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Effects of organisational, individual and contextual factors on employees' intentions to adopt green practices

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ABSTRACT

Building on the perspectives of the theory of planned behaviour, behaviour spillover, and social bond, this study develops and tests an integrative framework that explores the linkages between hotel employees' organisational commitment (OC) and pro-environmental behaviour in the home (PEBH) as key antecedents affecting their intention to adopt green practices in the workplace (IGPW). We further examine the moderating role played by green organisational climate (GOC). Empirical results from 407 Malaysian hotel employees show that employees' PEBH enhances IGPW *via* attitude and perceived behavioural control (PBC); OC positively affects intention mediated only by attitude, and GOC strengthens the effect of OC on PBC. These findings provide novel evidence concerning the importance of the contextual and organisational environment in shaping employees' green behaviour.

Introduction

With growing environmental problems around the globe, organisations are increasingly developing environmentally sustainable business practices (Cui et al., 2020). Corresponding to this ever-growing sustainability effort, organisations have realised that to implement their environmental practices successfully, they must actively enlist support and harness their employees' pro-environmental behaviours (PEBs) in the workplace (Knezevic Cvelbar et al., 2022). Within tourism and hospitality, hotels are reported as one of the key sources of environmental deterioration (Bohdanowicz & Martinac, 2007). To reduce their negative environmental footprint, hotels are increasingly committed to adopting green practices (Moise et al., 2020), including initiatives to augment employees' PEB (Wells et al., 2016).

To advance the understanding of key factors influencing hotel employees' PEB, recent studies have investigated firms' environmental management strategies (Yoon et al., 2016), green employer branding (Muisyo et al., 2022), and environmental concerns (Chou, 2014), among others. Still noticeably missing is a holistic approach to modelling and testing the

individual, organisational and contextual antecedents affecting hotel employees' PEB, under-pinned by the convergence of a set of theories for explaining environmental behaviours. Thus, we invoke three theoretical perspectives—the theory of planned behaviour (TPB), behaviour spillover, and social bond—to examine the effects of hotel employees' organisational commitment (OC) and PEB in the home (PEBH) on their intention to adopt green practices in the workplace (IGPW) and how those effects are moderated by a green organisational climate (GOC).

An in-depth literature review reveals that the TPB has been adopted as a foundation theory for predicting PEB across various contexts (Yuriev et al., 2020). The TPB enables the capture of the influence of both personal and social factors on PEB, which may vary across different organisational contexts. Thus, we first examine the effects of TPB constructs, i.e. attitude towards behaviour, perceived subjective norms (PSN) and perceived behavioural control (PBC) of hotel employees' IGPW. Extending this, we explore how employees' PEBH influences their IGPW. Recent research (Manosuthi et al., 2022; Wells et al., 2016) examining the contextual relationship between PEBH and IGPW has shown that domestic environmental behaviour tends to have a positive spillover effect in another context, i.e. the workplace. Building on this stream of literature, we attempt to identify the mechanisms through which employees' PEBH influences their IGPW.

In an organisational context, employees' OC is a cornerstone requirement to successfully implement corporate environmental policies (Temminck et al., 2015). It has been widely held that OC shapes employees' attitudes and influences their prosocial behaviour (Carmeli, 2005). Therefore, we further draw upon the social bond theory, which emphasises the role of socialisation and the bond that forms between individuals in promoting positive attitudes and behaviours among individuals, to study the effect of employees' OC on their IGPW. Specifically, we propose that the effect of OC on IGPW can be mediated *via* TPB constructs: attitude towards behaviour, PSN and PBC.

Furthermore, we follow the suggestion of Muisyo et al. (2022) to explore whether a GOC moderates the effect of individuals' OC on their attitude, as well as their PBC. Past studies have revealed that organisational climate can moderate the relations between factors determining individual behaviours in various work/organisational settings (Hofmann et al., 2003). To reduce their negative environmental footprint, hotels across the globe have been trying to create GOCs by implementing environmental practices and influencing employees' green behaviours towards the balanced use of natural resources (Buckley, 2019). Considering this, we postulate that employees with higher OC in hotels with well-developed GOCs will develop a more positive attitude and PBC towards environmental preservation, leading to reduced environmental degradation by hotels.

Overall, our study investigates the effects of individual (attitude, PSN, PBC, and OC), organisational (GOC) and contextual (PEBH) factors influencing hotel employees' PEB. We aim to make three contributions to the literature. First, our theorisation based on the TPB, social bond theory and behaviour spillover theory is essential to understanding employees' PEBH and OC's role in shaping their PEB. Second, by incorporating the links between PSN and attitude and between PSN and PBC in our framework, we extend increased emphasis on the role of PSN in shaping employees' PEB in the workplace context. Third, our theoretical discussions add a nuanced consideration of GOC, an underexplored boundary condition concerning how employee OC influences PEB in the workplace. The theoretical framework and findings from our study also have important managerial implications for hoteliers in the effort of bolstering their employees' PEB through implementing organisation-wide green policies, shaping employee roles to encompass a set of pro-environmental actions, providing environmental preservation training and intervention programs, and developing a GOC that facilitates the adoption of PEB for green hospitality.

Literature review and hypothesis development

PEB of hotel employees

Environmentally friendly employee behaviour refers to their workplace-specific behaviour that has beneficial effects on the environment (Norton et al., 2015). Scholars have amply explored the role of green practice adoption by hotels as an important antecedent influencing customers' eco-friendly behaviour (Dang-Van et al., 2022; Moise et al., 2020) in the past. However, the effects of the same on employees' PEB have only been receiving increasing scholarly attention in recent years (e.g. Wells et al., 2016). Recognising this, Kim and Lee (2022) have called for more investigation of micro-level factors that affect hotel employees' PEB. In the existing PEB literature, the TPB (Ajzen, 1991) has been the most widely applied theory for studying individuals' behavioural formation (Armitage & Conner, 2001). It has been used to examine employees' intentions to adopt different types of PEBs, such as waste reduction (Li et al., 2018) and recycling behaviour (Marans & Lee, 1993).

Attitude is a key construct in the environmental behaviour literature, and it has a significant and well-documented effect on various PEBs (Sabbir & Taufique, 2021). The TPB posits that an individual with a positive attitude will more likely enact specific behaviour under investigation. In workplace settings, Gao et al. (2017) establish that an energy-saving attitude positively affects PEB intention. Similarly, Blok et al. (2015) report that green attitude has an important influence on environmental preservation intention in the workplace. Within the hospitality industry, Cui et al. (2020) study perceived innovation characteristics concerning sustainable practices in the workplace and report a strong effect of attitude on PEB intention. Therefore, we hypothesise:

> *H1*: Attitude towards green behaviours positively influences hotel employees' IGPW.

PSN, derived from an individual's normative beliefs, are conceptualised as social pressure influencing a specific behaviour (Ajzen, 1991). Existing studies have established that PSN positively affect individuals' behavioural intention in various contexts (Rivis & Sheeran, 2003), including the workplace where stronger group belongingness, encompassing formal and informal relations, exists among employees (e.g. Husted & Allen, 2008).

In the organisational context, the relationship between PSN and IGPW can also be augmented by the impression management theory, as employees' behaviour is influenced by their belief of how they are perceived by peers and superiors in the workplace (Bozeman & Kacmar, 1997). Except for a few studies reporting an insignificant positive relationship between employees' PSN and PEB (e.g. Anuwichanont et al., 2011), existing studies have established that PEB expectations from influential members in the workplace strongly determine employees' green intentions (Sabbir & Taufique, 2021). In line with the broader literature, we posit that:

> *H2*: PSN positively influence hotel employees' IGPW.

Advancing the theory of reasoned action, Ajzen (1991) developed the TPB by introducing PBC, defined as an individual's perceived control over their abilities to perform a given behaviour. In the environmental behaviour literature, PBC is related to individuals' belief that they can reduce harmful effects by taking pro-environmental actions (Huang, 2016). PBC has been found to influence PEBs such as recycling, reducing the use of hazardous products, and using eco-friendly materials (Tabernero & Hernández, 2011). Lopes et al. (2019) provide empirical evidence demonstrating the effect of PBC on employees' PEB intentions. Similarly, Chou et al. (2012) evidence that PBC is a crucial determinant of green behavioural intentions among Thai restaurant employees. In other studies, PBC positively influences behavioural intention (Blok et al., 2015; Gao et al., 2017), though it is not the most influential predictor of PEB. Therefore, we posit that:

> *H3*: PBC positively influences hotel employees' IGPW.

On the subject of the effects of PSN, Hsu and Huang ([2012](#)) note the importance of social groups in influencing attitudes towards specific behaviour, as individuals often seek the advice and opinions of group members. While previous studies examining employees' green behaviour have not explored the link between PSN and attitudes, those in related fields have found positive relationships. For example, in the consumer behaviour literature, it has been found that PSN positively affect a consumer's attitude towards buying green products (e.g. Patel et al., [2020](#); Trivedi et al., [2018](#)). Similarly, in the organisational citizenship literature, the findings from a meta-analysis by Chiaburu and Harrison ([2008](#)) suggest that co-workers and supervisors may influence employee work attitude by sharing information and opinions and providing emotional support. In view of the above evidence and suggestions, we propose:

H4: *PSN positively affect hotel employees' attitudes towards green behaviours.*

The TPB literature has also established that PSN can shape an individual's PBC due to social persuasion (Bandura, [1986](#)). An individual with support from reference group members can exhibit higher PBC. In the environmental behaviour literature on consumers, it has been long evidenced that PSN positively affect their PBC (Mannetti et al., [2004](#)). In the workplace context, Liden et al. ([2003](#)) contend that a positive relationship with superiors often influences employees' PBC due to perceived psychological comfort, better resource availability, and social support. Along with the supervisor, Dinc and Budic ([2016](#)) observe that colleagues and subordinates, with whom a person performs duties in the workplace, significantly influence the perceived ability to perform a particular activity at work. Co-workers are not only a source of advice, information and instruction for effective role performance (Chiaburu & Harrison, [2008](#)) but also play an essential role in motivating specific positive work actions (Gibson, [2003](#)), such as PEBs. Employees can be persuaded that they have the expertise and skills to engage in green behaviours through verbal appreciation and encouragement from management and peers to help them overcome their self-doubts. Therefore, we propose that:

H5: *PSN positively influence hotel employees' PBC to engage in green behaviours.*

PEBH and hotel employees' IGPW

Viewed through the lens of catalytic behaviour (Ha & Kwon, [2016](#)), it can be argued that an individual must not rely on an isolated green behaviour in one context but perform multiple PEBs in everyday life, which spill over between different contexts (Whitmarsh & O'Neill, 2010). To further elucidate the spillover effect, Truelove et al. ([2014](#)) propound that intervention often affects the behaviour under consideration and influences subsequent actions that are not targeted during the original intervention. In the context of PEB, a spillover effect can occur when an individual perceives that past environmentally friendly behaviour is likely to create a stronger green identity (Poortinga et al., [2013](#)); this leads to a moral obligation to perform a set of PEBs across different contexts consistently. Furthermore, cognitive consonance may arise if a person perceives that two environmentally friendly behaviours are closely linked (Wang et al., [2023](#)).

Recent studies have explored behavioural spillover in the context of environmental preservation across various settings; they suggest that PEBH often leads to similar PEB in other contexts (Manosuthi et al., [2022](#); Wells et al., [2016](#)). Thus, our research seeks to establish a connection between PEBs at home and in the workplace by applying TPB constructs. This approach enables us to elucidate the underlying socio-psychological mechanisms, an issue that previous studies have largely overlooked.

According to Poortinga et al. ([2013](#)), one way an individual moulds their attitude is by reflecting on the results of their behaviour. This perspective suggests that adopting PEB in a specific context may change people's attitudes in a different but relevant context (Whitmarsh & O'Neill, 2010). If employees implement PEBH, they may exhibit an elevated attitude towards

engaging in PEB across various contexts, such as in the workplace. Thus, it can be argued that, while attitude is an enduring factor influencing various behaviours, hotel employees may lack the time or willingness to adopt PEBs, thereby limiting this spillover effect. Nevertheless, in line with the broader literature, we propose that:

H6: *Attitude towards green behaviours mediates the relationship between PEBH and the hotel employees' IGPW.*

PSN is another factor influencing an individual to act consistently across different contexts. The absence or low level of consistency in behaviour can lead to the individual being perceived as hypocritical or two-faced by their family, friends, or co-workers (Suh, 2002). Therefore, an employee can project a consistent image to colleagues, friends and family members by adopting prosocial behaviours, such as PEB across different contexts (Tedeschi & Rosenfeld, 1981). In a study involving 33 interviews with higher education employees, Yang et al. (2020) identify the pursuit of social legitimacy seeking as a critical motive behind hypocritical PEB.

Moreover, the psychological impetus in one context, such as praise and positive commendation by the social group, can stimulate an individual to engage in PEB in another (Swim & Bloodhart, 2013). It is argued that such psychological reinforcement generates positive emotions, facilitating a seamless transition into prosocial behaviour, such as PEB within different contexts (Fiedler, 2013). In addition, it has been suggested that for PSN to be potent, they need to be internalised by an individual persistently acting in a consistent manner across different contexts, which then triggers subsequent PEBs (Wang & Zhang, 2020). Therefore, we expect an employee already performing PEBH to be more inclined to conform to PSN and continue the behaviour in another context, leading to IGPW. Thus, we posit that:

H7: *PSN mediate the relationship between PEBH and hotel employees' IGPW.*

Ajzen (1991) recognised that recurring behaviour (such as PEB) often results in habit formulation, which can positively boost a person's PBC. This suggests that PBC can mediate the relationship between an individual's PEBH and IGPW. This mediation effect of PBC can also be derived from the learning-by-doing perspective. More specifically, when practising PEBs in a particular set-up, the skills and knowledge acquired can apply to other contexts, increasing the possibility of adopting PEB in a different context (Thøgersen, 1999).

Furthermore, employees with environmental knowledge may think PEBs performed in two different contexts are similar, whereas those with relatively less knowledge may struggle to see the similarity. Supporting this view, Bergquist et al. (2019) propose that behaviours that require similar resources and skills are more likely to be performed consistently across different contexts. Thus, we can expect that an individual who already performs PEBHs will be better equipped with the necessary knowledge, skills and information about the behaviours, enhancing their PBC and leading to increased IGPW.

H8: *PBC mediates the relationship between PEBH and employees' IGPW.*

OC and employees' green behaviour

OC is conceptualised as how an employee identifies with and is involved in an organisation (Mowday et al., 1979). While studying employees' PEB, Cramer and Roes (1993) argue that OC plays a central role in the workplace context since employees with stronger OC are more willing to adopt behaviours aligned with organisational values, including environmental protection (Temminck et al., 2015). Therefore, employees with higher OC are more likely to devote increased time and effort to various organisational tasks, including adopting the firm's green practices (Yoon et al., 2016).

The social bond theory advocates that a person will exhibit higher self-reliance if the reference group that they belong to is relatively weaker (Hirschi, 1969). On the other hand, in a

more substantial reference group, an individual may take cues from other members and act accordingly to avoid any conflicting behaviour with group members (Hawkins et al., 1999). In an organisational context, employees' OC might deter them from delinquent behaviours so that they do not jeopardise organisational goals. The social bond theory also suggests that, in a group setting such as a workplace, the attitude towards a specific behaviour is significantly influenced by the social information and interactions between group members (Thomas & Griffin, 1989). It is proposed that, with stronger employee commitment to social groups and organisations, there is more social information and interactive exchanges between employees, which can result in favourable attitudes (Steers, 1977). Taken together, the positive attitude towards green behaviour that stems from a strong OC can increase an employee's IGPW.

H9: *Attitude towards green behaviours mediates the relationship between OC and hotel employees' IGPW.*

The social bond theory suggests that an individual with a relatively higher commitment to their social groups will demonstrate increased conformity to group norms and, therefore, is less likely to break social laws (Hirschi, 1969). In the workplace context, this view has been supported by empirical observations that employees with higher OC and cordial workplace relations more often respond to organisational policies (Steers, 1977).

Given the above, it can be argued that employees who feel a sense of belonging towards their organisation are more likely to develop interpersonal relationships with their superiors and subordinates through effective communications and wholeheartedly attempt to uphold organisational values. Moreover, employees with higher OC can find it more gratifying to develop cohesive interpersonal interactions and conform to the group norms aligned with their organisation's beliefs and values (Thomas & Griffin, 1989). This strengthens the bonds with their colleagues and their intention of acting in accordance with their employer's organisational values and objectives, such as environmental preservation. We thus propose:

H10: *PSN mediate the relationship between OC and hotel employees' IGPW.*

From the social bond theory perspective, higher OC can result in enhanced PEB since an employee with higher OC tends to find it easier to gather information, develop the required skills and manage collaborations with others in an organisation (Hirschi, 1969), thus leading to a higher likelihood of developing prosocial behaviours such as PEB. Angle and Perry (1981) contend that a highly committed employee is more motivated to interact with others to develop capabilities and skills that help improve their job performance. Moreover, Visagie and Steyn (2011) add that highly committed employees tend to trust management and co-workers more. This can propel them to develop skills and capabilities aligned with organisational objectives and policies, including those specific to environmental preservation, thus leading to higher PBC. Such employee skills and capabilities necessary to produce green products/services are intangible assets to firms and can only be effectively developed when individual employees are willing to engage and participate. Also, from an organisation's point of view, this helps improve employee retention and business performance (Meyer et al., 2002). Therefore, we propose that, along with other benefits, OC can result in increased PBC regarding performing specific tasks, such as adopting green practices, leading to a higher level of IGPW.

H11: *PBC mediates the relationship between OC and hotel employees' IGPW.*

GOC and employees' PEB

In addition to their personal beliefs, values and predispositions, an employee's behaviour is also formed by the environment in which they perform their job (Zopiatis et al., 2014). Employees sense multiple cues, including organisational rules, practices and guidelines, which shape their

day-to-day tasks and activities (Schneider et al., 1998). Thus, an organisational climate shaped by a firm's emphasis on specific policies or business practices can significantly influence employees' behaviour (Kuenzi & Schminke, 2009). Among different subtypes of organisational climates (e.g. a safety climate or ethical climate), a GOC, which encompasses a set of environmental policies and specific environmental tasks, has been identified as an essential moderator that enables or hampers individual employees' behaviours (Zientara & Zamojska, 2018). Norton et al. (2012) define a GOC as an organisation's formal green policies and processes that reflect the organisation's pro-environmental values. Leonidou et al. (2015) argue that, for environmental preservation, a firm's environmental policies should enable a conducive GOC where employees are actively encouraged and supported to adhere to pro-environmental values and norms.

Diamantis and Ladkin (1999) stated more than two decades ago that adopting green business policies would significantly reduce environmental degradation. In the ensuing period, various green policies and practices have been routinely implemented by hotels across the globe (Kim et al., 2016). In such a context, we would expect that within a more enabling GOC, a hotel employee with high OC is more likely to learn that their employer is making sincere efforts to reduce environmental footprint and consequently form a strong attitude towards green behaviours and PBC and feel better supported in undertaking PEBs. On the other hand, in a weak GOC, hotel employees with a strong OC may devote their attention/efforts to areas not closely associated with environmental issues. As a result, their OC has a limited impact on attitude and PBC. Chou (2014) reports a strong moderating effect of GOC on the relationship between PSN and PEB among Taiwanese hotel employees. Similarly, Zientara and Zamojska (2018) investigate a GOC's moderating role between environmental value and organisational citizenship behaviour and find a significant relationship. Therefore, we posit that:

> **H12**: A GOC moderates the relationship between employees' OC and attitude towards green behaviours, such that higher OC results in an increase in employees' attitude when the GOC is high.

> **H13**: GOC moderates the relationship between employees' OC and PBC, such that higher OC results in an increase in employees' PBC when the GOC is high.

Based on the previous discussions, 13 hypotheses have been proposed to form our research framework; see Figure 1.

Methodology

Sample

The sample is sourced from 14 hotels with the Association of Southeast Asian Nations Green Hotel Standard and 19 hotels that are members of the Malaysian Association of Hotels. In total, 730 respondents were approached on hotel premises and administered a structured questionnaire by the lead author after prior consent was received from the manager over the phone. The questionnaire was distributed personally to the employees of the selected 33 hotels between May and August 2018. Finally, 407 usable responses were retained for the analysis, representing a valid response rate of 55.75%. Respondents took approximately 12–15 min to complete the survey.

The respondents' profile (Table 1) is as follows: 34% worked in hotels with green certification; 15% were managers (including assistant managers); 48% of employees were female; 52% were between 26 and 40 years of age; 33% had completed a university diploma; and 35% had five or more years of total work experience. The survey started by obtaining explicit consent to participate in the study. The study procedure, data anonymity, confidentiality, usage, and disposal after completion were thoroughly explained (Ethics No. UoB 080618).

We administered a pilot study by sending the questionnaire to four scholars with research expertise in PEB and organisation studies to assess the clarity of survey instructions and
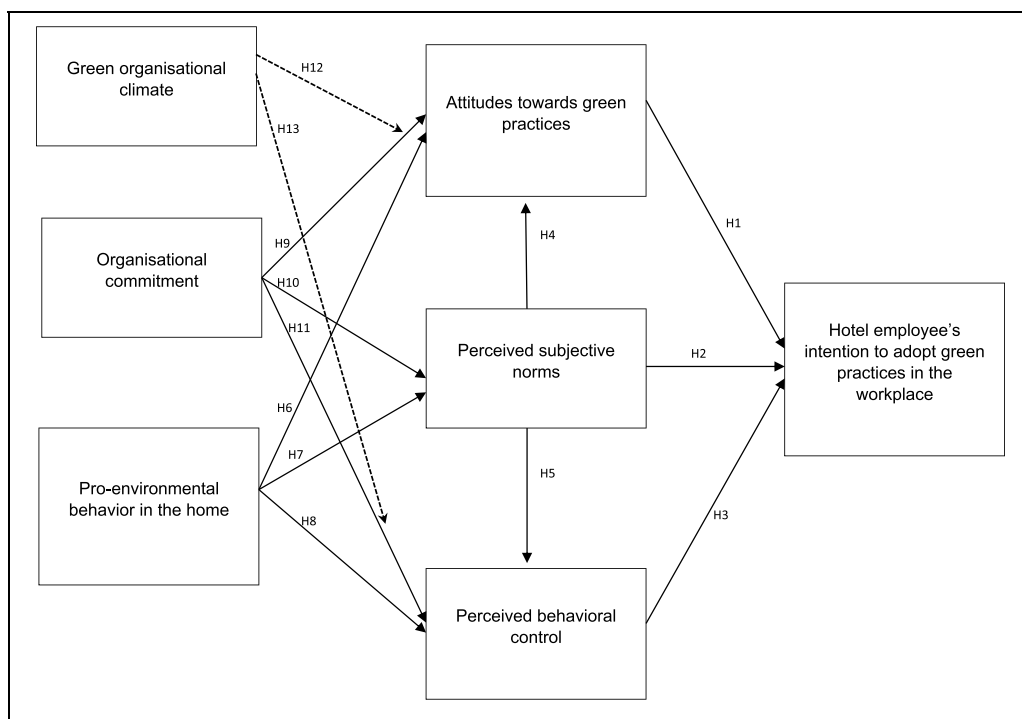
Figure 1. Proposed model.

Table 1. Sample descriptives.

Variables	Category	Frequency	%
Age	Less than 25	132	32.4
	26–40	213	52.3
	41 years and above	62	15.3
Gender	Male	209	51.4
	Female	198	48.6
Ethnicity	Malay	297	73
	Chinese	49	12
	Indian	43	10.6
	Others	18	4.4
Education	Primary/Secondary school	184	45.2
	University Diploma	134	32.9
	Undergraduate and above	89	21.8
Work experience	Less than two years	145	35.6
	2–5 years	122	30.0
	More than five years	90	22.1
	Not disclosed	50	12.3
Current position	Manager/Assistant Manager	32	7.9
	Executive/officer	29	7.1
	Supervisor/Coordinator	27	6.6
	Advisor/Clerk	20	4.9
	Assistant staff/operator/ administration	60	14.7
	Chef/Kitchen helper	12	2.9
	Housekeeping	40	9.8
	Receptionist/security/technician/	72	17.7
	Not disclosed	115	28.3

question items. After minor changes based on the experts' feedback, the final questionnaire was administered in person to 15 hotel employees in Malaysia.

Measures

A five-point Likert scale ranging from "1 = strongly disagree" to "5 = strongly agree" was used for all the constructs measured in the study. Attitude towards green behaviours was measured using 10 items adopted from Gao et al. (2017). PSN measures, consisting of eight items, were adopted from Wu et al. (2017) and Gao et al. (2017). The PBC scale, with eight items, was also adopted from Wu et al. (2017). Studies by Tonglet et al. (2004) and Wells et al. (2016) were referred to to develop the 11-item scale of PEBH. With nine items, the OC scale was adopted from Mowday et al. (1979). Employees' IGPW was measured using two items from Gao et al. (2017) and Wu et al. (2017). Based upon Chou (2014), hotels' GOCs were measured using 23 items involving corporate environmental policies and practices, such as waste management, energy saving, water saving, reuse and recycling. Respondents were asked whether the hotel where they were working had implemented these 23 environmentally friendly policies and practices (0 = Yes, 1 = No), and the summated score was used to measure the moderator effect of GOC on the OC–attitude and OC–PBC relationships. We controlled for employees' experience at the current hotel, age, gender and education. The descriptive statistics are presented in Table 2.

The potential risk of common method bias (CMB) was assessed using three statistical techniques recommended by Homburg et al. (2010). First, the Harman (1976) single-factor test was applied by performing unrotated exploratory factor analysis (EFA) on all items of attitude, SN, PBC, intention, OC and PEBH. The single factor explained a total variance of 43.21%, indicating the absence of common method bias issues (Podsakoff et al., 2003). Then, a marker variable test was carried out. We employed a theoretically unrelated construct (years of work experience in the current hotel) and found that the pattern of bivariate correlations remained unchanged. It was observed that the model with the marker variable had a worse fit than the original model, indicating that common method bias did not influence our findings. Lastly, we adopted the common latent factor technique (Podsakoff et al., 2003) by comparing the measurement model with and without the common method variance (CMV) factor. Since an examination of the path coefficients revealed no significant changes in the strength and significance of the effects, it was concluded that CMV minimally impacted the study findings (Podsakoff et al., 2003).

Analysis and results

Covariance-based structural equation modelling (CB-SEM) was adopted for data analysis to validate the measurement model and test the structural model. AMOS 28 with maximum

Table 2. Means, standard deviations, and correlations.

Variable	Mean	S.D.	1	2	3	4	5	6	7	8	9	10	11
1. Experience	4.322	3.806	–										
2. Age	3.511	1.655	.490***	–									
3. Gender	.487	.500	−0.027	−0.167**	–								
4. Education	2.711	.894	−0.207***	−0.083	.255***	–							
5. Attitude	3.821	1.238	.036	.067	.086	.068	–						
6. PSN	3.47	.932	−0.010	.070	.019	.044	.781***	–					
7. PBC	4.364	1.045	−0.077	−0.066	.072	.024	.293***	.275***	–				
8. IGPW	3.538	.907	−0.039	.072	.040	.126*	.749***	.721***	.212***	–			
9. OC	3.492	.863	.024	.096	.074	.012	.745***	.672***	.106*	.622***	–		
10. PEBH	3.602	.841	−0.040	.008	.068	.077	.733***	.669***	.251***	.577***	.684***	–	
11. GOC	16.781	5.521	.022	.008	−0.019	−0.046	.25**	.049	.151**	.183*	.216**	.040	–

*p < 0.05; **p < 0.01; ***p < 0.001.

likelihood estimation was used to run the model. The fitness of the measurement model was assessed through confirmatory factor analysis (CFA), using several fit indices, such as normed chi-square (CMIN/df), incremental fit index (IFI), normed-fit index (NFI), and root mean square error of approximation (RMSEA) (Hair et al., 1998). The statistical test results of $\chi^2_{(1007)}$= 2595.926; χ2/DF = 2.578; CFI = 0.929; IFI = 0.93; and RMSEA = 0.061 confirmed that the model fit the data satisfactorily (Bagozzi & Yi, 1988). Table 3 reports Cronbach's Alpha and the composite reliability values of each construct, which are all above 0.7, indicating that the internal consistency of the measurement scales met the standard threshold (Cronbach, 1951).

Convergent validity was achieved, as all average variance extracted (AVE) values were above 0.5. The square root of average variance extracted of each construct (i.e. diagonal value in Table 4) was greater than the correlation between each pair of constructs, suggesting discriminant validity (Fornell & Larcker, 1981). Using the CI_{CFA} technique proposed by Rönkkö and Cho (2022), we started by changing the default option of setting the primary factor loadings to 1 and adjusted the latent variables' variance to 1 as an alternative. We computed the confidence interval for each of the correlations in our study. The upper limit of all factor correlation confidence intervals was beneath the 0.90 cut-off, as suggested by Rönkkö and Cho (2022) (Table 5). The χ2 (sys) calculations excluded any pairs where the CI upper limit was under 0.8 (Cram et al., 2022). Results in Tables 3–5 suggest that all diagnostic criteria concerning internal consistency, convergent validity and discriminant validity were achieved and regarded as statistically sufficient.

Hypothesised causal relationships were tested with the structural path coefficients presented in Table 6. The χ^2 statistic for this structural model was 3206.433, with df of 1,299 ($p < 0.01$). This result, along with the χ^2 to df ratio of 2.468, CFI of 0.916, IFI of 0.917 and RMSEA of 0.06, suggests an acceptable model fit of the complexity tested for the sample (Hair et al., 1998). Regarding the structural path coefficients for hotel employees (Table 6), attitude positively influenced employees' IGPW (γ = 0.584, $p < 0.001$), resulting in the acceptance of H1. Similarly, PSN (γ = 0.177, $p < 0.05$) and PBC (γ = 0.479, $p < 0.001$) significantly affected employees' IGPW, leading to confirmation of H2 and H3. PSN significantly affected attitude towards green behaviours (γ = 0.42, $p < 0.001$) as well as PBC (γ = 0.538, $p < 0.001$), thus supporting H4 and H5.

In H6, we proposed that attitude towards green behaviours mediates the positive, indirect linkage between PEBH and hotel employees' IGPW. It was observed that the effects are significant; the estimate (hereafter ab) = 0.137, $p < 0.01$; 95% CI (0.081, 0.241), thus supporting H6. However, H7 is rejected, as the mediating effect of PSN between PEBH and employees' IGPW is statistically non-significant (ab = 0.006 is not significant, hereafter $n.s.$; 95% CI [−0.005, 0.133]). We predicted in H8 that PBC mediates the linkage between PEBH and intention (ab = 0.063, $p < 0.05$; 95% CI [0.016, 0.135]); this is supported.

In H9–H11, we proposed that TPB constructs mediate the indirect positive linkage between OC and employees' IGPW. We find support for H9 (ab = 0.155, $p < 0.05$; 95% CI [0.077, 0.252]), demonstrating that attitude strengthens the positive effect of OC on employees' IGPW. However, H10 (ab = 0.07, $n.s.$; 95% CI [−0.003, 0.161]) and H11 (ab = 0.089, $n.s.$; 95% CI [−0.018, 0.225]) are both rejected.

H12 predicted that GOC moderates the OC–attitude relationship. Table 6 shows that the moderation result is not significant (γ = 0.032, $n.s.$), thus rejecting H1. We proposed in H13 that GOC moderates the OC–PBC relationship and found that the moderation result is significantly positive (γ = 0.119, $p < 0.01$), which supports H13. To further understand the moderating effect of GOC, we created an interaction plot with mean-centred values (Dawson & Richter, 2006). Following Aiken et al. (1991), we conducted a simple slope test (Figure 2) and found that GOC is associated with an increase in PBC, especially at higher levels of OC. The analytical results support the research model, with an explanatory power of 88.9%.

Table 3. Construct reliability and convergent validity.

Constructs	Items	Average Variance Extracted (AVE)	Composite Reliability	Cronbach Alpha (α)	Factor loadings	t-value
OC	I am willing to put in a great deal of effort beyond the normal expectation to help this hotel be successful	0.687	0.952	0.953	.853	–
	I talk up this hotel to my friends as a great hotel to work for				.865	28.156
	I would accept almost any type of job assignment to keep working for this hotel				.870	28.584
	I find that my values and the hotel's values are very similar				.916	33.354
	I am proud to tell others that I am part of this hotel				.903	31.840
	This hotel really inspires the very best in me to perform well in my job				.856	27.416
	I am extremely glad that I chose this hotel to work over others I was considering at the time I joined				.882	29.698
	I really care about the fate of this hotel				.869	28.527
	For me, this is the best of all possible hotels for which to work				.849	26.825
PEBH	At home, I usually separate waste	0.541	0.928	0.934	.838	–
	At home, I always attempt to reduce the amount of waste				.853	26.706
	At home, I reuse plastic containers to avoid buying new ones				.805	23.336
	At home, I reuse glass containers to avoid buying new ones				.754	20.424
	At home, I have objects repaired rather than buying new ones				.865	27.660
	At home, I actively try to reduce my electricity consumption				.850	26.471
	At home, I switch off the lights when not needed at home				.772	21.396
	At home, I add or remove clothing rather than turning air conditioner				.817	24.104
	At home, I open or close windows rather than turning air conditioner				.818	24.074
	At home, I turn air conditioner down if I can find other ways to be comfortable				.792	17.749
	At home, I like turning off entertainment equipment when not in us				.737	15.423
Attitude	My engagement in waste management programs at this hotel will help preserve natural resources.	0.78	0.972	0.959	.839	–
	My engagement in waste management programs at this hotel will help create a better environment for future generations.				.793	23.478
	My engagement in energy-saving programs at this hotel will help preserve natural resources.				.938	38.381
	My engagement in energy-saving programs in this hotel will help to create a better environment for future generations.				.945	39.632
	My engagement in waste management programs at this hotel will help protect the environment.				.952	40.924
	My engagement in waste management programs in this hotel will help to reduce carbon emission				.950	40.447
	My engagement in energy-saving programs at this hotel will help protect the environment				.931	37.623
	My engagement in energy-saving programs in this hotel will help to reduce carbon emission				.933	37.518
	My level of engagement in preserving natural resources will help to create a better environment for future generations				.953	41.052
	My level of engagement in the reduction of carbon emissions will help to create a better environment for future generations				.941	38.914

(Continued)

Table 3. Continued.

Constructs	Items	Average Variance Extracted (AVE)	Composite Reliability	Cronbach Alpha (α)	Factor loadings	t-value
PSN	When it comes to matters of waste management programs, I want to do what my employer thinks I should do.	0.715	0.952	0.928	.860	–
	When it comes to the matter of waste management programs, I want to do what my co-workers think I should do.				.817	24.991
	When it comes to the matter of waste management programs, I want to do what my supervisor thinks I should do.				.946	39.466
	When it comes to matters of energy-saving programs, I want to do what my employer thinks I should do.				.940	38.370
	When it comes to the matter of energy-saving programs, I want to do what my co-workers think I should do.				.928	36.404
	When it comes to the matter of energy-saving programs, I want to do what my supervisor thinks I should do.				.894	31.958
	Most people who are important to me think I should engage in the waste management programs of my hotel				.882	30.677
	Most people who are important to me think I should engage in the energy-saving programs of this hotel				.889	31.422
PBC	Having the necessary provisions would enable me to engage in the waste management programs of this hotel.	0.692	0.947	0.949	.873	–
	Having enough information would enable me to engage in the waste management programs of this hotel.				.824	25.030
	Having sufficient knowledge would enable me to engage in the waste management programs of this hotel.				.860	27.837
	Having appropriate skills would enable me to engage in the waste management programs of this hotel.				.858	27.640
	Having the necessary provisions would enable me to engage in the energy-saving programs of this hotel.				.914	33.379
	Having enough information would enable me to engage in the energy-saving programs of this hotel.				.908	32.674
	Having sufficient knowledge would enable me to engage in the energy-saving programs of this hotel.				.898	31.539
	Having appropriate skills would enable me to engage in the energy-saving programs of this hotel.				.902	31.422
IGPW	I intend to engage in waste management programs in this hotel as soon as possible	0.543	0.711	0.713	.787	–
	I intend to engage in energy-saving programs in this hotel as soon as possible				.840	25.889

Table 4. Discriminant validity of scales.

	Attitude	PSN	PBC	IGPW	OC	PEBH
OC	**0.829**					
PEBH	0.712	**0.736**				
Attitude	0.767	0.611	**0.883**			
PSN	0.706	0.708	0.501	**0.846**		
PBC	0.538	0.628	0.667	0.717	**0.832**	
IGPW	0.421	0.327	0.408	0.559	0.436	**0.737**

Note: Diagonal values shows $\sqrt{AVE}$.

Table 5. The 95% CIs of the estimated factor correlations.

Construct Pair	Lower CI	Upper CI	Classification
OC-PEBH	0.659	0.719	No problem
OC-Attitude	0.721	0.763	No problem
OC-PSN	0.567	0.623	No problem
OC-PBC	0.632	0.714	No problem
OC-Intention	0.500	0.572	No problem
PEBH-Attitude	0.603	0.653	No problem
PEBH-PSN	0.456	0.516	No problem
PEBH-PBC	0.383	0.455	No problem
PEBH-Intention	0.650	0.732	No problem
Attitude-PSN	0.653	0.689	No problem
Attitude-PBC	0.440	0.500	No problem
Attitude-Intention	0.710	0.762	No problem
PSN-PBC	0.484	0.536	No problem
PSN-Intention	0.689	0.745	No problem
PBC-Intention	0.722	0.792	No problem

Discussions and conclusion

Theoretical contributions

This study investigates the intertwined relationships between individual, organisational and contextual factors on hotel employees' IGPW. Specifically, our conceptual framework, backed by empirical evidence based on a sample of 407 Malaysian hotel employees, proposes the novel mechanisms through which OC and PEBH impact intention: the mediating mechanisms of attitude and PBC and the moderating effect of GOC in strengthening OC–PBC relationships. Our study contributes to the literature in several ways.

First, our theorisation based on the TPB, social bond theory and behaviour spillover theory makes an essential step towards improving our understanding of employees' PEBH and OC in shaping their PEBs. Our integrated framework identifies the mechanisms through which an individual employee's PEBH and OC can be translated into an intention for PEB. The findings highlight the TPB construct—specifically, attitude—in playing the mediating role between PEBH and IGPW, whereas PBC only serves as a channel connecting OC to IGPW. By shedding light on the theoretical validity of TPB constructs and their mediating roles linking PEBH and OC to PEB, our study advances not only the PEB spillover effect literature (e.g. Thøgersen, 1999; Wells et al., 2016) but also the literature concerning the influence of employee OC on their workplace PEBs (e.g. Yoon et al., 2016). Furthermore, our findings regarding the role and significance of attitude support what Blok et al. (2015) contend—that attitude is one of the most important behavioural traits that should be steered and nurtured by organisations through appropriate measures, such as training, advocacy, and effective communication, for environmental preservation.

Second, by incorporating the links between PSN and attitude and between PSN and PBC in our framework, we align with the increased emphasis on the role of PSN in shaping employees' PEB in the workplace context. Our finding indicates that PSN significantly affects the attitude

Table 6. Multilevel path analysis.

Paths	Attitude Estimate (SE)	*t*-values	PSN Estimate (SE)	*t*-values	PBC Estimate (SE)	*t*-values	IGPW Estimate (SE)	*t*-values
Controls								
Experience[a]	0.047 (0.022)	1.571	0.008 (0.033)	0.199	−0.042 (0.031)	−0.975	−0.062 (0.031)	−1.482
Age	0.033 (0.023)	1.2	0.015 (0.034)	0.404	0.001 (0.035)	0.03	0.077 (0.032)	2.036*
Gender	−0.003 (0.013)	−0.089	0.04 (0.02)	0.319	−0.04 (0.019)	−0.943	0.054 (0.019)	1.293
Education	0.039 (0.04)	1.462	−0.047 (0.059)	−1.311	0.01 (0.056)	0.27	−0.021 (0.056)	−0.559
Main effects								
Attitude	–	–	–	–	–	–	0.584 (0.079)	7.523***
PSN	0.42 (0.043)	8.716***	–	–	0.538 (0.059)	8.103***	0.177 (0.07)	2.292*
PBC	–	–	–	–	–	–	0.479 (0.88)	5.170***
PEBH	0.287 (0.039)	5.954***	0.418 (0.053)	7.092***	0.268 (0.053)	4.055***	–	–
OC	0.272 (0.044)	5.854***	0.407 (0.063)	6.902***	.212 (.082)	2.372*	–	–
GOC	0.005 (0.018)	.202	–	–	0.093 (0.027)	2.566*	–	–
GOC x OC	0.032 (0.019)	1.219	–	–	0.119 (0.028)	3.171**	–	–

Specific indirect effects	Estimate (SE)	CI Lower end	CI Upper end
OC to IGPW (*via* attitude)	0.155 (0.043)**	0.077	0.252
OC to IGPW (*via* PSN)	0.07 (0.049)	−0.003	0.161
OC to IGPW (*via* PBC)	0.089 (0.062)	−0.018	0.225
PEBH to IGPW (*via* attitude)	0.137 (0.037)**	0.081	0.241
PEBH to IGPW (*via* PSN)	0.06 (0.036)	−0.005	0.133
PEBH to IGPW (*via* PBC)	0.063 (0.029)**	0.016	0.135

*$p < 0.05$; **$p < 0.01$; ***$p < .001$. CI: confidence interval.
[a]Logarithm transformation of original values. Standardized coefficients are shown.
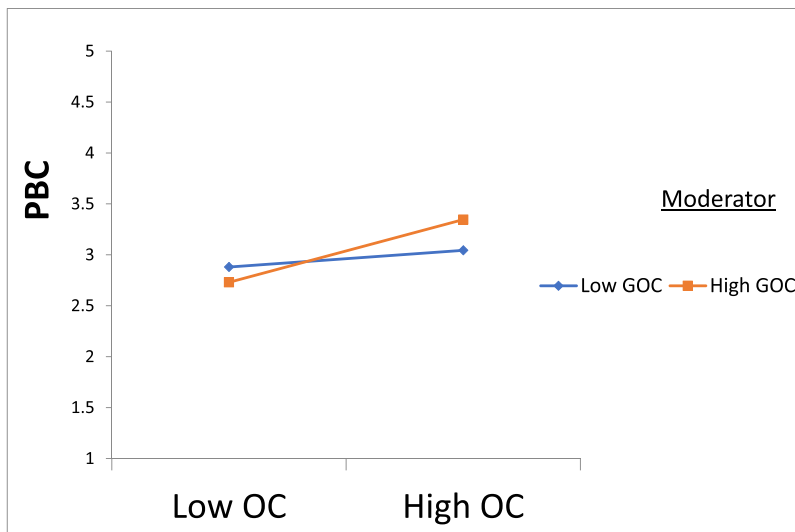

Figure 2. Moderating effect of green organisational climate on OC-PBC relationship.

and PBC of employees. While existing studies have argued for the positive role of PSN in shaping individuals' attitudes and PBC within the workplace, few studies focusing on employees' PEBs develop and test hypotheses referring to the 'additional' effects of PSN. Our finding of the positive effect of PSN on attitude and PBC, together with recent evidence in other contexts (e.g. Mannetti et al., 2004), calls for further consideration of the PSN construct in the TPB, particularly in the workplace context.

Third, our theoretical discussions add a nuanced consideration of GOC, a relatively underexplored boundary condition in the context of the relationship between employee OC and their PEBs in the workplace. Our discussions relating to the direct effect of OC accord with social bond theory (Hirschi,

1969)—frequent information sharing and interactions that result from strong social bonds help employees to develop a positive attitude towards green behaviour, alleviate their work pressure and improve their responsiveness to organisational demands and changes. As we hypothesised, these effects are subject to the boundary condition of GOC. Our finding of the significant moderation effect of GOC on the relationship between OC and PBC (enabling a GOC can leverage employees' OC to strengthen their PBC in the workplace) gives the construct strategic importance. This finding corroborates the view by Norton et al. (2012) that management should enrich a GOC not only by forming and regularly updating relevant green policies but also by supporting employees' sustainable actions in everyday work practices that are in sync with the firm's environmentally friendly values since it would enable employees to acquire the necessary skills, resources and knowledge, as well as to gain the confidence to implement corporate green policies.

Practical implications

Our study has several implications for the hospitality industry. Specifically, the study can help hoteliers instil PEB among employees, not only within the workplace but also in other contexts of environmental preservation. First, our findings provide valuable insights for hoteliers specifying role profiles and developing training programmes for employees, providing them with opportunities to contribute to the hospitality sector's efforts to reduce its carbon footprint. These insights can also help policymakers establish industry-wide environmental policies, focusing on augmenting employees' PEBs through multifaceted approaches. Such approaches may include training to promote PEB in employees' daily lifestyles and setting norms for external audits of workplace environmental preservation practices. Furthermore, our research highlights the influential role of important others in shaping employees' green behaviour. Therefore, we suggest hoteliers and educators develop and deliver more group training programmes involving multiple stakeholders. They should also promote and cultivate green practice champions among their employees, who can play a crucial role in fostering pro-environmental values and behaviours among their colleagues.

Second, our results indicate that, if hotel employees perform multiple environmentally positive actions at home, this will lead to increased IGPW due to the positive spillover effect. This finding suggests that, when designing recruitment policies, hotel management should develop appropriate measures to assess potential employees' attitudes towards the environment and their PEB outside the work environment, particularly for the roles directly related to sustainability.

Third, in our study, employees with high OC developed stronger pro-environmental attitudes, leading to IGPW. This finding, linking employee environmental attitude with work commitment, suggests a more holistic approach to workplace environmental preservation by hotels. To cultivate a sustained environmental strategy, hotel management should strive to lay out clearly defined environmentally friendly workplace policies and practices, provide an enabling environment and create favourable human resource policies for employees to perform their everyday duties at the workplace.

Finally, our study reveals the positive moderating effect of GOC on the relationship between OC and PBC, i.e. higher GOC accentuates the positive impact of OC on PBC. Thus, we strongly recommend that hotels develop and implement policies and practices that involve, encourage and support employees in adopting and expanding their coverage of green practices. Such approaches can enable employees to embrace green practices with enhanced confidence, foster a sense of ownership and purpose, and consequently improve their work performance.

Limitations and future research

While the present study extensively considers and makes efforts towards the research design and data collection, there exist some limitations that may offer opportunities for future research. First, dependence on a single country's data may be a limiting factor. We recommend future

studies generate longitudinal data, especially concerning home-to-workplace environmental behaviour spillover, and take a cross-country perspective, such as comparing hotel employees of developed and developing countries. Second, measuring and comparing the effects across different subgroups, viz. green- vs non-green-certified hotels, hotel stars, hotel type, employees or guest typology, may generate more practical insights. Future studies can also build upon our findings by investigating the combined effects of organisation-level variables (e.g. environment management system, green certification, sustainability strategy) and national cultural values (e.g. Hofstede's cultural dimensions) for a better understanding of employees' PEBs.

Ethical approval

All procedures performed in studies involving human participants were in accordance with the ethical standards of the University of Bradford and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Disclosure statement

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