



EFFECTS OF GREEN HRM PRACTICES ON EMPLOYEE WORKPLACE GREEN BEHAVIOR: THE ROLE OF PSYCHOLOGICAL GREEN CLIMATE AND EMPLOYEE GREEN VALUES

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As an emerging concept, green human resource management (green HRM) has been conceptualized to influence employee workplace green behavior. This research empirically tested this link. We first developed measures for green HRM, and then drew on the behavioral HRM and psychological climate literature along with the supplies-values fit theory, to test a conceptual model integrating the effects of psychological green climate and individual green values. Results revealed that green HRM both directly and indirectly influenced in-role green behavior, but only indirectly influenced extra-role green behavior, through the mediation of psychological green climate. Individual green values moderated the effect of psychological green climate on extra-role green behavior, but it did not moderate the effect of either green HRM or psychological green climate on in-role green behavior. These findings indicate that green HRM affects both employee in-role and extra-role workplace green behavior; however, this occurs through different social and psychological processes. © 2016 Wiley Periodicals, Inc.

Keywords: green behavior, green HRM, individual green values, psychological green climate

Companies that have strong green policies in place generally benefit from increasing sales and branding recognition (Wee & Quazi, 2005; Yang, Hong, & Modi, 2011) as well as desirable employee outcomes (Salem, Hasnan, & Osman, 2012). As it is employees who are the agents that implement organizational green policies, it is necessary for organizations to promote and ultimately change employee behavior so that such behavior is

aligned with organizational green goals (Daily, Bishop & Govindarajulu, 2009; Ones & Dilchert, 2012; Ramus & Steger, 2000). Increasingly, organizations are adopting green human resource management (green HRM) practices, that is, “HRM aspects of green management,” to promote employee green behavior in the workplace (Renwick, Redman, & Maguire, 2013, p.1). Green HRM is defined by Kramar (2014) as “HRM activities, which enhance positive environmental

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Human Resource Management 2016

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Published online in Wiley Online Library (wileyonlinelibrary.com).

DOI:10.1002/hrm.21792

outcomes" (p. 1075). However, despite increasing levels of academic literature conceptualizing the correlations between green HRM and employee workplace green behavior (e.g., Jackson & Seo, 2010; Kumari, 2012; Renwick et al., 2013), this linkage has thus far not been adequately empirically explored.

A number of studies, such as Jabbour and Santos (2008) and Jabbour, Santos, and Nagano (2008), along with papers published in the special issue of *Human Resource Management* (Vol. 51, No. 6, 2012), have examined the contributions of HRM practices to organizational environmental performance. Empirical studies, such as Harvey, Williams, and Probert (2013) and Paillé, Chen, Boiral, and Jin (2014), have shown that HRM policies and practices are related to individual-level employee pro-environmental behaviors. However, Harvey et al. (2013) is a case study that utilized a small sample of airline pilots. The small sample in this study did not allow the effect of HRM to undergo rigorous enough testing. The Paillé et al. (2014) study, however, focused on general HRM, rather than green HRM. The HR behavioral literature suggests that different HRM practices may influence the same employee behavior through different social and psychological processes (Jiang, Lepak, Hu, & Baer, 2012). As such, how and when green HRM influences employee workplace green behavior remains largely unknown.

The current study is aimed at addressing the gap in the literature by exploring the effects of green HRM on employee workplace green behavior, referring to "scalable actions and behavior that employees engage in that are linked with and contribute to" (Ones & Dilchert, 2012, p. 87). Drawing on the literature from three different perspectives, we developed and tested a conceptual model depicting the social and psychological processes through which green HRM influences individual green behavior. More specifically, from the behavioral HRM perspective (Wright, Dunford, & Snell, 2001) we argued that green HRM would be significantly related to employee green behavior. It is argued that organizational policies and practices, such as HRM, shape employee psychological climate, that is, individuals' perceptions of the work environment (Burke, Borucki, & Kaufman, 2002; Schneider, Ehrhart, & Macey, 2013). Consistent with the psychological climate literature, organizational

green HRM practices would lead to psychological green climate perceptions, which are in turn significantly related to individual workplace green behavior. Moreover, we invoked the supplies-values fit theory (Edwards, 1996, 2007) to explore the role of individual green values in moderating the relationships between green HRM/psychological green climate and employee workplace green behavior. In doing so, the current study provides insights into how and when green HRM promotes employee workplace green behavior. The theoretical framework for this study is shown in Figure 1.

This study intended to make several theoretical contributions. First, it adds to the knowledge base of the HRM behavioral literature by exploring employee workplace outcomes of green HRM, which has not been empirically studied sufficiently, to provide a better understanding of the concept and its consequences. The green HRM narrative is still in its infancy with inferences about its effect on employee workplace outcomes only broadly reaching the conceptualization stage (see, e.g., Cherian & Jacob, 2012; Jabbour, 2011; Renwick et al., 2013). Hence, this research extends the current theorizing in an emerging field of HRM.

Second, because Daily and Huang's (2001) call for a greater understanding of the human element of environmental management theory, there are a growing number of studies that have begun exploring factors that promote employee green behavior. However, employee workplace green behavior has surprisingly attracted far less research attention than individual green behavior outside the workplace (Paillé & Boiral, 2013). Moreover, past workplace green behavior studies have mainly explored the effect of organizational sustainability programs (Paillé, Boiral, & Chen, 2013; Norton, Zacher, & Ashkanasy, 2014) and leaders' influence (Ramus & Steger, 2000; Robertson & Barling, 2013). Previous research has not yet adequately accounted for the effect of employee engagement when implementing organizational policies and practices. It is argued that

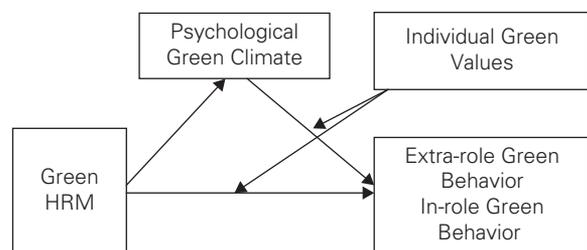


FIGURE 1. The Conceptual Model

for employees to acquiesce to a green behavioral mantra, they must engage with the organization and its resolve to implement green practices and policies (Robertson & Barling, 2013; Unsworth, Dmitrieva & Adriasola, 2013), as green HRM practices are expected to play an important role in this engagement process. Thus, this study also contributes to the organizational behavior literature in relation to understanding the antecedents of individual workplace green behavior.

Third, the HRM behavioral literature suggests that HRM might not directly influence employee work outcomes, but rather it does this through the virtue of social and psychological processes (Jiang et al., 2012). A recent green HRM review by Renwick et al. (2013) identified a lack of understanding of the linking mechanisms between employee participation in environmental initiatives and organizational and employee outcomes as a major literature gap. This study explored the mediation of psychological green climate in the green HRM–employee workplace green behavior relationship, a mediation path that has not been previously studied. Psychological climate is the individual-level perceptions of the work environment (Burke et al., 2002). Although somewhat related, psychological climate and culture are different constructs, with culture being a more stable, deep, and long-term construct than climate (Ashkanasy, 2007). We also probed conditional indirect effects of green HRM on employee green behavior by investigating the moderating role of individual green values in the multiple stages of the mediation of psychological green climate. This research therefore answers the call of Renwick et al. (2013) by developing an enhanced understanding of the underlying mechanisms of green HRM.

Finally, employees have different levels of discretion over evincing in-role and extra-role behavior in the workplace (Williams & Anderson, 1991). Norton et al. (2014) revealed that organizational sustainability policies influence employee in-role and proactive green behavior differently, for example, through different social and psychological processes. Thus far, little distinction has been made in the literature between employee in-role green behavior and green behavior that is beyond formal job duties (Boiral & Paillé, 2012; Manika, Wells, Gregory-Smith, & Gentry, 2013; Paillé et al., 2014). As a consequence, further research is needed to fill this important literature gap. In this study, we ventured into green HRM and its consequences by exploring in-role and extra-role green behaviors, two distinctive, yet related, criterion variables. In doing so, this study aimed to provide valuable insight into the nuanced effects of green

HRM on employee green behaviors, both as a part of job roles and formal duties and beyond.

Theoretical Backgrounds and Hypotheses Development

Green HRM

With companies now changing their business strategies and efforts toward a more environmentally focused agenda, HR must adjust its mandate and expand its scope by incorporating environmental management so as to transform how it performs its core HR functions (Angel Del Brio, Junquera, & Ordiz, 2008). Boudreau and Ramstad (2005) suggested that HR has the ability to measure and influence employee sustainability-related behavior, attitudes, knowledge, and motivation. Hence, organizations can utilize HRM to effectively deliver and implement environmentally sustainable policies (Renwick et al., 2013). Existing studies have identified a range of green HRM practices. For example, for green HRM to be an effective force in eliciting employee workplace green behavior, it should ensure that the firm has recruitment strategies aimed at attracting employees who have similar environmental values and beliefs as the organization; development, performance, and reward practices that take into account individual environmental performance; and effective training programs that develop environmental awareness, attitudes, skills, and knowledge (Cherian & Jacob, 2012; Daily & Huang, 2001; Milliman & Clair, 1996; Renwick et al., 2013).

Green Behavior

Employee green behavior is pro-social in nature (Chou, 2014); and from a pragmatic perspective, routine workplace green behavior should include both in-role and extra-role green behavior (Ramus & Killmer, 2007), as both forms of behavior contribute to organizational outcomes through value creation. How behavior is ultimately classified, such as whether such behavior is in-role or extra-role, is dependent on the organization and the expectations that the organization has of its employees (Paillé & Boiral, 2013). There could be instances in many jobs that require employees to behave “green,” such as jobs that require employees to ensure that toxic waste is not poured into local water systems or that hazardous material

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is disposed of in accordance with organizational policies and government regulations. These types of behaviors would be expected of the employee and, therefore, form part of a person's formal job duties. However, extra-role green behavior is more cryptic in nature and could be as simple as suggestions to improve organizational environmental performance through turning off computers at the end of the day and turning off lights when not in use (Paillé & Boiral, 2013). While both in-role and extra-role green behavior is considered important for achieving organizational green goals (Norton et al., 2014), they may have different antecedents as employees have different levels of discretion over when and how to exhibit these behaviors in the workplace (Hoffman & Dilchert, 2012; Williams & Anderson, 1991).

Psychological Green Climate as a Mediator in the Green HRM–Employee Workplace Green Behavior Relationship

Green HRM will facilitate employees' completion of in-role green tasks and elicit employee extra-role green behavior in the workplace.

The HRM behavioral literature suggests that HRM influences organizational performance through its effect on employee work attitudes and behavior (see Becker & Huselid, 2006, for a review; also see Wright et al., 2001). The HRM behavioral literature also suggests that employee consequences of HRM are largely dependent on HRM attributions (Nishii, Lepak, & Schneider, 2008). Green HRM affects employee workplace green behavior for the following reasons. First, green HRM practices, such as disseminating the information about the organization's green focus and emphasizing individual green values in recruitment and selection, and promoting green values through training, are likely to increase employee green cognition (Renwick et al., 2013). Second, work and job design that meet environmental requirements and green training practices designed to improve employee knowledge, skills, and competence are key processes to encourage employees to conduct green activities (Pless, Maakby, & Stahl, 2012). Third, the HRM attribution literature suggests that employees' perception of why the organization adopts certain HRM practices determines the effectiveness of HRM practices on employee work behavior (Nishii et al., 2008). A formalized and openly communicated set of green HRM practices and policies overtly demonstrates to employees the organization's commitment to being green and will likely result in the employee acting in accordance with the organization's green policies. Finally, promotion, appraisal, and

rewards that take into account green performance motivate employees to engage in and contribute to green activities (Renwick et al., 2013). Hence, green HRM will facilitate employees' completion of in-role green tasks and elicit employee extra-role green behavior in the workplace. As such, we developed the following hypotheses:

Hypothesis 1a: Green HRM is positively related to employee workplace in-role green behavior.

Hypothesis 1b: Green HRM is positively related to employee workplace extra-role green behavior.

The behavioral HRM literature recognizes that HRM may not directly affect employee behavior; rather, its influence is transmitted through various underlying mechanisms (Jiang et al., 2012). In this study, we proposed that psychological climate is a social and psychological process through which green HRM influences employee workplace green behavior. Psychological climate captures "individual perceptions of work environment characteristics" (Burke et al., 2002, p. 326) or "employees' perceptions of their organizations" (Patterson et al., 2005, p. 380). Green climate has been described in the literature as the climate that applies to corporations that achieve sustainable objectives by implementing a range of pro-environmental policies (Chou, 2014; Norton et al., 2014; Paillé et al., 2014; Ramus, 2002). Psychological green climate, therefore, is the perception an individual has of the organization's pro-environmental policies, processes, and practices that reflect the organization's green values.

Psychological climate is the result of employee social interactions, whereby employees determine the values of organizational policies, practices, and procedures that they both encounter and observe in the workplace (Kuenzi & Schminke, 2009). It is suggested that employees digest and interpret the organization's HRM practices and policies, and will in turn form their perceptions of the organization and its values (Bowen & Ostroff, 2004; Ferris et al., 1998; Kaya, Koc, & Topcu, 2010; Nishii et al., 2008). It is during this cognitive process that employees will develop their views regarding the psychological climate of the organization. When an organization projects a strong environmental agenda, the firm signals to employees the values and ethics that are central to the organization (Rangarajan & Rahm, 2011). By adopting green HRM practices, the organization sends a message to employees about its concern of the environment beyond pure economic gains, and also seeks to engage employees in green-related decisions and activities (Renwick et al., 2013). Chou

(2014), supported by Manika et al. (2013), suggested that employees are less likely to engage in environmental behavior in the workplace if they are not personally responsible for the energy costs or the equipment used. Therefore, it is important for organizations to clarify green responsibilities in the workplace with proper job design and appraisal; appropriate rewards for green behavior, which helps to clarify workplace green responsibilities; and enhance employee awareness of green values to encourage employee involvement in green activities. Hence, green HRM will be positively related to employee psychological green climate.

The climate literature suggests that employee behavior is largely influenced by perceptions that employees have about the organization (Schneider et al., 2013). Day and Bedeian (1991) demonstrated that organizational climates were able to predict, to some extent, employees' job performance with respondents who perceived their organization as unambiguous and supportive of risk, performing better than employees who worked for organizations perceived as enigmatic. An extensive literature review by Parker et al. (2003) confirmed that a multitude of research on psychological climate showed that psychological climate is significantly related to job satisfaction, burnout, and in-role and extra-role job performance. Rupp, Ganapathi, Aguilera, and Williams (2006) theoretically argued that an employee's perception of social programs, such as corporate social responsibility initiatives, triggers employee behavioral, attitudinal, and emotional responses. A recent study by Norton et al. (2014) found relationships between the perceived presence of organizational environmental policies and employee behaviors, with both task-related and proactive green behavior mediated by green climate. Based on these discussions, it can be argued that psychological green climate mediates the green HRM–employee workplace green behavior relationship. Therefore, we developed the following hypotheses:

Hypothesis 2a: Green HRM indirectly influences employee workplace in-role green behavior through the mediation of psychological green climate.

Hypothesis 2b: Green HRM indirectly influences employee workplace extra-role green behavior through the mediation of psychological green climate.

Moderating Effect of Individual Green Values

Contemporary values literature has underscored the importance of individual values in explaining

individual attitudes and behavior (Davidov, Schmidt, & Schwartz, 2008; Low, 2013). Two major theories, that is, the value-belief-norm (VBN) theory (Stern, Dietz, Abel, Guagnano, & Kalof, 1999) and the supplies-values fit theory (Edwards, 1996, 2007), largely underpin the ways in which individuals' values affect their behavior. The VBN theory posits that personal values, beliefs, and norms will affect employee work behavior (Stern et al., 1999). Empirical studies, such as Andersson, Shivarajan, and Blau (2005), Chou (2014), and Schultz et al. (2005), have reported a significant impact of personal environmental values on individual environmentally friendly behavior. These findings all point to a direct relationship between personal green values and employee green behavior.

The supplies-values fit theory posits that if personal values are congruent with those supplied by the organization, this will have a positive effect on employee work attitudes and behavior (Edwards, 1996, 2007). While it may be self-evident that some conflicting values would likely exist between an individual and the organization in which he or she works, it is in the best interests of an organization to strive for shared, congruent values (Paarlberg & Perry, 2007). A shared ideology that aligns individual values with that of the organization is expected to result in optimal employee outcomes, such as strengthened organizational identification and meaning of work, and positive work attitudes and behavior (Edwards, 1996; Edwards & Cable, 2009; Paarlberg & Perry, 2007). The stronger an individual connects with his or her organization, through aligned values and identification, the greater the likelihood that the employee would commit to achieving organizational goals and objectives (Cohen & Liu, 2011). Therefore, as identified by Day and Bedeian (1991), employee behavior is the interplay of both the person and the environment.

According to Rupp et al. (2006), employees make explicit judgments about their organization's socially responsible policies and behavior, and it is these judgments that determine whether the employees' psychological needs are fulfilled. The central themes of the supplies-values fit theory (Edwards, 1996, 2007), therefore, would support the model proposed in this study in that if an organization supplies an environment conducive to an employee's values, and as a result the employee's green values were congruent with that of the organization, it would be expected that the employee would be more likely to exhibit green workplace behaviors. Conversely, if employees' values are incongruent with those of the organization or the organization does not supply an environment that matches the need of the

employees, then employees would be less likely to demonstrate green behavior in the workplace. That is to say, individual green values and organizational green values interactively influence employee workplace green behavior. Green HRM practices and psychological green climate reflect the result of employees' judgments of the organization's green values. Hence, individual green values will moderate the effects of green HRM and psychological green climate on workplace green behavior. Therefore, we developed the following hypotheses:

<i>Individual green values and organizational green values interactively influence employee workplace green behavior.</i>	<i>Hypothesis 3a: Individual green values will moderate the effects of green HRM on employee workplace (1) in-role green behavior and (2) extra-role green behavior, such that the effects will be stronger when individual green values are high and weaker when low.</i>
<i>Individual green values and organizational green values interactively influence employee workplace green behavior.</i>	<i>Hypothesis 3b: Individual green values will moderate the effects of psychological green climate on employee workplace (1) in-role green behavior and (2) extra-role green behavior, such that the effects will be stronger when individual green values are high and weaker when low.</i>

Methods

Sample and Procedures

The data for this study were collected from a Chinese subsidiary of an Australian multinational enterprise, which manufactures paper-packaging products, primarily for the food industry. The company has ratified four primary green indicators including energy consumption, solid waste generation, water consumed per kilogram of products, and percentage of waste recycled. The researchers' interviews with the general manager, the HR manager for North Asia operations, the HR manager for the Chinese operations and the environment, and the environmental and safety officer revealed that the firm had adopted a range of green HRM policies and practices.

The questionnaire was distributed to and collected directly from employees and their direct supervisors during working hours, with time off provided by management to complete the questionnaire in early 2014. Full anonymity for all participants was assured, with organizational staff having no access to the completed questionnaires, and the researchers only having employee identification through an employee

code number. No name or other identification was requested or supplied on the questionnaire. Each respondent received a survey that had his or her personal employee code on the front page. Supervisors completed a separate survey for each of their subordinates at a separate, prearranged time slot. The researchers subsequently paired the surveys by matching the corresponding employee codes on both the employee and supervisor surveys. The company had 641 employees in total, with 59 employees participating in focus group discussions. Employees who had not participated in the focus groups and were able and on hand to participate, based on shift work and personal availability, took part in the survey. In total, 390 employees completed and returned the survey, yielding a response rate of 60.5%. Removing two incomplete surveys, 388 surveys were usable. On average, respondents had 11.53 years of education ($SD = 2.95$) and worked with the firm for 6.22 years ($SD = 4.3$). The mean age was 36.30 ($SD = 8.35$), and 57.5% of respondents were female.

Measures

The questionnaire was developed in English. Two bilingual academics translated the questionnaire into Chinese and back-translated into English independently, with any ambiguities resolved through further discussions. Focus group consultations were conducted to explore the applicability of the measures for the study variables. We used 5-point Likert scales for all study variables, ranging from 1 = strongly disagree to 5 = strongly agree.

Variables (Employee Rated)

Green HRM

There are no existing empirically validated measures for the latent variable "green HRM." As such, the researchers followed a number of procedures to develop the measures. First, the researchers identified nine key green HRM practices through a systematic review of the existing green HRM and green management literature. Next, the research team had several discussions and agreed to reduce the number of the statements to seven with "taking initiatives to promote green values" and "providing support to encourage employees to care about the environment" being removed. Third, to ensure the measures reflected the context on which this study was based, the researchers conducted the above-mentioned interviews. Interviewees were asked if they understood the reasons why the company adopts certain HRM practices, what these

HRM practices were, and how these practices affected employee work attitudes and behavior. Subsequent interviews resulted in the item “my company considers candidates’ green attitudes in recruitment and selection” being removed from the statement list because the company did not have this practice in place at the time of the interviews.

At the next step, the researchers conducted three focus group discussions prior to the formal questionnaire being presented to employees. The participants were asked to rate the relevance of the measuring statements to their own experience on a 5-point Likert scale, from 1 = not at all to 5 = very much. The results showed that all measuring statements scored above 4, indicating that the green HRM measure was useable with the sample. Demographic information of the 59 focus group participants is; 50.8% were male; average age was 35 years old; average tenure at the organization was 7.5 years; and education levels were as follows: 15 participants attended university, 36 attended secondary school, and eight attended trade school.

Exploratory factor analysis was then performed on the measure for green HRM using one half of the sample. The coefficients all exceeded .30. The Kaiser-Meyer-Olkin value was .80, and the Bartlett’s test of sphericity was significant ($p < .001$). These results supported the factorability of the correlation matrix. The principal axis factoring extracted one factor with eigenvalue exceeding 1 (eigenvalue = 3.05, explaining 43.40% of variance). The individual factor loadings all exceeded .70. A confirmatory factor analysis (CFA) was performed on this variable using the other half of the sample. The results supported the single dimensional structure ($\chi^2_{(9)} = 25.02, p < .001$; comparative fit index [CFI] = .97; incremental fit index [IFI] = .97; root mean square error of approximation [RMSEA] = .06). The alpha coefficient for this scale was .88. The six items and factor loadings are shown in Table I.

Psychological green climate was measured using five items from Chou (2014). A sample item is “Engaging in and supporting green and sustainable initiatives is important in this company.” The alpha coefficient was .86.

Individual green values were measured using three items from Chou’s (2014) personal environmental norms scale. A sample item is “I feel a personal obligation to do whatever I can to prevent environmental degradation.” The alpha coefficient was .83.

Control Variables

It is suggested that demographic variables would influence individual green behavior (Abrahamse & Steg, 2009). As a result, we controlled for gender, age, education, position, and tenure.

Variables (Rated by Supervisors)

In-role and Extra-role Employee Green Behavior

In-role and extra-role green behavior is measured using the respective three-item scales developed by Bissing-Olson, Iyer, Fielding, and Zacher (2013). A sample item for in-role green behavior is “This employee adequately completes assigned duties in environmentally friendly ways,” and for extra-role green behavior is “This employee takes initiatives to act in environmentally friendly ways at work.” The principal axis factoring extracted two factors with eigenvalue exceeding 1 (eigenvalue 1 = 2.74, explaining 40.13% of variance; eigenvalue 2 = 1.71; explaining 15.86% of variance). We performed CFAs to explore whether in-role and extra-role green behaviors are distinctive constructs. Results revealed that the two-factor model was a better fit ($\chi^2_{(43)} = 99.76, p < .001, CFI = .96, IFI = .96, RMSEA = .06$, Akaike information criterion [AIC] = 753.23) than the one-factor model ($\chi^2_{(44)} = 136.40, p < .001, CFI = .91, IFI = .90, RMSEA = .09, AIC = 869.64; \Delta\chi^2_{(1)} = 15.84, p < .001$). Alpha coefficients for in-role and extra-role green behavior were .86 and .85, respectively.

TABLE I The Measure for Green HRM

Item	Factor Loading
My company sets green goals for its employees.	.71
My company provides employees with green training to promote green values.	.74
My company provides employees with green training to develop employees’ knowledge and skills required for green management.	.77
My company considers employees’ workplace green behavior in performance appraisals.	.73
My company relates employees’ workplace green behaviors to rewards and compensation.	.72
My company considers employees’ workplace green behaviors in promotion.	.70

Analytical Strategy

We conducted structural equation modeling using MPlus 7.2 to test the hypotheses by following the two-step procedure suggested by Anderson and Gerbing (1988). At Step 1, we conducted a series of CFAs with maximum likelihood estimation to examine the discriminant validity of the latent variables. At Step 2, we compared the fit indicators of the structural partial mediation models and the full mediation models. According to Bentler and Bonett (1980), the goodness-of-fit values for CFI and IFI larger than .90 are acceptable, and exceeding .95 indicates a good fit. A value below .06 for RMSEA indicates a good fit into data (Beauducel & Wittmann, 2009). A model with the smallest AIC is the most parsimonious (Akaike, 1987). Due to the fact that our hypothesized models are a moderated mediation construct, we followed the approach recommended by Edwards and Lambert (2007) to test the mediated effects at varied levels of the moderator, and the moderated effects at multiple stages of mediation. Indirect effects were tested with confidence intervals (CIs) using 1,000 bootstrap sampling (Shrout & Bolger, 2002).

Results

The CFA results showed that the proposed five-factor model including green HRM, psychological green climate, individual green values, in-role green behavior, and extra-role green behavior was a good fit to the data ($\chi^2_{(265)} = 463.75, p < .001, CFI = .97, IFI = .97, RMSEA = .05, AIC = 1,264.766$). Comparatively, it was a better fit than other, more parsimonious models such as the four-factor model collapsing in-role and extra-role green behavior ($\chi^2_{(269)} = 492.27, p < .001, CFI = .86, IFI = .86, RMSEA = .08, AIC = 1,363.48, \Delta\chi^2_{(4)} = 28.52, p < .001$); the three-factor model collapsing green HRM and psychological green climate ($\chi^2_{(272)} = 645.89, p < .001, CFI = .83, IFI = .83, RMSEA = .09, AIC = 1,468.77, \Delta\chi^2_{(7)} = 182.14, p < .001$); the two-factor model collapsing green HRM, psychological green climate, and individual green values ($\chi^2_{(274)} = 679.59, p < .001, CFI = .75, IFI = .75, RMSEA = .11, AIC = 1,686.80, \Delta\chi^2_{(9)} = 215.84, p < .001$); and one-factor model by loading all variables on a single factor ($\chi^2_{(275)} = 1,060.91, p < .001, CFI = .55, IFI = .56, RMSEA = .14, AIC = 3,108.33, \Delta\chi^2_{(10)} = 597.16, p < .001$). These results supported that the five study variables are distinctive constructs.

Means, standard deviations, correlations, and reliabilities of the study variables are presented in Table II. The relationships of the two criterion variables with the predictor variables were in the expected directions. In-role green behavior was weakly correlated with extra-role green behavior

TABLE II Means, SD, Correlations, and Reliabilities of the Study Variables

	M	SD	1	2	3	4	5	6	7	8	9	10
1. Gender	1.58	.49	—									
2. Position	1.77	1.26	-.06	—								
3. Education	11.53	2.94	-.09	.59**	—							
4. Age	36.30	8.35	.11	.05	-.28**	—						
5. Tenure	6.22	4.30	-.02	.14**	-.08	.41**	—					
6. Green HRM	2.26	.91	.02	.02	.07	-.04	-.01	(.88)				
7. Psychological Green Climate	2.23	.80	.03	.15**	.14*	.03	-.04	.61**	(.86)			
8. Individual Green Values	1.65	.68	.13*	.26**	.28*	.06	-.04	.36**	.42**	(.83)		
9. In-role Green Behavior	2.41	.82	.15*	.14**	.13**	.03	-.03	.37***	.29**	.13**	(.86)	
10. Extra-role Green Behavior	2.84	.78	.15*	.41**	.06**	-.03	-.09	.25*	.39**	.29**	.18*	(.85)

Note: n = 388, * p < .05, ** p < .01(2-tailed), Cronbach's alphas are reported in the parentheses on the diagonal.

($r = .18, p < .05$); indicating they are correlated but distinctive constructs.

Hypothesis Test

Hypotheses 1a, 1b, 2a, and 2b constitute partial mediation models, in which green HRM directly and indirectly influences employee workplace in-role and extra-role behavior through the mediation of psychological green climate. When psychological climate was not included in the models, the main effects of green HRM were significant for in-role green behavior ($\beta = .31, p < .001$) and extra-role green behavior ($\beta = .20, p < .01$) after gender, position, education, age, and tenure were controlled for. Subsequently, Hypotheses 1a and 1b received support.

After controlling for demographic variables, the hypothesized partial mediation model for in-role green behavior fit into the data well ($\chi^2_{(152)} = 273.6, p < .001, CFI = .99, IFI = .99, RMSEA = .03, AIC = 12,935.905$), and fit better than the alternative full mediation model ($\chi^2_{(153)} = 300.7, p < .001, CFI = .89, IFI = .89, RMSEA = .08, AIC = 13,509.30, \Delta\chi^2_{(1)} = 27.1, p < .001$). The full mediation model for extra-role green behavior fit into the data well ($\chi^2_{(114)} = 192.1, p < .001, CFI = .97, IFI = .97, RMSEA = .05, AIC = 12,300.35$), and fit better than the hypothesized partial mediation model ($\chi^2_{(113)} = 218.16, p < .001, CFI = .91, IFI = .90, RMSEA = .06, AIC = 12,359.90, \Delta\chi^2_{(1)} = 26.06, p < .001$). Therefore, the partial mediation model for in-role green behavior and the full mediation model for extra-role green behavior were the preferred models. Green HRM was significantly related to in-role green behavior ($\beta = .20, p < .01$), but not significantly related to extra-role green behavior ($\beta = .06, p = .12$). Green HRM was significantly associated with psychological green climate ($\beta = .37, p < .001$). Psychological green climate was significantly related to in-role green behavior ($\beta = .23, p < .01$) and extra-role green behavior ($\beta = .33, p < .001$).

The indirect effect of green HRM on in-role green behavior through the mediation of psychological green climate was .09. The 1,000 bootstrap sampling revealed that the distribution of the product of coefficients 95% CIs being .002–.18, not containing zero. The indirect effect on extra-role green behavior was .12. The result of the 1,000 bootstrap sampling showed that 95% CIs for the distribution of the product of coefficients ranged between .03 and .22. None of the CIs contained zero. Thus, green HRM directly and indirectly affected in-role green behavior through the mediation of psychological green climate. Hypothesis 2a consequently received support. Psychological green climate fully mediated the

green HRM-extra-role green behavior relationship. Hypothesis 2b was partially supported.

Hypothesis 3a predicted that individual green values and green HRM would interactively influence employee workplace in-role and extra-role green behavior. Hypothesis 3b predicted that individual green values and psychological green climate would interactively influence employee in-role and extra-role green behavior. To test these hypotheses, we created the product terms “psychological green climate*individual green values” and “green HRM*individual green values” using the mean centered approach to reduce multicollinearity (Aiken & West, 1991). We added these two product terms as well as individual green values to the preferred models. After controlling for the main effects of green HRM and individual green values, the two product terms “green HRM*individual green values” ($\beta = .03, p = .16$) and “psychological green climate*individual green values” ($\beta = .04, p = .10$) were not significantly related to in-role green behavior. The product term psychological green climate*individual green values was significantly related to extra-role green behavior: $\beta = .16, p < .05$.

The interactive effect of individual green values and psychological green climate on extra-role green behavior is further illustrated in Figure 2. It shows that the effect of psychological green climate on extra-role green behavior was stronger when the level of individual green values was high, and the effect was weaker when the level of individual green values was low. We conducted path analyses under both high (i.e., 1 SD above the mean) and low (i.e., 1 SD below the mean) levels of individual green values. The simple paths at low and high levels of individual green values for in-role green behavior are shown in Figure 3, and those for extra-role green behavior are shown in Figure 4. Hence, Hypothesis 3a was not supported, and Hypothesis 3b was only partially supported.

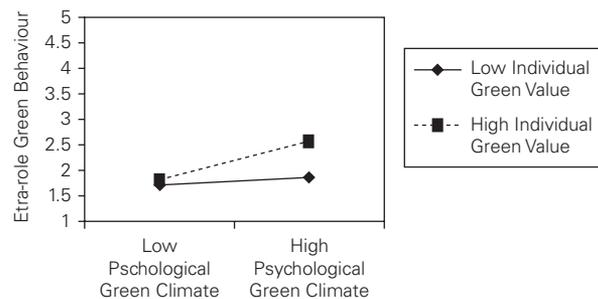
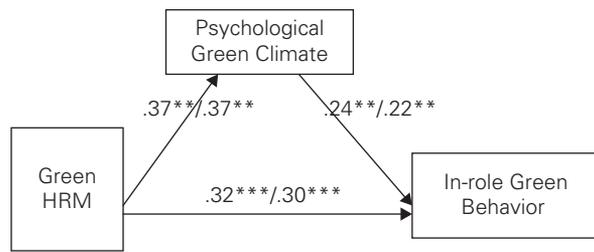
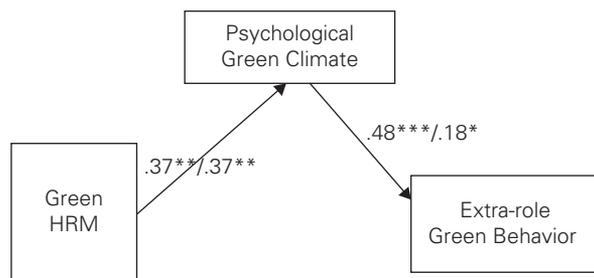


FIGURE 2. Interactive Effect of Individual Green Values and Psychological Green Climate on Extra-role Green Behavior



Note: High individual green values/low individual green values.

FIGURE 3. Path Analysis of Individual Green Values for In-role Green Behavior



Note: High individual green values/low individual green values.

FIGURE 4. Path Analysis of Individual Green Values for Extra-role Green Behavior

Discussion

The past few years have witnessed growing academic interest in HRM's role in environmental management (Jackson & Seo, 2010; Renwick et al., 2013). The current study takes a step further to empirically explore employee workplace green behavioral outcomes of green HRM. To achieve this research objective, we first developed measures for green HRM. Second, we utilized the behavioral HRM (Becker & Huselid, 2006; Jiang et al., 2012; Nishii et al., 2008) and organizational climate (e.g. Burke et al., 2002) literature to examine how green HRM predicts employee workplace green behavior through the mediation of psychological green climate. Third, we applied supplies-values fit theory (Edwards, 1996, 2007) to explore the moderating effect of individual green values on the relationships of green HRM and psychological green climate with employee green behavior.

The results show that green HRM was directly and indirectly related to in-role employee workplace green behavior, but only indirectly related to extra-role green behavior, through the mediation of psychological green climate. This finding provides empirical evidence to support the

behavioral HRM literature from the following perspectives: (1) HRM practices influence organizational performance through the impact on employee workplace behavior (Becker & Huselid, 2006; Wright et al., 2001); (2) attributes of HRM practices determine what employee behavior is likely to be affected (Bowen & Ostroff, 2004; Nishii et al., 2008); and (3) HRM may influence employee workplace outcomes through certain underlying mechanisms (Jiang et al., 2012), such as organizational climates (Burke et al., 2002).

The result also shows that individual green values moderate the effect of psychological green climate on extra-role green behavior. This finding provides some support to the supplies-values fit theory (Edwards, 1996, 2007), indicating that congruence between individual values and values overtly demonstrated by the organization results in positive employee workplace outcomes. However, no evidence was found that individual green values moderated the effects of green HRM and psychological green climate on in-role green behavior. These findings indicate that the ways in which green HRM influences in-role and extra-role green behavior over which employees have different levels of discretion are different.

This study contributes to the literature in several ways. The development of the green HRM measure is a significant contribution to the HRM and green management literature. This measure was developed through a literature review as well as using empirical validation. As such, it provides a useful platform to move forward to develop a more cross-culturally generalized measure for green HRM. As green HRM is an emerging concept, its actualization in the literature is minimal, with researchers only recently embracing its management potential. Existing publications on green HRM (e.g., Cherian & Jacob, 2012; Daily & Huang, 2001; Jabbour, 2011; Jackson & Seo, 2010; Renwick et al., 2013) have largely attempted to conceptualize employee workplace outcomes of the green HRM. A handful of empirical studies have explored the HRM–employee pro-environmental behavior relationship. However, these studies either focused on general HRM rather than green HRM (e.g., Paillé et al., 2014) or used small samples (e.g., Harvey et al., 2013, is a single-case study). Hence, there is a lack of adequate theory-based empirical studies on employee workplace outcomes of green HRM. This research adds to the knowledge base of the HRM literature in relation to employee workplace consequences of green HRM, as well as the social and psychological processes through which it exerts influences on employees' behaviors.

One interesting finding of this study is that both in-role and extra-role green behaviors are related to organizational green HRM practices; however, this occurs through different social and psychological processes. We interpret this finding in the way that employee in-role green behavior is officially appraised, recognized, and related to rewards and is therefore routine workplace behavior, and as such is directly affected by green HRM practices. Because extra-role green behavior is not officially appraised and rewarded, these behaviors are principally influenced by individual perceptions of organizational green climate resulting from the adoption of, rather than influenced directly by, green HRM practices.

Moreover, our study extends the supplies-values fit theory (Edwards, 1996, 2007) by providing empirical evidence of the moderating effect of individual green values on the psychological green climate–extra-role green behavior relationship. This finding is consistent with past studies, such as Bissing-Olson et al. (2013) reporting that pro-environmental attitude moderates the effect of daily effect on proactive pro-environmental behavior. It is necessary to note that our study, however, does not support the findings in the Bissing-Olson et al. (2013) study, which found that pro-environmental attitude moderates the effect of daily effect on task pro-environmental behavior. We interpret our findings in the way that it would be expected that employees would have less discretion resulting from personal values over job duties than over extra-role behavior (Williams & Anderson, 1991). The findings in relation to different moderating effects of individual green values and different mediating effects of psychological green climate are important as they provide a better understanding of the nuanced social and psychological processes through which green HRM influences individual workplace green behavior, and, more generally, different antecedents of in-role and extra-role employee workplace green behaviors. These findings provide a new perspective on the HRM–employee workplace outcome relationships and open up an interesting avenue for further research.

Implications for Practices

Although this research was conducted in the national context of China, it has significant implications for management in general, due to the fact that green management has become a contemporary global issue (Norton et al., 2014). A growing number of researchers (e.g., Jackson & Seo, 2010; Kumari, 2012; Renwick et al., 2013) have suggested that organizations should adopt green HRM practices to effectively and successfully implement

organizational green policies. In support of these researchers, the current study provides empirical evidence of positive relationships of green HRM with employee in-role and extra-role workplace green behavior, through the mediation of psychological green climate. Based on the findings of the current study, organizations should put green HRM practices in place if they decide to set up and seek to successfully achieve a green goal agenda. More specifically, they should design work tasks to meet organizational green policy requirements and consider providing employees with adequate green training and educational opportunities. Such training serves multiple purposes. First, it helps to equip employees with the necessary skills and expertise for the successful implementation of green management goals. Second, it increases employee awareness and cognition of green management and organizational green values. Organizations should properly appraise employee green behavior, and link this behavior to promotional opportunities, pay, and compensation, for employees to be encouraged and motivated to participate in green activities, and to contribute to green management objectives. These green HRM practices are likely to ensure that organizational green initiatives will be effectively implemented.

This research did not include “considering attitudes toward green management in recruitment and selection” in the measure for green HRM due to the participating firm not having this practice in place. However, this research reveals that individual green values moderate the effect of psychological green climate on employee extra-role green behavior, which as Paillé and Boiral (2013) suggested, is crucial to achieving organizational green goals. Also, researchers such as Renwick et al. (2013) argued that recruiting employees with a positive green attitude is an essential green HRM practice. Hence, it is important for organizations to take measures to increase congruence between employees green values and the values supported and promoted by the organization. One way to do so, we suggest, is to consider individual green values and disseminate the information about organizational green agendas during the recruitment and selection process. Also, and perhaps more important, organizations should effectively communicate their green policies and environmental values to existing and potential employees, so that employees are able to

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Research Limitations and Further Research Directions

This study has several limitations that need to be addressed. First, green HRM and green management practices vary between firms, industries, and economies. The participating firm of this study is an Australian multinational enterprise operating in China. HRM practices of multinational enterprises are subject to the effect of country of origin (Ferner, 1997); hence, the sample of the study may be not representative of wider Chinese industries. Also, the requirements for, and standards of, green management at the national level in China may be different from other countries. Although concerns about the nonrepresentativeness of our sample are to some extent eased by the fact that China is now making a substantial effort to transition to a green economy, we suggest that future research that replicates ours would be valuable if conducted in cross-level settings to increase generalizability of our research findings. In this case, cross-cultural research is especially important for developing a more globally relevant measure for green HRM.

Second, any HRM practices may take time to exert maximum influence on employee workplace outcomes. The data for the current study were collected at one point in time. As such, this research design may not enable the effect of HRM to be fully explored. To address this limitation, future research may consider conducting longitudinal studies by investigating the changes to employee green behavior resulting from the adoption of green HRM.

Third, the HRM literature suggests that HRM influences employee work outcomes through multiple underlying mechanisms (Jiang et al., 2012). It was not possible for our study to account for every mediator or moderator that could influence the green HRM–green behavior relationship. Future studies that explore alternative predicting variables, for example, from the human capital

(skill enhancement) and motivational (job satisfaction) perspectives, would be valuable to this line of inquiry.

Fourth, multilevel modeling is currently gaining growing popularity in HRM research (Shen, 2015). This is because perceptions of HRM practices tend to be similar among employees in the same organization and different between different organizations, and, consequently, employee outcomes of HRM practices are subject to organizational contextual effects (Shen, 2015). As such, it may be necessary to explore the green HRM–employee green behavior relationship at higher levels, such as the unit level or the organizational level. Due to the limited number of units in our sample, we were not able to adopt the multilevel approach in this study. We suggest that future studies consider employing the multilevel approach to take into account organizational contextual effect in HRM research.

Finally, this research only explored employee workplace green behavior as the criterion variable. From the motivational HRM perspective, a set of HRM practices may lead to multiple employee workplace outcomes (Jiang et al., 2012). Consequently, it is possible that the effect of green HRM may go beyond employee green behavior. However, the existing green HRM literature has only conceptualized the linkage between green HRM and employee or organizational green outcomes. The effect of green HRM on nongreen work attitudes and behavior has been largely neglected. We therefore call for future research to explore employee nongreen attitudinal and behavioral outcomes of green HRM. Such research will make greater contributions to the HRM literature on the effect of HRM on employee workplace outcomes.

Acknowledgment

The authors would like to thank three anonymous reviewers and Associate Editor Professor Helen De Cieri for their constructive comments. This research was partially supported by a Chinese National Science Foundation grant (71132003).

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