

Green Waves: How Leaders' Actions Shape Employee Behaviours, a Moderated Mediation Model of Organizational Green Culture and Personality Traits

Cheng Zheng¹, Ruth McKay^{1*}, Cristina Ciocirlan²

¹ Sprott School of Business, Carleton University, Ontario, Canada

² School of Business, Elizabethtown College, Pa, USA

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ABSTRACT

In the recent decade, the literature on corporate greening, sustainability, and environmental performance has burgeoned. Organizational citizenship behaviour for the environment (OCBE), defined as employees' voluntary behaviours that aim to contribute to the organization's environmental management, has recently attracted considerable scholarly attention. Through a holistic review and synthesis of the current literature on OCBE, we aim to bridge the gaps in the literature and provide new and novel insights into the cascading effect of leaders' OCBE throughout the organization. Specifically, we delineate the link between leaders' OCBE engagement and followers' propensity to engage in OCBE, a link mediated by organizational green culture (OGC). In addition, given the lack of attention to intra-personal variables in the OCBE literature, we also aim to explain the moderating effect of personality in the proposed mediated relationship. Theoretically, from the social learning and social exchange lenses, the paper contributes to the current literature by explaining the interplay between interpersonal (leaders' behaviour) and organizational (OGC) variables in predicting employees' OCBE. We also highlight the role of the personality trait of openness to experience as a boundary condition that can affect employees' propensity to perform high-intensity OCBE. From a practical perspective, this paper offers valuable insights for management and HR practitioners who are committed to effective environmental management and sustainability.

1. Introduction

The environmental footprint of human activity has led to acute environmental degradation, bringing major challenges to the survival of humanity. A report recently released by the United Nations Environment Program (UNEP) (2023) stated that the continuation of the current emission reduction policies and efforts will result in 56 gigatons of CO₂ equivalent (GtCO_{2e})

* Corresponding author's E-mail address: ruthmckay@cunet.carleton.ca

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greenhouse gas (GHG) emissions by 2035. This level of emissions significantly exceeds the threshold set by the Paris Agreement.

Given the urgency of emission control and environmental management, today's organizations are making notable progress towards corporate greening, such as dedicating resources to the research of green technology and emission reduction, or introducing new environmental policies (Lamm et al., 2013; Boiral et al., 2015). Employee pro-environmental behaviours (or employee green behaviours) in the workplace are a critical component of corporate environmental responsibility (CER) (Aggarwal & Singh, 2022; Duarte & Mouro, 2022; Faraz et al., 2021; Katz et al., 2022; Ying et al., 2020). Organizational citizenship behaviour for the environment (OCBE) represents employees' discretionary green initiatives that are not formally rewarded or expected by the organizational system (Boiral et al., 2018). Building on the literature on organizational citizen behaviour (OCB), Boiral (2009) suggests that OCB can emphasize the social and ecological benefits. Thus, OCB and OCBE are related, yet distinct, constructs: while OCB is mainly organizationally focused, OCBE encompasses employees' attitudes about both their organizations and sustainability (Lamm et al., 2013). Drawing upon the current research on OCBE, this study seeks to investigate the relationship between leaders' and followers' engagement in OCBE. Furthermore, we aim to provide insights into the underlying mechanisms and boundary conditions that may influence this relationship. Current literature on OCBE has generated knowledge of specific leadership styles that can predict employees' OCBE (e.g. Gurmani et al. 2021; Khan et al., 2019; Su et al., 2023), and HR practices that can facilitate OCBE (e.g. Lu et al., 2022; Zhao et al., 2021), but scant attention has been paid to the outcomes of leaders' OCBE (Biswas et al. 2022; Boeske, 2023; Gurmani, et al., 2021; Hu et al., 2023; MacKie, 2023; Podsakoff et al., 2009; Testa et al., 2020; Yuriev et al., 2020). As a result, there is a limited understanding of whether and how leaders' OCBE can influence followers' behaviours. In addition, current research on OCBE also neglected the implication of dispositional factors such as personality (Wells et al., 2024; Wiernik et al., 2018). Responding to calls in the OCBE literature to combine the effect of individual and organizational levels simultaneously (Linnenluecke et al., 2009; Lo et al., 2012; Wells et al., 2024), we study individual psychographic variables and organizational context variables together, rather than separately.

Given the gaps identified in the current literature, this paper addresses three research questions. First, are followers' decisions to perform OCBE influenced by their leaders' OCBEs? If so, what are the underlying mechanisms that explain the leader-follower transmission? Second, what is the role of Organizational Green Culture (OGC) in influencing employees' OCBE? Finally, how does employee personality influence their decision to perform high-intensity OCBEs?

To address these research questions, this paper proposes a conceptual model that explains why and how leaders' OCBE can be transmitted to followers' OCBE. Specifically, we propose that leaders' OCBE predicts followers' OCBE through a reinforced organizational green culture (OGC) and that followers more open to experience, a Big Five personality dimension (Roccas, et al., 2002), are more likely to engage in high-intensity OCBEs than those who are less open to experience. Almost every OCBE falls on a continuum ranging from low to high intensity (Ciocirlan, 2017). While low-intensity OCBEs were defined as extensions of domestic environmentally responsible behaviours, high-intensity OCBE are behaviours with short-term costs and long-term benefits, for instance, mobilizing other employees in an effort to implement eco-initiatives, volunteering to help improve the environmental performance of company products, services, or processes, volunteering to conduct research on the environmental impact of company projects, or offering to help implement environmental ISO standards (Ciocirlan, 2017).

The present study aims to make several important contributions to the research on OCBE. First, using the social exchange theory (SET) and the social learning theory (SLT), we propose that a cascading effect exists between leaders' OCBE and followers' OCBE. This advances the current literature by outlining the key mechanisms that connect leaders' and followers' OCBEs. Second, the existing literature on OCBE has overlooked the impact of employee dispositional factors (Kim et al., 2017; Szostek, 2021; Zacher et al., 2023). To bridge the gap, this paper explains how employees' personality traits can influence their engagement in OCBE, differentiated by intensity level. Analyzing green behaviors with different intensity levels is largely unexplored in the literature (Ciocirlan, 2023; Francoeur & Paillé, 2022). Third, the cascading effect of leaders' OCBE downward in the organization suggested by the conceptual model offers a new and unique perspective on OCBE outcomes, which traditionally tend to emphasize the impact on organizational environmental performance (e.g., Daily et al., 2009) and overlook their inherent impact on the environment.

The conceptual model developed here benefits both theory and practice. On the one hand, it sheds light on the antecedents of employee OCBE as it examines the complex interplay between organizational, behavioural, and dispositional factors in predicting employee voluntary green behaviours. On the other hand, the proposed conceptual model is valuable to management and HR practitioners who want to encourage and promote employees' environmental initiatives that enhance their organization's CER.

The paper will be structured as follows. The first section introduces our theoretical background, grounded in the current literature on OCBE. The second section develops propositions by drawing on relevant theories and current empirical evidence. The third section discusses our theoretical and practical contributions and outlines directions for future research. The last section presents conclusions.

2. Organizational Citizenship Behaviour for the Environment (OCBE)

Building on the construct of OCB, Boiral (2009) defines OCBE as "individual and discretionary social behaviours not explicitly recognized by the formal reward system and contributing to improve the effectiveness of environmental management of organizations" (p. 223). The existing OCBE literature encompasses three major streams of research (Boiral et al., 2015; Boiral et al., 2018). First, most early studies on OCBE have focused on conceptualization, providing a solid theoretical foundation in this realm. Three central tenets of OCBE could be identified based on this research stream (Lamm et al., 2013; Robertson & Barling, 2017). To begin, the primary contribution of OCBE is reducing resource consumption. Next, OCBE is not explicitly required and rewarded by formal job descriptions. Finally, OCBE is driven by employees' intent to protect the environment. Scholars have also developed various typologies of OCBE. For example, Boiral (2009) suggests that each dimension under OCB (Organ et al., 2006) can be applied to the case of OCBE. Boiral and Paille's (2012) study identifies three types of OCBE. The first type, eco-initiatives, refers to employee-driven pro-environmental behaviours such as recycling. The second type, eco-civic engagement, entails contributing to organizational environmental practices. Finally, eco-helping behaviours are those behaviours that can help tackle environmental issues in the workplace, including sharing ideas and thoughts. A target-based framework of OCBE was developed by Robertson and Barling (2017). They suggest that OCBE can be self-enacted (without a specific beneficiary target), co-worker-focused (benefits co-workers), or organizationally-focused (improve the organization's environmental performance).

The second research stream concentrates on the development of measurement instruments. The most widely adopted scales are the ones developed by Boiral and Paille (2012), and Lamm et

al. (2013). The ten-item scale developed by Boiral and Paille (2012) centres on the above-mentioned three dimensions of OCB (i.e., eco-initiatives, eco-civic engagement, and eco-helping), whereas the 12-item scale developed by Lamm et al. (2013) captures some specific behaviours (e.g., using scrap papers for notes instead of fresh paper). Robertson and Barling (2017) also developed a 10-item scale that reflects their target-based framework of OCBE.

The third research stream focuses on exploring the antecedents and consequences of employee OCBE. Regarding antecedents of OCBE, some authors have examined cognitive factors, for example, Daily et al. (2009) propose that individuals with strong environmental concerns are more likely to engage in OCBE. Tosti-Kharas et al. (2017) postulate that finding both eco-centric (i.e., the extent to which employees believe that sustainability is a moral imperative) and organization-centric rationales (i.e., the extent to which employees believe sustainability can generate financial benefits) can predict employees' OCBE. It is worth noting that a considerable stream of research has examined the impact of leadership styles and HR practices on employees' engagement in OCBE and has found mixed findings. Based on an empirical study with 447 participants in China, Khan et al. (2019) found that ethical leadership can influence employees' OCBE through a green psychological climate. Similarly, Su et al. (2023) suggest that both team-level and individual-level ethical leadership are positively related to employees' OCBE. Gurmani et al. (2021) report that environmental transformational leadership is a key driver of employees' OCBE because such leaders can fulfil employees' higher-end psychological needs by improving the perceived meaningfulness of work. Ullah et al. (2021) examine the connections between four leadership styles and employee OCBE and reports that responsible, inclusive, authentic, and supportive leadership styles are positively related to employee OCBE through employee psychological ownership and self-efficacy. By contrast, Testa et al. (2020) find that neither transactional nor transformational leadership is positively related to employee's environmental-oriented OCB. In terms of HR practices, scholars have underscored the importance of green human resource management (Lu et al., 2022) and socially responsible human resource management (HRM) (Zhao et al., 2021) in predicting employee's OCBE. Scholars have also reported an array of consequences of employee OCBE, such as a positive impact on the organization's environmental performance (Daily et al., 2009; Boiral et al., 2015) and on financial performance (Robertson & Barling, 2017). In addition, in some recent studies, OCBE was examined as a mediator that connects corporate management practices and the desired outcomes. Ardiza et al. (2021) find that green performance appraisal will encourage employee OCBE, and in turn, their performance. By contrast, Saputro and Nawangsari's (2021) found that green performance appraisal does not improve employee performance through OCBE, while other green HR practices, such as green recruitment, green training, and green compensation and reward, do. In their study of 216 ISO-14001 certified manufacturers, Yue et al. (2023) find that the environmental management system (EMS) can improve a firm's triple bottom line (TBL) performance through a serial mediation effect of green HRM and OCBE.

3. The Theoretical Framework

3.1. Social Learning Theory and OCBE

The central argument of social learning theory (SLT) is that individuals emulate the behaviours of influential and trustworthy individuals they observe. In the workplace context, this theory has been extensively applied to explain the impact of role models (e.g., leaders) on employees. For example, Mayer et al. (2009) posit that because ethical leaders' helping behaviours are likely to be imitated by followers, ethical leadership is positively associated with group OCB. Similarly, leaders' green role modelling can influence followers to express their 'green self'

and mirror leader behaviour (Yuriev et al., 2018). These findings have been supported by recent studies. For example, Robertson and Carleton (2018) suggest that environmentally minded transformational leaders can encourage employees to perform voluntary pro-environmental behaviours because these leaders act as environmental role models themselves and share their environmental values with followers. Similarly, the moral modelling dimension of transformational leadership is positively related to both eco-helping and eco-civic behaviours, which are considered moral because they are not subject to formal rewards or duties (Mi et al., 2019).

Drawing on SLT and previous empirical evidence, we suggest that leaders' display of OCBE can influence followers' tendency to engage in OCBE for two reasons. First, as trustworthy individuals in the organization, leaders can act as environmental role models for their followers, resulting in employees' decision to emulate those environmental behaviours that are deemed appropriate and helpful to the organization. Second, when employees' engagement in OCBE generates positive outcomes or receives positive feedback, employees will be further motivated to strengthen such behaviours and behave in the same way when they encounter similar situations in the future (Bandura & Walters, 1977). This is because the behaviours promise positive consequences to employees. This finding is consistent with the reinforcement theory of motivation, which suggests that positive reinforcement will motivate individuals to continue behaving in certain ways as long as they expect to receive similar rewards in the future (Gordan & Krishanan, 2014).

3.2. Social Exchange Theory and OCBE

Social exchange theory (SET) is another framework that can help explain the leader-follower cascading effect. SET proposes that individuals engage in reciprocal exchange relationships with others (Cook et al., 2013). The form of exchange is not necessarily immediate and transactional but can be long-term and voluntary. Using a SET perspective, Asghar et al. (2022) find that environmental transformational leadership forges a strong exchange relationship between leaders and followers (i.e. leader-member exchange), which is beyond the completion of tasks required by the contract, and that such relationship will stimulate employees' discretionary extra-role pro-environmental behaviours (i.e. OCBE). Indeed, empirical evidence has shown that OCB can be derived from social exchange relationships: employees' transactional interactions with leaders, coworkers, and customers who exhibit OCB can trigger their own engagement in OCB (Ma & Qu, 2011).¹ Consistent with this finding, higher perceived supervisory support (PSS) resulted in both OCB-I (i.e. OCB towards individuals) and OCB-O (i.e. OCB towards organizations) (Xu et al., 2022). Conversely, lack of support from one's superior is a major barrier to employee pro-environmental behaviours (Yuriev et al., 2018). For example, supervisors' ignorance of employees' suggestions of green initiatives will make employees less likely to share their ideas in the future. More recently, Lamm et al. (2015) developed the construct of perceived organizational support for the environment (POS-E) and suggested that POS-E is strongly and positively related to employees' OCBE.

Thus, using the SET framework, we suggest that leaders' OCBE can foster followers' OCBE for two reasons. First, in line with the existing literature (e.g. Aminet al., 2020; Priyankara et al., 2018), leaders' OCBE demonstrates leaders' support and commitment to their organization's environmental goals. This will encourage followers to engage in such behaviours because they believe that leaders value their environmental contributions and will likely reward such behaviours. In addition, as supervisors are viewed as proxies of the

¹ his positive link was not always supported in the literature. For instance, Paille et al. (2013) found a negative relationship between PSS and OCBE, which can be explained by the supervisor's weak environmental concern.

organization, supervisory support of environmental initiatives can also contribute to employees' POS-E (Amin et al., 2020). As a result, employees will bear a responsibility to engage with and actively contribute to the organization's environmental objectives (Paille & Boiral, 2013). This involvement is essential for fostering a culture of sustainability within the workplace. Second, leaders' co-worker-focused OCBE can benefit subordinates in certain ways (Robertson & Barling, 2017). For example, bringing plants to the office promotes subordinates' physical and mental health. Moreover, leaders' involvement in an important type of OCBE, eco-helping, can help colleagues take environmental outcomes into consideration and better integrate environmental and organizational goals (Boiral & Paille, 2012). In those cases, employees will experience high quality leader-member exchange (LMX) and in turn, become more likely to engage in OCBE that can benefit their leaders (Asghar et al., 2022; Priyankara et al., 2018). Indeed, employees' OCBE was influenced by perceived supervisory (Daily et al., 2009) and organizational support (Paille et al., 2013).

Thus, we formulate:

Proposition 1: Followers' OCBE is positively associated with leaders' engagement in OCBEs. (See P₁ in Figure 1. The Conceptual Model)

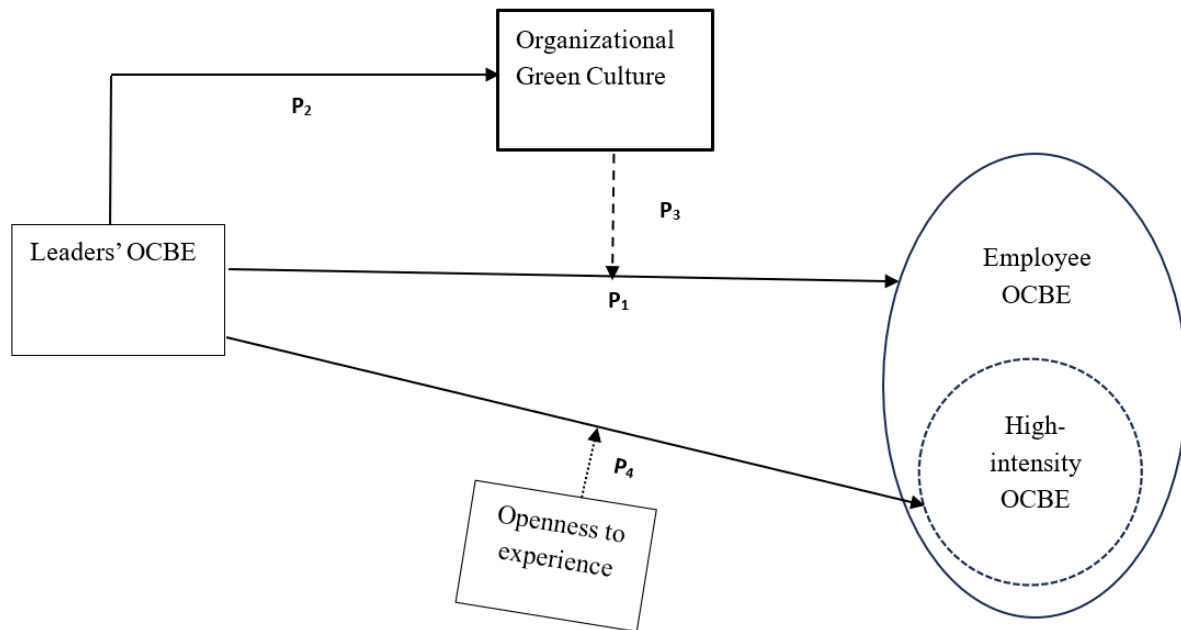


Figure 1. The conceptual model

- > P₁, P₂ Represents direct path
- > P₃ Represents a mediated path
-> P₄ Represents a moderation path

3.3. Organizational Green Culture

Building on Edgar Schein's (1985) model of organizational culture, Norton et al. (2015) define organizational green culture (OGC) as:

“a pattern of shared basic assumptions learned by a group as it adapts to the challenges posed by human activity's impact on the natural environment in a way that permits day-to-day functioning, which has worked well enough to be considered valid and,

therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to environmental sustainability” (p. 330).

Some studies suggest that OGC can predict desirable outcomes, because the function of organizational green culture is to provide guidelines to organizational members regarding the way to improve the organization’s environmental performance and become more environmentally friendly (Al-Swidi et al., 2021). Among others, Wang (2019) finds that OGC improves the organization’s environmental performance and competitive advantage. Al-Swidi et al. (2021) suggest that green leadership behaviours can establish OGC and in turn, trigger employees’ green behaviours, and eventually improve the organizational environmental performance. Imran and Jingzu (2022) posit and find that OGC can improve organizational performance through enhanced green innovation.

Other studies focus on the role of OGC as a contextual factor, finding that OGC enhances the positive effect of some antecedents because it integrates environmental awareness into the core values of the organization (Abbas & Khan, 2023). For example, Ali et al. (2023) suggest that OGC can strengthen the positive relationship between a firm’s green competencies and the top management support for sustainability, because OGC can shape a firm’s sustainability efforts. Abbas and Khan (2023) posit that green knowledge management will facilitate green innovation more effectively when the organization has a strong OGC. Pham et al.’s (2023) study provides some unique insights into organizational culture by discussing the impact of the national culture on the organizational culture. They argue that in the context of multinational corporations (in particular those that run hotels), organizational culture can be shaped by the culture of both home and host countries, and that the effectiveness of green reward on employees’ OCBE is stronger in Western-managed hotels than in the local-owned hotels.

Building on the premise that leaders play a critical role in building and maintaining organizational culture (Boeske, 2023), and the empirical evidence summarized above, we suggest that leaders can forge a robust OGC which can, in turn, influence employees’ engagement in OCBEs. Starting from Norton et al.’s (2015) definition of OGC, we posit that leaders’ decision to engage in OCBE can infuse organizational culture with environmental awareness in three ways. First, leaders’ engagement in OCBE helps define the nature of human activity in the organization, encouraging employees to behave proactively when it comes to environmental sustainability. Second, organizational culture reflects the nature of reality and truth in the organization. Leaders demonstrate their support and commitment to the environmental goals by engaging in OCBE. Such behaviours also suggest that corporate environmental goals can be translated into employees’ voluntary pro-environmental behaviours (Boiral et al., 2015). Third, a sustainable organization builds connections among its members by sharing its core values and beliefs, which help employees identify proper sustainability behaviours in the organization (Boeske, 2023). Hence, if leaders promote the collective green effort among employees and are open to any ideas that help the organization’s green initiatives, they can create an organizational culture that is environmentally reciprocal and cooperative, showing that leaders value employees’ environmental contributions. This culture will in turn stimulate employees’ pro-environmental behaviours (Wang, 2019). Conversely, a non-green culture leads to unethical or non-green employee behaviour (Blok et al., 2015) and is one of the most frequent barriers to employee OCBEs (Yuriev et al., 2018). From this point of view, supervisors’ (or leaders’) OCBE helps remove one of the major obstacles (i.e., a non-green culture) and establishes a robust green culture that enables and encourages more voluntary green behaviours of employees. In summary, OGC legitimizes environmental awareness and concerns, guides employees’ pro-environmental behaviours, and motivates employees to commit to environmental goals (Al-Swidi et al., 2021; Yu & Li, 2024). Thus, leaders’ OCBE can be transmitted to followers’ OCBE through a robust and active OGC.

Therefore, we formulate:

Proposition 2: Leaders' engagement in OCBEs is positively related to a strong OGC. (See P₂ in Figure 1. The Conceptual Model)

Proposition 3: A strong OGC mediates the positive relationship between leaders' OCBE and followers' OCBE. (See P₃ in Figure 1. The Conceptual Model)

3.4. Openness to Experience as a Moderator

Employees' personality traits have been neglected by most studies in the current literature on OCBE. In the Five Factor Model (FFM) of personality, neuroticism, agreeableness, and conscientiousness pertain to an individual's tendency to be prosocial, while openness to experience and extraversion are associated with one's proactive tendency and inclination toward growth (Chiaburu et al., 2011).

Not all personality traits are relevant to all green behaviours, however, as these behaviors are different from each other. As mentioned above, green behaviours were categorized according to their intensity, as follows: "A high-intensity [green behavior] is characterized by one or more of the following: uncertainty regarding outcomes, high visibility, high organizational or individual costs, such as loss of reputation, demotion, or firing [...]. Conversely, a low-intensity [green behavior] is characterized by opposite characteristics: low uncertainty, low organizational or individual costs, and low visibility" (Ciocirlan, 2017, p. 53). In sum, high intensity behaviours have short-term costs to the employee performing them and long-term benefits to the organization and the environment (Ciocirlan, 2017).

Given Ciocirlan's (2017) categorization, we suggest that the most relevant FFM personality characteristic to explore in relation to high-intensity behaviors is the 'openness to experience' dimension. Individuals higher in openness enjoy developing new and novel ideas, have a wide range of interests, and think in unconventional terms (Kumar et al., 2009; McCrae & John, 1992). Openness is a trait that conflicts with conformity, tradition, security, and other traits that aim to maintain the status quo (Roccas et al., 2002). Empirical evidence has also shown that openness is associated with risk-taking tendencies (Nicholson et al., 2005). Related to citizenship behaviours, research finds that openness can predict all three types of OCB (i.e. OCB-I, OCB-O, and change-oriented OCB) (Chiaburu et al., 2011).

Interestingly, openness to experience was strongly and positively correlated with empathy in a large sample (Sommerlad et al., 2021), and empathy, in turn, influenced green attitudes and behavior both directly and indirectly (Berenguer, 2007; Yin et al., 2021). This may explain why openness to experience was positively associated with employee OCBEs (Katz et al., 2022; Wells et al., 2024). Similarly, Wiernik et al. (2018) suggest that employees with a higher openness are more inclined to exhibit green behaviours. They also conclude that in general, individuals who are empathetic, have an aesthetic sense, and seek novel experiences are more likely to act in environmentally responsible ways. These characteristics are closely aligned with openness to experience (Kumar et al., 2009; McCrae & John, 1992). Szostek (2021) investigates how personality traits influence employees' OCBE within the framework of energy-saving actions. The study reveals that employees' openness can indirectly promote OCBE, encouraging other organizational members to engage in these environmentally friendly behaviours as well. Blok et al. (2015) also suggest that openness is positively correlated with robust ecological values, which serves as a significant predictor to OCBE (Boiral et al., 2018; Tosti-Kharas et al., 2017). Additionally, a meta-analysis by Katz et al. (2022) found a strong positive association between openness and employee green behaviours.

In a UK sample, employees who were more open to experience, creative and unconventional were more likely to hold eco-centric views and to believe that humans are severely abusing the environment. They were also more likely to feel a sense of responsibility towards the environment and to feel jointly responsible for the negative environmental impacts of human action. Additionally, employees who scored higher on this dimension were more likely to perceive their organization's CER efforts positively, and to engage in conserving behaviours themselves (Wells et al., 2024). Moreover, Terrier et al. (2016) examine the influence of the Big Five personality traits on OCBE and find that openness to experience is positively associated with eco-helping, which refers to OCBEs that aim to help colleagues and the organization to perform in more environmentally friendly ways. They believe that this positive correlation arises from the characteristics of individuals with higher levels of openness, who tend to be unconventional, proactive, and motivated to influence others.

Overall, the impact of openness as a personality trait on employees' green behaviour in organizations is underexplored in current literature on organizational environmentalism, so more research is needed to examine this dispositional variable in relation to OCBE in order to advance our understanding of the interplay between personality traits and OCBE (Farooq & Yusliza, 2023; Holmberg, 2022; Kim et al., 2017; Priyankara & Naotunna, 2021; Szostek, 2021; Tang et al., 2023; Zacher, Rudolph, & Katz, 2023).

Based on the prior empirical evidence, we suggest that employees who are more open to experience will be more likely to engage in high-intensity OCBE than employees who are less open to experience. The short-term costs and long-term benefits associated with high-intensity OCBEs (Ciocirlan, 2017) are expected to fit the proactive and forward-thinking nature of openness (Roccas et al., 2002). In addition, in the cybernetic big five (CB5T) framework where individuals' personality traits can be reflected by the way they pursue their goals, individuals with a higher openness use higher levels of depth and breadth of information in pursuing goals (Connelly et al., 2018). The richness of information also allows individuals to consider undertaking short-term expenses to better attain long-term goals. In addition, as noted by Terrier et al. (2016) and Szostek (2021), individuals with higher levels of openness are more skilled at influencing other members within an organization by assisting them in better integrating environmental concerns. These traits closely align with the characteristics of high-intensity OCBEs.

Thus, we formulate:

Proposition 4: The personality trait of openness to experience moderates the relationship between leaders' OCBE and followers' OCBE, such that followers with stronger openness tendencies are more likely to engage in high-intensity OCBE than followers with weaker openness tendencies. (See P_4 in Figure 1. The Conceptual Model)

4. Methodological Considerations

Empirical analyses starting from our conceptual model can generate a deeper understanding of the link between leader and follower behaviour by shedding light on several aspects of OCBE.

To test *Proposition 1*, researchers could measure leaders' and followers' OCBEs independently using a valid scale (e.g., Ciocirlan et al., 2020) and construct dyadic manager-employee pairs. To follow the temporality dimension, green behaviours would be measured at different points in time and correlation analysis could be employed to determine if a positive relationship exists between leader and follower behaviours.

Similarly, to test *Proposition 2*, correlation analysis may be used to determine whether a positive relationship exists between leaders' engagement in OCBEs and the 'greenness' of

OGC, using the recently developed and validated instrument by Aggarwal and Agarwala (2022). Regression analysis may also be employed to determine the strength of the association between leaders' green behaviour and OGC. The mediation effect of OGC (*Proposition 3*) and the moderation effect of openness to experience (*Proposition 4*) may be explored using Structural Equation Model (SEM), via Hayes' Process Model 4 and Process Model 7 respectively, which can calculate direct, indirect and total effects (Hayes & Preacher, 2013).

Besides quantitative methods, qualitative analysis based on interviews and focus groups may also be employed to assess perceptions of green organizational culture and leader behaviour. A thematic analysis (Braun & Clarke, 2006) may then be employed to explore how leaders influence green culture and follower behaviour. More ambitiously, an experimental design may be developed, where researchers would manipulate leaders' green behaviours and observe whether OGC and employee green behaviours change in response.

To test *Proposition 4*, a validated personality scale can be used (e.g., NEO personality inventory, Costa & McCrae, 1992) to measure followers' openness to experience. Then, the moderating effect of openness could be assessed using hierarchical regression or interaction terms in SEM. Cluster analysis (Ketchen & Shook, 1996) may also be performed, where followers with similar openness scores would be grouped in the same cluster and their intensity of behaviour would be analyzed across groups. To strengthen causal inferences, longitudinal data could be used, particularly for *Propositions 3* and *4*. Researchers should carefully control for confounding variables, such as organizational context (e.g., industry, size) and organizational environmental policies.

We also encourage researchers to develop and validate an instrument to measure the level of intensity of OCBEs (Ciocirlan, 2017). This will help future empirical studies use statistical tools to empirically test and verify the model we propose. A reliable and valid scale will also provide a robust basis for future theorizing and enable future OCBE research to generate new insights by assessing employees' propensity to engage in various types of OCBE (Robertson & Barling, 2017).

In addition, the current research on OCBE relies heavily on self-reported data, which can be subject to a common method bias (Podsakoff et al., 2012), especially in cross-sectional samples (e.g. Biswas et al., 2022; Szostek, 2021; Su et al., 2023; Ullah et al., 2021). One recommendation that can help mitigate the impact of common method bias is that future studies on OCBE can obtain variables from different sources, such as observations (Podsakoff et al., 2012). For example, instead of obtaining all variables from employees, future studies can measure individual-level variables (e.g. employee OCBE) from employees and group-level variables (e.g. ethical leadership) from the supervisor. It is also highly recommended that future studies in OCBE conduct longitudinal research to better observe the interaction between variables and establish causal relationships (Al-Swidi et al., 2021; Biswas et al., 2022; Su et al., 2023).

5. Discussion

Although the current literature has established that leadership behaviours can play a pivotal role in facilitating employees' OCBE in the workplace (Smith & O'Sullivan, 2012) and that certain leadership styles can promote employees' voluntary green behaviours (Robertson & Carleton, 2018; Ying et al., 2020; Zhao et al., 2021), it is unclear whether and how leaders' OCBE will be transmitted to followers' OCBE (Boiral et al., 2015). In addition, previous literature on employee green behaviours has overlooked individual differences (Wells et al., 2024). Complementing the current literature on OCBE, this paper contributes to theoretical development in this direction and suggests that leaders' OCBE will also have a cascading effect

on followers' behaviour. This allows for a deeper understanding of a leader's role in fostering employees' OCBE. Moreover, since the role of employees' dispositional factors has been understudied in the existing literature, this paper suggests that openness as a personality trait can determine employee engagement in high-intensity OCBEs, and should be integrated in existing theoretical frameworks that aim at explaining employee engagement in OCBEs (Wells et al., 2024).

From a practical perspective, this study also offers valuable insights for managers and HR practitioners. First, the model posits that employees tend to emulate leaders' OCBE, hence, in pursuit of environmental goals, leaders must function as role models that guide employees' behaviours. Thus, given the importance of leaders' role modelling, HR practitioners can design training interventions that aim to strengthen leaders' environmental values and norms to encourage them to perform OCBEs (Boiral et al., 2018; Katz et al., 2022; Wiernik et al., 2018). Second, the study also maps the way openness impacts the level of intensity of employees' OCBE. This helps organizations better manage and predict employees' behavioural tendencies. Indeed, personality measures have long been adopted and embedded in screening, selection, and talent management (Connelly et al., 2018; Hughes & Batey, 2017). HR managers can adapt their recruiting, orientation, training and development, and performance evaluation processes to optimize the fit between organizational culture and the personality orientation of employees (Ciocirlan, 2018; 2023). Screening devices that measure employees' openness to experience could be incorporated into the selection process, as long as they are valid and reliable (Ciocirlan, 2018; Fodchuk, 2007; Liebowitz, 2010).

Thus, if our proposition that more open employees are more inclined to perform high-intensity OCBEs is supported empirically, we suggest that companies with ambitious environmental goals or those pursuing significant transitions toward sustainability—such as the adoption of ISO 14001 standards—would benefit from prioritizing the recruitment and selection of personnel who exhibit greater openness to experience (Katz et al., 2022; Terrier et al., 2016).

6. Limitations and Future Research Directions

In this section, we discuss several limitations of our paper and suggest some future research pathways. Firstly, although we base our propositions on the current literature, the model we propose has not been empirically tested. Secondly, we also acknowledge that in this study, we did not consider cross-cultural generalizability. Some recent studies in OCBE have demonstrated that national culture could influence employees' behavioural and attitudinal patterns (Pham, 2023). It is possible that national cultural dimensions identified by the GLOBE study (e.g., power distance, humane orientation, collectivism) (House et al., 2004), may influence employees' propensity to perform high-intensity OCBE. The SET and the SLT theories have been developed in the Western hemisphere, so it is possible that they may not hold in Asian or Middle Eastern cultures, where different cultural dimensions prevail. Additionally, these theories assume positive employee attitudes toward the organization and their leaders. However, if employees are disengaged, feel unsupported by their leaders, or function in organizational cultures characterized by low morale, they may be less interested in emulating leader behaviours or following the environmental norms of the organization (Ciocirlan, 2017; Zibarras & Ballinger, 2011).

In light of these limitations, future studies may explore the following aspects. First, empirical studies can further examine the influence of other dispositional factors (e.g., attitudes) on employees' OCBE. Recent scholars have stressed the importance of employee individual differences in their green behaviours (Wells et al., 2024). In this respect, future studies can shed light on this point and further examine dispositional factors that can contribute to the way

employees behave. Second, given that the top-down effect of leadership behaviours has been extensively researched in the current literature (Robertson & Barling, 2018; Faraz et al., 2021; Gurmani et al., 2021; Khan et al., 2019), future researchers can discuss the effect of employees' green behaviours on the upper levels of the organization (i.e., is there a bottom-up effect?). Some authors have discussed the way organizations can benefit from employees' green behaviours (e.g., Blazejewski et al., 2018) and how employees' OCBE can shape and facilitate the organization's isomorphism towards institutional environmental demands (Testa et al., 2020). Future studies can delve deeper into this point and further discuss the potential impact of employee voluntary green initiatives on organizational culture, objectives, values, and performance. Third, research on leaders' engagement in OCBE is still sparse. Although some authors have suggested some cognitive antecedents of managers' OCBE, such as perceived behavioural control, environmental attitude, and environmental values (Akerujjaman et al., 2022; Boiral et al., 2015), this area is still underexplored. Given that focusing on managers' OCBE is beneficial in several ways (Boiral et al., 2015), future studies can explore antecedents that determine managerial involvement in OCBEs.

In addition, beyond the SLT and SET lenses, future studies can also employ other theoretical frameworks to explain the link between leader and follower OCBEs, such as social cognitive theory (e.g., moral justification). Additionally, from a cultural and institutional perspective, Pham et al. (2023) suggest that employees' OCBE and in-role green behaviours can be affected by the national culture. Future studies can further examine the role of national culture and institutional isomorphism in shaping organizational norms and values regarding sustainability and in turn, employees' OCBE, especially in the context of multinational corporations. From this standpoint, qualitative studies of OCBE might be needed in some multicultural contexts to provide more insights into the interaction between the culture of the host and the home countries, and the way cultural background and societal values can shape employees' perceptions and inclinations towards sustainability and OCBE.

7. Conclusion

The body of research on OCBE is burgeoning, however, while it is developing rapidly, there are still some gaps to be addressed. Drawing on the previous literature and empirical evidence, we seek to deepen the understanding of employee OCBE by proposing a conceptual model that describes the downward domino effect of leaders' OCBE throughout the organization.

This paper makes several unique contributions to the literature. First, in contrast to previous literature, the integrated model we propose considers interpersonal-, intrapersonal-, and organizational-level variables simultaneously. The model explains the complex interplay among these variables and describes the mechanism by which leaders' OCBEs affect employee OCBEs. It posits that leaders' OCBE can influence followers' OCBEs directly, and indirectly, through organizational culture. We also highlight the impact of personality traits on employee OCBE, which is often neglected by the existing literature. Essentially, we propose that employees with stronger openness to experience will increase their propensity to pursue long-term environmental goals with short-term costs, i.e., engage in high-intensity behaviours. The proposed model also provides management and HR practitioners with valuable insights. Future studies in this field can further explore the antecedents and outcomes of OCBE from various perspectives.

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