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Abstract

Previous studies have paid little attention to the links between green human resource management (GHRM) and environmental performance, especially examining an interaction and mediation analysis in the hospitality management. Therefore, the study bridges this research gap by extending the Ability-Motivation-Opportunity theory to explore the direct, indirect, and interactive roles of GHRM practices. A survey of 220 respondents at hotels suggests that: (1) training and employee involvement are critical tools in directly stimulating employee commitment and organisational citizenship behaviour towards the environment (OCBE), and hotels' environmental performance; (2) OCBE plays an essential role in mediating the effects of training and performance management on environmental performance; and (3) the vital interaction of training and employee involvement significantly strengthens environmental performance. However, unexpected results are found: (1) performance management is an unimportant consideration in analysis of direct and interactive influences and (2) employee environmental commitment does not mediate the GHRM-environmental performance relationship.

Keywords	Green human resource management; Environmental performance; Environmental commitment; Organisational citizenship behaviour towards the environment; Greening the hospitality industry.
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Abstract

Previous studies have paid little attention to the links between green human resource management (GHRM) and environmental performance, especially examining an interaction and mediation analysis in the hospitality management. Therefore, the study bridges this research gap by extending the Ability-Motivation-Opportunity theory to explore the direct, indirect, and interactive roles of GHRM practices. A survey of 220 respondents at hotels suggests that: (1) training and employee involvement are critical tools in directly stimulating employee commitment and organisational citizenship behaviour towards the environment (OCBE), and hotels' environmental performance; (2) OCBE plays an essential role in mediating the effects of training and performance management on environmental performance; and (3) the vital interaction of training and employee involvement significantly strengthens environmental performance. However, unexpected results are found: (1) performance management is an unimportant consideration in analysis of direct and interactive influences and (2) employee environmental commitment does not mediate the GHRM-environmental performance relationship.

1. Introduction

Sustainability and environmental protection have emerged as global concerns. The increasing environmental concern is stimulating the application of environmentally responsible management in organisations, for instance, in hospitality firms (Ouyang et al., 2019; Singjai et al., 2019), because companies operate in a competitive global economy in which they must not only be efficient but also be responsible, especially the environmental responsibility (Yong et al., 2019). Indeed, implementing environmental management is strategically important to organisations, as reacting to external changes can increase customers' demand towards an organisation's products or services, and reinforce its competitive position (Molina-Azorín et al., 2015). Among the approaches adopted by organisations to address environmental concerns, for example the technological perspective (Chan et al., 2020), "green" human resource management (GHRM) is becoming one of emergent research topics (Ren et al., 2018). GHRM plays a key part in achieving an organisation's environmental objectives (Paillé et al., 2014). GHRM is considered one of the best ways to ensure a good relationship between organisations and their stakeholders (Yusoff et al., 2018).

Most of the previous GHRM-related studies have approached the GHRM practices' effects on either the individual level or the organisational one. For instance, the first stream focused on employee behaviours relating to GHRM practices (Dumont et al., 2017; Luu, 2019). The second stream dealt with the effect of GHRM on corporate environmental performance (CEP) (Masri and Jaaron, 2017; Roscoe et al., 2019). However, published researches that link GHRM to CEP through the mediating roles of employees' green behaviour (e.g., organisational citizenship behaviour towards the environment - OCBE) and their commitment towards the environment are still missing. Admittedly, the success of an organisation's environmental

management depends heavily on employees' environmental behaviour that helps improve CEP (Kim et al., 2019). In the hospitality industry, Kim et al. (2019) investigate the mediating role of employees' green behaviour towards the connection between GHRM and hotels' green performance. Yet, this paper has not discussed (1) the contribution of separate GHRM practices (e.g., training, performance management) and (2) the mediating influence of employee environmental commitment (EEC).

Moreover, to understand GHRM practices, as suggested by Renwick et al. (2013), some researchers (e.g., Pinzone et al., 2016) mobilise the Ability-Motivation-Opportunity (AMO) theoretical framework developed by Appelbaum et al. (2000). According to the AMO theory, practices related to human resource management (HRM) can contribute to performance of an organisation by increasing individuals' abilities (e.g. through training), motivations (e.g., by using a performance management system), and opportunities (e.g., by using a suggestion system). While the effect of GHRM practices such as training (ability), performance management (motivation), and employee involvement (opportunity) on OCBE (Pinzone et al., 2016) and CEP (Masri and Jaaron, 2017; Yusoff et al., 2018) appears to be established, to our knowledge, there is not to date a study on GHRM practices focusing on how an interaction among ability, motivation, and opportunity influences an CEP (interactive influences).

In fact, none of ability, motivation, or opportunity can ensure performance on its own (Bos-Nehles et al., 2013). From this perspective, to deal with the relationships among ability, motivation, and opportunity, researchers have proposed various structures such as the additive model, the combinative model, and the multiplicative model (Bos-Nehles et al., 2013; Kim et al., 2015). The *additive model* undertakes that corporate performance is contributed by each factor independently. The *combinative model* (a two-way interaction) can be expressed by

functions such as performance, illustrating a two-way interaction involving both combinations of motivation and ability and opportunity and ability. The model suggests that ability is a requirement of performance, that motivation and opportunity can only help when ability is sufficient (Bos-Nehles et al., 2013), and that motivation and opportunity only have an effect on performance when they are combined with ability (Kim et al., 2015). The *multiplicative model* (a three-way interaction) represents classic work performance theories that hypothesise complementarity or an interaction among ability, motivation, and opportunity. In this regard, to perform well a task, all these three components must be present. Performance will fall when one of these values decreases (Blumberg and Pringle, 1982). In the context of HRM practices, there has been little research aimed at explaining how these factors (ability, motivation, and opportunity) operate together. Additionally, the findings of these few studies do not show the supremacy of a particular model (i.e., the additive, combinative, or multiplicative model); for example, the combinative model is supported by Bos-Nehles et al.'s (2013) research, while Kim et al. (2015) prefer the multiplicative model.

Recently, scholars have paid attention to the significant role of GHRM practices, seen as the critical ways to stimulate employee's green attachment (Pham et al., 2019c) and green behaviour (Pinzone et al., 2019; Chaudhary, 2019), and promote organizations' environmental effectiveness (Zhang et al., 2019). Despite a substantial increase in GHRM-linked publications, there have been so far little research on GHRM applied to the hospitality industry. For instance, among the scarce GHRM-related studies applied to the hospitality industry, Pham et al.'s (2019b) paper explores the interactive effects of GHRM practices on employees' voluntary workplace green behaviour. This paper points out that green training is a critical mechanism in the interaction model to boost such behaviour of employees. Thus, the originality of the present research rests on answering mentioned limitations by (1) investigating the interactive influences

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Consequently, this research seeks to answer the abovementioned research gaps. In this research, we examine how GHRM practices influence both the organisational and individual levels to answer the following questions:

RQ1: Do GHRM practices directly influence EEC, OCBE, and CEP?

RQ2: Do EEC and OCBE mediate the influences of GHRM practices on CEP?

RQ3: Do the interactions among GHRM practices influence CEP?

The main objective of this research is to gain a better understanding of how to enhance CEP through examining the roles of GHRM practices, EEC, and OCBE. To address this objective, we investigate (1) the linkages between GHRM practices and EEC, OCBE, and hotels' environmental performance, (2) the mediating roles of EEC and OCBE towards the effect of GHRM practices on hotels' environmental performance, and (3) the interactive influences of GHRM practices on hotels' environmental performance.

The study's theoretical contributions are twofold. First, it comes from the AMO theory, a management theory that considers the mediating role of employee attitudes (e.g., EEC) and behaviour (e.g., OCBE) towards the HRM-organisational performance relationship (Katou et al., 2014). Concretely, the authors integrate this theory into the green context to build and empirically test the conceptual framework. By improving our knowledge about such mediations, this work fills the lack of previous studies to contribute to the existing literature.

Second, this study contributes to the management literature by extending the AMO framework into the environmental perspective. This answers the call of Blumberg and Pringle (1982) for publications aimed at studying interactive roles of HRM practices in enhancing CEP. Despite this call, there has not yet been a similar study published. Thus, this research explores how GHRM practices work together to impact an organisation's environmental performance. Specifically, the authors suggest that the two-way and three-way interactions of GHRM practices (training, performance management, and employee involvement) may bring environmental effectiveness to hotels.

2. Literature review

2.1. Applied organisational theories

Since, to the best of our knowledge, there are no prior publications that have investigated entirely the direct, indirect, and interactive influences of GHRM practices on CEP. This study develops hypotheses on the basis of green-related publications and HRM theories. According to Appelbaum et al. (2000), HRM practices aim at enhancing employees' abilities, motivations, and opportunities, which, in turn, influence organisational performance. Organisations focus on HRM practices, creating mediating responses to employee abilities and motivations, which are seen as a 'black box' in the HRM-performance relationship and central to the mediation of that relationship (Macky and Boxall, 2007). For instance, employees' responses such as employee attitude (e.g., commitment) and behaviour (e.g., organisational citizenship behaviour) mediate the effects of HRM practices on organisational performance (Jiang et al., 2012; Katou et al., 2014). Therefore, anchored in AMO theory, HRM practices such as training, performance management, and employee involvement may directly influence employee commitment,

organisational citizenship behaviour, and organisational performance. Such practices also influence organisational performance via the mediating roles of employee commitment and organisational citizenship behaviour. Moreover, the AMO framework is employed to debate the interactive effects of GHRM practices on environmental performance. Blumberg and Pringle (1982) suggest interactions among the three dimensions (ability, motivation, and opportunity) that should theoretically be supported by AMO theory used to examine the HRM-performance relationship. In addition, this study applies social exchange theory (SET) (Emerson, 1976): if employees perceive benefits from their organisations, they feel obligated to reciprocate (Jiang et al., 2012). Based on this theory, employees' positive perceptions of HRM practices help increase their commitment towards the organisation and improve key behaviours at work (e.g., organisational citizenship behaviour) (Kehoe and Wright, 2013).

Extending these arguments in the green context, the AMO theory can be applied to explore the links between GHRM practices and environmental performance, and the mediating effects of EEC and OCBE towards these links. The SET is suggested to investigate the direct effects of GHRM practices on EEC and OCBE. Here, environmental performance is one of the measures of organisational performance, consistent with the arguments of previous scholars (e.g., Longoni et al., 2018). We observe that the two theories are often used to examine the effects of GHRM practices on environmental commitment and OCBE (e.g., Dumont et al., 2017; Pinzone et al., 2016). Accordingly, these two theories seem relevant to explore the current research's objectives.

2.2. The influence of GHRM on EEC

Renwick et al. (2013) define GHRM as environmental management-oriented HRM policies. By extending AMO theory and previous studies (e.g., Masri and Jaaron, 2017; Pham et al., 2019b), the authors apply three "green" components—training, performance management, and employee involvement—to measure GHRM. Green training is defined as environmental policy which provides workers with the necessary knowledge, skills and attitudes (Jabbour et al., 2010); green performance management indicates a system for guiding employees in aligning their behaviour with the firm's green goals (Pham et al., 2019b; Govindarajulu and Daily, 2004); and green employee involvement aims at providing opportunities for workers to participate in environmental initiatives and activities (Pinzone et al., 2016). EEC denotes sense of environmental attachment and responsibility at work (Raineri and Paillé, 2016).

Katou et al. (2014) suggest that an indication of employee perception towards HRM practices may be related to employee reactions at the workplace (e.g., employee commitment, organisational citizenship behaviour). From the environmental context, although few published studies have concentrated on such relationships, focusing on an effective environmental management is likely to strengthen green attitudes for staffs committed to the environmental objectives (Perez et al., 2009). As top management inculcates environmental management into the organisation, employees' norms, values, and mindsets must be changed to adapt to the organisation's green culture and goals (Pinzone et al., 2016). In turn, this may result in the development of an employee's sense of attachment, responsibility, and awareness towards environmental concerns (Jabbour and Santos, 2008). Thus, GHRM practices may stimulate EEC (O'Donohue and Torugsa, 2016). Focusing on GHRM system (training, performance management, employee involvement) promotes knowledge sharing, employee perception of

GHRM, competencies, etc., which, in turn, improve green-specific outcomes such as EEC (Ren et al., 2018; Pham et al., 2019c).

Specifically, employees' green understanding via the environmental training programmes yields enduring knowledge and commitment because such programmes help employees absorb and adopt green-related mindsets, skills, and attitudes (Perron et al., 2006). Green performance management, for example, feedback on employee green performance helps deter undesirable attitudes (Jabbour et al., 2010) and increase engagement and responsibility towards the environment (Govindarajulu and Daily, 2004). Similarly, Daily and Huang (2001) argue that employee involvement in the environment continuously motivates EEC. For instance, developing green teamwork can promote employees' understanding about why, what, how, where, and when to utilise environmental practices to guarantee employee commitment towards green activities in the workplace (Tung et al., 2014). Empirically, Pinzone et al.'s (2016) study is one of the few published studies investigating the GHRM practices-EEC relationship. Their findings also support the above arguments by showing the positive effects of GHRM practices on affective commitment towards the environment. This work posits the following:

H1. Green training (H1a), green performance management (H1b), and green employee involvement (H1c) have a positive influence on EEC.

2.3. The influence of GHRM on OCBE

According to Boiral (2009), OCBE is understood as employee's voluntary behaviours that are unrecognised and contribute to organisation's environmental goals. Following SET, paying attention to environment-oriented HRM practices helps positively enhance OCBE at work (Paillé et al., 2014). O'Donohue and Torugsa (2016) also argue that a good GHRM policy

may lead to changes in employees' green behaviour. Specifically, green training provides green knowledge and skills to employees, consequently enhancing green abilities to identify environmental problems (Govindarajulu and Daily, 2004; Pham et al., 2018) and minimise its negative impact (Vidal-Salazar et al., 2012). Therefore, employees become more aware of environmental standards and behave more proactively and promote the spread of environmental values to encourage voluntary green behaviour by employees (Boiral, 2009). Green performance management stimulates employee's engagement in firms' environment-related events (Renwick et al., 2013). Evaluating employees' environmental performance helps employees better understand environmental information and tasks, improves their willingness to engage in voluntary green behaviour (Pinzone et al., 2016), and ensures environmental responsibility at the workplace (Chinander, 2001). Similarly, employee involvement in green activities is seen as an individual factor that enhances employees' ecological behaviour (Ramus, 2001) and encourages them to participate and initiate new ideas for environmental activities (Masri and Jaaron, 2017). Pinzone et al. (2016) empirically show that GHRM practices are necessary to encourage OCBE at work. Consequently, we hypothesise that:

H2. Green training (H2a), green performance management (H2b), and green employee involvement (H2c) have a positive influence on OCBE.

2.4. The direct influence of GHRM on CEP

CEP is viewed as an organisation's affirmative outcomes towards the natural environment (Daily et al., 2012). Latan et al. (2018) also indicate that an effective environmental management strategy facilitates organisational green goals such as environmental performance. GHRM can be an important dimension in improving green performance (Ren et al., 2018). Such

environmental training provides employees with the related knowledge, attitudes, and skills (Jabbour et al., 2010), which can help employees identify environmental issues and take suitable actions at the workplace to increase green performance (Vidal-Salazar et al., 2012). Similarly, evaluating employees' environmental performance aligns behaviours, ensures responsibility, and focuses on environmental objectives (Govindarajulu and Daily, 2004), which in turn improves companies' green performance (Guerci et al., 2016). Organisations that focus on employee involvement generate opportunities for employees to apply their knowledge and abilities in environmental activities, take green initiatives at work (Pinzone et al., 2016), and give innovative solutions for reducing waste and improving the efficiency of resource usage (Florida and Davison, 2001), which boosts the organisation's environmental performance. Thus:

H3. Green training (H3a), green performance management (H3b), and green employee involvement (H3c) have a positive influence on CEP.

2.5. The indirect influence of GHRM on CEP

Based on the AMO framework, employee attitudes (e.g., commitment) and behaviour (e.g., organisational citizenship behaviour) may mediate the influences of HRM practices on organisational performance (Katou et al., 2014). Furthermore, when employees have positive perceptions of HRM practices, they believe to concentrate on commitment towards the organisation, which then enhances their organisational citizenship behaviour at the workplace (Kehoe and Wright, 2013). From the environmental perspective, an effective GHRM strategy may positively promote employee attitudes and behaviour for green activities and improve environmental performance (Ren et al., 2018). As for EEC, GHRM practices (e.g., training,

performance management, employee involvement) provide environmental knowledge, abilities, and skills (Jabbour et al., 2010), which change staffs' values and mindsets in alignment with the organisation's green strategy (Pinzone et al., 2016). Consequently, this stimulates their responsibility or discretionary sense of commitment towards environmental issues. Thus, employees are more responsible for environmental activities and tasks aimed at meeting the organisation's green targets, which, in turn, enhances its environmental performance. This is consistent with Masri and Jaaron's (2017) arguments that GHRM practices can help organisations advance CEP through EEC.

Similarly, environment-oriented HRM strategies may promote employees' voluntary environmental behaviours (Jackson and Seo, 2010)—meaning that they are more willing to be involved in green projects to share green understandings and help others with environmental activities—enhancing environmental performance. Paillé et al. (2014) highlight OCBE as a mediator in the link between strategic HRM and green performance. Kim et al. (2019) also find that the effect of GHRM on environmental performance is mediated by OCBE. We argue that GHRM practices (training, performance management, employee involvement) provide the required green knowledge, abilities, and skills to employees, align their environmental behaviours, and give them opportunities to participate in green activities at the workplace. When employees perceive a positive exchange relationship with their organisation through these GHRM policies, they are likely to reciprocate the organisation (Kim et al., 2019). This stimulates employees' eco-friendly behaviours, for instance, saving water and energy consumption, classifying waste, etc., which, in turn, improve organisation's environmental performance. In addition, GHRM practices can help employees better understand environmental issues and organisation's environmental targets and policies, which may result in the positive change of employee's responsibility and awareness towards environmental

concerns (Jabbour and Santos, 2008), lead to more pro-environmental attitudes among employees, and prevent undesirable environmental attitudes (Jabbour et al., 2010). In turn, this may encourage environmentally responsible behaviour (e.g., OCBE) (Pinzone et al., 2016). Therefore, OCBE could promote greater environmental performance. As a consequence:

H4. EEC mediates the influences of green training (H4a), green performance management (H4b), and green employee involvement (H4c) on CEP.

H5. OCBE mediates the influences of green training (H5a), green performance management (H5b), and green employee involvement (H5c) on CEP.

2.6. The interactive influence of GHRM on CEP

Following the AMO theory, Bos-Nehles et al. (2013) state that organisational performance depends on ability, motivation, and opportunity through the combinative model. Blumberg and Pringle (1982) argue that whether performance is enhanced through employee ability (e.g., training) depends on the work perspective: for example, making opportunities for employees at work. Accordingly, we argue that there may be that the practices to enhance ability and motivation (e.g., training and performance management) and ability and opportunity (e.g., training and employee involvement) may have interactive influences on organisational performance. Extending this reasoning to the green perspective, we expect to observe interactive influences of GHRM practices (training and performance management and training and employee involvement) on environmental performance. More specifically, policies to evaluate an individual's green performance would guide employees towards aligning their behaviour with the organisation's environmental objectives (Guerci et al., 2016). Creating opportunities for employees to become involved in green activities helps them develop new

ideas for environmental practices (Daily et al., 2012) and encourages them to contribute proactively to pollution prevention efforts (Govindarajulu and Daily, 2004). At the same time, an employee's knowledge and skills obtained through an environmental training programme (Jabbour et al., 2010) are important for them to confidently pursue environmental initiatives and activities, correct their environmental mistakes at work, and understand how to better participate in green opportunities in their group or organisation. Consequently, this boosts both employees' green performance and the organisation's environmental performance.

The multiplicative model, where performance depends on a three-way interactive function of ability, motivation, and opportunity, should be applied to predict organisational performance (Kim et al., 2015). Since there is the absence of any these dimensions (or it has a lower value), performance could decrease its level (Blumberg and Pringle, 1982). Thus, practices to promote employees' ability (such as training) are important to enhance corporate performance; this is also greater if organisations simultaneously apply policies to motivate employees through a performance management system and create opportunities for them to be positively involved in their job. Accordingly, from the environmental perspective, we expect that environmental training provides knowledge and skills to employees (Govindarajulu and Daily, 2004) that help them better understand environmental issues, resulting in adjustments to green actions to improve environmental performance (Jabbour and Santos, 2008). At the same time, policies to positively and contemporaneously boost both green performance management and green employee involvement fosters stronger environmental performance. As green performance management stimulates employee's willingness to share and apply the environmental knowledge and skills obtained from the green training programmes, so that employee's green ability will be enhanced. Simultaneously, if employees are provided opportunities by top management to involve in activities and events for the environmental

protection, this generates a positive environment in company that motivates employees to utilise the trained environmental knowledge and skills and to learn more about environment-related requirements, thus creating a greater green ability. In turn, this may positively influence CEP. Thus, we hypothesise that:

H6. There is (are) two-way interactive influence(s) of green training and green performance management (H6a) and green employee involvement (H6b) on CEP.

H7. There is a three-way interactive influence of green training, green performance management, and green employee involvement on CEP.
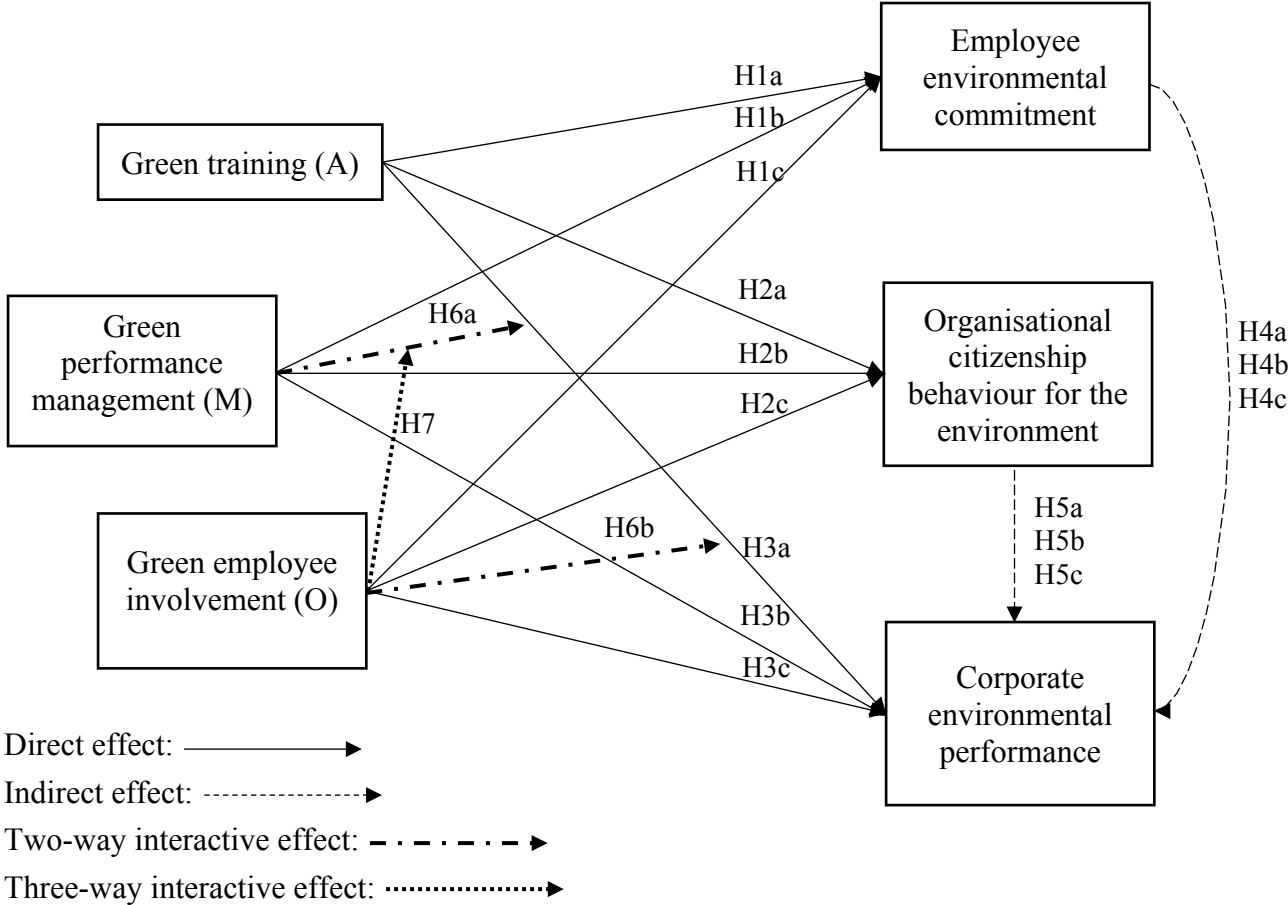

Fig. 1. Conceptual model.

3. Methodology

3.1. Sample and procedures

Our research aimed at investigating the relationships among variables. Thus, a quantitative approach with the survey strategy and questionnaire technique is appropriate for this research (Saunders et al., 2009).

For data collection, we chose respondents working in 3- to 5-star hotels in Vietnam. 3- to 5-star hotels were chosen since they are more likely to be involved in environmental practices. The environmental issues have been attracted by many hotels as they often cause a negative impact on the environment (Molina-Azorín et al., 2015). Moreover, more and more tourists have been likely to choose green accommodations (Robinot and Giannelloni, 2010). This has stimulated hotels focusing on the environmental protection and green strategy seen as an advantage for reputable hotels, for example, 3- to 5-star hotels. Thus, the role of GHRM is extremely strategic for hotels, especially 3- to 5-star hotels. Indeed, such hotels were appropriate in many environmental-management-related studies (e.g., Molina-Azorín et al., 2015). Respondents must have at least one year of working experience in hotels and have been responsible of or related to the environmental activities in hotels, as they would then be able to understand the important role of environmental requirements and grasp the green practices used in the organisation. Thus, managerial employees such as managers, deputy managers, or supervisors working at various departments such as housekeeping, food and beverage, maintenance, font office, and administration (or HR) were chosen to collect data.

The authors relied on managerial employees as respondents because of following reasons. First, they are in a good position to provide us with necessary environmental information. Also, they are directly involved in the management and report of environmental issues in the

organisation, which help them gain environmental knowledge to appreciate GHRM practices and their consequences (Tung et al., 2014). Second, using managerial employees as respondents is in line with previous GHRM-related publications (e.g., Longoni et al., 2018; Masri and Jaaron, 2017). Third, in the hospitality industry, hotel's managerial employees were chosen for collecting data to rate green performance and the environmental management policies (e.g., Yusoff et al., 2018; Molina-Azorín et al., 2015).

This research was conducted in Vietnam for several reasons. First, the environmental issues have been concerned by both local and central government. According to Pham et al. (2019b), laws aiming at protecting the environment and encouraging to develop sustainable and environment-friendly industrial production were enacted by the Vietnamese government in 1993. Second, parallel to domestic firms, international and multinational companies operating in Vietnam also concentrate on green activities because of not only the environmental legislation but also the environmental standards posed by their headquarters. Third, based on Massoud et al.'s (2010) arguments, developing countries, for instance Vietnam, have experienced obstacles such as weak infrastructure, illogical policy, unsuccessful environmental regulation, and financial and human difficulties that are barriers for firms in applying successfully the environmental management system.

The structural questionnaires were distributed to respondents by paper and e-mail between March and August 2018. A total of 880 hotels were first contacted to obtain their agreement. In each hotel, two questionnaires were provided to two respondents. Having two informants at each hotel enhances the consistency of provided information because the feedback from two respondents (rather than just one) is captured (Gölgeci et al., 2019). In total, 123 hotels were successfully contacted (12.98% response rate). However, 110 hotels were chosen due to

missing data; thus, 220 valid questionnaires were utilised in the final analysis. According to research model, the sample size of 220 is consistent with Hair et al.'s (2014) argument, suggesting that the sample size should be more than 10 times the largest number of structural paths directed at a particular construct in the structural model.

For data analysis, SMART-PLS was first applied to assess reliability and validity of the measurements, correlation matrix, and structural model and test the direct effects of GHRM practices on CEP. The PROCESS model was then used to explore the mediating and interactive effects. The PROCESS model is consistently used in studies that focus on mediation and interaction (Hayes, 2013).

3.2. Measurement

To measure **CEP**, we used six questions applied in the hospitality sector from Molina-Azorín et al. (2015). Since there is no final agreement on how to measure this construct (Latan et al., 2018), scales measured in the hotel industry are more consistent for our study. **OCBE** was employed from the seven items in Raineri and Paillé (2016). **EEC** was also drawn from the seven items in Raineri and Paillé (2016). With respect to GHRM measures, **green training (TRA)** was adapted applying five questions from Daily et al. (2012) and one additional item from (Jabbour, 2015). Five items from Jabbour et al. (2010) and Masri and Jaaron (2017) were employed to measure **green performance management (PEM)**. Five items proposed by Pinzone et al. (2016) and Masri and Jaaron (2017) were adapted to measure **green employee involvement (EIN)**.

According to Nunally and Bernstein (1994), the results (see Table 1) indicate a reasonable reliability as Cronbach's alpha and composite reliability are higher than the benchmark of 0.7.

The acceptable convergent validity is recognised because all AVE (Average Variance Extracted) values exceed 50% (Hair et al., 2014), which is the case for the present data (see Table 1). Finally, the Fornell-Larcker criterion (Fornell and Larcker, 1981) is used to check for discriminant validity. For each variable, the square root of the AVE of each construct needs to be higher than the construct's highest correlation with any other construct in the model (see Table 1). We therefore conclude that the discriminant validity is established for our research.

Table 1

Correlation and Discriminant Validity.

	AVE	CEP (1)	EEC (2)	OCBE (3)	EIN (4)	PEM (5)	TRA (6)
CEP (1)	0.711	**0.843**	-	-	-	-	-
EEC (2)	0.557	0.352	**0.746**	-	-	-	-
OCBE (3)	0.538	0.401	0.629	**0.733**	-	-	-
EIN (4)	0.587	0.579	0.461	0.525	**0.766**	-	-
PEM (5)	0.600	0.369	0.462	0.469	0.423	**0.775**	-
TRA (6)	0.573	0.534	0.589	0.532	0.521	0.536	**0.757**
CrA	-	0.919	0.866	0.857	0.823	0.834	0.850
CR	-	0.937	0.897	0.891	0.876	0.882	0.889

Note: Square roots of AVE in bold font are on the main diagonal. CrA: Cronbach's Alpha; CR: Composite Reliability.

3.3. Common method variance assessment

Questionnaire design and Harman's single factor test were typically preferred as the two appropriate methods for the research because the criterion and the predictor variables cannot be obtained from different sources (Podasakoff et al., 2003). Thus, our study randomly arranged the items in different sections; the questionnaire was then sent to two respondents. Data provided by different respondents in an organisation help decrease each respondent's potential consistency to a certain degree (Lo et al., 2018). In addition, based on Harman's single-factor test, a significant level of common method variance is recorded when the first factor's variance is greater than half of the total variance: 50% (Podasakoff et al., 2003). Data analysis recognises 32.302% of the overall variance explained by the first factor, and six factors are established at eigenvalues above 1.0. In conclusion, common method variance does not have serious implications for the inferences from these findings.

4. Results

4.1. Direct influences

The analysed results of the direct influences (see Table 2) show that green training (Coefficient value (Cv) = 0.5054, p-value < 0.05) significantly and positively influences EEC, but green performance management (Cv = 0.1687, p-value > 0.05) and green employee involvement (Cv = 0.1789, p-value < 0.05) do not affect EEC, thus supporting H1a and rejecting H1b and H1c. Moreover, the significant and positive links between GHRM practices (employee involvement, Cv = 0.3012, p-value < 0.05, and training, Cv = 0.2696, p-value < 0.05) and OCBE are confirmed, meaning that H2a and H2c are accepted. However, H2b is rejected as there is no influence of green performance management on employee voluntary green behaviour (Cv = 0.1974, p-value > 0.05). Similarly, CEP is affected by green training

(Cv = 0.3034, p-value < 0.05) and green employee involvement (Cv = 0.4058, p-value < 0.05); this effect was not found on green performance management (Cv = 0.0349, p-value > 0.05). H3a and H3c are therefore supported, and H3b is rejected.

Table 2

Hypothesis Testing and Path Coefficients (Direct Influences).

Hypothesis	Path	Coefficient (Cv)	Conclusion
H1a	TRA -> EEC	0.4054*	Supported
H1b	PEM -> EEC	0.1687	Rejected
H1c	EIN -> EEC	0.1789	Rejected
H2a	TRA -> OCBE	0.2696*	Supported
H2b	PEM -> OCBE	0.1974	Rejected
H2c	EIN -> OCBE	0.3012*	Supported
H3a	TRA -> CEP	0.3034*	Supported
H3b	PEM -> CEP	0.0349	Rejected
H3c	EIN -> CEP	0.4058*	Supported

Note: *Direct influence is significant at the 0.05 level.

4.2. Indirect influences

Table 3 illustrates results of the mediating influences through EEC and OCBE. The indirect influences of green training (Cv = −0.0200, p-value > 0.05), green performance management (Cv is 0.0662, p-value > 0.05), and green employee involvement (Cv = 0.0358, p-value > 0.05) on CEP through EEC are not significant; thus H4a, H4b, and H4c are rejected.

However, by mediating OCBE, green training (Cv = 0.0548, p-value < 0.05) and green performance management (Cv = 0.0759, p-value < 0.05) significantly influence organisational environmental performance, whereas this mediating effect does not occur with green employee involvement. H5a and H5b are therefore supported, and H5c is rejected.

Table 3

Hypothesis Testing and Path Coefficients (Indirect Influences).

Hypothesis	Path	Coefficient (Cv)	Conclusion
H4a	TRA -> EEC -> CEP	−0.0200	Rejected
H4b	PEM -> EEC -> CEP	0.0662	Rejected
H4c	EIN -> EEC -> CEP	0.0358	Rejected
H5a	TRA -> OCBE -> CEP	0.0548*	Supported
H5b	PEM -> OCBE -> CEP	0.0759*	Supported
H5c	EIN -> OCBE -> CEP	0.0485	Rejected

Note: *Indirect influence is significant at the 0.05 level.

4.3. The interactive influences

Based on the analysis in Table 4, the interaction of green training and employee environmental involvement (Cv = 0.4136, p-value < 0.05) positively and significantly influences CEP, supporting H6b. However, the interactive effect of green training and green performance management (Cv = 0.0744, p-value > 0.05) on the dependent variable does not occur, meaning that H6a is rejected. Furthermore, the effects of a three-way interaction among

the three above mentioned GHRM practices on CEP ($Cv = 0.1544$, p-value > 0.05) is not observed. H7 is therefore rejected.

Table 4

Hypothesis Testing and Path Coefficients (Interactive Influences).

Hypothesis	Path	Coefficient (Cv)	Conclusion
H6a	TRA x PEM -> CEP	0.0744	Rejected
H6b	TRA x EIN -> CEP	0.4136*	Supported
H7	TRA x PEM x EIN -> CEP	0.1544	Rejected

Note: *Interactive influence is significant at the 0.05 level.

As analysed above, a two-way interactive effect between green training and green employee involvement on CEP is shown. The authors should examine the conditional effects of green training on CEP at values of green employee involvement. From Table 5, green training exerts a strong and significant influence on environmental performance at high and average levels of green employee involvement ($Cv = 0.6726$, p-value < 0.05; $Cv = 0.4162$, p-value < 0.05, respectively), where high slopes are observed (see the two broken lines, Fig. 2). Meanwhile, a weaker effect is found at low levels of green employee involvement ($Cv = 0.2240$, p-value < 0.05), where its slope is rather low (see bold line, Fig. 2).

Table 5

Conditional Influences at Varying Values of EIN.

Moderators	Focal predictors	
EIN	Coefficient (Cv)	Conclusion
LOW	0.2240*	TRA significantly influences CEP
AVERAGE	0.4162*	TRA significantly influences CEP
HIGH	0.6726*	TRA significantly influences CEP

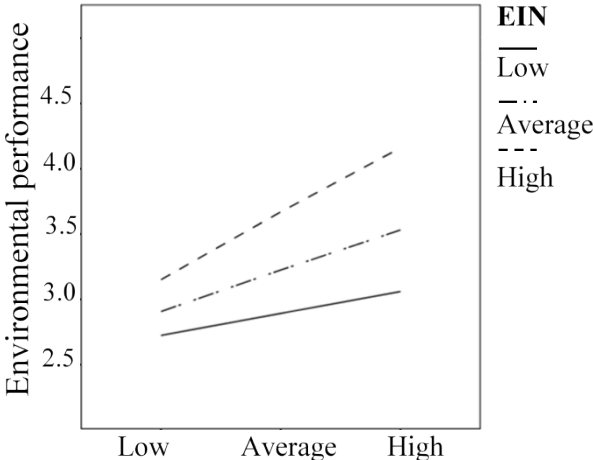Note: *Conditional effect is significant at the 0.05 level.

Fig. 2. Conditional effect at the values of EIN.

5. Discussion

Our findings are highlighted and discussed with respect to the three research questions as follows. Regarding the first research question, except for green performance management, the study confirms that green training and green employee involvement are important enablers for strengthening individual commitment and voluntary behaviour towards the environment and

the hotel's environmental performance. Therefore, considering activities such as providing employees with adequate training and creating opportunities for them to be involved in green suggestion schemes could improve their environmental attitudes and behaviour and improve green performance. Our findings show relationships between GHRM practices and EEC. Environmental policies aimed at developing employee competence (e.g., training programmes) are critical for organisations to stimulate individual responsibility and attachment at the workplace (Pinzone et al., 2016; Pham et al., 2019c). Our results also confirm links between GHRM practices and OCBE. Previous studies suggest the relevance of the application of environmental training and employee involvement in strengthening green voluntary behaviour (Saeed et al., 2019; Pinzone et al., 2016). In addition, the effects of green training and employee involvement on CEP are proven by this research. The result is consistent with Guerci et al.'s (2016), Masri and Jaaron's (2017) and Moraes et al.'s (2018) conclusions. Thus, conclusions of this study are in line with existing GHRM literature. Contrary to authors' expectation, green performance management does not directly influence EEC, OCBE, and hotel's environmental performance. Though appraising employee's green performance may partially boost the environmental knowledge, skills and abilities (Masri and Jaaron, 2017) and encourage the environmental engagement and responsibility of employees (Govindarajulu and Daily, 2004), our result does not support this argument. Indeed, this result may be explained by the fact that environmental performance management commonly has less effect on intrinsic motivational drivers; for example, employee commitment towards the environment (Pinzone et al., 2016). Similarly, failure to influence of green performance management on OCBE and environmental performance is not in line with previous works. For instance, two direct effects of this practice on OCBE and corporate green performance were supported by Saeed et al.'s (2019) and Guerci et al.' (2016) study, respectively.

Second, findings confirm the critical mediator of OCBE in the influence of GHRM practices, especially green performance management and training, on corporate green performance. This is the first study in which such effects have been investigated to fill the existing research gap in published studies and address the second research question. Specifically, the empirical findings demonstrate that these two green practices result in stronger environmental performance through the mediating influence of OCBE. Therefore, stimulating employees' attachment to, responsibility for, and discretion in green projects at the workplace is important to increase the effectiveness of environmental training and performance management policies aimed at achieving the organisation's green goals. Though there is an absence of previous papers that specifically investigate the links between each of the GHRM practices to environmental performance through individual environmental commitment and green behaviour, our results are consistent with Kim et al.'s (2019) suggestion, which states that hotel's green performance depends on the application of GHRM through the mediating role of employees' green voluntary behaviour. Moreover, Ren et al. (2018) and Pham et al. (2019a) suggest that an effective green strategy may promote environmentally friendly attitude and behaviour (e.g., EEC, OCBE), consequently improving corporate environmental performance. Regarding the unexpected findings, the mediating effect of EEC is not supported. Merely maintaining this factor is not enough to mediate the link between GHRM and environmental performance. This analysis complements existing studies recommending that OCBE be seen as a key point in unlocking and mediating relationships among GHRM practices (e.g., performance management and training) and CEP, even though employee commitment is also suggested as a mediating factor (Ren et al., 2018).

Third, by utilising interaction analysis to explore the interactive effects of GHRM practices on environmental performance, the results support the proposition that integrating

both green training and green employee involvement together significantly strengthens a hotel's environmental performance, especially when green employee involvement levels are high or average. This bridges the research gaps surrounding the interactions of GHRM practices and provides a response to the third research question. Training programmes and employee involvement policies for the environment should be implemented simultaneously; thus, organisations need to ensure that not only are green training programmes provided to all employees but also that policies are in place to encourage their involvement in environment-related suggestion schemes and activities at work. Although we acknowledge that there is a lack of published papers investigating the interactions of GHRM practices in the green context in particular, our results are consistent with the suggestions of a few prior researches that have employed the AMO framework to examine the HRM-performance relationship in general (e.g., Bos-Nehles et al., 2013). However, unexpected results are also found; for instance, in relation to the two-way interaction of green performance management and green training and the three-way interaction of the three GHRM practices. This contradicts the arguments of Blumberg and Pringle (1982), who argue that performance could be greater when practices to develop employee ability (e.g., training), motivate employees (e.g., performance management), and provide opportunity (e.g., employee involvement) need to be implemented together. This work adds a rich understanding of the interactions among GHRM practices and their roles to the existing literature.

Generally, green performance management is not seen as a critical tool to stimulate EEC and OCBE as well as directly drive CEP. Although some published studies reveal the significant contribution of this practice to pro-environmental behaviour and company's environmental effectiveness, this is not consistent with our work. Because individual's eco-friendly commitment and behaviours, which are not required or rewarded by organisations, may be

affected by their perceptions towards the organisation's green climate/culture and green strategy (Saeed et al., 2019). Thus, green policies aim at encouraging employees to actively participate in environmental activities at work (e.g., creating green opportunities for them to involve in joint consultation for solving environmental issues) that may be preferred than green practices designed to focusing on employee's green performance evaluation. In addition, respondents chosen to conduct this study are managerial employees whose engagement and behaviours towards the environment may be less influenced by green performance management than non-managerial employees. In fact, this is due to the Vietnamese organisational culture. As such, in Vietnam, the position of employees (managerial and non-managerial levels) may be considered to understand whether appraising employee's green performance should be applied to enhance organisation's green performance.

6. Contributions, limitations, and further research

6.1. Theoretical and practical contributions

This work has several important theoretical and practices contributions. First, by highlighting the application of AMO theory, our study explores the mediating roles of EEC and OCBE on the influence of GHRM practices on CEP. This study extends the contributions of published studies from a green context. Prior research has concentrated on direct links between GHRM practices and green behaviour (e.g., Saeed et al., 2019) and green performance (e.g., Masri and Jaaron, 2017). There is still a limited number of papers investigating the indirect influences through two mediator variables. Our findings complement the existing research and shed further light on the links between GHRM practices and the success of environmental management by pointing out that these relationships are primarily mediated by OCBE. We also

indicate a weak mediating role of EEC in the links mentioned above. Thus, by applying the mediation model, this study recommends a comprehensive framework from a green perspective for investigating the GHRM-environmental performance relationship by understanding how to identify the mediating roles of individual green attitudes (e.g., employee commitment) and behaviour (e.g., OCBE).

Second, we contribute to the GHRM literature by highlighting the AMO theory in exploring the interactions of GHRM practices and their roles in CEP. The study confirms that the simultaneous application of both green training and green employee involvement is an important element for the success of environment-linked HRM policies. This work complements the existing literature and bridges the limitations of published studies; scholars have not yet concentrated on the interactive effects of GHRM practices despite some concerns in current GHRM-oriented studies (e.g., Zaid et al., 2018). In addition, unexpected findings (that there is no two-way interactive influence of green training and green performance management or three-way interactive influence of the three GHRM practices on the dependent variable), which contradict Blumberg and Pringle's (1982) argument. This warrants further study to confirm whether these interactions exist. Though both expected and unexpected results were found, our study provides insights into the GHRM literature and the importance of the interactions in exploring the GHRM practices-environmental performance relationships.

Third, another interesting finding is that both green training and employee involvement are seen as critical for directly enhancing EEC, OCBE, and CEP. This is addressed by a few prior researches (e.g., Pinzone et al., 2016) and sheds light on existing literature. Our findings provide a theoretical contribution to emphasising the application of the AMO and SET theories to investigate the aforementioned relationships. Furthermore, our study helps fill the research

gap in the hotel industry: there has been little investigation aimed at enriching the understanding of GHRM and its importance. Thus, future scholars should concentrate on obtaining a better understanding of how to utilise current green practices in hotels in order to fine-tune the results and the findings.

Finally, our findings bring about practical implications for hotels. This study recommends that green training and employee involvement are recognised as key practices for the success of environmental management. Thus, hotels need to focus on providing training programmes, training opportunities for environmental activities, and opportunities to apply what was learned from the training programmes for employees. This advances the individual's environmental knowledge, skill, and awareness, which, in turn, develops the organisation's green goals. Furthermore, practices that generate employee green motivation should be required in all relevant departments to boost their environmental attachment and responsibility, for instance, establishing a workshop or forum about environmental protection or creating opportunities for employees to participate in green suggestion and problem-solving groups and communicate actively with the hotel's leaders on environmental activities. The interaction analysis recommends that both green training and green employee involvement should be applied simultaneously. This is a vital suggestion for doubling the success of environmental management, as training programmes help employees understand how to effectively solve environmental problems in the organisation. For example, this programme confers an understanding of how and why to effectively use energy, water, and food, and the knowledge of why and how to reduce, replace, or recycle waste, etc. Consequently, these strengthen the hotel's environmental performance. This performance may be doubled if opportunities are created for employees to utilise their newfound environmental knowledge, skills, and awareness in their daily activities. In addition, OCBE is seen as a critical element to mediate the link

between GHRM practices and CEP. To improve hotel's green effectiveness, managers need to implement policies aimed at encouraging individual's pro-environmental behaviours. For instance, managers should be willing to receive employees' suggestions about works to protect the environment more e□ectively. This boosts their willingness in involving green activities, such as, helping colleagues take the environment into account, and participating in projects that address the hotel's environmental problems.

6.2. Limitations and further research

Although we acknowledged the theoretical and practical implications, this work also contains several limitations and recommendations for further studies. First, three practices, including green training, green performance management, and green employee involvement are employed to measure GHRM practices in this study. However, following Renwick et al. (2013), additional green policies such as green rewards, green recruitment, green organisational culture, and union roles need to be considered in further research. Thus, future studies can extend our research by exploring the influences of these additional practices on corporate green performance based on additive, combinative, and multiplicative models. Second, this study examines the three GHRM practices separately. In line with some GHRM-linked publications (e.g., Zaid et al., 2018), further investigation modelling these GHRM practices as a second-order construct could be an interesting research direction. Third, non-managerial employees may be appropriate for data collection as they can answer GHRM practices, EEC, OCBE, and CEP. Thus, a further work should collect data from non-managerial employees to investigate such relationships. Fourth, the interaction model with two-way and three-way interactive effects of GHRM practices and the mediating role of EEC and OCBE towards the GHRM-corporate

environmental performance relationship represent interesting concerns that have attracted the attention of many researchers. This paper is the first to investigate these concerns in Vietnam, an emerging economy. Therefore, in order to obtain a broader understanding of these issues, a further work conducted in a developed country would be encouraged. Finally, the findings highlight new insights into the application of GHRM and its role in the hotel industry. Although the research was designed to ensure the generalisation of the results, it would always be interesting to verify these results in other industries.

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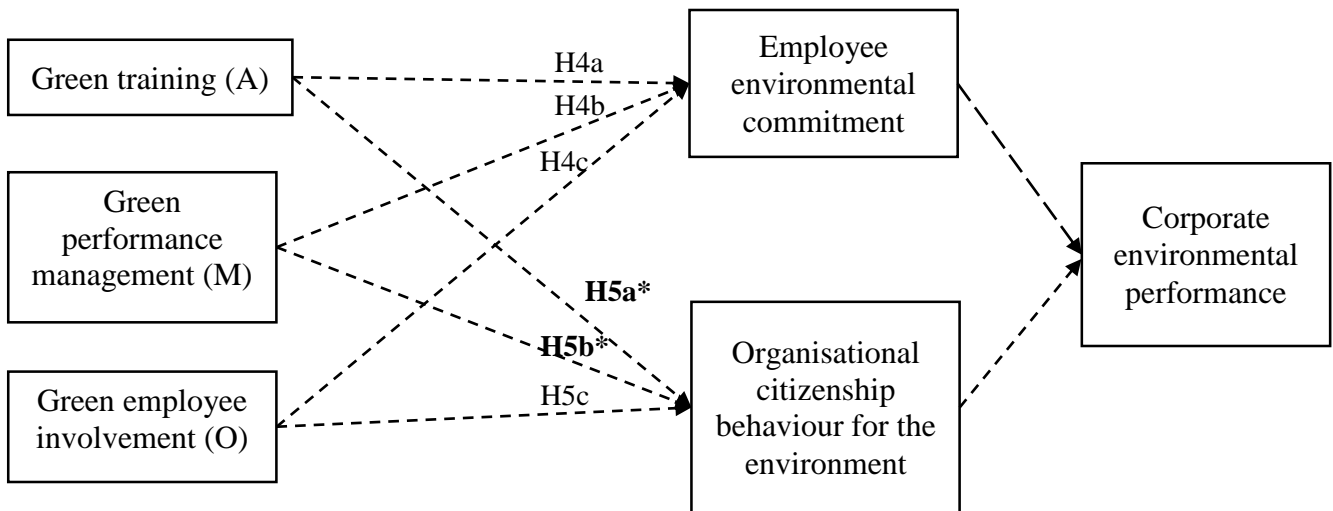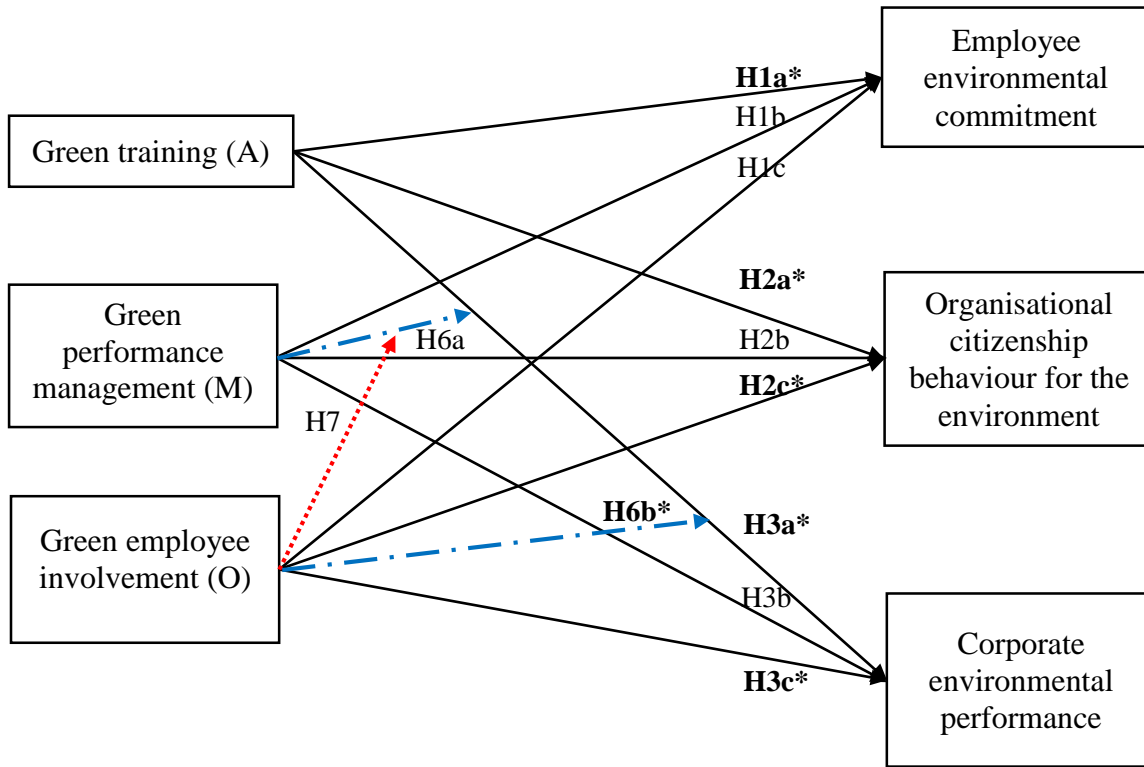
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Highlights

- The indirect and interactive effects of GHRM practices on environmental performance
- Interaction of training and employee involvement affects environmental performance
- OCBE mediates effects of training and performance management on environmental performance
- This study is the first to examine these effects in the hotel industry

First Diagram

Green training (A) →
- H1a* → **Employee environmental commitment**
- H1b
- H1c

Green performance management (M) →
- H6a (two-way interactive effect)
- H2a* → **Organisational citizenship behaviour for the environment**
- H2b
- H2c*
- H7 (three-way interactive effect)

Green employee involvement (O) →
- H6b* (two-way interactive effect)
- H3a* → **Corporate environmental performance**
- H3b
- H3c*

Second Diagram

Green training (A) →
- H4a → **Employee environmental commitment**
- H4b
- H4c

Green performance management (M) →
- H5a* → **Organisational citizenship behaviour for the environment**
- H5b*
- H5c

Green employee involvement (O) →

Employee environmental commitment → **Corporate environmental performance**

Organisational citizenship behaviour for the environment → **Corporate environmental performance**

Legend

Direct effect: ——————→

Indirect effect: – – – – – →

Two-way interactive effect: – · – · – · →

Three-way interactive effect: · · · · · · →

Effect is significant at the 0.05 level: *

The role of green human resource management in driving hotel's environmental performance: Interaction and mediation analysis

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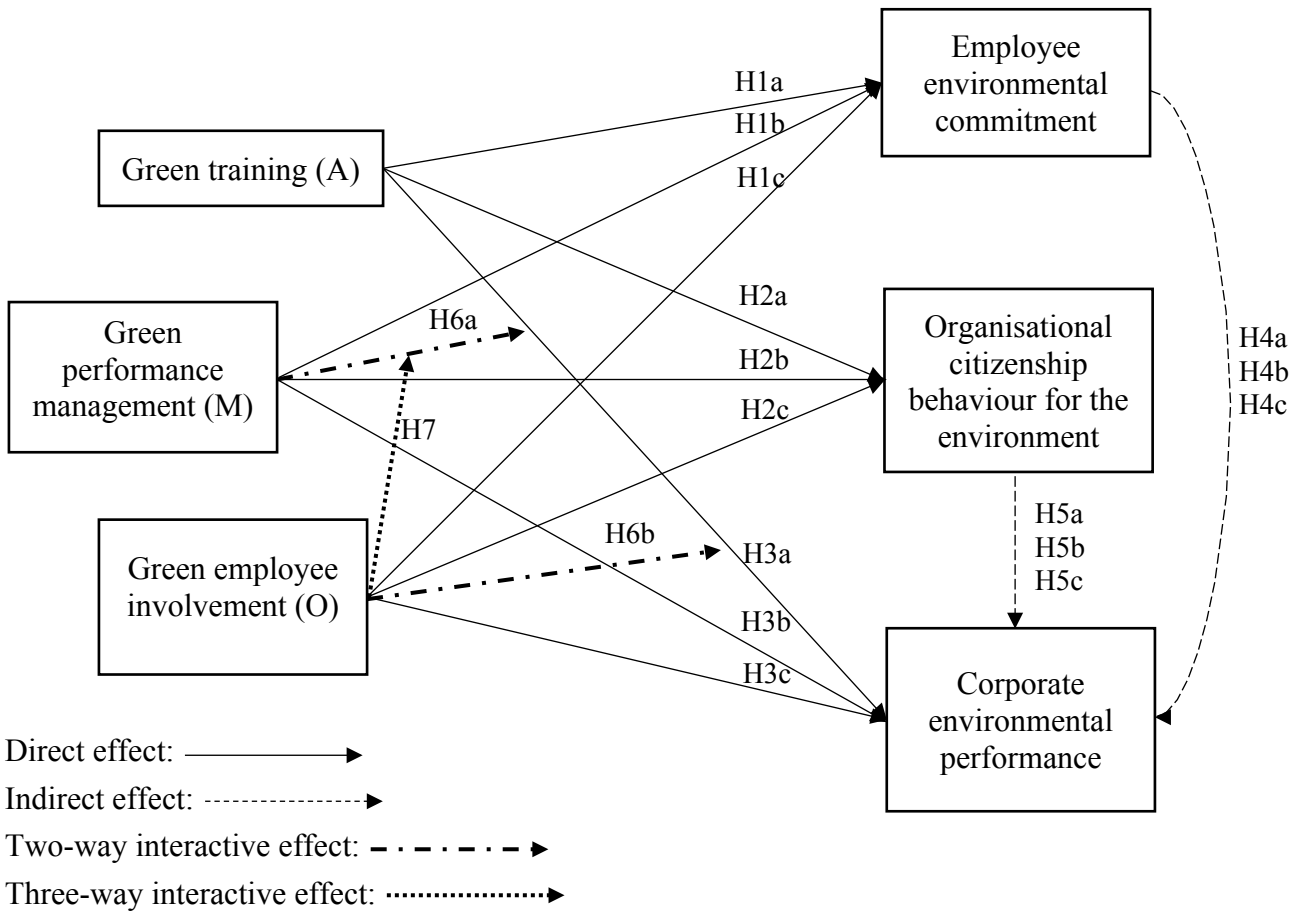
Figure captions

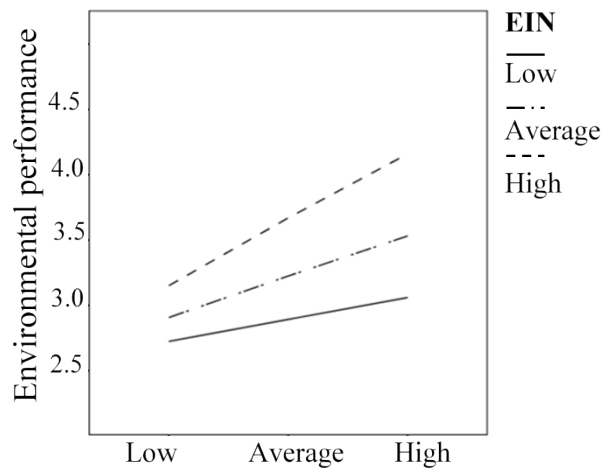**Fig. 1.** Conceptual model.

Fig. 2. Conditional effect at the values of EIN.

Tables

Table 1

Correlation and Discriminant validity.

	AVE	CEP (1)	EEC (2)	OCBE (3)	EIN (4)	PEM (5)	TRA (6)
CEP (1)	0.711	**0.843**	-	-	-	-	-
EEC (2)	0.557	0.352	**0.746**	-	-	-	-
OCBE (3)	0.538	0.401	0.629	**0.733**	-	-	-
EIN (4)	0.587	0.579	0.461	0.525	**0.766**	-	-
PEM (5)	0.600	0.369	0.462	0.469	0.423	**0.775**	-
TRA (6)	0.573	0.534	0.589	0.532	0.521	0.536	**0.757**
CrA	-	0.919	0.866	0.857	0.823	0.834	0.850
CR	-	0.937	0.897	0.891	0.876	0.882	0.889

Note: Square roots of AVE in bold font are on the main diagonal. CrA: Cronbach's Alpha; CR: Composite Reliability.

Table 2

Hypothesis Testing and Path Coefficients (Direct Influences).

Hypothesis	Path	Coefficient (Cv)	Conclusion
H1a	TRA -> EEC	0.4054*	Supported
H1b	PEM -> EEC	0.1687	Rejected
H1c	EIN -> EEC	0.1789	Rejected
H2a	TRA -> OCBE	0.2696*	Supported
H2b	PEM -> OCBE	0.1974	Rejected
H2c	EIN -> OCBE	0.3012*	Supported
H3a	TRA -> CEP	0.3034*	Supported
H3b	PEM -> CEP	0.0349	Rejected
H3c	EIN -> CEP	0.4058*	Supported

Note: *Direct influence is significant at the 0.05 level.

Table 3

Hypothesis Testing and Path Coefficients (Indirect Influences).

Hypothesis	Path	Coefficient (Cv)	Conclusion
H4a	TRA -> EEC -> CEP	−0.0200	Rejected
H4b	PEM -> EEC -> CEP	0.0662	Rejected
H4c	EIN -> EEC -> CEP	0.0358	Rejected
H5a	TRA -> OCBE -> CEP	0.0548*	Supported
H5b	PEM -> OCBE -> CEP	0.0759*	Supported
H5c	EIN -> OCBE -> CEP	0.0485	Rejected

Note: *Indirect influence is significant at the 0.05 level.

Table 4

Hypothesis Testing and Path Coefficients (Interactive Influences).

Hypothesis	Path	Coefficient (Cv)	Conclusion
H6a	TRA x PEM -> CEP	0.0744	Rejected
H6b	TRA x EIN -> CEP	0.4136*	Supported
H7	TRA x PEM x EIN -> CEP	0.1544	Rejected

Note: *Interactive influence is significant at the 0.05 level.

Table 5

Conditional Influences at Varying Values of EIN.

Moderators	Focal predictors		
EIN	Coefficient (Cv)	Conclusion	
LOW	0.2240*	TRA significantly influences CEP	
AVERAGE	0.4162*	TRA significantly influences CEP	
HIGH	0.6726*	TRA significantly influences CEP	

Note: *Conditional effect is significant at the 0.05 level.

Declaration of interests: None