



# Effects of environmentally-specific servant leadership on green performance via green climate and green crafting

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Published online: 3 September 2019

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## Abstract

The primary purpose of our inquiry is to assess the impacts of environmentally-specific servant leadership (ESS leadership) on green performance at both team and individual levels. Participants from tour companies based in Vietnam provided the data for our inquiry. The results demonstrated the mediating role of green climate for the effects of ESS leadership on team and individual green performance. Green crafting functioned as a mediator for the relationship between green climate and individual green performance. Green climate also served as a moderator to strengthen the relationship between green crafting and green performance among employees. Implications from these findings are discussed.

**Keywords** Green performance · Environmentally-specific servant leadership · Green climate · Green crafting · Vietnam

Organizations' impact on the global carbon footprint has increasingly attracted the interest of governments (Robertson & Barling, 2017). Numerous governments in Western as well as Asian countries have enhanced government endorsement of and participation in environmental policies (Robertson & Barling, 2015; Sony & Ferguson, 2017). Though within Asian developing economies, there tends to be more concern among organizations toward a short-term survival and profitability approach, above a long-term environmental sustainability strategy (Pornpitakpan, 2002; Sony & Ferguson, 2017), organizations world-wide in general have been increasingly embracing environmental sustainability and implementing environmental initiatives (Robertson & Barling, 2015; Robertson & Carleton, 2018). Accordingly, an accumulating body of literature acknowledging the importance of organizational environmental performance has emerged (Robertson & Carleton, 2018). Due to the role of employee

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green behavior for the success of environmental programs (Robertson & Barling, 2013), research has also shifted the focus toward exploring mechanisms underlying individual green behavior (Robertson & Carleton, 2018). However, research has failed to examine green performance at the team level notwithstanding the magnitude of teams in translating strategies into tactics and implementing the tactics (Dangelico, 2015; Moxen & Strachan, 2017). Our research aims to cover this gap in literature by simultaneously examining green performance at individual and team levels.

The success of environmental initiatives rests, to some extent, on leaders (Robertson & Barling, 2017). A growing body of research has recognized the salience of leadership to both organizational and individual level green performance (Robertson & Barling, 2017). With its focus on a concern and service for others, servant leadership theory has been underscored as being useful in predicting sustainability activity (Christensen, Mackey, & Whetten, 2014). Robertson and Barling (2017) suggest extending the focus of servant leadership to the environmental context (i.e. a focus on a concern for and need to serve the natural environment) and examine the effects of environmentally specific servant leadership style (ESS leadership) on targeted environmental outcomes. Based on Liden, Wayne, Liao, and Meuser's (2014) view of servant leadership, Luu (2018) views ESS leadership as leading with motivation to encourage and serve employees in pursuit of the pro-environmental goals of the group. Considering ESS leadership as a contextual lever for green performance at individual and team levels, our research can extend the green management literature by undertaking a different leadership approach to green performance, complementary to green transformational leadership approach widely explored in the green behavior research (Robertson & Barling, 2017). Taking the bottom up approach of servant leadership (employees first, organization second) (Eva, Robin, Sendjaya, van Dierendonck, & Liden, 2019), environmentally-specific servant leaders (ESS leaders) tend to nurture green performance through providing necessary resources for employees to engage in green activities. Differently, green transformational leaders tend to foster green behavior by inspiring employees with green goals (Robertson & Barling, 2017).

While research provides initial insights into the role of ESS leadership in predicting employees' pro-environmental behavior, a comprehensive understanding of the mechanisms through which ESS leadership shapes such behavior is lacking (Luu, 2018). Recent research has highlighted the importance of servant leadership as a source of resources for employees' proactive and extra-role behaviors and utilized the conservation of resources (COR) theory to explain leadership effects (Ye, Lyu, & He, 2019). Following this thought, our research draws upon this theory to explore how and when ESS leadership fosters individual and team green performance. According to the COR theory, possessing ample resources from a contextual source, individuals are inclined to take a proactive, rather than defensive, resource gain strategy to accrue further resources, experience resource gain spirals, and invest their existing resources in behaviors above the minimum expectations (extra-role behaviors) (Halbesleben, Neveu, Paustian-Underdahl, & Westman, 2014; Stoverink, Chiaburu, Li, & Zheng, 2018). In light of this theory, our research aims to explore a proactive resource gain mechanism by which ESS leadership influences green performance in addition to social learning mechanisms examined in prior research (e.g., Robertson & Barling, 2013; Zhang, Chen, & Liu, 2016).

As a source of green-related resources (e.g., knowledge, value, and support), ESS leaders can help their members build a green-related resource pool. In an environment full of green-related resources that ESS leaders cultivate, members can develop and share positive perceptions of green value and norm (reciprocal resource transfer or “resource caravans”, Hobfoll, 2001, p. 349), leading to the emergence of green climate, which in turn further synergizes member’s efforts for team green performance. Further, possessing further green-related resources in green climate (e.g., social resources from colleagues), members are more inclined to proactively acquire further green-related resources to invest in green behaviors. Expressed differently, through the lens of task crafting, with green-related resources from green climate, members are prone to proactively “craft” their green tasks and in turn engage in green behavior. Based on Tims, Bakker, Derks, and van Rhenen’s (2013) view of job crafting, we conceptualize green crafting as changing resources and demands for pro-environmental activities to make these activities more meaningful.

As such, our research develops a conceptual model in which ESS leadership shapes green performance at team and individual levels through shaping green climate as a contextual social mediation mechanism. Green climate may shape individual green performance via green crafting as a proactive resource gain mediation mechanism as well as strengthen this mechanism (see Fig. 1 for the research model). With such a model, our research can contribute to the green management literature in at least three ways. First, our research takes multilevel outcome approach to obtain insights into the influences of ESS leadership on green performance at both team and individual levels.

Second, our inquiry extends the conservation of resources (COR) theory to the green management arena by applying it to explain the mediation mechanisms (green climate and green crafting) and the moderation mechanism (green climate) underlying the impacts of ESS leadership on individual and team green performance. Albeit team climate has been acknowledged as a crucial team-level mediator for leadership effects (Walumbwa, Wu, & Orwa, 2008), team green climate has been a rarely tapped mediator in the green management literature in comparison with psychological mediators (Raineri & Paillé, 2016; Robertson & Barling, 2013). Moreover, by examining the mediating role of green crafting for the relationship between green climate and individual green behavior, we advance Meijerink, Bos-Nehles, and de Leede’s (2018) view on the role of resources in activating job crafting behavior through the COR lens.

Third, our inquiry provides contextual insights into the green management research stream by positioning our research in an Asia-Pacific emerging economy. Our research

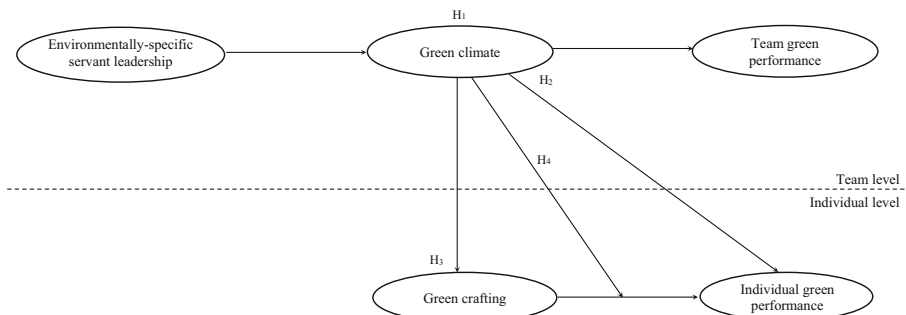


Fig. 1 Research model

seeks to test if the current research model, which is built on Western theorizing (e.g., servant leadership and the COR), can hold true for non-Western contexts, thereby enhancing the generalizability of Western green management underpinnings.

## Literature review and hypothesis development

### Environmentally-specific servant leadership (ESS leadership)

Servant leaders lead with a motivation to serve others (Liden et al., 2014, 2015). They prioritize the interests of others as well as those of a larger community (Greenleaf, 1970; Schaubroeck, Lam, & Peng, 2011). They act as a role model with empathy, altruistic values and the commitment to the goals of their group (Schaubroeck et al., 2011; Whittington, 2017). Servant leaders exhibit their moral responsibility to the achievement and growth of the organization (Whittington, 2017) as well as to those of its stakeholders including its employees and community (Ehrhart, 2004, p. 68).

By serving others, servant leadership is wide-ranging in its focus on influencing various outcomes (Greenleaf, 1977). There has emerged the move from the focus in which servant leadership behaviors are conceptualized to influence outcomes across diverse contexts, to a focus in which the same set of servant behaviors focuses on attaining a specific target (e.g., Afsar, Cheema, & Javed, 2018; Luu, 2018). Robertson and Barling (2017) suggest extending the focus of servant leadership to the environmental target and examine the role of such an environmental form of servant leadership in shaping targeted environmental outcomes. Recently, researchers have conceptualized ESS leadership by extending the focus of target specific servant leadership further to include environmental sustainability, and defined ESS leaders as leaders who serve as a role model with pro-environmental values and the commitment to the green goals (Luu, 2018), and serve and help others such as employees contribute to the sustainability of the organization and a larger community. As such, ESS leadership is a manifestation of servant leadership in which the content of the leadership behaviors is all focused on promoting green behaviors. ESS leadership is also a specific green leadership style under a broad construct of green leadership that refers to the degree to which managers demonstrate willingness and commitment to endorse green practices and change for attaining competitive advantage (Lee, Lin, Lin, & Lu, 2014; Miller & Friesen, 1983).

Furthermore, ESS leadership can function as a leadership approach to green behavior complementary to green transformational leadership being dominant in the green management literature (Robertson & Barling, 2017). Hoch, Bommer, Dulebohn, and Wu's (2018) work revealed that servant leadership appears to display a higher degree of conceptual and empirical distinctness from transformational leadership. While servant leaders' motive entails the development of followers as an end in itself, transformational leaders enable followers' needs to attain the organization's goals (a means to an end) (Eva et al., 2019; Van Dierendonck, Stam, Boersma, De Windt, & Alkema, 2014). In comparison with transformational leaders, servant leaders exhibit more interpersonal acceptance and authenticity in the presence of their employees (Chen, Zhu, & Zhou, 2015; van Dierendonck, 2011). Further, while underscoring the effectiveness of transformational leadership, the strong moral dimension demonstrated by servant leadership appears to address a deficiency in transformational leadership (Hoch et al., 2018).

Servant leadership further reflects calling and community responsiveness (Karakas & Sarigollu, 2013). This moral dimension in ESS leadership may be even more pronounced to influence followers to contribute to the greening of the community. Hence, green transformational leadership tends to focus on the achievement of the organization's sustainability goals and competitive positioning through inspiring followers to contribute to its green goals, while environmentally-specific servant leaders provide necessary resources (support, empowerment, and feedback) to encourage, serve, and help members become green "servants" with green values who contribute to the sustainability of the organization and a larger community.

ESS leadership, though rooted in Western theorizing, appears to be compatible with some values of Asian cultures especially in East-Asian contexts as well as influential over some of their values. Demonstrating empathy, altruism, and orientation towards others and the sustainability of a larger community (Luu, 2018), ESS leadership is compatible with collectivism in Asian cultures built on Confucianism (Snell & Tseng, 2003; Koo & Park, 2018; Lam, Huang, & Lau, 2012; Wang, Kwan, & Zhou, 2017) and Daoism (also spelled Taoism) (Wang et al., 2017; Winston & Ryan, 2008). ESS leadership is related to the Confucian concept of *ren* (humanitarian value) in that ESS leadership serves to take care of the sustainable environment for people. ESS leadership further shares with Daoism collectivism (Fu, Tsui, Liu, & Li, 2010) and the value of harmony and balance between people, society, and the nature as well as avoidance of actions impairing such a harmony or balance (Ma & Tsui, 2015).

Nonetheless, different from hierarchical relationships embedded in Confucianism (Fu et al., 2010; Koo & Park, 2018; Lam et al., 2012), ESS leaders serve followers' needs and interests relating to green activities, reflecting low power distance in their relationships. Therefore, ESS leadership is salient in creating personal resources (such as psychological safety and self-esteem) among followers in Asian hierarchical cultures, which drive them to contribute to green sustainability. ESS leadership is further in line with Chun, Cho, and Sosik's (2016) view that in Asian cultures, leaders should build individualized dyadic relationships with members tailored to members' potentials.

### **ESS leadership and green performance via green climate: The conservation of resources perspective**

From Van Dierendonck's (2011) framework of servant leadership attributes, environmentally-specific servant leadership can be characterized by providing direction for, empowering and developing employees to be pro-environmental citizens, and demonstrating authenticity, humility, interpersonal acceptance, and stewardship towards employees' pro-environmental contributions (Luu, 2018). With such leadership attributes, environmentally-specific servant leaders (ESS leaders) can serve as a source of green-related resources for the team and its team members. ESS leaders serve their followers by seeking to equip them with knowledge and skills relating to environmental activities. ESS leaders provide support for followers to engage in green activities and develop eco-initiatives, as well as foster their pride in their pro-environmental contributions (Luu, 2018). Following a recent work viewing servant leadership as a source of resources and explaining its effects via the conservation of resources (COR) theory (Ye et al., 2019), our research draws upon this theory to construe how ESS leadership

influences green performance at individual and team levels via shaping green climate across the team. The COR theory has been applied to elucidate extra-role behaviors at individual or collective levels in separate studies (Guan & Frenkel, 2018; Stoverink et al., 2018).

Some tenets of the COR theory can be relevant to the current investigation. First, if individuals possess few resources, they are prone to follow a defensive resource conservation strategy to preserve their limited resources and act at the minimum (Halbesleben et al., 2014; Stoverink et al., 2018). On the contrary, possessing ample resources, they are inclined to take a proactive resource strategy to accrue further resource, experience resource gain spirals, and invest resources in behaviors above the minimum expectations (Halbesleben et al., 2014; Stoverink et al., 2018). Second, refining the COR theory, Halbesleben and Wheeler (2015) propose that a reciprocal resource gain spiral forms through a chain effect from resource investment behaviors (source of resources) through the perceived availability of resources and perceptions about investment instrumentality, to resource investment behaviors (among recipients of resources). This chain effect leads to the third tenet of the theory on the transfer of resources within a social context (“resource caravans”, Hobfoll, 2001, p. 349), which activates further acquisition of resources (Hobfoll, Halbesleben, Neveu, & Westman, 2018). The resource transfer can occur within an individual from one form of resource to another (e.g., from job resources to personal resources, from perceptions/affective attitudes to investment behaviors), or between individuals (reciprocal investment). Fourth, different from most other resource adaptation theories, resources, through the resource transfer in light of the COR, are deemed to be socio-culturally framed rather than individualistic and can thus be perceived analogously among members sharing a cultural niche (Hobfoll, 2002).

As earlier discussed, ESS leaders provide employees with ample green-related resources including structural resources (green-related knowledge, skills, and value) and social resources (support and service). Therefore, in light of the COR theory, through perceived availability of green-related resources and perceptions about investment instrumentality from ESS leadership (source of resources), employees develop their positive perceptions of green goals and practices. Further, possessing ample green-related resources from ESS leaders, employees tend to take a proactive, rather than defensive, resource gain strategy so as to accrue further resources from others, experience resource gain spirals, and invest their resources in behaviors above minimum expectations such as voluntary, extra-role green behaviors as well as sharing resources with other members. Through the lens of the COR theory, ample green-related resources from ESS leaders may activate the reciprocal transfer of resources among members (“resource caravans”, Hobfoll, 2001, p. 349) including positive perceptions, which may lead to shared perceptions among members (Hobfoll, 2002). Expressed differently, green-related resources from ESS leaders can build a shared mental model among employees in regard to team green goals and norms as well as reciprocal interactions around these green goals and norms for further resource transfer.

This shared mental model nurtures the formation of green climate within the team. Team climate depicts members’ shared perceptions of procedures, practices, and behaviors (Maruping & Magni, 2012). Likewise, green climate in a team portrays the shared perception among team members that green behaviors and synergy of efforts for team green goals and norms are descriptive of the team. Leader support for

environment has been empirically found to shape green climate in a work group (Priyankara, Luo, Saeed, Nubuor, & Jayasuriya, 2018).

The shared perception among employees in a team climate has further been reported to exert impacts on team performance (Lin, Liu, Liu, & Huang, 2018; Sun, Xu, & Shang, 2014) as well as individual performance (Dumont, Shen, & Deng, 2017). The climate literature indicates that perceptions that members have about the organization may influence their behaviors (Schneider, Ehrhart, & Macey, 2013). Guided by the shared perception of green norms as well as possessing further social resources from colleagues under green climate, team members are inclined not only to invest their current green-related resources in green activities (Dumont et al., 2017) but also to collaborate with others to engage in the team's green activities and go beyond such as devising new team green projects.

Furthermore, norms capture the team's expectations about and guide behaviors of its members (Tims et al., 2013). The green norms in a green climate may signal that behaviors contributing to the green performance of the team are expected of team members (Norton, Zacher, Parker, & Ashkanasy, 2017). Team members may even influence each other to conform to the norm (Tims et al., 2013), driving them to engage in individual as well as team green performance. Against this backdrop, green climate is expected to shape green performance at individual and team levels. In conjunction with the earlier discussion on the nexus between ESS leadership and green climate, we can propose the following hypotheses on the mediating role of green climate:

**H1:** Green climate mediates the positive relationship between ESS leadership and team green performance.

**H2:** Green climate mediates the positive relationship between ESS leadership and individual green performance.

### **Green crafting as a second-stage mediator between green climate and employee green performance**

Employees are motivated to engage in their work when they are enabled to redesign their job in terms of its task structure and relationships and experience it in a more meaningful fashion (Wrzesniewski & Dutton, 2001). This form of job redesign is known as job crafting. Job crafting is viewed as the changes that employees proactively make in job demands and job resources (Tims et al., 2013). Based on Bakker, Rodríguez-Muñoz, and Vergel's (2016) view of crafting job resources, employees can enhance green-related structural resources by proactively mobilizing opportunities for the development of knowledge and skills for pro-environmental activities, while enhancing social resources by seeking support for green tasks or feedback for green performance. From Tims, Bakker, and Derks's (2012) view of crafting job demands, employees can enhance challenging job demands through proactive engagement in new green projects and reduce hindering job demands for instance by decreasing the number of emotional interactions or cognitive tasks relating to pro-environmental activities.

Team climate serves as a source of resources (Grandey, Foo, Groth, & Goodwin, 2012). Therefore, once green climate emerges among employees, employees can draw

on this source of green-related resources to acquire new green-related resources and experience a resource gain spiral. Since individuals may proactively craft their resources from ample existing resources (Meijerink et al., 2018), employees may also draw upon ample existing resources in a work group with green climate to craft the green-related structural and social resources.

In a team with green climate, members can build knowledge about environmental sustainability and skills necessary for green activities (structural resources). In light of the COR theory, resources can be transferred to facilitate the accrual of more resources in a social context (Guan & Frenkel, 2018). Social resources including support and feedback from colleagues (transfer of resources from colleagues) may facilitate employees' acquisition of further resources for green performance. Moreover, since servant leaders can create more "servant leaders" among followers (Liden et al., 2015), under green climate that ESS leaders shape, more "ESS leaders" may emerge among colleagues and provide encouragement and support for members to seek challenging green task demands such as new green projects. With caring and emotional healing attributes (Liden et al., 2015), such "servant" colleagues can help reduce members' hindering demands in their green activities so that they can feel less cognitively and affectively intense in their efforts to act pro-environmentally. This is in line with a crucial corollary of the COR theory (Hobfoll, 2002) that individuals with ample resources tend to be less susceptible to emotional energy depletion and more able to orchestrate energy gain. Additionally, since resources can co-travel in resource caravans and facilitate the acquisition and utilization of other resources (Hobfoll, 2002, p. 318), green-related structural and social resources can together yield personal resources such as self-esteem and sense of competence, which may further alleviate cognitive and affective demands.

In other words, functioning as a source of green-related resources, green climate can help shape green crafting behavior among employees. In line with the effect of job crafting on employee extra-role performance (Bavik, Bavik, & Tang, 2017), employees who craft their green tasks may find more meaning in green activities and engage in such voluntary activities. Through empirical and theoretical underpinnings in the above reasoning, green crafting can be anticipated to mediate the relationship between green climate and individual green performance:

**H3:** Green crafting mediates the positive relationship between green climate and individual green performance.

### **Green climate as a moderator**

Once emerging, green climate may not only shape green crafting behavior among employees but also contribute to translate green crafting behavior into employee green performance. Research reported that green psychological climate can both influence a green outcome and moderate a chain effect of green outcomes (Zientara & Zamojska, 2018). Since employees may face constraints in their work environment (Norton et al., 2017), green crafting behavior, which was fostered by green climate, may not be successfully translated into green performance if green climate then weakens and does not signal strong cues on expected and valued green performance outweighing workplace constraints.



Bizzi (2017) found that job crafting affected performance only when individuals had positions amid their network. Therefore, through support for pro-environmental contributions and reciprocal resource gain pattern under green climate, employees can position themselves amid their team, which may enhance their motivation to translate their resources from green crafting into green performance. On the contrary, if green climate declines, members are less inclined to engage in such a translation of resources and may withdraw with defensive resource conservation strategy (due to decline in source of resources, Stoverink et al., 2018) and may not perform pro-environmentally. In other words, if green climate can be sustained and employees keep perceiving an ample pool of green-related resources around them, green-related resources from green crafting continue to be nurtured and converted into performance beyond minimum expectations (i.e., green performance).

Moreover, in a team with green climate, there tend to be more social interactions and open communication among team members in terms of green activities and solutions (Dumont et al., 2017), which Amabile (1988) views as influencing the extent to which resources (knowledge and skills) are converted into initiatives, here, relating to green performance. Expressed differently, green climate can serve as a moderator to strengthen the relationship between employees' green crafting behavior and green performance:

**H4:** Green climate moderates the positive relationship between green crafting and individual green performance such that the relationship is stronger when green climate is higher.

Cumulatively, the aforementioned predictions indicate second-stage moderation (Edwards & Lambert, 2007) in which green climate moderates the indirect relationship between green climate and individual green performance (via green crafting) by enhancing the nexus between green crafting and individual green performance. We consequently postulate that:

**H5:** Green climate moderates the indirect relationship between green climate and individual green performance via green crafting such that the relationship is stronger when green climate is higher.

## Research methods

### Sampling and data collection

Participants for this inquiry consisted of employees and their managers from four companies operating in Ho Chi Minh City, Vietnam. Four companies selected for the inquiry had an established environmental strategy (Hsieh, 2012) and a quorum of 100 employees (Opute & Madichie, 2017), and their four departments had at minimum ten employees. We initially sought to gain the permission for data collection from each tour company's chief executive. 62 tour companies agreed to participate in our surveys. Non-probabilistic sampling was implemented to recruit employees and their managers from four departments. Through HR managers, we obtained the lists of department members and their contact details for this recruitment.

The data were collected through two survey waves starting in October 2017. The time lag between the survey waves was intended to minimize common method variance by introducing temporal separation between the collection of independent, mediator and dependent variables (Newman, Miao, Hofman, & Zhu, 2016). This temporal separation could mitigate the saliency of contextually provided retrieval cues and likelihood to utilize previously provided responses when addressing ensuing questions (Podsakoff, MacKenzie, & Podsakoff, 2012).

In the first survey wave (T1), data on ESS leadership were gathered from employees. In the second survey wave (T2), occurring two months after T1, green crafting and green climate scales were distributed to employees who partook in the T1 survey. The T2 survey also garnered data on individual and team green performance from their direct managers. Supervisory assessment of individual behavior further alleviated the concern about common method bias (Anand, Vidyarthi, Liden, & Rousseau, 2010) that would have occurred if employees had reported on both green crafting and individual green performance.

We telephoned employees and their direct managers in the four departments to invite their participation and emailed them the questionnaire. We contacted only employees who had worked under the current manager for at least one year (Groen, Wilderom, & Wouters, 2017). A follow-up email was relayed to the non-respondents after ten days. The questionnaires were code-numbered to match responses from employees with those from their direct managers (T2). 1239 employees (72.24%) took part in the T1 survey. In the T2 survey, 1094 complete responses (63.79%) were returned from employees who partook in the T1 survey. Excluding departments with fewer than five participating employees (Addison, Teixeira, Pahnke, & Bellmann, 2017) and non-response from managers led to the final sample comprising 892 employee–direct manager dyads (52.01%). Employees were nested with 144 direct managers (68.24%).

Out of the managers, 57 managers (39.58%) were female, their average age was 36.19 years ( $SD = 8.53$ ), and their average organizational tenure was 7.16 years ( $SD = 4.29$ ). Among the employees, 616 employees (69.05%) were female, their average age was 30.97 years ( $SD = 6.82$ ), and their average organizational tenure was 5.08 years ( $SD = 3.14$ ).

## Measures

The English version of the questionnaire was first developed. It was then translated into Vietnamese and back-translated into English (Schaffer & Riordan, 2003) with any ambiguities in the Vietnamese version or mismatches between the back-translated version and the original English version resolved. Scale items were anchored on a five-point scale (1 = ‘strongly disagree’, 5 = ‘strongly agree’) unless otherwise stated. Through exploratory factor analysis, the scale items with factor loadings under .30 were removed (Hair, Black, Babin, & Anderson, 2010). Scale items and their loadings are presented in Table 4 in the appendix.

ESS leadership was gauged via a 12-item scale that Luu (2018) adapted from Liden, Wayne, Zhao, and Henderson’s (2008) servant leadership scale. Green crafting was measured using a 21-item scale adapted from Tims et al. (2012), ranging from 1 (never) to 5 (very often). Green climate was assessed through a five-item scale from Dumont et al. (2017). Individual green performance was measured using Boiral and Paillé’s

(2012) ten-item scale. Team green performance was assessed through a ten-item scale adapted from Boiral and Paillé (2012).

**Control variables** Our study controlled for employees' age, gender, educational level, and organizational tenure. Furthermore, owing to its ability to impact team outcomes, team size was controlled (Hirst, Van Knippenberg, & Zhou, 2009). Since supervisors and employees with short relationship tenures are prone to have the less precise assessment of each other's behavior, employee-supervisor relationship length (years) was controlled (Wu & Parker, 2017). Our study also controlled for the effects of green transformational leadership by comparing their effects with those of ESS leadership. Green transformational leadership was measured through Chen and Chang's (2013) six-item scale (e.g., "My manager inspires the members with the environmental plans").

We controlled for firm size (the number of full-time employees) (1 [ $< 200$  employees], 2 [ $\geq 200$  and  $< 500$  employees], 3 [ $\geq 500$  and  $< 1000$  employees], and 4 [ $\geq 1000$  employees]) and firm age (i.e., the number of years since the company was established) (1 [ $< 1$  year], 2 [ $\geq 1$  and  $< 5$  years], 3 [ $\geq 5$  and  $< 10$  years], and 4 [ $\geq 10$  years]).

Prior to the main data collection, the pilot test was conducted among 30 employees from four companies different from the participating four companies to ensure the relevancy, suitability, and clarity of the research instruments.

## Data analysis strategy

Due to the data from individuals nested within teams (i.e., four departments), our study conducted multilevel structural equation modelling using MPlus 7.2 (Muthén & Muthén, 2010), which accounted for measurement error in the constructs and allowed simultaneous estimation of multiple relationships in our multilevel model including mediation (Preacher, Zyphur, & Zhang, 2010). The discriminant validity of the latent variables was assessed through a series of confirmatory factor analyses (CFAs) with maximum likelihood estimation. We further run the structural partial mediation model and the full mediation model and compared their fit indicators. Confidence intervals (CIs) through 5000 bootstrap sampling were used to test the indirect effects (Shrout & Bolger, 2002).

To minimize the potential risk of multicollinearity linked with testing moderating hypotheses, continuous predictor variables were mean-centered and interaction terms were constructed by the multiplication of these centered values (Cohen, Cohen, West, & Aiken, 2003). All variance inflation factors (VIF) fell within the cutoff limit of five (the highest VIF value was 2.62) (Hair et al., 2010, pp. 204–205). Tolerance noticeably exceeded the threshold value of .3 (Hair et al., 2010). These results further indicate a low threat of multicollinearity.

## Results

### Measurement models

As Table 1 presents, the results from confirmatory factor analyses (CFAs) reflected a good fit between the hypothesized model and the data. It was also a better fit than other,

more parsimonious alternative models that collapsed individual-level data and individuals' reports of team factors. In addition to such proofs for the construct distinctiveness, the square root of the average variance extracted (AVE) of each construct, which exceeded its correlations with the other constructs, provided further support for discriminant validity (Fornell & Larcker, 1981) (Table 2).

Moreover, multilevel CFAs model individual- and group-level constructs concurrently at both levels. Adequate fits were achieved for the within-group and between-group models (see Table 1). These findings demonstrated that the factor structure developed in our research model is robust at both within-group and between-group levels of analysis.

Convergent validity was attained since, after the removal of the low-loaded items (loadings under .30), factor loadings exceeded the cutoff benchmark of .50 (t-value >1.96) (Siponen, Mahmood, & Pahlila, 2014). The composite construct reliability coefficients and AVE values were employed to assess the scale reliabilities (Table 2). Composite reliabilities, which ranged from .76 (for green climate) to .86 (for team green performance), surpassed the recommended threshold of .70 (Bagozzi & Yi, 1988). AVE values ranged from .60 (for green climate) to .75 (for individual green performance), above the .50 cutoff value (Fornell & Larcker, 1981).

**Table 1** Comparison of measurement models for studied variables

Models	$\chi^2$	df	$\chi^2/df$	$\Delta\chi^2$	TLI	IFI	CFI	SRMR	RMSEA
Individual level									
Hypothesized five-factor model	299.87	157	1.91		.97	.96	.96	.036	.039
Four-factor model: ESS leadership and green crafting collapsed	390.42	162	2.41	90.55**	.92	.91	.92	.078	.085
Three-factor model: ESS leadership, green climate, and green crafting collapsed	479.21	168	2.77	179.34**	.79	.80	.78	.118	.122
One-factor model: All variables collapsed	666.08	173	3.62	366.21**	.66	.66	.67	.141	.145
Group level									
Hypothesized model	370.14	219	1.69		.95	.95	.94	.054	.061
ESS leadership and green climate collapsed	483.87	224	2.16	113.73**	.91	.91	.92	.107	.112
Multilevel models									
Within-group model	356.39	157	2.27		.97	.96	.97	.051	.057
Between-group model	285.74	157	1.82		.96	.95	.96	.066	.062
Multilevel model	728.48	314	2.32		.97	.97	.96	W = .037; B = .055	.054

Tucker–Lewis coefficient (TLI), incremental fit index (IFI), comparative-fit index (CFI), standardized root mean square residual (SRMR), root mean square error of approximation (RMSEA)

W = within-group portion of the model; B = between-group portion of the model

\*\* $p < .01$

**Table 2** Correlation matrix and average variance extracted

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	CCR	AVE
1 Employee age	....															
2 Employee gender	.02	....														
3 Employee education	.05	.02	....													
4 Organizational tenure	.04	.05	.04	....												
5 Team size	.01	.01	-.05	-.06	....											
6 Employee-supervisor relationship length	.05	.03	.06	.08	.02	....										
7 Firm size	.08	.02	.07	.06	.04	.01	....									
8 Firm age	.04	.01	.05	.07	.01	.02	.16*	....								
9 ESS leadership	.06	.02	.04	.09	.01	.08	.06	.07	....							
10 Green transformational leadership	.05	.01	.05	.10	.01	.09	.07	.05	.24*	....						
11 Green crafting	.05	.02	.07	.07	-.02	.07	.04	.04	.28**	.17*	....					
12 Green climate	.04	.02	.04	.04	-.06	.05	.02	.06	.21*	.19*	.28**	....				
13 Individual green performance	.07	.04	.08	.09	.03	.08	.09	.07	.35**	.22*	.46***	.38***	....			
14 Team green performance	.05	.02	.05	.08	-.04	.10	.05	.06	.31**	.27**	.14*	.42***	.25**	....		
Mean	30.97	5.08	6.19	3.41	2.31	4.12	2.31	4.12	3.53	3.49	3.47	3.39	3.43	3.41		
SD	6.82	3.14	2.27	1.08	.76	.89	.44	.46	.41	.34	.37	.39	.39	.39		

CCR = Composite construct reliability, AVE = Average variance extracted  
 Values in parentheses display the square root of the average variance extracted  
 Standardized correlations reported \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$

## Common method variance issue

Lindell and Whitney's (2001) marker variable test was applied to estimate common method variance (CMV) bias. Our study included into the survey a marker variable (i.e., attitude toward social media usage), which was theoretically not related to other same-source variables (i.e., variables collected from the employee surveys). After the marker variable was partialled out, all significant zero-order correlations remained significant, indicating the low risk of CMV in the dataset. Additionally, the interaction effect in our research model could solely be deflated by CMV rather than being its artifact (Siemens, Roth, & Oliveira, 2010).

## Aggregation

To estimate whether it was appropriate to aggregate individual scores of some variables in our research model to the team level, we computed intra-class correlations (i.e., ICC1 and ICC2) (Stewart, Fulmer, & Barrick, 2005). The ICC1 and ICC2 for ESS leadership were .16 and .71, for green climate were .18 and .73, and for team green performance were .21 and .74 respectively. These values surpassed the median value of .12 for ICC1 reported by James (1982) and the .60 cutoff point for ICC2 recommended by Glick (1985). James, Demaree, and Wolf (1984) suggested the further calculation of  $r_{wg}$  average value. The  $r_{wg}$  average value was .76 [.71, .82] for ESS leadership, .79 [.73, .87] for green climate, and .82 [.77, .89] for team green performance, all exceeding Klein et al.'s (2000) cutoff parameter of .70. These findings endorsed the analysis of the data for these variables at the team level.

## Hypothesis testing

As displayed in Table 3, ESS leadership was positively and significantly associated with team green performance ( $\beta = .28, p < .01$ ). ESS leadership demonstrated the positive, significant correlation with green climate ( $\beta = .19, p < .05$ ), which was significantly and positively associated with team green performance ( $\beta = .41, p < .001$ ). ESS leadership exhibited the significantly positive association with individual green performance ( $\beta = .33, p < .01$ ). Further, green crafting was significantly and positively associated with individual green performance ( $\beta = .44, p < .001$ ). The significant, positive association was found between green climate and individual green performance ( $\beta = .37, p < .001$ ) as well as green crafting ( $\beta = .27, p < .01$ ).

Furthermore, the hypothesized partial mediation model of the link between ESS leadership and team green performance via green climate fit into the data well ( $\chi^2/df = 150.42/80 = 1.88$ , TLI = .95, IFI = .94, CFI = .95, SRMR = .043, RMSEA = .047), and fit better than the alternative full mediation model ( $\chi^2/df = 177.65/83 = 2.14$ , TLI = .90, IFI = .91, CFI = .91, SRMR = .092, RMSEA = .089,  $\Delta\chi^2_{(3)} = 27.23, p < .01$ ). The indirect effect of ESS leadership on team green performance via the mediation of green climate was .08 (SE = .02,  $p < .05$ ). The 5000 bootstrap sampling result demonstrated that 95% CIs for the distribution of the product of coefficients did not contain zero (95% CIs = .01–.19). These results provided endorsement for hypothesis H1 postulating that ESS leadership has an indirect effect on team green performance through the mediating role of green climate.

**Table 3** Direct and interactional effects

Description of path	Path coefficient (Unstandardized)	Conclusion	z value (vs ESS leadership effects)
<b>Controls</b>			
Employee age	.06		
Employee gender	.04		
Employee education	.07		
Organizational tenure	.08		
Team size	.03		
Employee-supervisor relationship length	.07		
Firm size	.08		
Firm age	.06		
R <sup>2</sup>	.05		
<b>Paths</b>			
<b>Team level direct effects</b>			
ESS leadership → Team green performance	.28** (.08)	Supported	
ESS leadership → Green climate	.19* (.05)	Supported	
Green climate → Team green performance	.41*** (.12)	Supported	
Green transformational leadership → Team green performance	.25** (.07)	Supported	1.02
Green transformational leadership → Green climate	.17* (.04)	Supported	1.08
<b>Individual level direct effects</b>			
Green crafting → Individual green performance	.44*** (.14)	Supported	
<b>Cross-level direct effects</b>			
ESS leadership → Individual green performance	.33** (.10)	Supported	
Green climate → Individual green performance	.37*** (.11)	Supported	
Green climate → Green crafting	.27** (.08)	Supported	
Green transformational leadership → Individual green performance	.21* (.06)	Supported	2.64*
Green transformational leadership → Green crafting	.16* (.04)	Supported	1.51*
<b>Cross-level interactional effect</b>			
Green climate × Green crafting → Individual green performance	.18* (.05)	Supported	

Model fit:  $\chi^2 = 299.87$ ;  $df = 157$ ;  $TLI = .97$ ;  $IFI = .96$ ;  $CFI = .96$ ;  $SRMR = .036$ ;  $RMSEA = .039$ ; \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$

Standard errors are displayed in parentheses

Likewise, the hypothesized partial mediation model of the relationship between ESS leadership and individual green performance via green climate fit into the data well ( $\chi^2/df = 154.47/80 = 1.93$ ,  $TLI = .94$ ,  $IFI = .94$ ,  $CFI = .94$ ,  $SRMR = .048$ ,  $RMSEA = .051$ ), and fit better than the alternative full mediation model ( $\chi^2/df = 187.84/82 = 2.29$ ,  $TLI = .91$ ,  $IFI = .89$ ,  $CFI = .90$ ,  $SRMR = .094$ ,  $RMSEA = .098$ ,  $\Delta\chi^2_{(2)} = 33.37$ ,  $p < .01$ ). The indirect effect of ESS leadership on individual green performance through the mediation of green climate was .07 (95% CIs = .02–.16,

SE = .04,  $p < .05$ ). These results lent support for hypothesis H2 positing that ESS leadership has an indirect effect on individual green performance via green climate as a mediator.

The hypothesized partial mediation model of the link between green climate and individual green performance via green crafting fit into the data well ( $\chi^2/df = 159.58/79 = 2.02$ , TLI = .94, IFI = .95, CFI = .95, SRMR = .051, RMSEA = .054), and fit better than the alternative full mediation model ( $\chi^2/df = 187.14/81 = 2.31$ , TLI = .91, IFI = .89, CFI = .90, SRMR = .097, RMSEA = .095,  $\Delta\chi^2_{(2)} = 27.56$ ,  $p < .01$ ). The bootstrapping coefficient of .12 (95% CIs = .07–.21, SE = .06,  $p < .01$ ) provided evidence for hypothesis H3 regarding the indirect effect of green climate on individual green performance via green crafting as a mediator.

The results revealed the significantly positive interaction term of green crafting  $\times$  green climate ( $\beta = .18$ ,  $p < .05$ ). Through a simple slope test (Preacher, Curran, & Bauer, 2006), the plotted interaction (Fig. 2) indicated that green crafting enhanced individual green performance to a higher degree when green climate was at a high level (one SD above the mean) (simple slope = .44,  $p < .05$ ) than when it was at a low level (one SD below the mean) (simple slope = .17,  $p < .05$ ). These findings provided further evidence for hypothesis H4.

Furthermore, following second-stage conditional process in Hayes's (2018) and Hayes, Montoya, and Rockwood's (2017) conditional process model, the index of moderated mediation that tests the difference between conditional indirect effects was calculated. Significantly different from zero, the index of .16 (SE = .07; 95% CI = .05–.24) indicates that the two conditional indirect effects estimated at high and low levels of green climate were significantly different from each other. The conditional indirect effect was significant in the high green climate condition ( $\beta = .21$ ; CI = .14–.37,  $p < .05$ ) but not in the low condition ( $\beta = .04$ ; CI = (-.13) – .25,  $p = .12$ ). The positive value of the moderated mediation index also demonstrates that the indirect effect of green climate on individual green performance via green crafting increased with increasing green climate, lending support for hypothesis H5.

## Supplementary analyses

### Alternative reversed models

For enhancing the credibility of the findings, two alternative reversed models were fitted to the data. In one reversed model, individual green performance functions as an independent variable preceding green crafting, which precedes green climate and in turn precedes ESS leadership. The fit statistics of this model was worse than the fit of the hypothesized model:  $\chi^2/df = 390.45/164 = 2.38$ , TLI = .91, IFI = .89, CFI = .90, SRMR = .094, RMSEA = .098 (90% CI [.092, .104]),  $\Delta\chi^2_{(7)} = 90.58$ ,  $p < .01$ ). In the other reversed model, team green performance functions as an independent variable preceding green climate, which in turn precedes ESS leadership. The fit parameter of this model was worse than the fit of the hypothesized model:  $\chi^2/df = 573.47/224 = 2.56$ , TLI = .88, IFI = .87, CFI = .87, SRMR = .102, RMSEA = .109 (90% CI [.105, .117]),  $\Delta\chi^2_{(5)} = 203.33$ ,  $p < .01$ ).



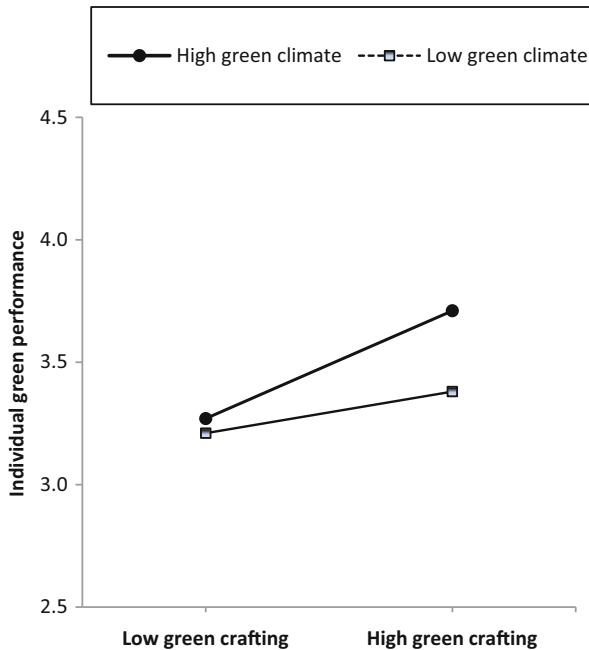


Fig. 2 Moderating effect of green climate

### Controlling for green transformational leadership

Since ESS leadership approach to employee green behavior differs from green transformational leadership approach as earlier discussed, we conducted a supplementary analysis to compare the effects of these two environmentally-specific leadership styles. Following Cohen's (1983) procedure, comparative analyses were conducted through estimating the differences between the regression coefficients linked with ESS leadership and green transformational leadership. In comparison with ESS leadership, green transformational leadership was related less significantly and positively to individual green performance ( $\beta = .21, p < .05$ ) and the significant difference emerged between the impacts of ESS leadership and green transformational leadership on individual green performance ( $z = 2.64, p < .05$ ). Likewise, green transformational leadership was related less significantly and positively to green crafting ( $\beta = .17, p < .05$ ) and the significant difference was encountered between the effects of ESS leadership and green transformational leadership on green crafting ( $z = 1.51, p < .05$ ).

Nonetheless, the relationship between green transformational leadership and team green performance ( $\beta = .25, p < .01$ ) was not significantly different from that between ESS leadership and team green performance ( $z = 1.02, p > .10$ ). Likewise, the association between green transformational leadership and green climate ( $\beta = .17, p < .05$ ) was not significantly different from that between ESS leadership and green climate ( $z = 1.08, p > .10$ ). The indirect effect of green transformational leadership on team green performance via green climate as a mediator was significant (.07 (95% CI [.03, .12], SE = .03,  $p < .05$ ) and was not significantly different from that of ESS leadership ( $z = 1.05, p > .10$ ). The indirect effect of green transformational leadership on individual

green performance through green climate as a mediator was significant (.06 (95% CI [.01, .12], SE = .02,  $p < .05$ ) and was not significantly different from that of ESS leadership ( $z = 1.12$ ,  $p > .10$ ). Further, the indirect effect of green transformational leadership on individual green performance via green crafting as a mediator was non-significant (.07 (95% CI [-.02, .09], SE = .03,  $p > .10$ ).

## Discussion

### Summary of the findings

The results provided empirical evidence for the relationships in our research model. Green climate mediated the positive relationships between ESS leadership and green performance at both team and individual levels. The findings further revealed the role of green crafting as a second stage mediator for the relationship between ESS leadership and individual green performance. Green climate also served as a moderator to strengthen the effect of green crafting on individual green performance.

### Research implications

Through these findings, our inquiry can make multiple contributions to the green management literature. First, our research extends the green management literature by investigating green performance at both team and individual levels. The green behavior research has shifted from organizational green performance to lower levels of green behavior, but mainly individual level (Wang, 2016). Research has remained rather scarce in the realm of team green performance (Ando, Ohnuma, Blöbaum, Matthies, & Sugiura, 2010) albeit teams play a crucial role in implementing the tactics translated from the organizational strategy and thereby contributing to the organizational performance (Dangelico, 2015; Moxen & Strachan, 2017). Our study fills this research gap by taking multilevel outcome approach to examine green performance. Green performance at both team and individual levels is crucial in organizations since their green sustainability requires not only the green contributions of teams, but also the green behavior of individual employees, which contributes to the team green goals as well as the change in behaviors of other stakeholders such as customers toward community greening.

Second, in response to Robertson and Barling's (2017) call for investigating a form of servant leadership targeting environmental performance as well as in pursuit of initial insights into the role of ESS leadership in predicting employee green behavior (e.g., Afsar et al., 2018; Luu, 2018), our research adds ESS leadership to a growing but modest body of leadership predictors for green performance. Our research further highlights the role of leadership in activating not only individual green performance but also the green performance of a work team, which has been neglected in leadership scholarship. Furthermore, while green transformational leadership fosters green behaviors mainly through inspiring followers with green strategy and green goals, ESS leadership, which helps followers approach necessary resources (task and personal resources) for environmental engagement, provides a novel leadership approach complementary to green transformational leadership (see further discussion on the

differences in the effects of these environmentally-specific leadership styles below). Rooted in Western theorizing (Liden et al., 2014; Luu, 2018), ESS leadership is not only relevant to Western values (e.g., service and sustainability values) but also compatible with some values of Asian cultures such as collectivism and harmony built on Confucianism (Lam et al., 2012; Wang et al., 2017) and Daoism (Ma & Tsui, 2015; Wang et al., 2017; Winston & Ryan, 2008). Further, ESS leadership with authenticity and interpersonal acceptance in the presence of employees (Chen et al., 2015; van Dierendonck, 2011) may even help alleviate hierarchical distance in some Asian cultures (Fu et al., 2010; Koo & Park, 2018; Lam et al., 2012).

Third, our inquiry draws upon the conservation of resources (COR) theory (Hobfoll, 1989) to cast light on the mechanisms underlying the relationships between ESS leadership and team and individual green performance. The application of this theory is in line with the view of servant leadership as a source of resources (Ye et al., 2019) and the role of resources in activating employee behaviors above expectations including proactive and extra-role behaviors (Stoverink et al., 2018) such as green behaviors (Kim, Kim, Han, Jackson, & Ployhart, 2017). Our research is among the first to advance the application of the COR theory in extra-role behavior research stream (Guan & Frenkel, 2018; Stoverink et al., 2018) to the green management domain.

The tenets of the COR theory, including proactive accumulation of resources (Hobfoll, 1989), transfer of resources (Hobfoll et al., 2018), and reciprocal resource gain spirals (Halbesleben & Wheeler, 2015), contribute to explain the mediating role of green climate for the nexus between ESS leadership and team green performance. Once green-related resources from ESS leaders, especially perceptions of green goals and values, are accrued and “transferred” among members, green climate may be formed through the work team, which provides further resources (social and personal resources) for members to perform pro-environmentally. With green climate as a normative social mediation mechanism for the effects of ESS leadership on individual green performance, our research further distinguishes itself from prior research that reveals a focus on individual motivational mediators (Robertson & Carleton, 2018).

Furthermore, construing the moderating role of green climate in light of the COR theory, our inquiry extends the recent application of this theory to interactive effects of team climate (Cheng, Bartram, Karimi, & Leggat, 2013; Grandey et al., 2012). As such, different from prior research that has tended to look at the mediating role of green climate for contextual influences on individual green performance (Dumont et al., 2017), our study examines green climate as a mediator for the effects of leadership (ESS leadership) on team and individual green performance as well as a moderator for the effect of green crafting on individual green performance. This dual role of green climate in activating dual-level green behavioral outcomes holds important managerial implications for the efficient use of organizational resources (such as through cultivating green climate) in achieving green goals.

Fourth, our research advances the application of the COR theory in job crafting research stream (Meijerink et al., 2018) by utilizing this theory to elucidate the role of green crafting as the second-stage mediator for the impact of ESS leadership on employee green performance. Through the lens of the COR theory, our research provides an insight into proactive resource gain strategy (green crafting) as a novel mediation mechanism for leadership effects on green behaviors, complementary to

psychological mediators such as environmental commitment (Raineri & Paillé, 2016) and environmental passion (Afsar, Badir, & Kiani, 2016; Robertson & Barling, 2013).

Fifth, our supplementary analyses revealed that ESS leadership was more positively related to employees' green crafting and green individual performance than green transformational leadership. However, there emerged no significant differences between the direct impacts of ESS leadership and green transformational leadership on team green climate and team green performance, as well as their indirect impacts via green climate. These results are in line with prior research findings that by virtue of its demonstration of interpersonal acceptance and authenticity in addressing individual followers' needs for job, social, and personal resources (followers first, organizations second, leaders themselves last, Sendjaya, 2015), servant leadership tends to function as a stronger mechanism than transformational leadership to activate followers' individual outcomes (Chen et al., 2015). However, due to its motive to achieve group/organizational goals (organizations first, followers second) (Eva et al., 2019; van Dierendonck et al., 2014) and tactical influence on group/organizational performance (Chen & Chang, 2013), green transformational leadership may not yield significantly less variances in group outcomes (green climate and team green performance) than ESS leadership.

Last, our research provides contextual insights into the green management literature by testing its model on the dataset derived from organizations in an Asian emerging economy (Vietnam). Most of the studies concerning green behaviors have been concentrated within developed economies, largely in Europe and the US (Sony & Ferguson, 2017); our study contributes to extend their research across diverse socio-economic environments such as Asian contexts. The current research provides an empirical support for a model of environmentally-specific leadership, built on Western theorizing, that holds true for a non-Western context, thereby enhancing the generalizability of Western green management perspectives.

Further, the research context, Vietnam, is culturally community-oriented, collectivistic and hierarchical by nature (Le, Polonsky, & Arambewela, 2015). Vietnam has executed the Environmental Law since 2015 and environmental awareness among people has recently been deepened especially after the environmental disaster caused by the Formosa Company (Nguyen, 2017). Since individuals' environmental values embedded in individuals' awareness may influence their responsiveness to pro-environmental organizational factors (Dumont et al., 2017), reactions of individuals in Vietnam-based organizations toward ESS leadership in the forms of green crafting and green performance may display different patterns from those in other Asian contexts. Comparative analyses of the current research models across Asian countries of different cultures (collectivism and power distance) and environmental sustainability policies may yield interesting implications for academia and practices.

### **Practical implications**

Our current research model suggests a pathway toward green performance for organizations especially in Asia-Pacific settings that share cultural and socio-economic attributes with this research context (Vietnam). A crucial starting point for this pathway is environmentally-specific servant leadership. For organizations that address environmental concerns through activating green behaviors, ESS leaders should be built at the different tiers of the organizational pyramid through recruitment and selection, as well

as training and development programs. Only by possessing both other-oriented and green values can leaders mobilize ample green-oriented resources for followers to help them build green-related resources, experience a green resource gain spiral, and share this perception across their team. In other words, cultivating ESS leadership in teams can be a way to cultivate team green climate, which contributes to shape green performance at both individual and team levels.

Furthermore, managers in organizations should be aware of the role of green crafting among employees in translating green climate into their green performance. Team green climate can serve as a source of green-related resources that can foster green-related resource seeking behavior among employees, thereby enhancing their green crafting. With more green-related resources and less demands in green activities, employees are more likely to engage in green activities.

### Limitations and future research paths

There are some limitations in our inquiry that need addressing on future research paths. Though the data collection in our research was conducted in the survey waves and the hypothesized model demonstrated a higher model-data fit parameter than did the reversed models, the current research, with its time-lagged design, is incapable of providing information about causal relationships (Kasl & Jones, 2003). A cross-lagged study needs to be implemented to provide evidence for cause-and-effect relationships between ESS leadership and green behaviors. Further tests should also be conducted on whether any reverse directions may occur, for instance, the one from green crafting to green climate since team members' proactive engagement in new green projects ("green crafting") may lead to an increase in shared perception of pro-environmental behaviors ("green climate").

Self-report data reflected the susceptibility to CMV bias threat (Podsakoff et al., 2012). Our research, however, managed to make it a less serious concern through the multiple-source data collection approach (i.e., employees and managers) (Podsakoff et al., 2012), the marker variable test (Lindell & Whitney, 2001), and the interaction effect test (Siemsen et al., 2010).

Our research model was tested on the data from four companies in an Asia-Pacific market context (Vietnam). Future research should enhance its generalizability by retesting it in other service industries such as healthcare service organizations in which green behaviors are crucial, from medical waste processing to the application of green treatment technologies (Wu et al., 2010). Manufacturing industries are also important contexts for testing models of green behaviors since green behaviors contribute to the manufacturing of environmentally-friendly products for consumers. Moreover, since Vietnam is culturally collectivistic and hierarchical by nature (Le et al., 2015; Luu, 2017), respondents in this context may have higher ratings of other- and community-oriented leadership behavior than those in individualistic or low power distance cultures. Comparative analyses of our research model should thus be conducted across cultures in terms of collectivism and power distance.

Our research focuses on green crafting and green climate as influence channels of ESS leadership. Future research should take into account other influence channels such as green value congruence or green role identity for ESS leadership. Further research should be conducted on how other boundary conditions such as green HRM or organizational support

for green contributions interact with ESS leadership to foster individual and collective green behavior in the workplace.

## Conclusion

In this research, we found that ESS leadership fostered green performance at both individual and team levels, however, through different mechanisms. While ESS leadership promoted team green performance through cultivating green climate, it shaped individual green performance via the two-stage mediation path of green climate and green crafting. Green climate further added variance to the effect of green crafting on employee green performance. Such findings fill a gap in literature not only on multi-level effects of environmentally-specific leadership but also on cross-level interactional effects on employee green performance.

## Appendix

**Table 4** Measurement items and loadings

Constructs and measurement items	Standardized loadings	t values
Environmentally-specific servant leadership ( $\alpha = .81$ ; CR = .82; AVE = .62)		
My manager cares about my eco-initiatives.	.83 <sup>a</sup>	
My manager emphasizes the importance of contributing to the environmental improvement.	.86	12.74
My manager is involved in environmental activities.	.84	11.28
I am encouraged by my manager to volunteer in environmental activities.	.85	12.17
My manager has a thorough understanding of our organization and its environmental goals.	.79	9.62
My manager encourages me to contribute eco-initiatives.	.81	10.54
My manager gives me the freedom to handle environmental problems in the way that I feel is best.	.84	11.94
My manager does what she/he can do to realize my eco-initiatives.	.82	11.19
My manager holds high environmental standards.	.77	9.46
My manager always displays green behaviors.	.83	11.13
My manager would not compromise environmental principles in order to achieve success.	.79	9.75
My manager values environmental performance more than profits.	.81	10.81
Green climate ( $\alpha = .75$ ; CR = .76; AVE = .60)		
Engaging in and supporting green and sustainable initiatives is important in my work team.	.76 <sup>a</sup>	
Our team is interested in supporting environmental policies.	.74	8.73
Our team believes it is important to protect the environment.	.82	11.05

**Table 4** (continued)

Constructs and measurement items	Standardized loadings	t values
Our team is concerned with becoming more environmentally friendly.	.67	7.46
Our team emphasizes use of less paper, energy, and disposable products.	.81	10.94
Green crafting ( $\alpha = .82$ ; CR = .83; AVE = .65)		
<i>Increasing green-related structural resources</i>		
I try to develop my environmental capabilities.	.82 <sup>a</sup>	
I try to develop myself in terms of environmental knowledge and skills.	.78	9.36
I try to learn new things about environmental improvement.	.86	12.14
I make sure that I use my environmental capacities to the fullest.	.80	10.21
I decide on my own how I do things about environmental improvement.	.84	11.49
<i>Increasing green-related social resources</i>		
I ask my supervisor to coach about environmental knowledge and skills.	.81	10.82
I ask whether my supervisor is satisfied with my green activities.	.80	10.07
I look to my supervisor for inspiration about green activities.	.88	12.85
I ask others for feedback on my green performance.	.86	11.91
I ask colleagues for advice on my green activities.	.85	11.73
<i>Increasing green-related challenging demands</i>		
When an interesting green project comes along, I offer myself proactively as a project co-worker.	.87	12.47
If there are new environmental developments, I am one of the first to learn about them and try them out.	.84	11.65
When there is not much green work to do, I see it as a chance to start new green projects.	.86	12.09
I regularly take on extra green tasks even though I do not receive extra salary for them.	.79	9.46
I try to make my green tasks more challenging by examining the underlying relationships between aspects of my green tasks.	.29 <sup>b</sup>	3.72
<i>Decreasing hindering green task demands</i>		
I make sure that my green activities are mentally less intense.	.83	11.25
I try to ensure that my green activities are emotionally less intense.	.85	11.87
I manage my green activities so that I try to minimize contact with people whose problems affect me emotionally.	.27 <sup>b</sup>	3.14
I organize my green activities so as to minimize contact with people whose expectations are unrealistic.	.81	10.04
I try to ensure that I do not have to make many difficult decisions on green tasks.	.84	11.58
I organize my green activities in such a way to make sure that I do not have to concentrate for too long a period at once.	.78	9.22
Individual green performance ( $\alpha = .84$ ; CR = .84; AVE = .75)	.84	.75
In his/her work, this employee weighs the consequences of his/her actions before doing something that could affect the environment	.85 <sup>a</sup>	
This employee voluntarily carries out environmental actions and initiatives in his/her daily work activities	.82	11.26
This employee makes suggestions to his/her colleagues about ways to protect the environment more effectively, even when it is not his/her direct responsibility	.28 <sup>b</sup>	3.34

**Table 4** (continued)

Constructs and measurement items	Standardized loadings	t values
This employee spontaneously gives his/her time to help his/her colleagues take the environment into account in everything they do at work	.77	8.52
This employee encourages his/her colleagues to adopt more environmentally conscious behavior	.68	7.29
This employee encourages his/her colleagues to express their ideas and opinions on environmental issues	.29 <sup>b</sup>	4.07
This employee actively participates in environmental events organized in and/or by our organization	.85	11.76
This employee stays informed of our organization's environmental initiatives	.79	9.48
This employee undertakes environmental actions that contribute positively to the image of our organization	.87	12.61
This employee volunteers for projects, endeavours or events that address environmental issues in our organization	.84	11.93
Team green performance ( $\alpha = .85$ ; CR = .86; AVE = .67)		
Our team weighs the consequences of its actions before doing something that could affect the environment	.83 <sup>a</sup>	
Our team voluntarily carries out environmental actions and initiatives in its daily work activities	.87	12.53
Our team makes suggestions to its organization and other teams about ways to protect the environment more effectively, even when it is not its direct responsibility	.71	8.91
Our team spontaneously gives its time to help other teams take the environment into account in everything they do at work	.59	7.26
Our team encourages other teams to adopt more environmentally conscious behavior	.62	7.13
Our team encourages other teams to express their ideas and opinions on environmental issues	.24 <sup>b</sup>	2.87
Our team actively participates in environmental events organized in and/or by our organization	.78	9.24
Our team stays informed of our organization's environmental initiatives	.84	11.62
Our team undertakes environmental actions that contribute positively to the image of our organization	.88	13.49
Our team volunteers for projects, endeavors or events that address environmental issues in our organization	.81	10.27

<sup>a</sup> Fixed item

<sup>b</sup> Excluded item

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