Green office buildings and sustainability: Does green human resource management elicit green behaviors?

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Green Office Buildings and Sustainability: Does Green Human Resource Management Elicit Green Behaviors?

Abstract

Green buildings are synonymous with environmental sustainability; however, it is unclear what role its occupants, specifically employees, play in promoting sustainability in green office buildings. This paper proposes that Green Human Resource Management (HRM), underpinned by Social Identity Theory (SIT), can maximize the potential of green behaviors to improve employees' outcomes (e.g., job satisfaction and work-related flow) in green office buildings by creating positive workplace behaviors (i.e., green behaviors). We collected multisource data from 549 employees and 91 managers working in 17 organizations in green office buildings across Australia. We confirm the double mediation effects of Green HRM, green behaviors and organizational identification on the relationships between organizational readiness, job satisfaction and work-related flow. The paper makes theoretical contributions by advancing the concept of Green HRM and green behaviors within the realm of SIT, thus taking a multidisciplinary stance in the built environment and sustainability literatures.

Keywords: Green HRM, Green Behaviors, Sustainability, Organizational Identification, Job Satisfaction and Work-related Flow

1. Introduction

With the emergence of green office buildings to promote sustainability, it is still not clear whether the benefits of green office buildings are significant enough to offset the costs of constructing these buildings (Li, et al., 2021). Ironically, the stakeholders often focus on the physical infrastructure of green office buildings rather than understanding the intangible benefits of sustainability beyond its physical infrastructure (Cass, et al., 2018). Indeed, there is

a bi-directional relationship between physical infrastructure and occupants' behaviors (Brown, et al., 2010). Within green building design currently, the physical infrastructure of green office buildings reflects sustainability standards rather than organizational readiness to embrace these sustainability standards. The physical asset of the green office building is argued to improve occupants' job satisfaction, work-related flow, comfort and well-being (Khoshbakht, et al., 2018). However, when occupants (or employees) fail to demonstrate green behaviors such as conserving and restoring energy, the efficiency of the buildings' life-cycle is compromised (Hedge & Dorsey, 2013). Hence, these issues raise questions about how key stakeholders of green office buildings maximize the benefits of the physical infrastructure.

Indeed, the normative and cultural-cognitive dimensions of green office buildings suggest that the occupants develop perceptions beyond visual persuasion of green office building design to establish place identity behaviors due to the physical infrastructure of the buildings (Faulconbridge, 2013). Thus, green office buildings might have a more substantial potential of persuasive power through occupants developing group identity, such as organizational identification (Udall, et al., 2020). Such an identity has been linked to a wide range of green behaviors such as conscious recycling and energy conservation in green office buildings (Akerlof & Kranton, 2010).

Within the context of green office buildings, the responsibility to monitor behaviors typically, falls under the purview of facilities management (Lo, et al., 2012). However, the behavioral barriers to achieve the benefits of sustainability implementation can, to a large extent, be reinvented by senior management and human resources (Nyberg & Wright, 2020; Wright & Nyberg, 2017). Indeed, green behaviors at the employee level can be encouraged using a proactive strategy fostered by human resource (HR) practices (Heerwagen, 2000). Nyberg, et al. (2013) argue that organizations engaging employees in green practices, pre-empt issues in environmental management. However, little is known about integrating HR with physical

infrastructure as an agency of green office buildings and thus warrants attention (Ahmad, et al., 2019).

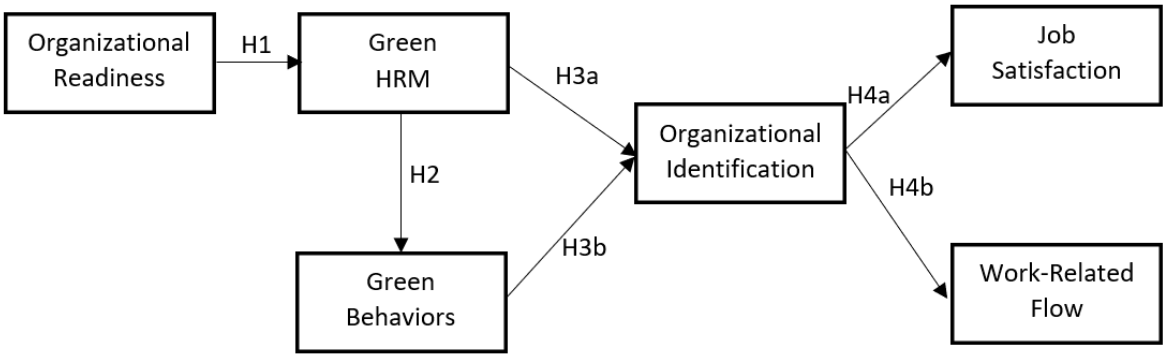
The current study proposes that the capacity of green office buildings can be better realized if employees undergo constant development, guided by human resource managers, potentially leading to improved employee outcomes. Thus, our research questions include - *Can green human resource management (HRM) elicit green behaviors in green office buildings? Can such behaviors lead to improved employee outcomes?* To answer these questions, we utilize Social Identity Theory (SIT) (Ashforth & Mael, 1989) that proposes employees develop positive workplace behaviors (e.g., green behaviors) as a result of organizational efforts (Green HRM). An integration of green *workplaces* comprising of organizational configurations with green *workspaces* incorporating physical infrastructure has the potential to improve the economic viability of green office buildings (Inalhan, et al., 2010).

This study makes three contributions to theory. First, this study extends Green HRM to a green office building context by integrating Green HRM, the built environment and sustainability disciplines. Second, this research utilizes SIT to explain how Green HRM can be linked to occupants' behaviors. Third, this study identifies specific employee outcomes, beyond traditional green outcomes, that are impacted by Green HRM. Moreover, the findings have practical implications for key stakeholders of green office buildings with an iemphasize on policies, regulations and enforcement mechanisms.

2. Theoretical Background and Hypotheses Development

The conceptual model (Figure 1) utilizes SIT to explain the relationships between the variables: organizational readiness, Green HRM, green behaviors, organizational identification, job satisfaction and work-related flow.

Figure 1. The Conceptual Model



In green office buildings research, we argue green behaviors can be best explained by identity theories. To enact their agency of green office buildings, occupants might develop a sense of identity based on the physical and symbolic features of the building (Proshansky, 1978). SIT explains that employees identify and generate intergroup behaviors when they are associated with organizations with a positive vision, socially relevant values, reputation and brand (Tajfel, et al., 1979). SIT is associated with individuals identifying with physical symbols that improve positive self-esteem (Hauge, 2007). Consequently, employees demonstrate extra-role behaviors in organizations (Balfour & Wechsler, 1996). Given this study utilizes the concept of Green HRM to understand employees' behaviors in green office buildings, SIT would explain how Green HRM could encourage employees to participate in green behaviors.

2.1.Green HRM

Green HRM is defined as the proactive organizational practices that aim to ensure environmental management and consequently, promote sustainability (Jabbour, et al., 2010). Green HRM is a significant determinant to trigger in-role and extra-role green behaviors (Pinzone, et al., 2016). Further, the notion of Green HRM as the main driver of organisational change facilitate green initiatives in an appropriate manner. For example, HR professionals could guide middle-level and lower-level managers to implement environment-related strategies (Sathyapriya, et al., 2013). Green HRM aims to nurture environmentally friendly

behaviors through recruitment, induction, selection, performance management, training, and rewards (Kim, et al., 2019) and includes generating extra-role behaviors to improve social and economic well-being beyond creating environmental awareness (e.g., reducing waste). Masri and Jaaron (2017) reported that Green HRM shaped by six green initiatives (recruitment and selection, compensation, performance management/appraisal, training and development, and management of organizational culture) helped improve performance in the manufacturing industry. Overall, Green HRM is instrumental in providing training and development, aligning the environmental management vision of the organization, and examining and rewarding green behaviors (Al-Hawari, et al., 2021).

2.2.Organizational Readiness

Organizational readiness (OR) occurs when individuals perceive they can easily perform a behavior of interest if there is extensive support to facilitate that behavior (Fishbein & Ajzen, 2011). Within the sustainability context, OR can help an organization address sustainability needs from the perspective of internal and external stakeholders (Sawang & Kivits, 2014; Barletta, et al., 2021; Baah, et al., 2020). The theoretical paradigm of SIT is fundamental to the relationship between OR and Green HRM and is likely to influence employees' behaviors. According to SIT, the internal attributes of the organization are most likely to influence the organizational practices (Dimaggio & Powell, 1983). Hence, the lack of an OR to support these practices might weaken the overall expectations of employees to behave in an environmentally sustainable manner in green office buildings. Based on SIT, employees will form a self-identity with the organizations when they perceive that the organization is invested in them (Carmeli, et al., 2007). Hence, resource allocations to encourage green HR practices in green office buildings can be regarded as a necessary condition to develop green behaviors. In this regard, we propose:

H1: Organizational readiness is positively related to Green HRM in green office buildings.

2.3.Green Behaviors

Green behaviors (or pro-environmental behaviors) are actions that employees are involved in bringing positive changes to environmental sustainability (Juárez-Nájera, et al., 2010). According to SIT, Green HRM practices can promote green behaviors where employees will identify and engage with the organizational initiatives (Wegge, et al., 2006). For example, managers can integrate essential functions, motivate cooperation, help in building compliance, improve creativity and manage risks (Razak & Sabri, 2019). In terms of promoting key behaviors, HRM can initiate the integration of operational activities and prepare employees to develop capacities to undertake critical environmental tasks. In addition, HR can facilitate preventive behaviors to implement environmental initiatives (Wehrmeyer, 1996). Green HR initiatives can incorporate these promotive and preventive green behaviors in green office buildings. Indeed, the Green HRM practices are significant to develop employees' work-related values and strengthen their positive green behaviors, thereby creating an impact and meaningfulness. Thus, we argue that there is a consistency between employees' environmental values and the Green HRM practices that improve employees' green behaviors. Based on the above argument, we propose:

H2: Green HRM is positively related to employees' green behaviors in green office buildings.

2.4.Organizational Identification

Organizational identification refers to an individual's perception of belongingness or association with the organization (Smidts, et al., 2001) or self-concept (Pratt, 1998) and the feeling of psychological union with the organization's values (Ashforth & Mael, 1989). SIT explains that organizational support will increase organizational identification as employees develop a sense of organizational embeddedness (Wegge, et al., 2006). HR initiatives can be

seen as the perceived organizational support mechanism to ensure that employees behave in an environmentally friendly way. This argument is fundamentally based on SIT that highlights the development of a positive association between employees and organizations (Carmeli, et al., 2007). Further, organizational identification is linked to organizational behavior, particularly to organizational citizenship behaviors (Wan-Huggins, et al., 1998). The relationship between green behaviors and organizational identification can be understood by the nature of the organization's involvement in values such as environmental sustainability in green office buildings. As a result of organizational initiatives, employees engage in extra-role behaviors such as green behaviors resulting in employees developing a positive attitude towards the reality of the organization (Abimbola & Vallaster, 2007). Based on these arguments, the following hypotheses are developed:

H3a: Green HRM is positively related to organizational identification in green office buildings.

H3b: Employees' green behaviors are positively related to organizational identification in green office buildings.

2.5. Employees' outcomes: Job satisfaction and work-related flow

Job satisfaction and work-related flow are two psychological well-being measures discussed as part of the employees' outcomes in green office buildings. Based on SIT, employees identify with organizations that have a higher socio-economic status or have social values (Tajfel, et al., 1979). As a result, employees develop a positive attitude toward their organizations and are generally satisfied and engaged with their jobs. Indeed, employees feel more satisfied in a better working environment (Paul & Taylor, 2008). Furthermore, this holistic sensation of self-control and happiness at work can result in intrinsic work motivation and work enjoyment (Fullagar & Kelloway, 2009). Haradkiewicz and Elliot (1998) explained that this sense of intrinsic motivation through continuously being interested in one's work results from

individual task performance. Thus green office buildings facilitate employees' organizational identity which can result in employees' satisfaction and high levels of work engagement. In this regard, we propose:

H4a: Organizational identification is positively related to job satisfaction in green office buildings.

H4b: Organizational identification is positively related to work-related flow in green office buildings.

3. Mediating Hypotheses

SIT suggests that employees develop specific behaviors as a result of self-identity through organizational practices (Edwards, 2009). Organizational practices such as Green HRM can create appropriate communication channels or create resource allocation for influencing employee behaviors. For example, HRM can allocate financial resources in terms of compensation and rewards to invoke extra-role environmental behaviors (Renwick, et al., 2014). As a result, employees are likely to exhibit a very high level of commitment to undertake extra-role behaviors (Shen & Benson, 2016). According to SIT, these behaviors are reflexive when organizations create a role-based identity for employees. Furthermore, SIT proposes that employees can interact with their own interests when resources are allocated and roles are specified (Stets & Burke, 2000). This situation would result in employees' motivation to behave in alignment with green office building features. Hence, we propose that Green HRM mediates the relationship between organizational readiness and green behaviors:

H5: Green HRM initiatives in green office buildings mediate the relationship between organizational readiness and green behaviors.

HR practices that focus on sustainability are often capable of bridging the organization's pursuits to achieve environmental and economic goals (Guerci & Carollo, 2016). For example, Paillé and Boiral, (2013) found that managers improve employees' overall efficiency through

implementing key HRM practices. Various HR initiatives that lead employees to engage in green office buildings result in job satisfaction, work enjoyment and self-identification with the organization's values. SIT affirms that individuals are linked organically to their organizations though social identity (Stets & Burke, 2000). Hence, organization's interventions result in activating the employees' individual identity. Based on SIT, Green HRM, green behaviors and organizational outcomes such as organizational identification are related (Turban & Greening, 1997). HRM's support for discretionary activities encourages employees to be committed to such an organization, which in turn, develop a sense of trust as employees perceive management to be considerate and thoughtful (Edwards, 2009). Consequently, employees are encouraged to display a higher degree of organizational identification (Ashforth & Mael, 1989). Therefore, when an organization supports environmental behaviors through Green HRM, employees are more likely to identify with their organization (Edwards, 2009). Thus, we propose:

H6: Green behaviors mediate the relationship between Green HRM and organizational identification.

According to Voorde et al. (2012), HRM practices can influence employees' psychological well-being. Green behaviors are generally pro-social (Thøgersen, 1996). Therefore, employees are more likely to develop a sense of altruism through which they experience a sense of investment by the organization (Bamberg, et al., 2007). This individual level mechanism can explain the relationship between green behaviors and employees' outcomes. Organizational strategies and initiatives toward sustainability often impact on employees' overall environmental behaviors (Cialdini, et al., 1990). Based on SIT, workplace environmental behaviors provide a source of meaning in life and individuals could thereby experience sudden positive feelings, such as identifying with the organization as a result of being satisfied with

their work. Therefore employees are likely to show interest and enjoy their work in green office buildings. When employees receive adequate organizational support, they might feel obliged to be immersed in both in-role and extra-role behaviors (Bakker, 2008). Green behaviors can include in-role behaviors, such as complying with formal regulations in green office buildings, and extra-role behaviors which include actions that extend beyond compliance. Green office buildings are likely to influence employees' feelings about their work, resulting in increased speed of task completion and maintaining the work-related flow (Lan, et al., 2014). In this regard, we propose:

H7a: Organizational identification mediates the relationship between employees' green behaviors and job satisfaction.

H7b: Organizational identification mediates the relationship between employees' green behaviors and work-related flow.

In summary, the proposed direct relationships (H1, H2, H3a, H3b, H4a, H4b) and mediated relationships (H5, H6, H7a, H7b) are shown in Table 1.

Table 1: Summary of hypotheses

H1: Organizational readiness is positively related to Green HRM in green office buildings.
H2: Green HRM is positively related to employees' green behaviors in green office buildings.
H3a: Green HRM is positively related to organizational identification in green office buildings
H3b: Employees' green behaviors are positively related to organizational identification in green office buildings.
H4a: Organizational identification is positively related to job satisfaction in green office buildings.
H4b: Organizational identification is positively related to work-related flow in green office buildings.
H5: Green HRM initiatives in green office buildings mediate the relationship between organizational readiness and green behaviors.
H6: Green behaviors mediate the relationship between Green HRM and organizational identification.
H7a: Organizational identification mediates the relationship between employees' green behaviors and job satisfaction.
H7b: Organizational identification mediates the relationship between employees' green behaviors and work-related flow.

4. Methods

4.1.Sample and Procedures

The study is part of a wider multi-country survey questionnaire about the impact of green office buildings on employee outcomes. The target population for the current study is comprised of 549 employees and 91 managers employed in 17 organizations in Australia and located in Green Star or National Australian Built Environment Rating System (NABERS) rated offices. Relevant ethics approval was obtained from the Human Ethics Advisory Group prior to data collection. A pilot study was conducted to refine the questionnaire. The researchers subsequently paired the surveys by matching the corresponding employee codes on both the employee and managers surveys. Data for Green HRM (GH), green behaviors (GB), organizational identification (OI), job satisfaction (JS) and work-related flow (WF) were collected from employees. Data for organizational readiness (OR) were collected from managers.

4.2.Measures

This study used established scales from previous research (Hair, et al., 2010). In order to measure the internal consistency or scale reliabilities of the constructs, Cronbach's alpha test was conducted (Tavakol & Dennick, 2011). While Cronbach's alpha of 0.70 is used as the threshold (Nunnally, et al., 1967), Hair et al., (2010) reported scores greater than 0.60 can be accepted when used in different contexts. OR was measured with the 3-item scale developed by Nystrom et al. (2002) using a 7-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). GH was measured using a 16-item scale developed from Zibarras and Coan (2015). The responses were measured with a 5-point Likert scale ranging from 1 (never) to 5 (always). GB was measured from the study by Paillé and Mejía-Morelos, (2014), which used a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The OI construct is measured from Smidts et al., (2001) 5-item scale and the items were rated on a 5-point scale

ranging from 1 (strongly disagree) to 5(strongly agree). JS was measured with three items derived from Messersmith et al. (2011) using a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Responses for the negative items were reverse coded in SPSS v.25. WF was measured with a 13-item construct derived from Bakker (2008), using a 5-point Likert scale ranging from 1 (never) to 5 (always). The Cronbach's alphas for OR, GH, GB, OI, JS, and WF are 0.68, 0.95, 0.88, 0.78, 0.84, and 0.92, respectively and within the acceptable thresholds.

4.3.Control Variables

According to Abrahamse and Steg (2009), certain demographic variables could impact individual green behaviors as they shape energy consumption patterns. Therefore, demographic variables - gender, age and tenure were included. There were 45.71% female employees, 45.90% of male employee respondents, and 8.39% who did not disclose their gender. Of the total, 60.43% male managers and 29.67% female managers participated, while 9.90% of managers preferred not to state their gender. Of the total, 17.12% of the employees were aged from 25–29, 18.57% from 30–34, and 18.39% from 35–39 and the rest were above 39 years. 54.08% of employee respondents were categorised as young (within the range of 25–39 years) whereas 67% of managers were above 40 years of age. In terms of tenure, 75.59% of the employees and 73.62% of the managers had worked in their buildings for more than a year.

4.4.Model Testing

Two steps were adopted for model testing (Anderson and Gerbing, 1988). In the first step, the measurement model was examined using confirmatory factor analysis (CFA). The researchers also examined the discriminant validity of the latent variables. Harman's (1976) single factor test and the common latent factor test were utilized to check for Common Method Bias (CMB). To check the robustness of the baseline model, several other models were compared with the

baseline model (Nifadkar & Bauer, 2016). In the second step, structural equation modelling (SEM) was performed to test the hypotheses. As per Kline (2015), we reported the model's chi-square along with its degrees of freedom (df) and associated p-values. The fit indices used to determine model fit included normed chi-square or chi-square/degrees of freedom (between 3 and 5), Comparative Fit Index (CFI > .90), Tucker-Lewis Index (TLI > .90), Incremental Fit Index (IFI > .90), and Root Mean Square of Error Approximation (RMSEA < .08) (Hair et al., 2010). CFA and SEM were examined using AMOS v.25. Indirect effects were tested with confidence intervals (CIs) using 1000 bootstrap sampling.

5. Results

The CFA results showed that the proposed six-factor model including OR, GH, GB, OI, JS and WF was a good fit to the data ($\chi 2 = 2.50$, $p < .001$, CFI= .91, TLI= .91, RMSEA = .05). Content validity was maintained as the instruments used in the questionnaire were constructed based on theoretical concepts grounded in the academic literature and the advice of a panel of academic and professional experts which included one management academic, two built environment (one professional and one academic) and two academic HR experts who affirmed the representativeness and suitability of the questions. The final version of the questionnaire was designed based on feedback from the pilot study and the panel of experts. Criterion validity was ensured by using appropriate measurements to assess employees' responses. We used published measures in this study. The convergent validity of the measurement model was scrutinized using factor loadings, composite reliability (CR), average variance extracted (AVE), and maximum shared squared variance (MSV). Additionally, the discriminant validity of the model was assessed (Hair et al., 2010).

The AVE values are above 0.5 for GH, OI and JS. For GB, OR and WF, the AVEs are less than 0.5, and the composite reliabilities are higher than 0.6. According to Fornell and Larcker

(1981), AVE of more than 0.4 can be acceptable if the convergent validity is higher than 0.6. To compute discriminant validity, MSV was used as follows: (MSV < AVE; square root of AVE > inter-construct correlations). The discriminant validity for all constructs in the proposed model was achieved (Fornell & Larcker, 1981). The variables for this research were examined using pre-validated multi-item scales. All the variables have a Cronbach's alpha value greater than 0.7. The composite reliabilities (CR) of all six constructs (presented in Table 2) were greater than 0.7 (Hair, et al., 2010).

Table 2: Average variance extracted, maximum shared variance, maximal reliability, and composite reliability among study factors.

	CR	AVE	MSV	MaxR(H)	GB	OR	GH	WF	OI	JS
GB	0.88	0.45	0.27	0.89	**0.67**					
OR	0.70	0.43	0.04	0.73	0.11	**0.66**				
GH	0.95	0.55	0.38	0.95	0.52	0.19	**0.74**			
WF	0.92	0.47	0.45	0.93	0.46	0.00	0.55	**0.69**		
OI	0.90	0.67	0.45	0.91	0.52	-0.03	0.62	0.67	**0.82**	
JS	0.86	0.68	0.33	0.90	0.34	-0.04	0.27	0.55	0.57	**0.83**

Notes: MaxR(H) = maximal reliability

In summary, the measurement model's construct validity and reliability (as shown in Table 1) were supported by the findings. Based on Podsakoff, et al.'s, (2012) recommendation, CMB was not an issue in this study. The model used for SEM was derived after CFA. To check the robustness of the baseline model, several other models were compared with the baseline model (Nifadkar & Bauer, 2016). For this study, 6-factor, 5-factor, 4-factor, 3-factor, 2-factor and 1-factor models were compared with the baseline model at the CFA stage in Table 3. In all the cases, the values for chi-square, df, $\Delta\chi 2$, CFI, NFI, GFI, IFI, TLI and RMSEA were better in the baseline model than in the other competing models. This indicated that Model 1 was the most robust for hypotheses testing.

Table 3: Fit statistics of measurement models

Model	Constructs Combined	*df*	χ^2	$\Delta\chi^2$	CFI	NFI	GFI	IFI	TLI	RMSEA
Model 1: 6-factor model		1088	2691.472	-	.915	.866	.821	.908	.915	.052
Model 2: 5-factor model	JS, OI	1091	2730.756	39.284***	.913	.864	.819	.906	.913	.052
Model 3: 4-factor model	JS, OI, WF	1094	2734.792	4.036***	.913	.864	.818	.906	.913	.052
Model 4: 3-factor model	JS, OI, WF, GH	1096	2769.781	34.989***	.911	.862	.816	.905	.912	.053
Model 5: 2-factor model	JS, OI, WF, GH, OR	1097	2773.966	4.185***	.911	.862	.816	.905	.911	.053
Model 6: 1-factor model	JS, OI, WF, GH, OR, GB	1097	2773.966	0***	.911	.862	.816	.905	.911	.053

Notes: $\Delta\chi^2$ denotes the differences between the 6-factor model and the other models; CFI = Comparative Fit Index; NFI = Normed Fit Index; GFI = Goodness-of-Fit Index; IFI = Incremental Fit Index; TLI = Tucker–Lewis Index; RMSEA = root mean square error of approximation; *** $p < 0.001$; Models 2, 3, 4, 5 and 6 were computed using Model 1 as the baseline model.

5.1.Hypothesis Test

There are four direct hypotheses and four mediation hypotheses.

All the direct relationships are supported in Table 4. For H1, OR is positively related to GH (β = 0.32, $p < 0.001$). GH is positively related to employees' GB (H2a) (β = 0.43, $p < 0.01$) and OI (H2b) (β = 0.45, $p < 0.001$). Employees' GB are positively related to OI (H3) (β = 0.29, $p < 0.001$). Finally, OI is positively related to JS (H4a) (β = 0.60, $p < 0.001$) and OI is positively related to WF (H4b) (β = 0.43, $p < 0.001$).

Table 4: Summary of direct linkages between study constructs

	Standardized	CR (*t*)	*p*	Results
H1: GH ← OR	0.32	3.55	***	S
H2: GB ← GH	0.43	10.96	***	S
H3a: OI ← GH	0.45	10.46	***	S
H3b: OI ← GB	0.29	5.76	***	S
H4a: JS ← OI	0.60	10.63	***	S
H4b: WF ← OI	0.43	9.25	***	S

Note: n=549; *p* denotes significance level; ***$p \leq 0.001$; S = Significant, CR = Critical Ratio.

The standardized indirect coefficients and p-values in Table 5 indicated mediation effects. GH fully mediated the relationship between OI and GB (β = 0.01, $p < 0.01$). Similarly, OI fully mediated the relationship between GB and JS (β = 0.10, $p < 0.01$) as well as between GB and WF (β = 0.08, $p < 0.01$). GB partially mediated the relationship between GH and OI (β = 0.12, $p < 0.01$).

Table 5: Summary of mediated linkages among study constructs

	Indirect Path	**Estimate**	**Lower**	**Upper**	***p*-value**	**Mediation Type**	**Results**
H5: GH bw OR and GB	0.01	0.14	0.50	0.24	0.01	Full Mediation	Supported
H6: GB bw GH and OI	0.45	0.12	0.08	0.17	0.00	Partial Mediation	Supported

H7a: OI bw GB and JS	0.10	0.17	0.11	0.24	0.00	Full Mediation	Supported
H7b: OI bw GB and WF	0.08	0.12	0.08	0.18	0.00	Full Mediation	Supported

Notes: n=549; 5,000 bias-corrected bootstrap samples at 95% confidence interval (CI).

This study included control variables, namely, age, gender and job tenure in SEM is to test whether any of the control variables significantly impact the overall results. Results in Table 6 showed that the model has a good model fit even in presence of control variable ($\chi 2 = 2.38$, CFI = .91, TLI = .90, RMSEA = .05).

Table 6: Influence of control variables on the baseline model

	Estimate	**CR**	***p*-value**
GH ← Tenure	-0.28	-2.84	0.005[s]
GB ← Tenure	0.86	1.13	0.259[s]
GB ← Gender	0.04	0.76	0.448[s]
OI ← Age	-0.04	-2.29	0.023[s]
OI ← Gender	0.04	0.70	0.484[s]
JS ← Age	-0.01	-0.84	0.400[s]
JS ← Tenure	0.17	2.33	0.020[s]
WF ← Tenure	0.13	2.24	0.025[s]

Notes: n=549; CR = Critical Ratio; S = Significant; significance was from 1000 bias-corrected bootstrap samples at 95% confidence interval (CI).

6. Discussion

Green HRM has received inadequate empirical attention in green office building studies despite ongoing efforts to highlight the importance of a human-centric approach implicit in green HRM. The current study analyzed data from Australia to understand how Green HRM practices affected employees' green behaviors and in turn, impacted key outcomes such as job satisfaction and work-related flow in green office buildings. Based on the organizational behavior literature, employees' green behaviors result from their psychological association with their employers (Van Knippenberg, et al., 2007). As a result, investigations through the

lens of SIT (Ashforth & Mael, 1989) formed the fundamental theoretical perspective underpinning this research.

The results provide evidence that Green HRM supports green behaviors, which consequently activate employees' organizational identification in green office buildings resulting in improved employee outcomes (job satisfaction and work-related flow). Furthermore, the results highlight the need for resource allocation to encourage Green HRM in green office buildings as a necessary condition to develop green behaviors. This argument was supported by Sawang & Kivits (2014), who indicated that managers in favor of implementing such practices were more likely to improve employee outcomes when organizations in green office buildings had sufficient resources to initiate green HR practices. Therefore, Green HRM forms a significant part of the broader framework of green office building design in relation to emphasizing employees' green behaviors in enhancing outcomes.

In addition to the direct impacts of Green HRM on green behaviors in green office buildings, the mediation role of Green HRM is also critical. Our findings suggest that an organization must have enough resources to impact employees' green behaviors by the interventions of Green HRM practices. For example, employees can be motivated to behave environmentally sustainably in green office buildings when they perceive that their employers are investing and supporting them via Green HRM practices. This novel finding challenges the underlying mechanism of performance dependencies solely on the physical aspects of green office buildings, such as indoor environmental quality, temperature, and air quality. Therefore, our findings contribute to the extant literature on green office buildings by focusing on Green HRM initiatives.

The range of HR initiatives that leads to employees performing in an environmentally friendly way in green office buildings can result in employees self-identifying with their organization's

values. The mediation effect of green behaviors is a notable contribution to better understand the Green HRM–organizational identification relationship in green office buildings. With SIT at the forefront, organizational identification is a binding link between green behaviors and employee outcomes. Organizational identification as a cognitive construct manifests as the result of employees' emotional attachment to organizations which they demonstrate as a feeling of pride because of the organizations' espoused social values (Kreiner & Ashforth, 2004). Specifically, for green office buildings, this mediation effect is more relevant due to the social status of organizations located in these buildings. Based on SIT, the employees are attracted to organizations in which they can generate a higher level of organizational identification (Wegge, et al., 2006), thereby developing improved job satisfaction and work-related flow.

6.1.Theoretical Contributions

This study makes three theoretical contributions. First, this study contributes to the builtenvironment literature by providing an unresearched dimension of social context (Faulconbridge, 2009). Green office building projects with green certification are regarded as conforming to standards in terms of the buildings' environmental impacts (Hoffman & Henn, 2008). However, there are differences between the perceived performance and actual performance in green office buildings (Geng, et al., 2019). Our findings supports the argument proposed by Pinzone, et al. (2016) that employees can go the extra mile if they are provided with green competencies and skills. Hence, Green HRM contributes towards enabling employees to better engage with green office buildings. Furthermore, green practices are found to enhance employees' behaviors. This paper, to the best of our knowledge, is the first to consider Green HRM within the green office building context.

Second, this study makes a significant contribution to the theoretical understanding of SIT within green office buildings by predicting intergroup behaviors through Green HRM. Our findings suggest the use of SIT will narrow the gap between environmental issues and

management research and complement key identity theories to better understand why employees' behaviors and outcomes positively impact green office buildings. SIT has received significant empirical support to explain employees' self-concept and a sense of belongingness with an organization (Ashforth & Mael, 1989). This research contributes to the behavioral literature by highlighting the benefits of Green HRM for organizations when they invest in HR. SIT supports that perceived Green HRM has a positive relationship with organizational identification that would lead to positive employee outcomes in green office buildings.

Third, this study identifies specific employee outcomes beyond traditional green outcomes that are impacted by Green HRM in green office buildings. Thus, Green HRM initiatives impact not only resource efficiency and green outcomes, which are well documented in the literature (Jabbour et al., 2010) but also critical employee outcomes. Thus, organizational identification, as derived from SIT, could encourage employees to demonstrate ' pro-social' behaviors, thereby reducing employee turnover rates in organizations. The findings also highlight the significance of job satisfaction and work-related flow among employees to engage in extra-role tasks. In doing so, we demonstrate that employee outcomes are more likely to result in achieving the sought-after productivity and well-being outcomes in green office buildings, thus contributing to the broader sustainability agenda.

6.2 Practical implications

This study's findings provide three practical implications. First, linking the behavioral aspects of employees within green office buildings can invoke significant positive employee outcomes. This study affirms that Green HRM initiatives can foster behaviors leading to such outcomes, which have wider performance implications. While the relationships predicted in the current model are likely to hold in many contexts, job and work-related outcomes contribute to the economic viability of the green office building. Organizational identification could encourage

employees to demonstrate greater satisfaction and work-related flow leading to overall performance improvements in green office buildings.

Second, the findings are particularly useful in advancing research for different stakeholders - designers, architects and engineers- involved in green office building design. Key decision-makers need to facilitate the communication of sustainability information and the adoption of Green HRM at the organization level. This study has provided directions for owners and tenants to engage with management and green office building disciplines. Building owners, designers and engineers could collaborate with HR managers to track the impact of green buildings on occupants and learn how occupants' behaviors could be oriented for the benefit of green office building performance. In return, HR managers could avail themselves of the opportunities presented by building stakeholders when they are seeking guidance to boost overall building performance.

Third, our findings demonstrate the significance of including human-centric design in green office buildings. The outcome metrics used in this research would be suitable for understanding contemporary office space and practices. Management concepts, such as job satisfaction and work-related flow are important in built environment studies. Moreover, practitioners and researchers from the built environment field could emphasize the greater awareness of behaviors and the use of Green HRM to influence employees' outcomes in green office buildings. HR managers have a clear opportunity to successfully introduce effective frameworks to maximize the positive environmental impact of these green office buildings.

6.3 Limitations and suggestions for future research

The first limitation is that this research adopted a cross-sectional study design in which all the data were collected at a single point in time. Employees' behaviors in green office buildings might change according to the season and time of occupancy. Although the cross-sectional

approach is quicker and less expensive, in the future, longitudinal research should be pursued to understand the relationships of constructs that are dependent on context. The second limitation was that the data collection was based in Australia. Including data collection from other OECD countries and emerging markets such as India and China in the future will add to the extant literature. The third limitation was the target audience, with this study collecting data from only managers and employees. However, given that green office building design involves other stakeholders such as designers, engineers, architects and owners, all of whom play a critical role in green office buildings, it would be beneficial to collect data from these stakeholders for future research. A fourth limitation was that the study was situated within green office buildings only. Future studies are encouraged to conduct comparisons between green and non-green office buildings. Specifically, researchers could explore if green office buildings are always occupied by companies that have clear green ideologies or is used as an avenue to achieve corporate social responsibility.

7. Conclusion

Green HRM has a central role to play in eliciting green behaviors in green office buildings and consequently improving employee outcomes. Our study makes a significant contribution by situating the novel concept of Green HRM within the built environment. Our study affirms that there is a need to consider Green HR managers and employees (i.e., occupants) as important stakeholders in green office buildings, given the overall impact of their strategies and actions in furthering critical performance outcomes. Specifically, employees' green behaviors can be focused to generate the group identity for the organization via Green HRM practices. Such a human-centric design in green office buildings based on SIT has the potential to provide a roadmap for practitioners and researchers in their broader quest to improve overall performance and sustainability in green office buildings.

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