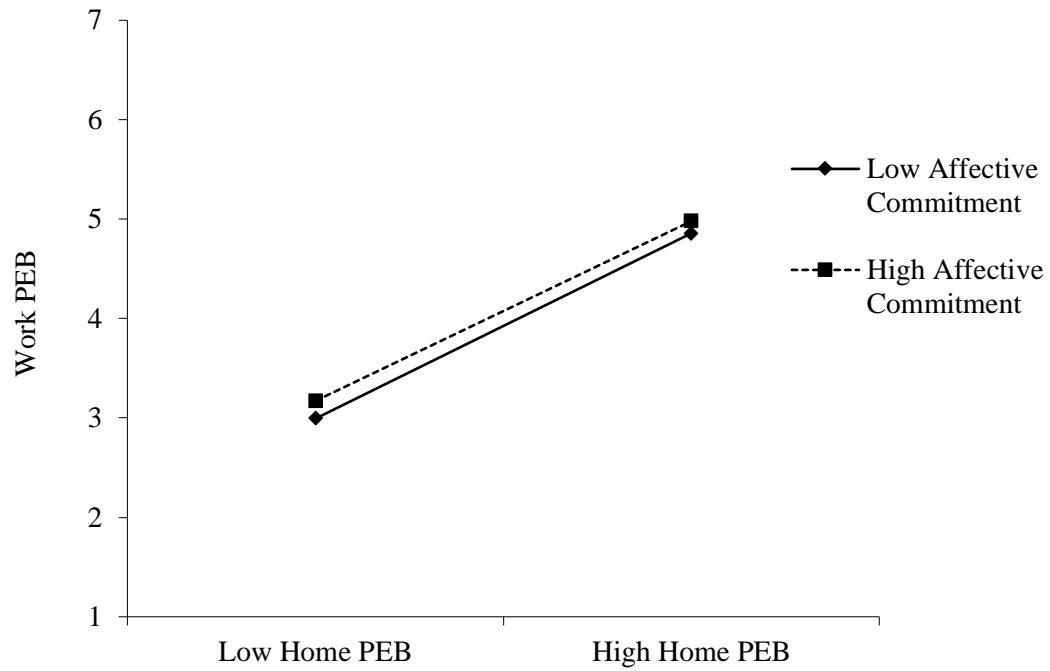*Moderation of Decision-Making Autonomy between Home PEB and Work PEB (Post Hoc 3a)*
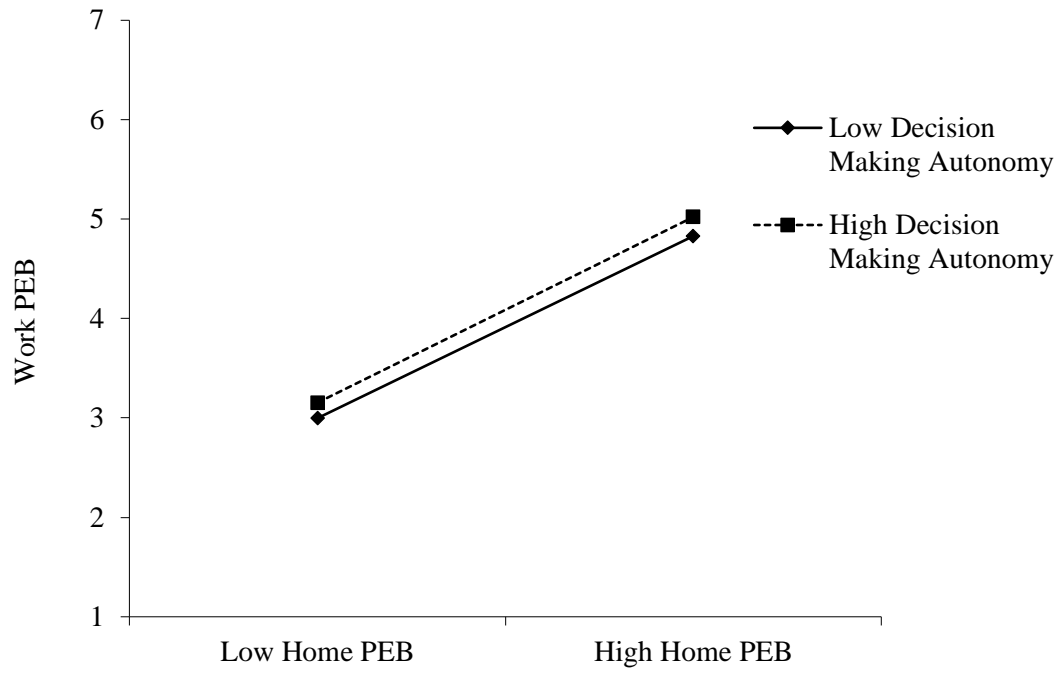
Figure 18

Moderation of Decision-Making Autonomy between Home PEB and OCBE (Post Hoc 3b)
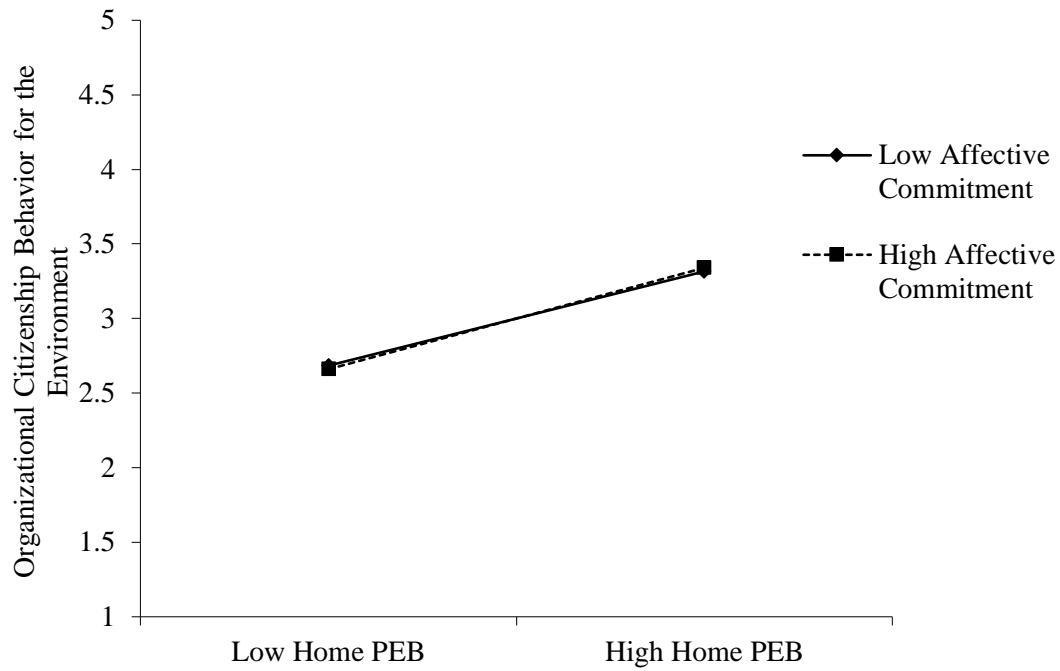
Figure 19

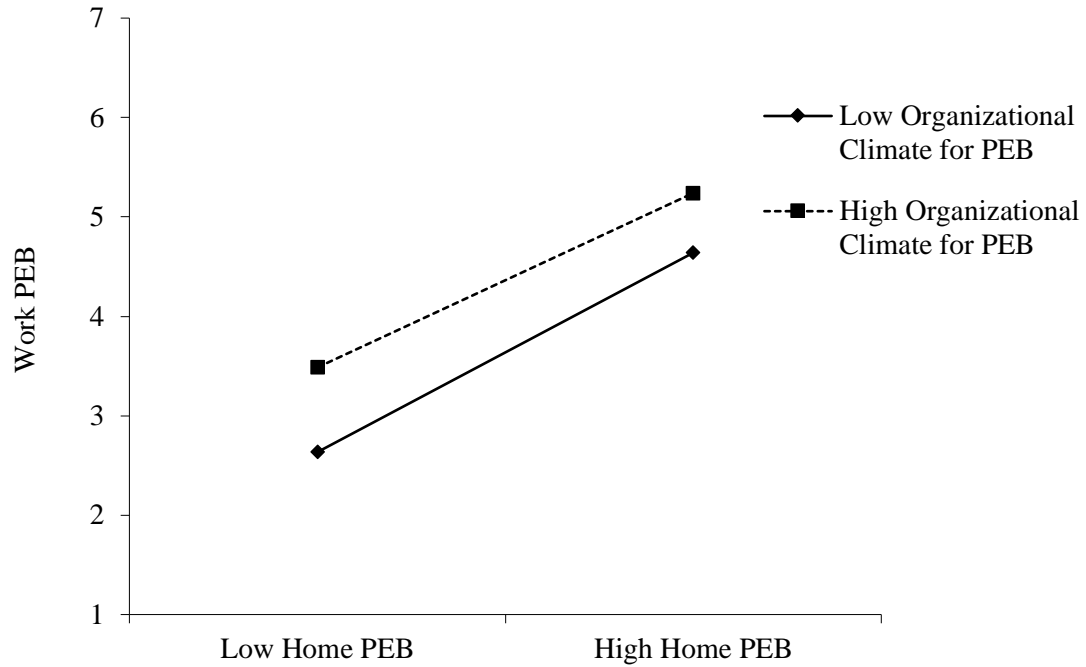*Moderation of Affective Commitment between Home PEB and Work PEB (Post Hoc 4a)*

Figure 20

Moderation of Affective Commitment between Home PEB and OCBE (Post Hoc 4b)

Figure 21

Moderation of Organizational Climate for PEB between Home PEB and Work PEB (Post Hoc 5a)

Figure 22

Moderation of Organizational Climate for PEB between Home PEB and OCBE (Post Hoc 5b)