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Employee ecological behavior through green transformational leadership: the mediating role of green HRM practices and green organizational climate

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Abstract

Purpose – The purpose of this study is to investigate how and when green transformational leadership (GTL) may be used to foster employee ecological behavior (EEB) at the workplace.

Design/methodology/approach – A comprehensive survey was conducted, encompassing responses from 460 academicians affiliated with the top five research universities in Malaysia. The analysis employed a Partial Least Squares-Structural Equation Modeling technique, facilitated by Smart PLS 3.7, to meticulously examine and assess the gathered data.

Findings – The findings revealed a positive relationship between GTL and green human resource management (HRM), green organizational climate (GOC) and EEB at the workplace. Additionally, there was a significant and positive relationship between green HRM practices and both GOC and EEB. Further analysis indicated that both green HRM practices and GOC served as mediators in the relationship between GTL and EEB.

Originality/value – The originality of this research lies in its exploration of the nexus between GTL and EEB within the workplace. By integrating Ability–Motivation–Opportunity (AMO) theory and social learning theory, the study examined a novel model to explore the effect of GTL on GOC, green HRM and EEB. This study contributes to the existing body of knowledge by systematically investigating the conditions and mechanisms through which GTL can effectively foster environmentally responsible behavior among employees. Particularly, the need for a comprehensive understanding of distinct dimensions of EEB at the workplace.

Keywords Employee ecological behavior, Green transformational leadership, Green HRM, Green organizational climate

Paper type Research paper

1. Introduction

The Sustainable Development Goals (SDG) have shifted organizations' focus toward cleaner and sustainable strategies (Yong *et al.*, 2022). Because of the continuous environmental degradation effect, environmentalists and governments have worked extensively to alleviate these environmental challenges (Khan *et al.*, 2022). Despite improved ecological legislation and policies aimed at raising green consciousness among firms, implementing green practices in day-to-day activities remains uncertain (Farooq *et al.*, 2022a, b, c; Ren *et al.*, 2020). Organizations have come under intense pressure from stakeholders, regulators and the



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community to reduce their environmental impact and maintain a balance between operations and the environment (Fawehinmi *et al.*, 2022). Furthermore, incorporating environmental sustainability in economic growth emerged as a global challenge in the 12th SDG related to “sustainable consumption and production patterns” (United Nations, 2015).

Resource consumption and production patterns play a critical role in environmental sustainability. Organizations do not utilize resources independently and leaders, employees and customers all make and demand such decisions (Khan *et al.*, 2022). Despite the importance of employees in achieving environmental targets, the influence of individual-level ecological behaviors has been studied primarily in household settings (Kollmuss and Agyeman, 2002). Employees behave differently at work and in organizations (Norton *et al.*, 2015). Furthermore, individuals spend a significant amount of time in job settings. Individuals’ environmental contributions in their work life with ecological behavior may be more essential because their activities can affect organizations’ environmental performance (Norton *et al.*, 2021).

A management review reveals an increasing interest in concepts connected to EEB at work, such as organizational citizenship behavior (OCB) of employees toward the environment at work, employee pro-environmental behavior, employee green behavior and employee voluntary green behavior is getting significant attention from scholars (Norton *et al.*, 2021). In the current scenario, EEB has become a crucial component of organizational environmental performance (Yesiltas, *et al.*, 2022). Organizations can use EEB as a strategy to satisfy stakeholder demands for environmental performance (Farooq *et al.*, 2022a, b, c). Researchers have shown how much EEB translates to organizational environmental performance (Luu, 2020). Nonetheless, it is unclear how EEB may be created inside the workplace (Amrutha and Geetha, 2021; Farooq *et al.*, 2022a, b, c).

1.1 Need for study

The current literature has either looked at this ecological behavior as a voluntary act of an employee (Amrutha and Geetha, 2021; Robertson and Carleton, 2018) or solely next-day task-related ecological activities at work (Norton *et al.*, 2017); or it has looked at it broadly without differentiating distinct elements of ecological behavior at work (Gkorezis, 2015; Saeed *et al.*, 2019). Therefore, further studies are needed to better understand EEB in the workplace with comprehensive dimensions (Blok *et al.*, 2015; Farooq and Yusliza, 2023; Norton *et al.*, 2021). Organizations lacking thorough knowledge of ecological behavior will suffer from applying and shaping their employees’ skills and talents (Fawehinmi *et al.*, 2022). The role of EEB is frequently mentioned in the green HRM literature. Nonetheless, a scarcity of studies seeks to combine distinct employee consumption patterns that affect EEB (Ones *et al.*, 2015). EEB is based on conscious efforts to manage recycling, shopping behaviors, reducing waste, printing patterns, energy usage and consumption patterns, including similar actions that reduce environmental risk (Blok *et al.*, 2015; Farooq *et al.*, 2022a, b, c).

Research on GTL is still scarce, even though leadership styles have begun to attract scholarly interest as a potential catalyst for green results within firms’ workforces. In previous literature, most studies emphasize traditional leadership styles, particularly environmental servant leadership (Siddiquei *et al.*, 2021), ethical leadership (Dey *et al.*, 2022; Wood *et al.*, 2021), responsible leadership (Afsar *et al.*, 2019) and eco-centric leadership (Biswas *et al.*, 2022). This research aimed to determine the significance of GTL as a fundamental antecedent for green HRM, green organizational climate (GOC) and EEB and its interaction with green HRM practices and GOC for shaping EEB.

Given the scarcity of information on how and when GTL effect green HRM, GOC and EEB, a need exists to explore this leadership style (Farooq *et al.*, 2022a, b, c; Graves and Sarkis, 2018). This is significant because, in contrast to other leadership styles, ethical leadership or green servant leadership, GTL is characterized by influencing, motivating, intellectual stimulation and individual concern (Robertson and Barling, 2017). As a result,

GTL promotes long-term outcomes by cultivating trust, loyalty and a green corporate environment (Nisar *et al.*, 2021). In the absence of GTL, research on how green HRM and GOC execute EEB is insufficient.

1.2 Research questions

As a means of bridging these gaps by theorizing and empirically testing, the current study addresses these research questions: what is the effect of GTL on green HRM practices, GOC and EEB? How do green HRM and GOC mediate between GTL and EEB? What part do green HRM practices and GTL play in shaping GOC in the workplace? This study first developed hypothetical models empirically linking GTL with workplace EEB, green HRM and GOC. Next, this research investigated the mediating role of green HRM and GOC between GTL and EEB to answer these research questions. Data were gathered from academicians of Malaysia's top five research Higher Educational Institutes (HEIs) to test the empirical model. HEIs institutes are considered cities within the cities and face pressure from the government to participate in sustainable development (Alshuwaikhat and Abubakar, 2008).

This study focused on Malaysian HEIs for several reasons. First, these institutes have taken a proactive approach to implement green strategies for sustainability (Beynaghi *et al.*, 2016). Second, Malaysia plays an essential role in the Asian market, and understanding how GTL affects EEB in the sector is crucial as it continues to develop more green strategies in the service and manufacturing sectors (Anwar *et al.*, 2020). In addition, academicians in Malaysian HEIs play a vital role in promoting EEB by serving as role models, adopting sustainable practices and encouraging the use of sustainable technologies and resources (Farooq *et al.*, 2022a, b, c; Fawehinmi *et al.*, 2022). Last, universities in Malaysia have the resources and expertise to research and implement sustainable solutions, educate and inspire the next generation of leaders in sustainability and engage with the community to promote sustainable practices (Anwar *et al.*, 2020). By committing to sustainability and implementing environmentally friendly policies, these institutions can significantly support the promotion of environmental protection (Yusliza *et al.*, 2021).

The current research intends to contribute to GTL and EEB in various ways. First, numerous experts believe firms should prioritize environmental activities by implementing green HRM practices and shaping EEB (Dumont *et al.*, 2017; Farooq *et al.*, 2022a, b, c; Saeed *et al.*, 2019). Green HRM practices align environmental initiatives in all its functions (including recruitment and selection, training and development and employee engagement and involvement) that shape the organizational ecological outcomes (Saeed *et al.*, 2019). Nonetheless, little research evidence exists on how employees interact with green HRM customs practices and the perceived role of GTL in shaping green HRM practices that nurture EEB.

Second, GOC has different meanings for different people, even within the same company (Norton *et al.*, 2012). Employees who discover a green climate at work behave differently, and this GOC is affected by the functioning of GTL in enacting and experiencing work behaviors (Dumont *et al.*, 2017).

Third, this study focused on different dimensions of EEB, including shopping, recycling, printing, drinking and using air conditioners, computers and lights at the workplace. Previously studies just focused on one or two dimensions of EEB, such as energy saving (Szostek, 2021), green purchasing (Sharma *et al.*, 2020) or traveling behavior (Lo *et al.*, 2013). Hence, the current research extends the existing body of knowledge and integrates different dimensions of EEB at the workplace.

Last, this study focuses on academicians of the top five largest research HEIs. This is significant because EEB research in HEIs is still in its infancy. Academicians' EEBs can have long-term effects on students and other stakeholders. Academicians serve as role models for students and influence the brains of future generations. Furthermore, academicians serve as a bridge between senior management and students. Thus, the study's results may provide helpful insight for management to understand when and how EEB might be modified.

This paper's structure is the following: First, we describe the underlying literature for our conceptual framework and formulate hypotheses. Next, we outline the selected methodology. Third, results are presented, and key findings are discussed. Theoretical contributions and practical implications are presented after the discussion section. Possible avenues for further research are offered, and the study's limitations are articulated.

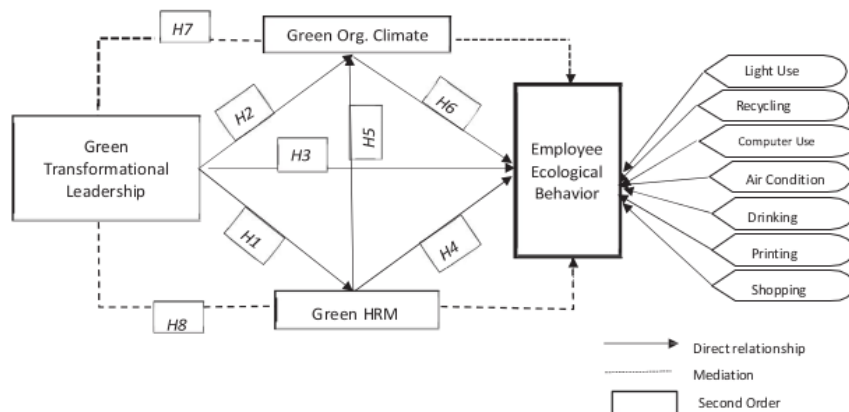
2. Literature review and theoretical background

2.1 Theoretical framework (refer Figure 1)

Organizational environmental strategies are significant in incorporating and shaping pro-environmental workplace policies and practices (Jackson and Seo, 2010). Green HRM can alter employees' attitudes and behaviors so that an organization becomes more environmentally friendly and sustainable (Renwick *et al.*, 2008). Green HRM activities such as candidate selection at recruitment, offering rewards for ecological behaviors and training and development for sustainable workplace practices can affect EEB (Dumont *et al.*, 2017). This study used Ability–Motivation–Opportunity (AMO) and social learning theory to identify the associations among green HRM, GTL and GOC,

AMO theory represents collections of unique and integrated HR practices classified on, Ability, Motivation and Opportunity (Appelbaum *et al.*, 2000). Abilities are constructed through a series of steps, such as advertising for and hiring qualified candidates and providing them with the appropriate training and development to successfully carry out their assigned tasks. Motivation is related to HR practices that enhance employee motivation for a particular task via performance appraisal, rewards and incentives that shape employee motivation to increase their effort to meet objectives. Finally, opportunity is provided via autonomy-enhancing activities, involvement and knowledge sharing that encourage employee participation in actions. According to Appelbaum's (2000) suggested AMO paradigm, HRM approaches that improve employees' competencies, willingness to conduct work and engagement in return result in the EEB.

Second, this study combined social learning theory (Bandura and Walters, 1977) with an HRM system strength viewpoint to argue that GTL can activate GOC and green HRM practices for EEB by first nurturing green values in the workplace through role modeling, persuading and inspiring employees. Green values encourage workers to grow a feeling of



Note(s): All hypotheses were accepted

Source(s): Authors' own work

Figure 1. Research model

environmental responsibility and perform EEB (Cabral and Lochan Dhar, 2019). However, the importance of GOC for the environment in channeling leadership into EEB has received little attention in green management studies (Robertson and Carleton, 2018). This research examined the mediating path of GOC between GTL and EEB because of the centrality of GOC in encouraging the adoption of environmentally friendly practices. By investigating how GOC and green HRM serve as mediators in the association between GTL and EEB, a clearer picture of how crucial GTL is in getting across the messages of green HRM and GOC can be gained in a way that resonates with workers and prompts them to take personal responsibility for protecting the environment.

2.2 Employee ecological behavior (EEB)

EEB refers to an employee's actions to decrease environmental impacts, whether through recycling, trash reduction and management, usage of energy or any other means to save the environment in the workplace (Ahmed et al., 2020). The principal goal of EEB is to lessen the adverse effects of human activities and institutional procedures. Ones et al. (2015) concluded EEB is far from the broader concept of pro-environmental behavior for three reasons. First, it is under the control of the organization's policies; second, it is focused on organizational environmental performance and third, the behavior can range from positive to negative.

As a whole, EEB includes practices such as turning off lights and air-conditioners/heaters while leaving the office, usage of personal cups and plates instead of disposable items, teleconferencing instead of traveling for meetings, editing papers electronically instead of printing, printing drafts on scrap papers or printing papers on double sided when needed, recycling, less use of plastic while shopping and reporting water leaks at the workplace (Blok et al., 2015). Despite their differences in resource utilization and sustainability goals, the activities that individuals within these groups take are strikingly similar and share comparable psychological underpinnings (Norton et al., 2014). Recognizing the diversity of EEB contributions to a given sustainability objective and the variety of goals that a single intervention can influence when thinking about, assessing and shaping green behavior is crucial (Ones et al., 2015).

2.3 Green transformational leadership (GTL)

"Transformational leadership" is an approach to management in which leaders foresee the need for change and then inspire and motivate their teams to bring that change to reality (Bass, 1990). They raise the consciousness of their subordinates and motivate their peers by advocating for virtues like equality, freedom and justice. Transformational leadership qualities include four categories: inspiring motivation, intellectual stimulation, charm and customized consideration (Bass and Riggio, 2006). Whereas intellectual stimulation helps employees see things from various viewpoints, acquire knowledge and solve issues; leaders motivate and energize followers to think creatively through inspiring motivation. Charismatic leaders who take the time to get to know their employees personally are better able to rally their team members around the organizational goals. GTL includes "the behaviors of leaders who motivate followers to achieve environmental goals and inspire them to perform beyond expected levels of environmental performance" (Chen and Chang, 2013, p. 109). GTL inspires workers to put a company's needs ahead of their own, supports them whenever they need it and encourages them to solve environmental issues in novel ways. GTL encourages employees to prioritize a company's goals over their own, provides help whenever needed and promotes innovative approaches to solving environmental issues.

2.4 Green HRM

The term "green HRM" describes human resource management strategies that contribute to a company's environmental plan and encourage "green" actions among workers (Jackson and

Seo, 2010). Integrating green HR practices into a company's overall green strategy helps ensure a company's long-term success and encourages employees to think outside the box to safeguard the environment (Ren *et al.*, 2018). Consequently, a green strategy needs green HR practices to work in tandem for the green plan to be successfully implemented (Cao *et al.*, 2023; Jabbour, 2015). Research on green HRM reveals that it includes measures to improve EEB, like green recruiting and selection, green performance management and green incentive systems (Dumont *et al.*, 2017).

These include green recruitment and selection, which prioritizes hiring individuals who demonstrate eco-conscious values and skills aligned with sustainability goals; as green training and development, which equips employees with knowledge and skills to adopt and advocate for sustainable practices within the organization, green performance management, where employee evaluations incorporate environmental performance indicators to reinforce sustainable workplace practices; and green incentive systems, which reward employees for their contributions to environmental objectives, such as reducing resource consumption or innovating eco-friendly solutions (Correia *et al.*, 2024; Ren *et al.*, 2018). Additionally, green workplace policies are another critical aspect, involving the creation of environmentally friendly office spaces and fostering a culture of sustainability through initiatives like recycling programs, energy conservation and sustainable commuting options (Tahir *et al.*, 2024). For instance, training on environmentally friendly skills captivates workers' interest in performing green jobs, while a green performance monitoring system helps spread environmental consciousness throughout the workforce (Amrutha and Geetha, 2021). Green recruiting and selection practices provide preference to candidates with more significant concern for and understanding of environmental protection issues (Chaudhary, 2018). Green HRM practices are essential in motivating workers to openly express their environmental values and views and engage in EEB that contributes to solving environmental challenges (Dumont *et al.*, 2017). Workers can participate in green HRM programs like teleconferencing, virtue training, online interviewing, recycling and carpooling to lessen their ecological impacts (Saeed *et al.*, 2019).

2.5 Green organizational climate (GOC)

Employees' views and interpretations of the company's rules, regulations and practices are collectively known as the "organizational climate" (Schneider *et al.*, 2013). Particularly, the term "green organizational climate" is used to describe how an organization's employees feel about its environmentally friendly policies, processes and practices (Norton *et al.*, 2015). Scholars argued that employees' GOC perceptions have a strong association with employee ecological practices (Dumont *et al.*, 2017). Employees try to fit within an organizational environment having a strong sense of community helps them feel less lonely, more in charge of their lives and less anxious about the future (Xiao *et al.*, 2020). A greener organizational climate sends a message to employees that they should be engaging in environmentally conscious actions because their employer values such green practices (Norton *et al.*, 2017). Also, workers within a GOC have a greater responsibility to respond to and abide by the company's stringent expectations for environmentally conscious actions (Biswas *et al.*, 2022). Employees with a higher level of belongingness with an organizational green climate idealize their sense of identity and engage in ecological behavior in the workplace (Dumont *et al.*, 2017). Through participation and perception of a GOC in social interactions, employees can form a consensus on the policies and procedures of the firm for environmental performance (Xiao *et al.*, 2020).

2.6 Hypotheses development

2.6.1 GTL and green HRM practices. GTL offers a clear vision of a company's current and future actions in the context of environmental concerns and volatile markets (Khan and Khan, 2022). It has been noted that HR tasks include conveying the strategic vision of corporate leaders to their employees and assisting them in comprehending the vision (Ramus and Steger,

2000). When leaders encourage followers to accomplish corporate goals, HRM ensures they have the essential abilities by providing them with the necessary training (Amrutha and Geetha, 2021). However, scant research explains leadership's effect in general and GTL specifically, on GHRM practices. However, some studies support the assumption that GTL is critical in implementing green HRM practices.

Leidner *et al.* (2019) concluded that green practices are not peripherals, but leaders shape EEB in the workplace. GTL exemplifies the views and values of the senior management and has a decisive effect on the green HRM of the company (Singh *et al.*, 2020). Hence, we anticipate that GTL will play a more prominent function in supporting green HRM practices to achieve organizational objectives. Therefore, we hypothesize that an organization's GTL plays a crucial role in developing green HRM practices and policies that enable a business to realize its environmental goals. Thus, the following hypothesis is posited.

H1. GTL has a positive relationship with green HRM practices.

2.6.2 GTL and green organizational climate. Organizational climate is affected by several factors, and strong leadership is among the essential determinants of these factors (Unsworth *et al.*, 2021). Leaders at all levels of an organization are crucial in influencing and developing the organizational climate (Ramus and Steger, 2000). Leaders have a vital role in creating GOC by setting environmental policies for employees (Nisar *et al.*, 2021). Role modeling and reinforcement are two essential tenets of social learning theory, which proposes that employees would adopt more desirable behaviors in the workplace when it comes from role modeling and inspiration by leadership (Islam *et al.*, 2021).

GTLs are apparent in providing a role model for environmentally responsible actions, disseminating environmental standards and rewarding workers for meeting those requirements (Kura, 2016). GTL has an inspiring motivation, intellectual stimulation, charm and customized consideration; the company cares about its customers and the environment; thus, it must comply with all regulations at the workplace (Robertson and Carleton, 2018). A leader's vision shapes the organization's tactics, while a leader's actions serve as models for subordinates (Graves *et al.*, 2019). The GTL's role modeling influences the GOC by increasing trust and showing that their words and actions match up (Kura, 2016). GTL aids GOC because it improves employees' impressions of their employers' green policies and practices (Yusliza *et al.*, 2021). Using these arguments, the following hypothesis is posited.

H2. GTL has a positive relationship with GOC.

2.6.3 GTL and EEB. Employees may learn more about environmental challenges and how to implement environmental solutions if their company takes a proactive environmental position on green leadership (Blok *et al.*, 2015). GTL can motivate their teams to succeed by appealing to their followers' sense of inspiration, charisma, personal attention and consideration of employees (Graves and Sarkis, 2018). Environmentally aware management teams may proactively adopt environmental initiatives by connecting financial and environmental goals, as evidenced by the available literature (Khan and Khan, 2022; Kura, 2016; Nisar *et al.*, 2021).

Senior management disseminated proactive ecological efforts across the organization from the top down, eventually becoming standard operating procedures. In this way, the GTL's emphasis on environmental concerns is reflected in the workforce's embrace of eco-friendly practices (Khan and Khan, 2022). Workers are freed to focus on increasing the company's green performance by reducing waste, recycling and sustainable consumption patterns of resources (Blok *et al.*, 2015). Without backing the support of leadership, no organization can succeed in implementing green initiatives (Robertson and Carleton, 2018). That is because influential GTL leaders are the key to long-term success in every firm. Therefore, the following hypothesis is posited.

H3. GTL has a positive relationship with EEB.

2.6.4 Green HRM and green organizational climate. Organizations can significantly benefit from adopting environmentally friendly policies and procedures by their employees (Saeed *et al.*, 2019). Ramus and Steger (2000), workers are more apt to adopt ecologically responsible behaviors if they perceive their employer (i.e. organization) communicates support and exhibits environmental commitment through specific green policies and practices. An organization must have workers who prioritize environmental protection and social responsibility above financial gain to have a GOC (Unsworth *et al.*, 2021). Since HRM is responsible for hiring, training, appraising and incentivizing staff, it plays a crucial role in facilitating a GOC (Dumont *et al.*, 2017).

It is often highlighted that there are several facets to implementing green HRM, beginning with recruiting and selection and continuing through training and development, employee relations, performance and evaluations (Dumont *et al.*, 2017; Saeed *et al.*, 2019). A similar shift in the form of a GOC may occur if the workplace environment prompts employees to actively seek out knowledge and implement activities that are beneficial to the environment (Norton *et al.*, 2017). Green HRM practices create work environments and job descriptions that encourage a more environmentally friendly workplace to add to employee environmental performance (Chaudhary, 2018). Following this logic, the following hypothesis is posited.

H4. Green HRM has a positive relationship with GOC.

2.6.5 Green HRM and EEB. Integrating environmental initiatives with green HR practices encourages employees to develop new ways of protecting the environment, boosting a company's sustainable performance (Ren *et al.*, 2018). Therefore, it is crucial to shape EEB with the help of green HRM practices (Dumont *et al.*, 2017). HRM strategies that focus on environmental protecting, like "green" hiring practices and "green training and development" initiatives, equip workers with the knowledge and skills and implement solutions that lessen their influences on the natural environment (Faweihinmi *et al.*, 2022). Employees might be encouraged to work toward the organization's environmental goals by providing green rewards and receiving a performance review based on those goals (Chaudhary, 2018). Employees can better meet ecological management expectations when those obligations are outlined in a formal performance management system (Anwar *et al.*, 2020).

Moreover, green engagement practices may help employees hear their voices in environmental management and address internal ecological issues. Employees who are given more freedom to talk in the direction of their working environment report improved self-control and problem-solving skill levels for the environment (Amrutha and Geetha, 2021). Involvement opportunities help develop an organization's ecological climate via exchanging ideas, open discussions and sharing varied viewpoints on EEB in the workplace (Anwar *et al.*, 2020). Hence, the following hypothesis is posited.

H5. Green HRM practices have a positive relationship with EEB.

2.6.6 Green organizational climate and EEB. Employees are more likely to exhibit EEB when influenced by the organization's GOC (Norton *et al.*, 2017). The GOC develops through employees' interactions and collective discussions, which help establish a shared understanding and consensus about environmental priorities (Norton *et al.*, 2014). A strong GOC emphasizes equipping employees with skills that promote EEB, such as optimizing resource use, minimizing waste, conserving energy and avoiding environmentally harmful actions (Dumont *et al.*, 2017). Organizations practicing "green management" highlight the environmental benefits of their initiatives, communicating their commitment to sustainability beyond economic performance (Chou, 2014). Employees who possess a positive environmental attitude and awareness of sustainability's importance are more likely to demonstrate EEB in the workplace (Bissing-Olson *et al.*, 2013).

In contrast, organizations that neglect to prioritize sustainability are often perceived as socially irresponsible, which can discourage EEB among employees (Afsar *et al.*, 2019). To improve environmental performance, businesses must clearly articulate their

environmental policies and goals to stakeholders (Zhang *et al.*, 2019). Research by Chou (2014) indicates that GOC moderates the relationship between ecological attitudes and EEB; employees with strong environmental attitudes are more likely to exhibit EEB when they perceive a robust GOC. Similarly, Dumont *et al.* (2017) analyzed responses from Chinese workers and found that green organizational practices directly and indirectly influence green task-related behaviors, with GOC serving as a key mediating factor in fostering these behaviors. Norton *et al.* (2014) concluded that GOC is substantially connected to task-related and voluntary work performance. Thus, the following hypothesis is posited.

H6. GOC has a positive relationship with EEB.

2.6.7 Mediating role of green organizational climate. Studies have shown that different types of leadership have a crucial role in deriving EEB in the workplace (Biswas *et al.*, 2022; Dey *et al.*, 2022). For instance, eco-centric leadership positively impacts voluntary EEB by establishing GOC in the workplace and inspiring employees (Biswas *et al.*, 2022). Dey *et al.* (2022) concluded that ethical leadership first shaped the ethical climate in the workplace and then employee perceptions shaped their voluntary environmental behavior in the manufacturing sector of Bangladesh. Faraz *et al.* (2021) confirmed the mediation mechanism between green servant leadership and pro-environmental behavior through green intrinsic motivation. Furthermore, Afsar *et al.* (2019) confirmed that responsible leadership creates organizational employee commitment that further affects EEB in the workplace. Similarly, Ercantan and Eyupoglu (2022) concluded with the mediation mechanism of GOC between green HRM practices and EEB from student of Cyprus university. Crucke *et al.* (2021) concluded that leadership affected employee green advocacy by shaping organizational environmental support.

Empirical research confirms organizational climate as a mediator between many workplace phenomena and employee actions. The association between ethical leadership and ethical actions is mediated, for instance, by the presence of an ethical climate (Lu and Lin, 2014). Similarly, Dumont *et al.* (2017) confirmed GOC's ability to mediate the association between green HRM and eco-friendly actions taken by workers in the workplace. However, prior research on GTL and EEB with multi-dimensional interactions has overlooked the mediating mechanism of GOC.

GTL acts as the voice of a company's policies and procedures and promotes an environment in which those rules are understood and implemented (Kura, 2016). The GOC benefits from staff members' creative interpretations of these policies and procedures (Norton *et al.*, 2015). Workplace GOC as seen by employees encourages greener actions. Hence, we suggest that GTL shapes GOC, which turns into EEB. Thus, the following hypothesis is posited.

H7. GOC mediates the relationship between GTL and EEB.

2.6.8 Mediating role of green HRM practices. GTL and green HRM practices enhance positive behaviors (Farrukh *et al.*, 2022), but the link between GTL, green HRM and EEB has not received adequate focus in previous research. However, much pressure is exerted on businesses to promote environmentally friendly behavior among their staff because the dynamic nature of business now necessitates green practices at all levels (Ramus and Steger, 2000). Among the potential workplace behavior of employees, organizational-level variables are widely regarded as beneficial for actual workplace implementation (Amrutha and Geetha, 2020).

Leaders who care about the environment are expected to support green HRM practices that highly promote EEB (Singh *et al.*, 2020). Green HRM practices include training, reviews of employee performance and promotions based on pro-environmental beliefs to boost the motivation of employees to perform EEB (Dumont *et al.*, 2017). Few scholars have investigated the potential mediation of green HRM practices (Haldorai *et al.*, 2022; Islam *et al.*, 2021). Singh *et al.* (2020) explored the critical mediating role of green HRM between GTL and green innovation from the UAE manufacturing industry, while Sun *et al.* (2022)

investigated the mediation mechanism between environmental performance and GTL in the Pakistani SME sector. Similarly, a link between ethical leadership and pro-environmental behavior has been shown through green HRM (Islam *et al.*, 2021). In addition, the research on leadership confirms that leaders indirectly affect employee attitudes and actions via different mechanisms (Jia *et al.*, 2018). Accordingly, in light of the empirical data, we seek to interpret green HRM as a mediator between GTL and EEB. Thus, the following hypothesis is posited.

H8. Green HRM mediates the relationship between GTL and EEB.

3. Methods

3.1 Research context

The research context is focused on academicians' EEB at Malaysian HEIs, whereas research focused on exploring the GTL, Green HRM and GOC to shape EEB and determine different pathways for shaping EEB. Universities contribute significantly to teaching, research and outreach through the unique knowledge they bring to the community (Lozano *et al.*, 2013a). This knowledge is essential for developing abilities and raising understanding and awareness of sustainability-related challenges (Bautista-Puig and Sanz-Casado, 2021). HEIs are significant players committed to addressing sustainable development concerns to meet the knowledge-driven society's needs (Dagiloute *et al.*, 2018). According to the Malaysia Education Blueprint 2015–2025, the country's top universities are poised to contribute to domestic progress (Economic Planning Unit, 2021). HEIs have a significant worldwide effect, particularly in less-developed countries. Malaysia's goal is to become a leading center for international education by the year 2020 (Singh and Jamil, 2021).

HEIs learning continues to serve as incubators for the minds and skills that will shape the world in the years to come. Therefore, these universities can produce competent graduates "to make lifelong contributions to their fields and to promote the advancement of their societies" (Campbell *et al.*, 2021, p. 3). Environmental laws and stakeholder pressures have raised environmental awareness among HEIs (Bautista-Puig and Sanz-Casado, 2021; Lozano *et al.*, 2013b). The Institute for Environment and Development (LESTARI), founded to foster sustainability in academia and connect academics with policymakers, has developed campus greening projects. The five research universities of Malaysia selected for this study are listed as the top universities in the nation (QS University Rankings by Location, 2019) and have developed environmental initiatives.

3.2 Sample and data collection

A cross-sectional design was used to investigate the influence of constructs of the conceptual framework. The total number of academicians was obtained from Quacquarelli Symonds's (QS) world universities ranking to identify a representative sample. The research population comprised all academicians from the top five Malaysian research universities. With the aid of the Raosoft.com (2020) sample size determination formula, the minimum sample for the study was estimated at 380.

Sampling describes any technique that permits inferences to be drawn about a larger population using data collected from a subset of that group (Nunkoo, 2018). Depending on the study and the population, empirical research may employ either probability or non-probability sampling to get observations (Uprichard, 2013). Because the participation of the entire population in the present research was impossible, a non-probability sampling approach was employed to choose the sample from the requisite population.

In total, 1300 questionnaires were distributed through e-mails to academic staff at their official e-mail address, of which 460 useable responses were gathered for an effective response rate of 35.8% (Sekaran, 2003). A 30% response rate is sufficient for a survey. Table 1 provides the respondents' demographic characteristics.

Table 1. Respondents' demographic characteristics

Descriptions		Frequency	Percent
Gender	Female	298	64.8
	Male	162	35.2
Appointment status	Contract	65	14.1
	Permanent	384	83.5
	Temporary	11	2.4
Level of education	DBA	3	0.7
	Master's degree	61	13.3
	PhD	396	86.0

Source(s): Authors' own work

3.3 Measures

All construct items were adapted from the previously established literature related to the study. Measurements included GTL, green HRM, GOC and EEB. EEB at the workplace is formed by seven dimensions: air-conditioning, computer use, light use, printing, shopping, recycling and drinking. All 30 items for measurement of EEB were adapted from [Blok et al. \(2015\)](#). A six-item scale was adapted from [Aboramadan \(2020\)](#) to measure green HRM practices at universities. The scale ranged from 1 (not at all) to 7 (always) on a 7-point Likert scale used for green HRM and EEB. To measure GTL, a six-item scale was adapted from [Li et al. \(2020\)](#). These items cover idealized influence, inspirational motivation, intellectual stimulation and individualized consideration. [Xiao et al.'s \(2020\)](#) scale used to measure GOC. A 5-point Likert scale with potential responses ranging from 1 (very little extent) to 5 (very large extent) was employed to rate the responses of academicians for GOC.

4. Results

4.1 Respondent's demographic profile

Results revealed that respondents possessed adequate experience, education and the correct position to respond to this research. [Table 1](#) presents their demographic characteristics.

4.2 Data analysis

Given that formative measures were available inside the study model, the analysis was conducted using the Smart PLS 3.3.7 ([Ringle et al., 2015](#)), as [Hair et al. \(2019\)](#) recommended. Additionally, the present study evaluated the multivariate kurtosis and skewness per the literature's recommendations. Smart PLS is suitable for analysis when the data do not adhere to normality requirements ([Ramayah et al., 2018](#); [Chin et al., 2003](#)).

A single data source is a systematic approach in studies that gather data through questionnaires. Despite its popularity among social science researchers, single-source data may result in an artificial association reducing the reliability of the findings. When a single respondent answers questions about exogenous and endogenous factors simultaneously, common method bias (CMB) can arise. The research utilized procedural and statistical strategies to manage CMB before and after data collection. For the procedural method, the researchers informed respondents that there were no correct or incorrect responses and that the data would be confidential. In addition, the researchers utilized various anchoring scales ([Podsakoff et al., 2012](#)), in which the dependent and independent variables were measured with different Likert scales with responses ranging from 1 to 7. Researchers applied [Kock's \(2015\)](#) recommendations for full-collinearity testing as a statistical analytical approach. Acceptedly, variance inflated factor (VIF) values of more than 3.3 indicate that the CMB is a significant problem. As shown in [Table 2](#), all VIF values were less than 3.3, demonstrating that a CMB problem did not affect the study.

Table 2. Full collinearity testing

Construct	VIF
Employee ecological behavior	2.357
Green HRM	2.555
Green transformational leadership	2.678
GOC	1.452

Source(s): Authors' own work

4.3 Measurement model

The data analysis followed a two-step process. Hair *et al.* (2019) and Ramayah *et al.* (2018), the measurement model was created to determine the reliability and validity of the instruments used. Then, a structural model was created to evaluate the proposed hypothesis. The average variance extracted (AVE), composite reliability (CR) and loadings were computed for the measurement model. Threshold values loadings should be ≥ 0.5 , the AVE should be ≥ 0.5 and the CR should be ≥ 0.7 (Ramayah *et al.*, 2018). The results in Table 3 show that the values were higher than the thresholds.

This study utilized Sarstedt *et al.* (2019) outlined procedures to evaluate the higher-order construct. First, all dimensions of EEB were examined for collinearity, and the VIF values presented in Table 4 are less than 3, signifying that collinearity was not a major concern (Diamantopoulos and Siguaw, 2006). In addition, the outer weights and the dimension significances were tested using 5,000 resamples using a bootstrapping approach. According to Table 4, all dimensions (air-conditioning, printing, drinking, light use, computer use, recycling, and shopping) were statistically significant.

Henseler *et al.* (2015) and Franke and Sarstedt (2019) recommended the HTMT criterion to establish discriminant validity. The results in Table 5 show that all HTMT values were less than the threshold values of ≤ 0.85 . This result represents those respondents clearly understood that each construct was distinct.

4.4 Structural model

Hair *et al.* (2019) suggested utilizing a resampling bootstrapping method with 5,000 samples to produce structural model path coefficients, p -values, standard errors and t -values. Hahn and Ang (2017) concluded that p -values are unreliable for determining whether a hypothesis was significant and recommended using a mix of criteria, including confidence intervals and effect sizes. Table 6 shows the criteria employed for hypotheses testing.

First, the effect of the three predictors on EEB was tested. The R^2 was 0.302, showing that all three predictors explained 30% of the variance in EEB. Then, the effect of relationships with EEB was examined. The results demonstrated that GTL (β 5 0.283, $p < 0.01$, f^2 5 0.057), green HRM (β 5 0.207, $p < 0.01$, f^2 5 0.030) and GOC (β 5 0.172, p 5 0.026, f^2 5 0.034) had a significant effect on EEB in the workplace. Furthermore, GTL (β 5 0.697, $p < 0.01$, f^2 5 0.947) had a significant and positive effect with green HRM and (β 5 0.240, $p < 0.01$, f^2 5 0.037) a significant and positive effect with GOC. In addition, green HRM was (β 5 0.241, $p < 0.01$, f^2 5 0.037) a significant and positive effect on GOC.

Hypothesis H7 and H8 were related to the mediating role of GOC and green HRM between GTL and EEB. According to Preacher and Hayes (2008), the indirect effect was bootstrapped. If the confidence interval did not straddle a 0, significant mediation existed. As Table 7 shows, GTL $\rightarrow$ GOC $\rightarrow$ EEB (β 5 0.041, $p < 0.049$) and GTL $\rightarrow$ GHRM $\rightarrow$ EEB (β 5 0.144, $p < 0.001$) had significant results. The confidence intervals bias corrected 95% (upper limit) and did not show any intervals straddling a 0, confirming the findings.

PLS predict was utilized to forecast the power of the model assessment examined in the study. We adhere to the measures as Shmueli *et al.* (2019) recommended. First, the measurement variable's Q^2 predictive power was evaluated, and all values were more than

Table 3. Measurement model for the first-order constructs

Construct	Dimensions	Items	Loadings	CR	AVE
Employee ecological behaviors	Air-condition Use	EEB AIR2	0.647	0.806	0.520
		EEB AIR3	0.845		
		EEB AIR4	0.495		
	Computer Use	EEB AIR5	0.840	0.893	0.807
		EEB CMPUSE1	0.930		
		EEB CMPUSE2	0.865		
	Drinking	EEB DRNK1	0.622	0.771	0.533
		EEB DRNK2	0.845		
		EEB DRNK4	0.707		
	Light Use	EEB LGHT1	0.775	0.830	0.620
		EEB LGHT2	0.744		
		EEB LGHT3	0.840		
	Printing	EEB PRNT3	0.741	0.757	0.510
		EEB PRNT4	0.699		
		EEB PRNT5	0.702		
	Recycling	EEB RCYLANG1	0.734	0.892	0.546
		EEB RCYLANG2	0.803		
		EEB RCYLANG3	0.799		
		EEB RCYLANG4	0.722		
		EEB RCYLANG5	0.529		
		EEB RCYLANG6	0.801		
	Shopping	EEB RCYLANG7	0.747	0.847	0.651
		EEB SHPNG1	0.816		
		EEB SHPNG2	0.693		
Green HRM		EEB SHPNG3	0.897	0.962	0.808
		GHRM1	0.851		
		GHRM2	0.911		
		GHRM3	0.926		
		GHRM4	0.912		
		GHRM5	0.911		
Green organizational climate		GHRM6	0.880	0.870	0.575
		GOC 1	0.791		
		GOC 2	0.781		
		GOC 3	0.802		
		GOC 4	0.617		
		GOC 5	0.787		
Green transformational leadership		GTL1	0.938	0.979	0.888
		GTL2	0.942		
		GTL3	0.944		
		GTL4	0.950		
		GTL5	0.954		
		GTL6	0.927		

Note(s): EEB PRNT1, EEB PRNT2, EEB DRNK3, EEB AIR1 deleted due to low loadings

Source(s): Authors' own work

zero ($Q^2_{\text{predict}} > 0$). Later, the value difference for partial least squares-linear regression model (PLS-LM) was evaluated. Table 8 shows that all PLS-LM were lower values and negative, indicating that this model has excellent predictive power, enhancing the credibility of the overall findings of this investigation. The conclusion is that the model has strong predictive power.

5. Discussion

This research makes important contributions to the empirical literature by clarifying the central role of GTL in explaining EEB through the mediation of green HRM and GOC. EEB

Table 4. Validating higher order construct

HOC	LOC	Outer weight	<i>T</i> -statistics	<i>p</i> -value	Outer loading	VIF
EEB	Air-conditioning	0.202	2.178	0.015	0.535	1.205
	Printing	0.277	2.822	0.040	0.581	1.299
	Drinking	0.226	2.244	0.012	0.609	1.391
	Shopping	0.319	2.582	0.005	0.781	1.759
	Computer Use	0.309	2.922	0.002	0.593	1.234
	Light Use	0.217	2.671	0.000	0.507	1.189
	Recycling	0.399	3.644	0.010	0.789	1.504

Source(s): Authors' own work

Table 5. Discriminant validity (HTMT)

	1	2	3	4	5	6	7	8	9	10
Air-condition										
Drinking	0.330									
GOC	0.223	0.379								
GTL	0.335	0.382	0.362							
Green HRM	0.341	0.330	0.346	0.715						
Light use	0.331	0.207	0.427	0.112	0.133					
Recycling	0.416	0.518	0.248	0.442	0.401	0.188				
Shopping	0.499	0.761	0.398	0.399	0.434	0.218	0.676			
Comp use	0.293	0.244	0.277	0.361	0.266	0.465	0.313	0.325		
Printing	0.468	0.602	0.383	0.273	0.229	0.426	0.454	0.612	0.358	

Source(s): Authors' own work

Table 6. Hypothesis testing direct effects

	Relationship	Std. Beta	Std. Dev.	<i>T</i> -statistics	<i>p</i> -values	BCI LL	BCI UL	<i>F</i> -square	Decision
H1	GTL → GHRM	0.697	0.033	21.042	0.000	0.635	0.745	0.947	Accepted
H2	GTL → GOC	0.240	0.063	3.784	0.000	0.132	0.341	0.037	Accepted
H3	GTL → EEB	0.283	0.075	3.764	0.000	0.144	0.390	0.057	Accepted
H4	GHRM → GOC	0.241	0.062	3.907	0.000	0.139	0.340	0.037	Accepted
H5	GHRM → EEB	0.207	0.065	3.177	0.001	0.099	0.309	0.030	Accepted
H6	GOC → EEB	0.172	0.088	1.940	0.026	0.014	0.305	0.034	Accepted

Note(s): A 95% confidence interval with a bootstrapping of 5,000 was employed

Source(s): Authors' own work

Table 7. Hypothesis testing indirect effects

	Relationship	Std. Beta	Std. Dev.	<i>T</i> -statistics	<i>p</i> -values	BCI LL	BCI UL	Decision
H7	GTL → GOC → EEB	0.041	0.025	1.656	0.049	0.007	0.088	Accepted
H8	GTL → GHRM → EEB	0.144	0.046	3.143	0.001	0.065	0.214	Accepted

Note(s): A 95% confidence interval with a bootstrapping of 5,000 was employed

Source(s): Authors' own work

Table 8. PLSpredict

Items	PLS RMSE	MAE	LM RMSE	MAE	PLS-LM RMSE	MAE
Recycling	0.914	0.747	0.918	0.748	−0.004	−0.001
Air-condition	0.964	0.787	0.976	0.791	−0.012	−0.004
Drinking	0.958	0.751	0.957	0.748	0.001	0.003
Light	1.004	0.717	1.005	0.718	−0.001	−0.001
Shopping	0.941	0.734	0.946	0.735	−0.005	−0.001
printing	0.984	0.773	0.989	0.776	−0.005	−0.003
computer use	0.953	0.721	0.956	0.72	−0.003	0.001

Source(s): Authors' own work

has highly demanding traits in the workplace because of its focus on cleaner production and sustainable consumption patterns in the workplace. As of this date, the present research is the first empirical work that investigated the connections between GTL and green HRM, GOC and EEB practices in HEIs and considers the mediation effect of green HRM practices and GOC between GTL and EEB.

This study's results align with the hypotheses posited (Graves *et al.*, 2019; Huang *et al.*, 2023; Wang *et al.*, 2018). The hypotheses proposed regarding the link between GTL and EEB suggest that GTL has a favorable relation with EEB in the workplace. The findings are consistent with past studies showing that GTL substantially affects EEB in the workplace. For instance, Blok *et al.* (2015) concluded that GTL fosters behaviors in its participants, like turning off electronics when not in use, printing less to cut down on paper waste and making environmentally responsible workplace purchases.

The positive direct relationship between a GOC and EEB proves that employees are more apt to participate in green activities in an environment that makes them feel valued and appreciated (Dumont *et al.*, 2017). Employees' increased enthusiasm for EEB is the direct effect of a greener workplace climate (Norton *et al.*, 2014). The findings align with previous studies (Dumont *et al.*, 2017; Norton *et al.*, 2017). The present study extended these findings to the workplace and argued that workers are more likely to engage in EEB if they have favorable perceptions of their firm's environmental policies and green HRM practices.

Consistent with prior research, our results showed that Green HRM practices boost workplace EEB (Chaudhary, 2020; Kim *et al.*, 2019). Organizations are more likely to foster EEB in the workplace if they use "green" practices like "green recruiting," "green training," and "green-based performance assessment and awards" are provided for environmental initiatives (Saeed *et al.*, 2019). Employees may develop a strong sense of belonging to the firm due to the wide variety of HR initiatives that boost environmentally responsible behavior on the job (Ababneh *et al.*, 2021). The findings demonstrate that colleges and universities nowadays are worried enough about environmental deterioration to implement green HRM practices for academics' eco-friendly behavior (Farooq *et al.*, 2021). These practices not only enhance employee engagement in sustainability efforts but also improve the organization's reputation as a socially responsible entity. Ultimately, fostering a green culture through HRM initiatives can lead to long-term environmental and organizational benefits, creating a win-win scenario for all stakeholders (Tahir *et al.*, 2024).

Our research indicates that a company is more apt to engage in green initiatives and, as a result, tends to adopt a higher level of practices and policies when leadership displays a favorable impression of the green HRM practices in their firm (Sun *et al.*, 2022). Our research adds to the literature by demonstrating how leaders may significantly effect green HRM practices, which can be used to shape EEB results like Singh *et al.* (2020), who explored the mediation role of green HRM practices with GTL and green innovation in an organization. Due to this, workers were able to form their own opinions on the environmental efforts and make informed decisions about how best to put EEB into practice (Siddiquei *et al.*, 2021).

Studies suggest that employees' opinions of their coworkers' green climate affect their perceptions through the social learning process (Darvishmotevali and Altinay, 2022), indicating a connection between GTL and a GOC (Nisar *et al.*, 2021). By applying the four transformational behaviors (idealized influence, inspiring motivation, intellectual stimulation and customized attention), GTL makes it abundantly evident that environmental sustainability is the highest priority in an organization (Kura, 2016). This study's findings are similar to Robertson and Carleton (2018) and Ying *et al.* (2020). As more individuals take initiatives to improve their workplace's environmental sustainability, similar workers will start to perceive group members as environmentally conscious (Norton *et al.*, 2015).

Furthermore, this research also demonstrated that green HRM was positively associated with GOC. The research advances the literature in the field (e.g. Dumont *et al.*, 2017), which found the role of green HRM practices on a psychological green climate among employees. The company wants to show its employees that it cares about the environment for more than just financial reasons, so it implements green HRM practices to spread that message and get employees involved in green initiatives (Saeed *et al.*, 2019). Companies that actively advocate for environmental protection are sending a message to their staff about the importance they place on ethics and the environment in business practices (Singh *et al.*, 2020). By fostering a sustainable work culture, green HRM not only enhances employee motivation and engagement but also promotes cost efficiency through reduced waste and energy conservation. Consequently, these practices lead to improved organizational performance by aligning environmental goals with business objectives (Correia *et al.*, 2024).

The research's findings also corroborate the idea that green HRM practices mediate the effect of GTL on EEB. Previous research results align with current research (Mansoor *et al.*, 2021; Singh *et al.*, 2020). Singh *et al.* (2020) found that green HRM practices mediated the association between GTL and green innovation performance, indicating that leadership has a vital role in shaping HRM procedures. Our research also shows that green HRM is a mediator between GTL and EEB in the workplace. Employees are less inclined to take environmental precautions on the job if they are not directly accountable for the utilities or the maintenance of the equipment they use (Saeed *et al.*, 2019). Therefore, businesses must explain green workplace responsibilities, utilize effective job design and assessment, provide adequate rewards for ecological behavior and create an increased employee understanding of green values to stimulate employee participation in green activities (Renwick *et al.*, 2013).

Finally, the results show that GOC mediates the connection between GTL and EEB. These findings align with similar research (Robertson and Carleton, 2018; Saleem *et al.*, 2020). Research has shown that when a business implements GTL, it fosters a green climate by giving its workers the tools they need and emphasizing solutions that improve the company's environmental performance (Tuan, 2020). Per social learning theory, membership in a group may significantly affect an individual's sense of worth (Xia *et al.*, 2022). Employees will often work together to take on traits that the company values to have a sense of shared identity inside their workplace (Ruepert *et al.*, 2016). Visible efforts to improve a company's environmental footprint send a positive message to the community and give employees the impression that management values their actions (Ramus and Killmer, 2007). When employees work in teams that are educated about and rewarded for green behaviors, they are more likely to share innovative ideas and take collective actions to minimize environmental impacts (Kundu and Chahar, 2024). GTL fosters a climate of shared responsibility and accountability, empowering teams to integrate sustainable practices into their daily operations.

5.1 Theoretical implication

This research builds on two theoretical frameworks (social learning theory and AMO) to offer new insights into the EEB literature and draw the focus back to less-investigated facets of green HRM, GTL and green organizational environment.

First, this study confirmed and extended prior studies on GTL (Begum *et al.*, 2022; Singh *et al.*, 2020; Xia *et al.*, 2022; Ying *et al.*, 2020). Previous research has shown that GTL is associated with EEB through motivational and affective mediators, but these analyses have not shed light on the social contexts in which GTL operates. According to our findings, the GOC mediates between GTL and employees' EEB. By exhibiting GTL, leaders foster an environment where a substantial part of the workforce pays attention to, cares about and supports the organization's efforts to be environmentally sustainable (Islam *et al.*, 2022). When workers see their peers taking care of the environment, they are more likely to do the same (Norton *et al.*, 2017). The results suggest that social influence is crucial to implementing EEB. Our research incorporates social learning theory to show why and how leaders and a GOC promote EEB.

Second, HRM and leadership are essential for maximizing human potential in the workplace (Ramus and Steger, 2000). Based on this study, we concluded that GTL is a valuable resource that businesses could utilize for developing and implementing green HRM practices that positively affect EEB. Previous studies investigated the role of GTL as a mediator (Luu, 2020) and moderator (Ababneh *et al.*, 2021) in the HRM–outcome associations. Based on the current study, GTL appears to be an essential factor in shaping EEB in the workplace by serving as a precursor to green HRM and GOC. In addition, we advocate for using GTL to set up and execute green HRM policies and practices to increase EEB by encouraging employees to develop their green skills and pursue environmental-friendly initiatives at work. Similarly, our research supports and expands upon AMO theory (Appelbaum *et al.*, 2000), which posits that businesses should create and execute green HRM strategies to recruit, train and retain green workers to boost EEB constantly monitored by GTL.

Third, we incorporated the dimensions of EEB with the degree to which environmental concerns are incorporated into work activities. This incorporation is significant because it gives the conceptual tools necessary to understand the nature of ecological workplace behaviors. Quantitative studies have been shown to emphasize “green office” activities (such as double-sided printing, paper recycling and turning off lights), obscuring the variety, contingency and sector specificity of ecological workplace behaviors (Blok *et al.*, 2015; Farooq *et al.*, 2022a, b, c). Almost no studies have examined EEB with these comprehensive dimensions required and observed in the workplace. This study is among the first to utilize reflective-formative measurement to analyze EEB, which includes actions such as turning off lights and air conditioners/heaters when leaving the office, using reusable cups and plates instead of disposable ones, modifying documents digitally instead of printing them out, printing drafts on scrap paper or printing papers on double-sided when necessary, recycling and reducing the use of plastic bags when shopping. This comprehensive work could serve as a way to explain why quantitative researchers have a difficult time grasping the realities of ecological workplace practices.

5.2 Practical implications

This research has practical implications because it highlights how GTL, green HRM practices and GOC may enhance EEB in the workplace. A solid commitment to EEB ensures environmental sustainability and cleaner production. Carbon emissions, loss of natural resources, garbage production and excessive use of power and water are some environmental problems that may be traced back to universities. Academics' behavior regarding resource utilization at universities is highlighted as critical and worthy of investigation. Given that GTL, green HRM practices and a GOC might motivate employees to display EEB. Employees may be able to execute EEBs that reflect resource recycling and reuse and lessen environmental degradation projects. It is feasible if senior management and decision-makers concentrate on establishing ethics governing corporate obligations and responsibilities to enhance ecological conditions.

First, the results highlight the significance of GTL, green HRM practices and GOC in influencing faculty ecological behavior in HEIs. Consequently, corporate decision-makers should acknowledge the collaborative efforts to advance the green agenda. HR managers ensure that green practices are implemented to foster a sustainable work environment. Additionally, employers should reward and keep employees who engage in eco-friendly practices on board. The most recent techniques for environmental protection must be taught to employees. Essential success factors related to the manifestation of EEB should be included in job descriptions for both employees and managers. In short, companies must have green HRM practices that support GOC, EEB and GTL.

Second, to steer the talents of its employees toward environmental management, businesses should invest in “green HRM” practices and view them as strategic assets. We proposed that green HRM reflects a company’s strategic focus on environmental management and motivates workers to adopt green practices in the workplace. Our research suggests that senior management should priorities aligning an organization’s environmental management objectives with green HRM policies and procedures to foster an atmosphere conducive to ecological behavior at work. We also suggest that an organizational structure and a culture of continuous improvement are necessary for green HRM practices to facilitate green initiatives in the workplace.

Third, the findings suggested that establishing green management initiatives is crucial to the growth of green HRM. This is helpful information for upper management as they realize the need for a green approach to advance HRM initiatives. Consequently, GTL would assist in learning corporate green goals via creative employees. Leaders may encourage EEB through numerous strategies, such as encouraging green behavior and building a GOC at the workplace. The complete backing of GTL as a corporate strategy can help green HRM and GOC leverage EEB.

Fourth, this paper contributes to shaping the efficacy of government and regulators in promoting environmentally desirable consumption patterns through GTL, green HRM and shaping GOC, which is relevant to the implications of the 12th SDG related to “sustainable consumption.” Policymakers should regulate environmental concerns as a top priority in the workplace and attempt to improve employees’ environmental sensitivity through public enlightenment programs. Organizational focus can be redirected toward a greener approach in support of the SDGs by legislative action (SDG).

5.3 Limitations and future recommendations

Despite these advancements and implications, a few limitations in the current study potentially inspire new lines of inquiry. First, this study investigated the association between GTL and EEB through the mediation effects of green HRM practices and GOC. Future research can study more specific green traits in the workplace, such as employee motivation, the role of top management support and green mindfulness, between GTL and EEB. Additionally, researchers may focus on specific green HRM practices, like a green recruitment process, green training and green incentives. Scholars can extend the research to find outcomes of EEB, such as job satisfaction and employee well-being.

Second, other personal components, such as environmental attitude, awareness and concern, may be used to explain the moderating process further and provide depth to the current study. Third, this research only used one quantitative analysis using a cross-sectional survey. So, it is recommended to explore qualitative and mixed-methods techniques for further insights. This study is one of the first to examine GTL, its mechanisms and green outcomes in Malaysian HEIs. Highlights the necessity for more research on these factors in the alternative context to aid in drawing the broadest possible conclusions.

6. Conclusion

This study contributes significantly to the growing body of research on EEB by highlighting the role of GTL, green HRM practices and GOC. The findings underscore the

interconnectedness of these elements in enhancing EEB, particularly within the context of HEIs. GTL emerges as a critical driver, influencing employees' eco-friendly actions through its direct impact and the mediating roles of green HRM practices and GOC. The research reaffirms that organizations led by GTL are better positioned to promote sustainability by embedding green values into HRM systems and cultivating a climate that prioritizes environmental responsibility. The mediation effect of green HRM practices demonstrates how specific HR strategies—such as green recruitment, training and reward systems—act as facilitators in translating leadership initiatives into actionable employee behaviors. Similarly, GOC amplifies this effect by fostering a shared commitment to sustainability, creating an environment where EEB becomes a collective norm rather than an individual effort. By extending existing theories, such as social learning theory and the AMO framework, this study provides a comprehensive framework for understanding how GTL, green HRM and GOC interact to drive EEB. It also highlights the practical implications for HEIs and other organizations to strategically implement green HRM practices, enhance leadership training in sustainability and foster an organizational culture supportive of ecological initiatives. This research establishes a foundation for future studies to explore additional dimensions of EEB, investigate broader contexts and further refine strategies for integrating environmental sustainability into organizational practices.

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