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The joint impact of green human resource management, leadership and organizational culture on employees' green behaviour and organisational environmental performance

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ABSTRACT

Currently, there has been a growing attention paid to employees' activities and behaviour at work as a driving force of environmental problems. As a result, organisations are adopting various environmental protection initiatives and developing green strategies. Despite the growth of research in this area, the determinants and consequences of employees' green behaviour are still calling for further investigation. In responding to that, this study contributes to the literature by investigating the determinants and outcomes of green organisational culture and employees' green behaviour. By employing the quantitative research design, the data was collected from 614 employees in the public and private sectors in Qatar and analysed using the Partial Least Squares Structural Equations Modelling technique. The findings confirmed the effect of environmental concern, green human resource management and green leadership behaviour on green organizational culture. Furthermore, green organizational culture was confirmed to have a significant positive relationship with employees' green behaviour and organisational environmental performance. Importantly, green organizational culture also mediates the relationship between environmental concern, green human resource management, green leadership behaviour and employees' green behaviour. The originality of this study contributes to the current literature on green behaviour by examining these relationships and testing the mediation effects. It also offers guidelines for decision makers on how to maximize employees' green behaviour in their workplace and subsequently create a culture of environmentally friendly organization.

1. Introduction

In recent years, it has been observed that the major causes of environmental problems are destructive human activities which cannot be ignored (Lehman and geller, 2004; Vlek and steg, 2007; Steg and vlek, 2009; Steg et al., 2014, Saleh and al-swidi, 2019)). Several organisations have started to introduce environmentally friendly initiatives to mould human activities accordingly (Time Higher Education, 2019). They strongly discouraged human actions which are a threat to the environment, although they tended to focus on improving the technical and management aspects of the environmental change ((Brammer et al., 2012). They, therefore, appreciate those employees who show pro-environmental behaviour or are environmentalists in the true sense. Since employees spend much time in the workplace, their pro-environmental behaviour and environmentally conscious efforts are valued. Such employees work towards the goal of maximising the positive impact of workplace activities in a corporate environment (Lülfs and hahn, 2013). They also support corporate activities that involve the conservation of natural resources and protection of the environment (Anderson and bateman, 2000; Bissing- olson et al., 2013).

The pro-environmental behaviour of employees, also termed as employees' green behaviour, is based on their environmentally conscious efforts and interest in managing energy consumption, reducing waste, recycling materials and other similar activities that can eliminate environmental hazards (Kollmuss and agyeman, 2002; Williams et al., 2008, Busse and menzel, 2014; De leeuw et al., 2015; López-mosquera et al., 2015; Wang et al., 2016b). It is also described as the series of environmentally friendly activities that help achieve the objective of protecting the environment on the level of the institution. Paillé and boiral (2013) devised a method to analyse the pro-environmental behaviour of employees, called Organizational

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List of abbreviations

AMO	The Ability-Motivation-Opportunity Theory
STT	Social Identity Theory
GEB	Green Employee Behavior
GLB	Green Leadership Behavior
GHRM	Green Human Resource Management
GOC	Green Organizational Culture
OEP	Organizational Environmental Performance
EC	Environmental Concern
EEP	Employee Empowerment And Participation
EOP	Environmental Organizational Performance
PMA	Performance Management And Appraisal
RC	Reward and Compensation
RS	Recruitment and Selection
TD	Training and Development
SmartPLS	Smart Partial Least Squares
PLS-SEM	Partial Least Squares Structural Equation Modeling
AVE	Average Variance Extracted
CR	Composite Reliability
HTMT	Heterotrait-Monotrait
SRMR	Standardised Root Mean Square Residual
MICOM	Measurement Invariance Of Composites
VIF	Variance Inflation Factor

Citizenship Behavior for the Environment (OCBE). It has three dimensions namely, eco-helping, eco-civic engagement, and eco-initiatives, stressing the urgency of useful efforts to protect the environment (Dilchert and ones, 2012).

In recent years, the scope of research in this area has been expanding in multiple dimensions, with many classifications of pro-environmental behaviours. Of the earlier classical frameworks, four-, five- and six-division classifications were proposed by Stern (2000), Sia et al. (1986) and (Smith-sebasto and d'costa, 1995) respectively. Sia et al. (1986) five categories are: the attitude of consumers, persuasion factor, political support, legal behaviour, and management of environmental behaviours. Ten years later, (Smith-sebasto and d'costa, 1995) divided pro-environmental behaviours into six categories namely citizenship, persuasion, legal, practical, educational and financial. Stern (2000) four categories are based on behaviours affecting organisational decisions: environmental activism, public environmentalism, private environmentalism, and other behaviours that influence the environment. Later, Larson et al. (2010) explored the multi-layered framework of pro-environmental behaviours and divided it into: land stewardship, environmental citizenship, social environmentalism, and lifestyle behaviours. Some of these dimensions involved household or private activities, and others drafting policies, supporting wildlife habitats, promoting environmentalism in social groups and peer interactions (Lavelle et al., 2015). proposed two categories: habitual and periodic. Habitual behaviour implies the day-to-day activities of individuals, for instance, developing a habit of buying organic food and conserving water or other limited energy sources. Periodic or occasional behaviour refers to once-in-a while activities, for example, buying appliances which consume less electricity. Regardless the increasing research in this area, many calls are being made to further explore other factors that influence environmental individual or organizational performance (Ahmed et al., 2021).

Moreover, the preservation of natural habitats has become a serious issue in recent decades. Almost every industry and organisation are bound to comply with measures that do not harm the environment. Manufacturing companies are also making efforts to reduce waste and to dispose of it in their production practices. According to (Melnyk et al., 2003), these measures result in better performance in firms.

In the corporate sector, environmental management has also been linked to human resources in some organisations (Renwick et al., 2013), known as Green Human Resource Management (GHRM) or Environmental Human Resource Management (Renwick et al., 2013). Effective implementation of GHRM practices is illustrated in (Milliman and clair, 1996) four-step model: (1) Give environmental vision to the human resource, (2) Encourage the sharing of environmental goals and objectives among employees, (3) Devise methods for evaluating the environmental performance of employees, and (4) Give rewards and incentives to employees who achieve exceptional environmental performance.

Likewise, (Daily and huang, 2001) proposed a concept-based model for incorporating human resource objectives in an environmental management system. This model has the following steps:

(1) Ensure the support of senior management: The top management is assigned devising an environmental policy, developing strategies to prevent the destruction of the environment, and disseminating important and relevant information to its employees.
(2) Training of employees: The employees should be trained to understand the gravity of the issue and to adopt new environmentally friendly practices.
(3) Empowering employees to share their ideas and take initiatives: They should be allowed to engage in activities that preserve environmental elements and help create awareness.
(4) Rewarding employees for achieving an environmental management objective: The environmentally responsible employees, evaluated through GHRM, should be given incentives and motivation to continue this behaviour.

(Renwick et al., 2013) took into account three different perspectives of GHRM related to environmental management. They suggested, first, that GHRM should incorporate and promote green behaviour in recruitment, selection, and training sessions of employees. The second perspective involves stimulating and encouraging employees by evaluating and rewarding them for their green behaviour. Last but not least, effective GHRM should ensure that environmentally friendly practices are being carried out in the organisation to enable the green innovation initiatives of the employees.

Recent research demonstrated an increasing awareness among the wider population regarding environmental problems which were not being dealt with appropriately or adequately (Yan et al., 2010; Wei and Sun, 2013). This behaviour creates a void when organisations try to resolve environmental issues.

Lately, the focus of research has been expanded to environmental behaviour in private domains (Andrews and johnson, 2016; Wang et al., 2016a); for instance, energy consumption and waste disposal were being monitored at home (Abrahamse et al., 2005; Steg et al., 2015).

However, despite the attention paid to the topic of employees' green behaviour, the determinants of this behaviour and how it is affected by organisational practices such as green HRM, green leadership behaviour and GOC is still under discussion (Anwar et al., 2020); a research gap also exists in the study of the joint effect of these factors in public versus private sectors. In addition, researchers suggested that variables such as green organisational culture (GOC) should be examined as a mediator variable to better explain these relationships (Anwar et al., 2020, Levy and marans, 2012; Mittal and dhar, 2016), and that other motivational and contextual factors should also be considered (Thomas et al., 2015). Therefore, this study aims to address some of these gaps in the literature and investigate how the proposed relationships could impact the environmental performance of organisations in both public and private sectors.

In summary, this study aims at examining the joint effect of environmental concern, green HRM, green leadership behaviour on the formation of GOC and its subsequent impact on the green behaviour of employees in both public and private sectors. It contributes to the literature in various ways. First, it confirms the direct and indirect relationships between environmental concern, green HRM, and green leadership behaviour with employees' green behaviour. Second, the findings support the positive role of environmental concern, green HRM, and green leadership behaviour on the formation of GOC. Third, the present study underpins the mediating role of GOC in the relationship between environmental concern, green HRM, green leadership behaviour, and employees' green behaviour. Fourth, the positive relationship between employees' green behaviour and organisational environmental performance was confirmed. Fifth, the study validates the applicability of the proposed model in explaining employees' green behaviour and organisational environmental performance across public and private sectors. Finally, it is argued that the issue of employees' green behaviour is still under study especially in the developing countries (Mousa and othman, 2020), this study provides an empirical investigation of the topic in a developing country, namely Qatar, using a model that was developed in the view of AMO and Social Identity Theory (SIT).

2. Hypotheses development

2.1. Theoretical background

Several theoretical frameworks have been used by researchers to illustrate employees' green behaviour (Paillé and mejía-morelos, 2014). To understand the environmental outcomes of some green organisational practices such as GHRM, green leadership and GOC, some theories such as the AMO theory introduced by (Appelbaum et al., 2000) and the social identity theory introduced by (Ashforth and mael, 1989) were used in this study.

The objective of this study is to explain the employees' green behaviour based on factors related to green organisational initiatives such as GHRM, green leadership behaviour, and GOC. The model proposed in the present study (see Fig. 1) can be better understood in the light of the AMO theory, a popular theory concerning the impact of greening practices and strategies on organisational performance (Appelbaum et al., 2000; Anwar et al., 2020; Boselie et al., 2005). This theory has been widely used by many researchers to investigate the link between GHRM and the organizational environmental performance (Yu et al., 2020). The theory explains that High-Performance Work Practices (HPWS) are a set of inter-related HR practices categorised by three aspects: Ability, Motivation and Opportunity (Appelbaum et al., 2000). Abilities are based on practices such as recruitment and selection, and training and development programmes that ensure that employees are equipped with the required knowledge and skills to perform specific tasks. Motivation, on the other hand, is based on practices linked to performance appraisal and incentives, either financial or non-financial, to boost employees' efforts to achieve performance objectives. Lastly, opportunity is a set of practices related to involvement, knowledge sharing, and autonomy-enhancing practices fostering the employees' engagement in activities that enhance overall organisational performance (Marin-garcia and tomas, 2016). Therefore, the AMO theory considers all the organisational practices and policies that enhance employees' abilities, their motivation to perform specific work and their full participation in available opportunities that lead to their green behaviour and subsequently enhance overall organisational performance.

Social identity theory implies that being a member of a society influences the thoughts and ideas of an individual. People divide themselves into like-minded groups and teams to develop positive habits. The theory suggests that being part of a group with optimistic individuals encourages other individuals to adopt a similar set of habits and reinforces their self-realisation (Ashforth and mael, 1989). The theory also helps in explaining and improving the connection between an organisation and its employees. Strongly committed employees integrate positive values and procedures into their company (Ashforth and mael, 1989; Peterson, 2004), for example, by participating in corporate social responsibility programmes (Brammer et al., 2007; Turker, 2009) and by having better understanding of environmental management initiatives;

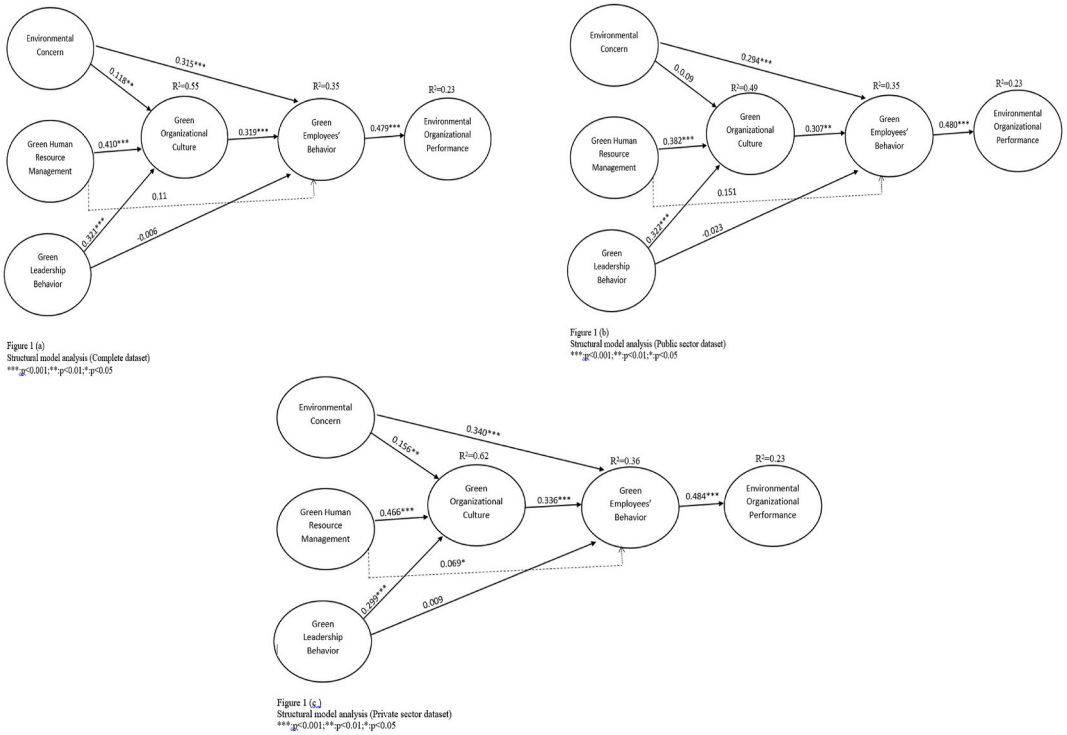

Fig. 1. Hypothesized research models.

their commitment towards the organisation is reflected in their actions (Kuo, 2013). The commitment of employees can also be measured through their participation in non-organisational or social activities which usually known as Organizational Citizenship Behavior (OCB) (O'reilly and chatman, 1986). Employees whose objectives are aligned with the organisation are more likely to contribute towards achieving the goals of the company by adopting OCB ((Balfour and wechsler, 1996; O'reilly and chatman, 1986).

2.2. Employees' green behaviour

An employee's green behaviour in the workplace includes practices such as recycling, waste management and reduction, reduction in energy consumption or any other behaviour that consciously seeks to minimise the negative impact on the environment (Lu et al., 2017a; Wang et al., 2016c). Any behaviour which has a positive effect on the environment is termed as green behaviour or pro-environmental behaviour (Unsworth et al., 2013). It aims to minimise the harm caused by human actions or organisational practices. In 2000, Stern defined green behaviour as conscious efforts by individuals to reduce the negativity of human practices on the environment. On the other hand, pro-environmental behaviour pertains to the following eight factors: awareness of the problem, internal motivation, intentions, social cultures and traditions, the guilt of harming nature, perceived behavioural command, moral norms, and attitudes (Bamberg and möser, 2007). These eight factors entirely depend on context and can be employed to measure the behaviour of environmentalists. If these environmental behaviours are considered in the context of one's job, they are termed as Employees' Green Behaviour (EGB).

Organisations should not merely rely on improving their environmental performance and reducing the negativity of their organisational and production tasks, but they should also inculcate pro-environmental behaviour among their workers (e.g. (Dixon et al., 2015; Paillé et al., 2014, Ramus and steger, 2000). The emerging trend of setting up environmentally sustainable or green organisations, depends on the integration of environmental methods, theories, procedures, and customs into their activities at the organisational level (Harris and crane, 2002); Crane, 2002). This is accomplished by bringing about changes in the top management's actions and decisions. Plans and organisational strategies are devised to help employees contribute to making this world greener and cleaner. From top management to low-rank employees, all efforts contribute to environmental commitment at the organisational level.

2.3. The relationship between environmental concern, culture, and green behaviour

Environmental attitude or concern is defined as a general perception about various environmental issues (Luo and deng, 2008). It also pertains to the beliefs, influences and actions of a person regarding environmental problems and hazards (Schultz et al., 2004). For example, people's understanding of the greenhouse effect could encourage them to develop effective and quick remedial measures to deal with the problem. Regardless of prior information about an environmental issue, an individual's environmental concerns are reflected in his or her behaviour which greatly increases the probability of buying environmentally friendly items; showing an interest in recycling them in daily use (Kellstedt et al., 2008). Another example can be witnessed in the tourism industry, in which environmentalists prefer to purchase environmentally safe wines and secure the locations where wine is being produced ((Pierce et al., 1999; Pooley and o'Connor, 2000; Stern et al., 1993). Thus, it can be seen that environmental concern acts as a predictor of the environmental behaviour of individuals.

On the other hand, a relatively weak link has been established between the ecological attitude and environmental responsibilities (Barber et al., 2010). In some instances, this relationship does not even exist. For example (Schaper, 2002), found no link between the individual's environmental behaviour and his or her knowledge about ecological issues (Axelrod and lehman, 1993; Hines et al., 1986, Smith-sebasto and fortner, 1994). Conversely (Naffziger et al., 2003), suggested that managements that are familiar with environmental problems readily direct financial and human resources in support of initiatives designed to reduce environmental hazards in the short term and eliminate them altogether in the long term (Gamba and oskamp, 1994; Lansana, 1992; Oskamp et al., 1991). Taking into consideration the previous work in this field, environmental knowledge implies the environmentally friendly behaviour of individuals or organisations. In a survey conducted with hotel employees, most of them were strongly motivated to perform extra green work in playing their part(Úbeda-garcía et al., 2021).

The world needs to recognise the gravity of environmental issues ranging from increased emissions of greenhouse gases to the pollution caused by disinfectants (Steg and vlek, 2009; Vlek and steg, 2007). The use of natural and limited resources, raw materials, and excessive energy consumption by industry has also resulted in deteriorating the situation (Robertson and barling, 2015). In recent years, most organisations have shown interest in avoiding harmful practices, in order to gain the reputation of an environmentally friendly organisation (Flammer, 2013; Tebini et al., 2016). In fact, the inclination of organisations towards Corporate Environmental Responsibility (CER) has led them to set pro-environmental targets. These targets can be achieved by implementing effective strategies and monitoring performance (Steg et al., 2014).

The concept of Green organizational culture (GOC) is relatively a new concept and its definition is not conclusive as the this field of research is still partially new in the literature(Afum et al., 2020). According to some researchers (Norton et al., 2015, Gürlek and tuna, 2018), the definition of GOC can be deduced from research pertaining to organizational culture. With that in mind, green organizational culture can be defined as the values, principles, and beliefs that guide the all the organizational practices towards becoming environmentally friendly organization (Afum et al., 2020, Ravasi and schultz, 2006). In addition, the organization is said to have a green culture if the members of the organization think and act beyond profit seeking motives to maximize the organizational positivity of its operations, meanwhile, minimizing the negative impact of the operational activities on the natural environment (Roscoe et al., 2019). The GOC might be described by other terms such as pro environmental culture, green consciousness, sustainability culture, and eco-friendly culture.

The general perception of management is to merely take pro-environmental measures that complies with social pressure and expectations (Zhang et al., 2013). Similarly, employees' pro-environmental activities meet the expectations of the organisation. However, it has been observed that the combined efforts of both management and employees can make a huge impact on the preservation of the environment (Steg et al., 2014). This leads to testing the relationship between environmental concern and GOC and employees' green behaviour as follows:

H1. Environmental concern is positively related to GOC.

H2. Environmental concern is positively related to employees' green behaviour.

2.4. The relationship between green behaviour and organisational environmental performance

Podsakoff and mackenzie (1997) explained how the OCB of employees helps increase productivity. For example, employees adhering to OCB assist each other in performing their assigned tasks. Similarly, those who attend meetings regularly can disseminate information among their colleagues. An employee who has unique skills in any domain can use them to increase a company's ability to adapt swiftly and easily to the new environment. However, (Walz and niehoff, 2000) analysed the OCB

of employees and found it directly influencing the quality of food served, customer satisfaction, and profit. OCBE is argued to be one of the driving forces behind a company's environmental performance (Anwar et al., 2020). It was further proposed by (Daily and huang, 2001) that employees should make combined efforts with the organisation to reduce waste and enhance environmental performance as a whole (Roy et al., 2013). proposed that environmentally friendly behaviour could assist in implementing an effective management system for protecting and conserving the environment, and improving performance as well. Thus, the link between green behaviour and the overall organisational performance is proposed as follows:

H3. Employee's green behaviour is positively related to organisational environmental performance.

2.5. The relationship between GHRM, culture, and green behaviour

GHRM refers to HRM practices that have an environmental and ecological influence on the firm and are an integral part of the company's environmental strategy and green behaviours of employees (Renwick et al., 2013; Singh et al., 2020a). Corporate business should also aim at creating a green culture at every step by spreading awareness about the importance of eliminating environmental hazards and improving the understanding of environmental issues (Margaretha and saragih, 2012). Supportive HRM can help promote green culture at both organisational and industrial levels. Moreover (Mishra et al., 2014), reported that GHRM, as a pro-environmentalist attitude of the human resources department, has a strong influence in sustaining an environmentally friendly attitude and practices in a workplace (Dumont et al., 2017; Paillé et al., 2014; Yusliza et al., 2017), stimulating the integration of a green culture in the organisation. In the same research streamline (Kim et al., 2019), suggested that GHRM enhances the employees' organizational commitment and their eco-friendly behaviour that results in higher hotels environmental performance. Green culture minimises waste produced by an industry, thus reducing harmful effects on the environment ((Jabbour and de Sousa Jabbour, 2016). (Harris and crane, 2002) presented an environmental perspective of promoting this culture in institutions and business organisations. They defined green culture as a collection of values, practices, customs, assumptions, and organisational objectives that are deeply rooted in the willingness or need to become an environmentally friendly entity. (Govindarajulu and daily, 2004) expressed organisational green culture as the desire of employees to fulfil their environmental responsibilities and gain a competitive promotional advantage over their colleagues (Rothenberg, 2003, Ones and dilchert, 2012a; Ones and dilchert, 2012b; Paillé et al., 2013, Paillé and boiral, 2013; Paillé and raineri, 2015). Both of these factors tended to motivate employees in order to participate in the organisation's vision of protecting the environment, encouraging competition to become more proactive in reducing environmental waste and developing environmentally friendly habits (Auranzeb and bhutto, 2016). Nonetheless, it is important to communicate to employees the urgency of implementing a green culture (Ramus, 2001, Govindarajulu and daily, 2004)). Top management should initiate environmental programmes with rewards and incentives for employees taking part, and keep them informed about the new goals aligned with environmental protection (Fernández et al., 2003). Employees should have the chance to give feedback on their pro-environmentalist behaviour (Renwick et al., 2016; Mandip, 2012). This can help the organisation maintain its activities which have a positive impact and review those with less or no productivity (Daily and huang, 2001; Govindarajulu and daily, 2004)) with training programmes to keep employees involved in best practice (Ramus, 2001, Govindarajulu and daily, 2004; Ramus and steger, 2000). In addition, the top management should penalise employees who ignore the environmental code and rules of the organisation, although gently at first since it takes time to switch to more environmentally friendly habits. Employees should be allowed to experiment with their raw ideas for protecting the environment; the involvement of management and administration in such matters and tasks should be less, to motivate employees to step forward, refine their ideas and implement them to gain an environmental benefit. They should be allowed to bring creativity and innovation to their ideas. Fernández et al. (2003) listed some fundamental requirements before implementing a green culture in a company: encouraging the pro-activeness and interest of employees towards environmental management, teaching employees about the deteriorating environmental situation, rewarding and motivating those who show an interest in resolving environmental issues, and the strengthening their eco-centric beliefs.

Some researchers believe in all these fundamental requirements, the creation of a green culture depends entirely on the participation of employees and their engagement in environmental management projects (Jabbour and de Sousa Jabbour, 2016). agreed that sustainable and effective implementation of a green culture in a workplace relies on the empowerment of its employees, that is they should be given the authority to make decisions independently about any environmental issue they confront. Adding to the discussion, (Gupta and kumar, 2013) stressed on the creation of a green culture that manages the human capital of an organisation most effectively and productively. This includes the freedom of expression for employees to suggest innovative solutions and apply creative ideas. Communication barriers between employees and top management should be removed.

Various HRM studies reported that strategic and planned HRM practices help in improving employees' commitment and purpose. Davies and gould-williams (2005) stated that strategic activities planned by HRM empower employees to contribute to achieving company goals and improve performance. Similarly, Kim et al. (2019) and Muisyo and qin (2021) found that GHRM enhances the employees' commitment towards green behaviour and shapes the organizational environmental behavior. Likewise, Rehman et al. (2021) found that GHRM enhances significantly the green innovation of the employees. However, conventional HRM emphasises outsourcing where the competence and behaviour of employees are being considered (Bratton and gold, 2017). Therefore, employees should be motivated to play their part and keep management informed about their sustainable activities that aimed at protecting the environment for future generations. The role of GHRM practices in developing sustainable working environment has been confirmed by researchers (Muisyo and qin, 2021; Chams and garcía-blandón, 2019), and it has been subsequently growing in importance which is reflected by increasing scholarly attention given to the topic. Thus, the following hypotheses are proposed for empirical investigation.

H4. GHRM is positively related to GOC.

H5. GHRM is positively related to employees' green behaviour.

2.6. The relationship between GOC and employees' green behaviour

It has also been proposed that the strategic practices of HRM have a positive impact on the behaviour of employees leading to the development of a psychological association between an organisation and its staff. The cultural structure of organisations is a significant determinant of its environmental practices (Newton and harte, 1997). According to (Howard-grenville and bertels, 2012), the OC shapes environmental practices and environmental issues. OC is defined by Schein (2010) as a pattern of shared basic assumptions invented, discovered or developed by a given group as it learns to solve its problems of external adaptation and internal integration. Therefore, OC is considered as an important instrument for managers to guide the direction of their organisations (Daft, 2014). This means creating a suitable environment affects both business and operational performance (Cadden et al., 2013). According to Hilman et al. (2019), OC is considered as a key element in enhancing performance, and it has been found affecting employees' attitudes (Rad, 2006).

Furthermore, previous studies have also reported that GOC might help in implementing green strategies successfully. The investment and efforts of management would be useless if green values are not shared with employees (Fernández et al., 2003). Therefore, GOC plays a crucial role in the successful implementation of green activities (Gürlek and tuna, 2018).

It was argued by (Lu et al., 2020) that moral and values of the organisation have a strong influence on employees' green behaviour. Therefore, if an organisation expects its environmental practices to be successful, it must develop GOC (Ahmad, 2015). GOC is thus a fundamental requirement for the continuous increase and improvement in the environmental performance of employees (Azzone and noci, 1998).

Culture exerts pressure on individuals and prompts them to behave in accordance with cultural values. Sharing green values and beliefs within the organisation could alter methods of business, encouraging environmentally friendly management practices(Parr, 2012). That is, GOC shapes the behaviours and perceptions of the organisation's members (Chen, 2011), leading to the following hypothesis:

H6. GOC is positively related to employees' green behaviour.

2.7. The relationship between green leadership behaviour, culture, and green behaviour

The literature repeatedly stated that individuals observe their surroundings, learn from them, and start imitating the behaviour of the surrounding people, either consciously or unconsciously (Enz and siguaw, 1999; Kassinis and soteriou, 2003; Mensah, 2006). Organisational leaders have the power to influence a range of outcomes such as employee attitudes, employee commitment and behaviour, and overall financial and non-financial performance (Robertson and barling, 2013). The culture of an organisation can be transferred to its employees if its executives lead by example (Gelaidan and Ahmad, 2013; Ahmad and gelaidan, 2011). Employees can be taught to adopt socially responsible conduct and ethical behaviour (Chan and ho, 2006). In such scenarios, managers with power, status and position are role models for the employees (Dief and font, 2010; Chen et al., 2014; Chan et al., 2017). Leaders who exhibit pro-environmental behaviour with consistency can convince the employees to adopt the same behaviour and value these norms in the workplace (Rodríguez and cruz, 2007). This also provides the motivation for employees to actively participate in such activities (Jones et al., 2014; Kasim, 2009; Kirk, 1995; Chan et al., 2017). However, leaders mostly act to minimise pollution and waste in meeting their social responsibilities, rather than with the aim of influencing others in the workplace. Consequently, employees understand two aspects of environmentally friendly behaviour that is socially responsible and beneficial conduct; and that if their leader is supportive in protecting the environment, they should follow his/her example.

Based on previous research, it can be concluded that transformational leaders generally succeeded in executing innovative ideas (Jung et al., 2003). They were able to help employees to refine their ideas and improve practical applications by encouraging them to perceive issues in a different way. They also built teams of employees who have similar ideas and diverse skills to ensure an element of creativity in whichever task they are assigned (Jung et al., 2003). Since transformational leadership provides a platform from which to fully support employees, motivate them to resolve issues and to deal with challenges, it can be concluded that their behaviour influences their performance (Elkins and keller, 2003). Transformational leadership thus has a positive impact on the innovative and creative ability of employees (Sarros et al., 2008). The green behaviour of leaders has been termed by Chen and chang (2013) as "behaviors of leaders who motivate followers to achieve environmental goals and inspire followers to perform beyond expected levels of environmental performance". Meanwhile (Singh et al., 2020b),studied the link between green transformational leadership, GHRM and green innovation based on a sample of SMEs in China. The results demonstrated the effect of green transformational leadership and GHRM have a significant impact upon environment performance by encouraging the green innovation of employees in SMEs. Based on the above discussion, we hypothesise that this is associated with GOC and employees' green behaviour as follows:

H7. Leaders' green behaviour is positively related to GOC.

H8. Leaders' green behaviour is positively related to employees' green behaviour

2.8. The mediating effect of GOC

(Chen et al., 2020) argued that the green-shared values and green organizational culture can enhance the organizational capabilities that help organisations to translate their strategies into environmentally friendly individual and organizational performance. However, Becker and gerhart (1996) suggested that HRM indirectly influences and controls the performance of an organisation by improving or reducing its efficiency, altering costs, generating revenue, etc. A thorough review of the past research supports a strong connection can be found between HRM systems and organisational performance. For instance, the plans and actions of the human resources department, including recruitment and rewards, lead to a satisfactory performance by the company (Jiang et al., 2012). discussed both positive and negative consequences of HRM operations in terms of productivity, innovation and service. HRM activities can be categorised as: i) activities which polish the skills of employees; ii) activities which increase the motivation level of employees; and iii) activities which create opportunities for employees. However, in the context of environmental literature, most scholars believe that the results of environmental management could be determined directly from environmental performance without taking the details of organisational performance into account. López-gamero et al. (2009), described in detail the relationship between ecological performance and management which is largely influenced by knowledge about environmental problems.

HRM practices support the discrete efforts of employees. Van knippenberg and schippers (2007) proposed that a comfortable working environment, in which employees and leaders have a good relationship, increases the dedication of employees to work together towards the goals and objectives of the company. (Tsaur and lin, 2004) agreed that the greater the number of top-ranking employees who appreciate HRM activities the higher the quality of services they offer to the company. In a similar way, hotel staff recruited by fair means and equipped with required skills offer exceptional service to customers. In recent years, organisational citizenship behaviour has become a concern for organisations as well as industry. OCBE behaviour is referred as the discretionary actions of employees, which contribute towards improving the surroundings (environment) but are not rewarded. Strategically planned HRM activities, being equivalent to GHRM in the domain of ecology, have a positive impact on the OCBE of employees. This study bridges the gap created in observing OCBE alone, confined to the actions of an individual trying to protect his or her environment. It suggests planning environmentally friendly business goals. These goals are directed at minimizing energy and water consumption, reducing waste production and recycling materials in daily use. In light of OCBE, despite some constraints, the concept of an eco-friendly working environment is appropriate for the effective implementation. In their study, Paillé et al. (2020) argued that GHRM practices influence the employees' green behaviour by creating organisational culture that support the direction of greening the operations.

However, Rehman et al. (2021) found that, according to the data collected from 244 large manufacturing firms, that green human recourse management did not directly influence environmental performance although it was significant predictor of green innovation. Hence, the following hypotheses are proposed.

H9. GOC mediates the relationship between GHRM and green behaviour of employees.

H10. GOC mediates the relationship between environmental concerns and green behaviour of employees

H11. GOC mediates the relationship between the green behaviour of leaders and of employees.

A list of selected studies is found in Table 1.

3. Methodology

To test the hypothesized relationships, the quantitative survey research design was employed (Zikmund et al., 2013). The items in the questionnaire were adapted from past research and responses to multiple statements were measured on a 5-point Likert scale to help in establishing the reliability and validity of the data (Hair et al., 2014). Before sending the questionnaire to the respondents, it was checked by three academics to check the face validity and the suitability of the items to measure the intended concepts. Before the questionnaires were administered to the respondents, a pre-test was conducted with four potential respondents form the industry to ensure usability and to check the comprehensibility of all the statements (Ting et al., 2019). The questionnaire, therefore, was refined according to the obtained comments and feedback.

The survey was, then, administered to government offices, government-owned companies, and private organisations by research assistants in coordination with human resource departments in public and private sector organisations. As there no sampling frame, the convenience sampling technique was employed to collect the data as this technique was used by many researchers in similar situations (Anwar et al., 2020, Paillé and mejía-morelos, 2014). A total of 1250 questionnaires were distributed to the respondents, out of which 632 completed questionnaires, representing a response rate of 50.6%, were collected between October and December 2019. Of these, 16 were discounted because of incomplete data.

To test for common method bias, the post hoc Harman single-factor approach was applied to the data. The unrotated factor structure was

Table 1
Summary of selected studies.

Authors	Location	Sample	Findings
Anwar et al. (2020)	Malaysia	122 academic employees from two university campuses	The results supported the impact of GHRM on the employees' green behaviour and how this, in turn, affects the environmental performance.
(Su and swanson, 2019)	China	441 employees from eight different hotels located in Changsha	There is a strong relationship between CSR and the wellbeing of the employees and green behaviour. Moreover, organisational trust and identification create a partial link between CSR and employees' well-eing as well as partial mediation between CSR and employees' green behaviour
Kim et al. (2019)	Phuket, Thailand	177 hotels, Smith Travel Research	GHRM increases the organisational commitments of employees, enhances the eco-friendly behaviour of employees, and increases the environmental performance of hotels.
Pham et al. (2019)	Vietnam	203 employees working in 4- and 5-star hotels	Using the AMO theory, this study examined the direct effects of GHRM practices on OCBE, finding (i) There is a direct effect of GHRM practices on OCBE; (ii) The interaction of training, performance management, and employee involvement, which can enhance employees' green behaviour, is dependent on the level of green performance management and green employee involvement; and (iii) Green training is a critical factor in improving employees' green behaviour.
Zaid et al. (2018)	Palestine	121 manufacturing firms	GHRM practices enhance sustainable performance but this link is stronger when there is green supply chain management (GSCM).
Pham et al. (2019)	Vietnam	203 hotel employees	The findings supported the direct effect of GHRM practices on OCBE, and confirmed the effect of the interaction among GHRM practices on OCBE.
Luu (2018)	Vietnam	96 tour companies, 1261 employees	Employees' environmental commitment acts as a mediator in the positive relationship between HR green practices and employees' green recovery performance. This relationship is strengthened through the service culture which plays a moderator role.
Bohlmann et al. (2018)	Netherlands	38 managers	The results confirmed the role of employees' task performance to overall job performance, followed by counter-productive work behaviour, organisational citisenship behaviour, and employees' green behaviour. Importantly, the results confirmed the impact of employees' pro-environmental behaviour on overall job performance.
Siyambalapitiya et al. (2018)	Literature review	Literature	A total of 106 HRM practices related to environmental management were grouped using principal component analysis. The measures of organisational environmental performance were examined and a model for the analysis of the relationship between GHRM functions and organisational environmental performance was proposed.
(Cheema and javed, 2017)	Faisalabad, Pakistan	273 respondents	There is a strong relationship between corporate social responsibility and GHRM. However, this association is only possible under rules and regulations about creating a sustainable environment.
Lu et al. (2017b)	China	10 interviews	The dimensions of employees' green pro-environmental behaviour are responsible for developing a green corporation.
Norton et al. (2017)	Australia	74 employees	There is a positive relationship between green behavioural intention and green behaviour only when employees perceive a positive green psychological climate.
(Alt and spitzeck, 2016)	International	170 firms from a variety of industries	All five hypotheses were supported: a positive relationship between employees' involvement capability and OCBEs, OCBEs and environmental performance, OCBEs as mediator between employees' involvement capability and environmental performance, greater shared vision would lead to greater impact between employees' involvement capability and OCBEs, and OCBEs will act as mediator only when the shared vision is at a high level. There is a positive relationship between environmental performance and financial performance.
Jabbour and de Sousa Jabbour (2016)	Conceptual	Conceptual	The objective of the study was to propose an integrated framework for GHRM-GSCM. This article emphasises the implications of GHRM-GSCM integration for scholars, managers, and practitioners in the areas of organisational sustainability and truly sustainable supply chains.
Jabbour (2011)	Brazil	94 Brazilian companies with ISO 14001 certification	The study confirmed the importance of human resource practices to environmental management success. It found that if there is no formal consideration of environmental issues in human resource practices, many issues related to teams' performance, OC, and learning result in negative outcomes.

examined; only 42% was explained by one factor, close to the 40% threshold (Al -swidi and al yahya, 2017; Babin et al., 2016; Fuller et al., 2016); (Podsakoff et al., 2003).

The data was then analysed using Partial Least Squares Structural Equation Modelling (PLS-SEM) to test the hypothesized model of the study (Hair et al., 2012). It is considered appropriate as it is composite-based (or variance-based) rather than factor-based (or covariance-based). Specifically, PLS-SEM was selected to examine the study model for the following reasons. First, most of the constructs in applied science research are design constructs (Henseler, 2017) that can be better handled by the composite measurement model, variance-based SEM (Ting et al., 2019). Second, PLS-SEM estimates the model based on composites so it produces consistent estimates as it allows for the combination of explanatory and prediction perspectives for exploratory research (Hair et al., 2017a,b). Third, although both covariance-based and variance-based modelling have been used in previous research (Rigdon, 2016; Ting et al., 2019), PLS-SEM is preferred to avoid the estimation bias due to the unknown nature of the data since it does not require the normality of the data (Sarstedt et al., 2016). Fourth, PLS-SEM can be used to conduct multi-group analysis (Hair Jr et al., 2017); therefore, SmartPLS version 3.3.2 was used to perform the analyses (Ringle et al., 2015) and the multi-group analysis (MGA) was conducted to compare the complexity and map the structural interrelationships among the factors affecting the green behaviours of public and private sector employees.

4. Analysis and results

4.1. Sample profile

Table 2 shows the respondents' demographic distribution. Regarding gender, 45% were female and 55% male. Most respondents have an income above 10,000 QR (2740 USD) a year. 75% have work experience of more than five years; 52% work in the public sector, and 48% in the private sector.

4.2. Descriptive statistics

The results pertaining to the descriptive statistics show the same level of agreement by respondents in the two sectors, as explained by means and standard deviations. The results also reported the skewness and kurtosis values of each construct, and the ratio of skewness (or kurtosis) statistics to the standard error lies beyond the range (−2.58, 2.58) indicating non-normality of the data (Hair et al., 2014). This is why PLS-SEM was used, as it makes no distributional assumption but employs the bootstrapping technique to normalise standard errors (Hair et al., 2014).

4.3. Assessment of convergent validity and composite reliability

To establish the convergent validity of the measures, factor loadings, composite reliability (CR), and average variance extracted (AVE) are used for the pooled sample and public and private sectors samples (Hair Jr et al., 2017). The results in Table 4 show that all the factor loadings of the items exceed the recommended value of 0.5. Moreover, the CR for all constructs is greater than 0.7 and the AVE values of all the constructs exceed the threshold value of 0.5 (Hair Jr et al., 2017; Byrne, 2013, Nunnally and bernstein, 1994). Thus, convergent validity is established for the complete sample and for public and private sectors separately.

4.4. Assessment of discriminant validity

The discriminant validity is assessed using the Heterotrait-Monotrait (HTMT) ratio of correction technique on both the complete and split datasets (Henseler et al., 2015). The results in Table 5 showed that the discriminant values do not exceed the threshold value of 0.85 (Kline, 2011), especially among the constructs. However, some values in Table 5 exceeded 0.85, but only between the construct GHRM and its sub-dimensions. These results indicate that the measurement model has an adequate level of discriminant validity.

4.5. Assessment of model fit

The results in Table 3 show the Standardised Root Mean Square Residual (SRMR) as a goodness-of-fit measure for PLS-SEM. The model is said to have an adequate fit if the SRMR value is less than 0.08 (Henseler et al., 2015). The complete dataset shows a value of 0.063, while the public sector dataset shows 0.067, and the private sector data 0.069, indicating that all three data sets satisfy the requirements of goodness-of-fit (Henseler and sarstedt, 2013; Hu and bentler, 1999).

4.6. Predictive quality of the model

To assess the predictive quality of the model, R^2 was calculated to show the amount of variance in the exogenous construct that is explained by its predictors. Table 10 shows that the complete, public and private datasets explain 23%, 23% and 23.4% of the variance in SOP; similarly, they explain 35%, 34.9%, and 36.2% of the variance in GEB and 55%, 49%, and 62% of the variance in GOC. Another measure of predictive quality is Q^2, which measures the predictive relevance as built in the blindfolding procedure (Geisser, 1975; Stone, 1974), employed to evaluate the predictive relevance for all datasets. The blindfolding technique is a re-sampling procedure that omits and predicts each data point of the reflective measurement model items of the dependent variables. It helps to find any difference between the original and the predicted data values. The predictive relevance is confirmed if the cumulative redundancy value Q^2 of the exogenous variables are greater than zero. As Table 11 shows, all Q^2 values for SOP, GEB, and GOC are greater than zero for the complete, public and private datasets, thus, confirming the predictive relevance of all models (Fornell and cha, 1994). More importantly, the comparison of exploratory power of the model and its predictive relevance shows that there is no significant differences across the public and private samples as exhibited in Table 12 and 13.

4.7. Common method variance

This study applied the post hoc Harman single-factor method to test the common method variance, based on the analysis of the unrotated factor structure matrix. The results showed that only 42% of the variance in the data was explained by one factor, which is below the 50% threshold suggested by other researchers (Al -swidi and al yahya, 2017, Babin et al., 2016; Fuller et al., 2016; Podsakoff et al., 2003). Thus, common method bias is not a concern in this study.

4.8. Assessment of measurement invariance

In order to conduct the multi-group analysis (MGA) using SmartPLS, the measurement invariance should be confirmed to compare the relationships between public and private sectors in the context of employees' green behaviour (Henseler et al., 2016). Measurement invariance refers to the extent to which observation under different circumstances can have similar attributes (Henseler et al., 2016). If measurement invariance was not established, the conclusion about the relationships in the model would be questionable (Hult et al., 2008). Following the procedures suggested by Henseler et al. (2016), referred to as MICOM (measurement invariance of composites) in PLS-SEM, the following procedures were employed: (1) configurable invariance assessment, which implies that the measurement models have the same basic factor structure for all the groups; (2) compositional invariance assessment, which means that the composite scores are equal across the groups; and (3) equality of composite mean values and variances.

According to (Henseler et al., 2016), if the configurable and compositional variances are established, partial measurement invariance is confirmed. If the configurable and compositional variances and the composites have equal mean and variance across all the groups, full measurement invariance is confirmed (Henseler et al., 2016).

First, to establish configurable invariance, the measurement model should have the same indicators across groups. Here, the measurement models have identical indicators across public and private sectors, as shown in Tables 4–6 and thus, configurable invariance is confirmed.

Second, to establish compositional invariance, the permutation procedure was employed to ensure that the composite scores are similar across the public and private sectors. The results showed that only one value of c is significant for sub-dimensions of GHRM, different from each other (Table 5). The permutation c value results (= 1) were within the 95% confidence interval. Hence, the compositional invariance of the measurement model is established.

Third, composites' equality of mean values and variances across the public and private sectors was assessed. Based on the results presented in Table 5, all the composite constructs have no significant differences with the composite mean value and variances at the 95% confidence interval. Therefore, full measurement invariance is confirmed.

4.9. Assessment of structural model

Prior to examining the structural models, collinearity analysis should be performed, as collinearity could distort the findings (Kock and lynn, 2012). The collinearity variance inflation factors (VIFs) are assessed to identify the presence of multi-collinearity issues. As Table 8 shows, the VIF scores for all individual constructs are below 5 (the suggested value in the literature); thus, there is no multicollinearity issue (Craney and surles, 2002; Diamantopoulos and siguaw, 2006).

To test the hypotheses proposing causal relationships between constructs in the model, the bootstrapping method is employed, with a re-sampling of 5000 to estimate the significance of the path coefficients (Hair Jr et al., 2017). The results regarding the direct and indirect path coefficients for complete, public, and private datasets were reported in Tables 7 and 8 and are summarised in Table 9.

Regarding the relationship between environmental concern and GOC, the results are positive and significant for the complete sample ($\beta = 0.118$, $p < .01$) and the private sector sample ($\beta = 0.156$, $p < .01$), but not for the public sector sample ($\beta = 0.090$, $p > .05$); thus, hypothesis H_1 is partially supported. Similarly, it is clear that environmental concern is positively and significantly related to employees' green behaviour across all the samples: complete ($\beta = 0.315$, $p < .001$), public sector sample ($\beta = 0.294$, $p < .001$), and private sector sample ($\beta = 0.340$, $p < .001$); hence, H_2 is fully supported. More importantly, the employees' green behaviour is positively and significantly related to environmental organisational performance across all samples: complete ($\beta = 0.479$, $p < .001$), public sector sample ($\beta = 0.480$, $p < .001$), and private sector sample ($\beta = 0.484$, $p < .001$), fully supporting H_3. Unexpectedly, the direct relationships between GHRM, green leadership behaviour, and employees' green behaviour were found to be insignificant across all samples; thus, H_5 and H_8 are not supported. Interestingly, the relationship between GHRM and employees' green behaviour is fully mediated by GOC for complete ($\beta = 0.131$, $p < .001$) and private sector samples ($\beta = 0.117$, $p < .001$), but not for public sample ($\beta = 0.072$, $p > .05$); thus, H_9 is partially supported. Moreover, the relationship between green leadership behaviour and employees' green behaviour is fully mediated by GOC across all samples; hence, H_{11} is fully supported.

As expected, GHRM is found to be positively related to GOC across all samples; thus, H_4 is fully supported. Furthermore, GOC is found to have a positive role in shaping the employees' green behaviour across all the samples, supporting H_6. In addition, the positive effect of green leadership behaviour in the formation of GOC is supported across all the samples, providing full support for H_7.

Lastly, the relationship between environmental concern and employees' green behaviour was found to be direct only for the public sector sample and partially mediated by GOC for the complete and private sector samples, partially supporting H_{10}.

Table 2
Sample profile.

Variable	Category	Frequencies	%
Gender	Men	337	55%
	Women	277	45%
Total		614	100%
Income	Less than 10,000	62	10%
(QR)	Between 10,000 and 20,000	157	26%
	Between 20,000 and 30,000	173	28%
	Between 30,000 and 40,000	116	19%
	More than 40,000	106	17%
Total		614	100%
Experience	Less than 5 years	153	25%
	Between 5 and 10 years	248	40%
	Between 10 and 20 years	126	21%
	More than 20 years	87	14%
Total		614	100%
Education	No Certificate	8	1%
	Secondary or less	175	29%
	Bachelor	352	57%
	Postgraduate	79	13%
Total		614	100%
Sector	Public	319	52%
	Private	295	48%
Total		614	100%

Table 3
Model fit using SRMR.

Saturated and estimated model	
Data	SRMR
Complete Data	0.063
Public sector data	0.067
Private sector data	0.069

4.10. Multi-group analysis

To compare the samples of public and private sectors, this study employed the Omnibus Test of Groups (OTG), which was developed by (Sarstedt et al., 2011). It assesses the equality of paths across the groups as it combines the bootstrapping procedure with permutation testing to mimic an overall F test. The results, as shown in Table 14, suggest that public and private samples, regardless of some differences in path coefficients as shown in Tables 7–9, are not significantly different with regards to the causal relationships.

5. Discussion

This study provides insights that might be of value not only from a theoretical perspective but also from the managerial perspective. It is one of the first attempts to examine the joint effect of environmental concern, GHRM, and green leadership behaviour on GOC and its subsequent effect on employees' green behaviour and organisational environmental performance. In other words, the study extends our understanding of the joint effect of GHRM, green leadership behaviour and GOC, which are new areas in the field of organisational environmental performance (Anwar et al., 2020), on the employees' green behaviour and the implications for overall organisational performance. The study also contributes to the literature by comparing public and private sectors, showing that these two sectors are likely to have different cultural aspects and vary in their performance measurement.

Based on our results, this study supports the effect of environmental concern, GHRM, and green leadership behaviour on the formation of GOC. This agrees with the findings of Jabbour (2011), who argued that

Table 4
Assessment of measurement model on loading, CR and AVE.

Construct		Pooled sample (n = 614)					Public Sector Employees(n = 319)					Private Sector Employees (n = 295)				
	Items	Loading	CA	rho_A	CR	AVE	Loading	CA	rho_A	CR	AVE	Loading	CA	rho_A	CR	AVE
Environmental Concern	EC1	0.787	0.883	0.888	0.915	0.683	0.776	0.888	0.891	0.918	0.692	0.800	0.878	0.888	0.911	0.672
	EC2	0.881					0.887					0.876				
	EC3	0.854					0.861					0.845				
	EC4	0.832					0.838					0.826				
	EC5	0.774					0.792					0.748				
Environmental **Organizational Performance**	EOP1	0.777	0.881	0.885	0.907	0.582	0.739	0.861	0.864	0.894	0.546	0.811	0.897	0.904	0.919	0.618
	EOP2	0.749					0.696					0.799				
	EOP3	0.753					0.731					0.774				
	EOP4	0.807					0.775					0.837				
	EOP5	0.754					0.755					0.754				
	EOP6	0.779					0.783					0.775				
	EOP7	0.719					0.687					0.748				
Green Employees Behavior	GEB1	0.660	0.827	0.828	0.870	0.490	0.630	0.831	0.832	0.874	0.497	0.695	0.823	0.830	0.867	0.484
	GEB2	0.706					0.695					0.718				
	GEB3	0.682					0.750					0.601				
	GEB4	0.729					0.743					0.715				
	GEB5	0.689					0.708					0.665				
	GEB6	0.729					0.720					0.739				
	GEB7	0.703					0.684					0.725				
Green Organizational Culture	GOC1	0.785	0.925	0.926	0.938	0.656	0.819	0.931	0.933	0.943	0.675	0.750	0.918	0.919	0.933	0.636
	GOC2	0.778					0.766					0.792				
	GOC3	0.851					0.858					0.844				
	GOC4	0.787					0.800					0.775				
	GOC5	0.806					0.809					0.803				
	GOC6	0.811					0.826					0.793				
	GOC7	0.839					0.845					0.833				
	GOC8	0.818					0.845					0.788				
Green Leadership Behavior	GLB1	0.874	0.950	0.950	0.960	0.800	0.880	0.954	0.955	0.963	0.814	0.870	0.945	0.946	0.957	0.786
	GLB2	0.899					0.909					0.889				
	GLB3	0.908					0.909					0.907				
	GLB4	0.916					0.916					0.916				
	GLB5	0.899					0.897					0.900				
	GLB6	0.870					0.902					0.836				

Table 5
Assessment of measurement model on loading, CR and AVE (Continued) (Second Order).

Construct		Pooled sample (n = 614)					Public Sector Employees(n = 319)					Private Sector Employees (n = 295)				
	Items	Loading	CA	rho_A	CR	AVE	Loading	CA	rho_A	CR	AVE	Loading	CA	rho_A	CR	AVE
GHRM																
Performance management and appraisal	PMA1	0.853	0.922	0.923	0.942	0.763	0.849	0.915	0.916	0.936	0.746	0.858	0.930	0.931	0.947	0.780
	PMA2	0.899					0.901					0.896				
	PMA3	0.884					0.882					0.885				
	PMA4	0.866					0.828					0.900				
	PMA5	0.866					0.857					0.876				
Employee empowerment and participation	EEP1	0.835	0.912	0.913	0.935	0.741	0.844	0.919	0.919	0.939	0.755	0.824	0.905	0.906	0.930	0.726
	EEP2	0.864					0.864					0.863				
	EEP3	0.893					0.899					0.886				
	EEP4	0.878					0.887					0.870				
	EEP5	0.832					0.849					0.814				
Reward and compensation	RC1	0.881	0.885	0.885	0.929	0.814	0.910	0.905	0.905	0.940	0.840	0.849	0.863	0.864	0.916	0.785
	RC2	0.911					0.920					0.903				
	RC3	0.913					0.920					0.906				
Recruitment and selection	RS1	0.859	0.907	0.907	0.935	0.782	0.865	0.912	0.912	0.938	0.791	0.853	0.902	0.903	0.931	0.772
	RS2	0.901					0.894					0.907				
	RS3	0.888					0.886					0.889				
	RS4	0.888					0.911					0.865				
Training and development	TD1	0.841	0.901	0.906	0.927	0.718	0.867	0.907	0.913	0.931	0.731	0.815	0.895	0.900	0.923	0.706
	TD2	0.897					0.901					0.892				
	TD3	0.885					0.876					0.894				
	TD4	0.746					0.739					0.755				
	TD5	0.860					0.882					0.838				

organisational concern about the environment and other organisational practices and policies should not be considered as temporary fixes for organisational issues. Rather, they should be institutionalised and incorporated in the organisational values, norms, and practices, thus developing a strong GOC to determine all the organisational short- and long-term plans. The findings of this study support the findings of Paillé et al. (2020) that GHRM practices influence the employees' pro-environmental behaviour through the development of organisational culture and support. In addition, this finding is in line with that of Muisyo and qin (2021), who supported the joint effect of GHRM and green innovation culture on environmental organizational performance. In addition to that, this result is corroborated by the study carried out by (Wang et al., 2020) that confirmed the importance of green innovative organizational culture in promoting employees' green behavior and organizational environmental performance.

In addition, the results confirm the positive effect of environmental concern on employees' green behaviour, supporting the findings of other researchers such as (Kim et al., 2019; Chan et al., 2017). Furthermore, regarding the effect of green leadership behaviour on GOC, the findings support those of (Mittal and dhar, 2016), confirming the important role of leaders in promoting the organisational identity and culture that affect employees and organisational performance (Robertson and Barling, 2013). It is therefore argued that all the organisational green policies and practices, including such as GHRM and leadership practices, should be able to create a system of beliefs and norms within the organisation to help employees promote green behaviour and identify themselves with those behaviours, beliefs, and norms (Matinaro and liu, 2017).

Interestingly, this study did not support the direct link between GHRM and green leadership behaviour on the one hand and employees' green behaviour on the other. These findings contradict those of many other researchers (Kim et al., 2019; Anwar et al., 2020; Chaudhary, 2020, Masri and jaaron, 2017). A plausible explanation is that not all the organisational practices and policies intended to reduce the negative impact on the environment and better utilise resources will yield the desired results, unless a strong supporting green culture is developed in the organisation. This suggests that the GHRM has an indirect impact on individual as well as organizational environmental behaviour (Rehman et al., 2021). This results are aligned with that of (Singh et al., 2020b) who confirmed the indirect effect of GHRM and Green transformational leadership on environmental performance through green innovation. This implies that all the GHRM and green leadership behaviour should be reflected in a green innovative culture before the results to be reflected in the performance of individuals or the organization. This justifies the mediating role played by OC in the relationships between factors such as environmental concern, GHRM and green leadership behaviour, and the employees' green behaviour. In line with the argument of Boxall et al. (2016), Chaudhary (2020) and Ehrhart et al. (2013), the literature of HRM and other organisational practices, such as leadership behaviour, may not directly influence the behaviour of employees; rather, this influence might be through some organisational mechanisms such as the organisational culture or climate (Rehman et al. (2021).

This study confirmed the positive effect of GOC on employees' green behaviour, supporting previous research that argued that OC affects employees' performance and other attitudinal outcomes (Shahzad, 2014), employees' innovation (Matinaro and liu, 2017; Shahzad et al., 2017), and attitudinal outcomes (Elkordy, 2013).

Importantly, this study confirmed the positive effect of green employees' behaviour on organisational environmental performance across all the samples: complete, public and private. These findings are aligned with those of other researchers (Kim et al., 2019; Anwar et al., 2020). It also confirmed that this relationship structure, despite some differences in path coefficients, is equally applicable in explaining employees' green behaviour and organisational environmental performance. It also supports the arguments of (Lu et al., 2020) that public and private sectors

Table 6
Assessment of Discriminant Validity using HTMT.

Data Set	Construct	EC	EEP	EOP	GEB	GHRM	GOC	GLB	PMA	RC	RS	TD
Complete set (n = 614)	**EC**: Environmental Concern											
	EEP: Employee empowerment and participation	0.310										
	EOP: Environmental Organizational Performance	0.425	0.536									
	GEB: Green Employees Behavior	0.532	0.446	0.551								
	GHRM: Green HRM	0.369	0.956	0.604	0.492							
	GOC: Green Organizational Culture	0.377	0.656	0.682	0.57	0.747						
	GLB: Green Leadership Behavior	0.288	0.845	0.597	0.434	0.838	0.726					
	PMA: Performance management and appraisal	0.349	0.828	0.603	0.454	0.972	0.742	0.804				
	RC: Reward and compensation	0.239	0.859	0.471	0.375	0.908	0.608	0.729	0.782			
	RS: Recruitment and selection	0.374	0.721	0.550	0.440	0.909	0.689	0.662	0.827	0.714		
	TD: Training and development	0.392	0.847	0.58	0.513	0.975	0.703	0.77	0.881	0.773	0.809	
Public Sector Employees (n = 319)	**EC**: Environmental Concern											
	EEP: Employee empowerment and participation	0.394										
	EOP: Environmental Organizational Performance	0.348	0.586									
	GEB: Green Employees Behavior	0.536	0.464	0.56								
	GHRM: GHRM	0.474	0.958	0.619	0.519							
	GOC: Green Organizational Culture	0.381	0.614	0.69	0.56	0.699						
	GLB: Green Leadership Behavior	0.318	0.819	0.644	0.422	0.797	0.678					
	PMA: Performance management and appraisal	0.47	0.851	0.615	0.504	0.981	0.709	0.787				
	RC: Reward and compensation	0.314	0.871	0.483	0.386	0.891	0.554	0.718	0.78			
	RS: Recruitment and selection	0.469	0.698	0.503	0.453	0.898	0.618	0.58	0.824	0.674		
	TD: Training and development	0.488	0.843	0.608	0.532	0.971	0.673	0.717	0.889	0.731	0.815	
Private Sector Employees (n = 295)	**EC**: Environmental Concern											
	EEP: Employee empowerment and participation	0.205										
	EOP: Environmental Organizational Performance	0.509	0.494									
	GEB: Green Employees Behavior	0.528	0.424	0.545								
	GHRM: Green HRM	0.251	0.955	0.593	0.463							
	GOC: Green Organizational Culture	0.368	0.704	0.679	0.58	0.799						
	GLB: Green Leadership Behavior	0.254	0.875	0.556	0.444	0.879	0.779					
	PMA: Performance management and appraisal	0.226	0.81	0.592	0.405	0.964	0.778	0.821				
	RC: Reward and compensation	0.146	0.845	0.464	0.361	0.928	0.672	0.741	0.79			
	RS: Recruitment and selection	0.269	0.748	0.597	0.426	0.921	0.769	0.749	0.831	0.763		
	TD: Training and development	0.286	0.855	0.556	0.492	0.98	0.736	0.825	0.874	0.822	0.802	

have similar drivers for going green.

5.1. Theoretical implications

The findings of this study contribute to the literature on how the relationship structure of GHRM, green leadership behaviour, GOC and employees' green behaviour might affect organisational environmental performance. That is, this study contributes to the literature by integrating AMO theory, introduced by (Appelbaum et al., 2000), and the social identity theory introduced by (Ashforth and mael, 1989). The results of this study confirmed the premises of AMO theory that assumes that all the organisational practices and policies that enhance employees' abilities, their motivation to perform cleaner production activities and their full participation in available opportunities towards greening the organization. Furthermore, the results support the assumptions of social identity theory (SIT) that assumes that individuals in their organisations or organisations in their environments tend to show a great alignment of the environment's thoughts, norms and practices. The integration of AMO and SIT theories improves our understanding of employees' as well as organizational green behaviour. Therefore, it is not enough for organization to have the infrastructure and opportunities to be green, there should be social green identity that encourage all the parties in organization to adopt green practices and develop a cleaner production system.

In other words, this study integrates the AMO and social identity theories to explain the employees' green behaviour and organizational environmental performance. As expected, the great importance of GHRM, with all its functions and practices, has a great role to play in shaping employees' green behavior that would be greatly reflected in organizational environmental performance (Ahmed et al. (2021); Muisyo and qin (2021); Singh et al. (2020b); Úbeda-garcía et al. (2021), Rehman et al. (2021). As organizational green practices help employees to develop their abilities and motivation to fully participate in green behaviour, this, on the other hand, reflects their identity. This relationship is reciprocal, while organisations exercise green practices to develop employees' green behaviour, this behaviour, in turn, enhance the overall organizational environmental performance.

From the AMO theory's point of view (Appelbaum et al., 2000; Anwar et al., 2020; Boselie et al., 2005), this study confirms the impact of environment-related organizational practices such as GHRM, leadership behaviour which come under abilities; performance assessment and rewards practices under motivation; environment-related training and environmental concern under the opportunities on the employees' behaviour and how that could be reflected on the overall organizational performance. In other words, this study supports the usage of AMO theory in explaining the employees' green behaviour and organizational environmental performance. It is, therefore, concluded that all the organisational environmental-related practices and policies enhance employees' abilities, shape their motivation to perform their work with full consideration of the environmental issues. This leads them to fully participate actively in the available opportunities to be more environmentally friendly in their production processes.

Table 7
Measurement Invariance Test using MICOM.

MICOM Step 1: Configural invariance is established by assessing measurement model					
MICOM Step 2: Compositional invariance					
Composite	Correlation c(=1)	95% Confidence interval		p value	Composition Invariance
EC	0.999	0.998–1.000		0.783	Yes
EEP	1.000	0.999–1.000		0.526	Yes
EOP	0.999	0.997–1.000		0.961	Yes
GEB	0.998	0.995–1.000		0.457	Yes
GHRM	1.000	0.999–1.000		0.490	Yes
GOC	1.000	0.999–1.000		0.385	Yes
GLB	1.000	0.999–1.000		0.603	Yes
PMA	1.000	0.999–1.000		0.013	No
RC	1.000	0.999–1.000		0.253	Yes
RS	1.000	0.999–1.000		0.249	Yes
TD	1.000	0.999–1.000		0.701	Yes
MICOM step 3: assessing the equality of means and variances					
Composite	Difference of the composite's mean value (= 0)	95% Confidence Interval		p value	Equal Mean
		Lower Limit	Upper limit		
EC	−0.133	−0.157	0.156	0.094	Yes
EEP	−0.130	−0.161	0.155	0.112	Yes
EOP	0.008	−0.151	0.162	0.910	Yes
GEB	−0.039	−0.155	0.156	0.611	Yes
GHRM	−0.044	−0.149	0.158	0.570	Yes
GOC	−0.044	−0.147	0.147	0.594	Yes
GLB	−0.039	−0.150	0.156	0.632	Yes
PMA	−0.012	−0.160	0.160	0.898	Yes
RC	−0.054	−0.160	0.155	0.517	Yes
RS	0.002	−0.157	0.156	0.977	Yes
TD	−0.002	−0.147	0.152	0.985	Yes
Composite	Difference of the composite's variance value (= 0)	95% Confidence Interval		p value	Equal variance
		Lower Limit	Upper limit		
EC	0.097	0.000	−0.278	0.272	Yes
EEP	0.011	0.002	−0.205	0.199	Yes
EOP	−0.227	0.001	−0.291	0.282	Yes
GEB	−0.014	−0.006	−0.242	0.209	Yes
GHRM	−0.044	0.002	−0.201	0.200	Yes
GOC	0.064	0.001	−0.207	0.204	Yes
GLB	−0.053	0.005	−0.195	0.202	Yes
PMA	−0.173	0.001	−0.193	0.188	Yes
RC	0.070	0.002	−0.173	0.188	Yes
RS	−0.016	0.001	−0.190	0.188	Yes
TD	−0.043	0.003	−0.206	0.207	Yes

Table 8
Variance Inflation Factor (VIF) results.

Complete dataset (n = 614)					
Construct	EEP	EOP	GEB	GOC	GLB
EC			1.163	1.132	
GEB		1.000			
GHRM	1.000		3.338	2.962	
GOC			2.224		
GLB			3.045	2.817	
Public dataset (n = 319)					
Construct	EEP	EOP	GEB	GOC	GLB
EC			1.262	1.246	
GEB		1.000			
GHRM	1.000		3.061	2.771	
GOC			1.976		
GLB			2.652	2.447	
Private dataset (n = 295)					
Construct	EEP	EOP	GEB	GOC	GLB
EC			1.126	1.063	
GEB		1.000			
GHRM	1.000		3.983	3.406	
GOC			2.639		
GLB			3.644	3.410	

On the other hand, this study supports the premises of the social identity theory (SIT) that assumes that organisations influence the thoughts and ideas of their employees (Ashforth and mael, 1989). The findings of the study confirm the strong connection between the green organizational policies and practices and the commitment of their employees towards green behaviour (Ashforth and mael, 1989; Peterson, 2004). This relationship starts with the development of organizational policies and practices, which motivate employees to be fully engaged in environmentally friendly behaviour, which in return, enhances the overall organizational environmental performance. If the organization developed environmentally friendly policies, adopt GHRM, green leadership behaviour, this could help in establishing a green organizational culture that promotes pro environmental behaviour on the individual level and enhance the cleaner production of goods and services on the long run.

Importantly, to explain the employees' green behavior and the organizational environmental performance, this study integrates the effect of green organizational culture as a mediating variable between GHRM, green leadership behaviour environment concern and employees' green behaviour. The findings supported the joint effect of environment concern, GHRM and green leadership on the creation of green organizational culture which, in turn, strongly contributes to the development of green behaviour (Lu et al., 2020). These findings are in support of many previous study that confirmed the important role of green organizational culture on individual green behavior and overall

Table 9
Assessment of structural model using bootstrapping and blindfolding procedures.

Data Set	Hyp	Direct Path	Std Beta	t value	p value	Confidence Interval		Decision
			β			LB	UB	
Complete Data (n = 614)	H1	Environmental Concern–> Green Organizational Culture	0.118**	3.055	0.003	0.041	0.195	Supported
	H2	Environmental Concern–> Green Employees Behavior	0.315***	7.108	0.000	0.231	0.405	Supported
	H3	Green Employees Behavior–> Environmental Organizational Performance	0.479***	13.419	0.000	0.877	0.915	Supported
	H4	GHRM–> Green Organizational Culture	0.410***	6.011	0.000	0.273	0.545	Supported
	H5	GHRM–> Green Employees Behavior	0.11	1.402	0.161	−0.047	0.266	Not Supported
	H6	Green Organizational Culture–> Green Employees Behavior	0.319***	4.946	0.000	0.192	0.445	Supported
	H7	Green Leadership Behavior–> Green Organizational Culture	0.321***	4.801	0.000	0.187	0.453	Supported
	H8	Green Leadership Behavior–> Green Employees Behavior	−0.006	0.092	0.926	−0.144	0.127	Not Supported
Public Sector employees (n = 319)	H1	Environmental Concern–> Green Organizational Culture	0.09	1.544	0.123	−0.025	0.205	Not Supported
	H2	Environmental Concern–> Green Employees Behavior	0.294***	4.701	0.000	0.181	0.422	Supported
	H3	Green Employees Behavior–> Environmental Organizational Performance	0.480***	9.232	0.000	0.879	0.925	Supported
	H4	GHRM–> Green Organizational Culture	0.382***	3.782	0.000	0.185	0.578	Supported
	H5	GHRM–> Green Employees Behavior	0.151	1.455	0.146	−0.056	0.35	Not Supported
	H6	Green Organizational Culture–> Green Employees Behavior	0.307**	3.383	0.001	0.121	0.469	Supported
	H7	Green Leadership Behavior–> Green Organizational Culture	0.322**	3.221	0.001	0.12	0.507	Supported
	H8	Green Leadership Behavior–> Green Employees Behavior	−0.023	0.238	0.812	−0.205	0.168	Not Supported
Private Sector employees (n = 295)	H1	Environmental Concern–> Green Organizational Culture	0.156**	2.985	0.003	0.054	0.259	Supported
	H2	Environmental Concern–> Green Employees Behavior	0.340***	5.551	0.000	0.227	0.466	Supported
	H3	Green Employees Behavior–> Environmental Organizational Performance	0.484***	10.288	0.000	0.859	0.921	Supported
	H4	GHRM–> Green Organizational Culture	0.466***	6.548	0.000	0.324	0.605	Supported
	H5	GHRM–> Green Employees Behavior	0.069	0.606	0.545	−0.158	0.281	Not Supported
	H6	Green Organizational Culture–> Green Employees Behavior	0.336***	3.684	0.000	0.17	0.528	Supported
	H7	Green Leadership Behavior–> Green Organizational Culture	0.299***	4.491	0.000	0.164	0.429	Supported
	H8	Green Leadership Behavior–> Green Employees Behavior	0.009	0.088	0.930	−0.198	0.200	Not Supported

***:p < .001; **:p < .01; *:p < .05.

Table 10
Indirect relationships analysis.

Data set	Hyp	Direct relationship	Indirect path			Direct path			Decision
			a*b	t value	p value	c	t value	p value	
Complete Data (614)	H9	GHRM ->GOC–> GEB	0.131***	3.782	0.000	0.11	1.402	0.161	Full Mediation
	H10	EC -> GOC–>GEB	0.038**	3.032	0.002	0.315***	7.098	0.000	Partial Mediation
	H11	GTL ->GOC–> GEB	0.102**	3.236	0.001	−0.006	0.092	0.926	Full Mediation
Public Sector employees(n = 319)	H9	GHRM ->GOC–> GEB	0.072	1.436	0.151	0.151	1.455	0.146	No mediation
	H10	EC -> GOC–>GEB	0.027	1.521	0.128	0.294***	4.701	0.000	Direct effect
	H11	GTL ->GOC–> GEB	0.099*	2.255	0.024	−0.023	0.238	0.812	Full Mediation
Private Sector employees(n = 295)	H9	GHRM ->GOC–> GEB	0.117*	2.517	0.012	0.069	0.606	0.545	Full Mediation
	H10	EC -> GOC–>GEB	0.052**	2.683	0.007	0.340***	5.551	0.000	Partial Mediation
	H11	GTL ->GOC–> GEB	0.100**	2.722	0.007	0.009	0.088	0.93	Full Mediation

environmental organizational performance (Amrutha and geetha (2021); Chen et al. (2020); Piwowar-Sulej (2020); Wang et al. (2020); Zhang et al. (2020). These findings suggest that for organisations to develop green behaviour among their employees and enhance their environmental performance, all their policies and practices should be effective in creating green organizational culture (Muisyo and qin (2021). All the organizational values, norms and daily activities should be aligned with the environment management system (EMS) and should support the overall green organizational direction.

In conclusion, this study contributes to the literature by explaining the determinants of employees' green behaviour and organisational environmental performance in both public and private sectors in the context of a developing country. The main findings confirmed that the environmental concern, GHRM and green leadership are crucial variables in developing a GOC that helps to promote the green behaviour of employees towards improving environmental organisational performance.

5.2. Practical implications for cleaner production

This study provides important insights for managers and policy makers. If organisations aim to encourage employees' green behaviour and enhance their environmental performance towards enhancing their cleaner and sustainable production, they need to align all their strategies, policies, and practices towards developing an overall supporting system. It is not enough to be environmentally conscious; all the HRM practices and leadership behaviours and styles should be designed in the same direction. Various factors can help in developing a green

Table 11
Hypotheses testing summary.

Hyp	Direct Path	Complete dataset (n = 614)	Public Sector dataset (n = 319)	Private sector dataset (n = 295)
		Supported	Supported	Supported
H1	Environmental Concern–> Green Organizational Culture	Yes	No	Yes
H2	Environmental Concern–> Green Employees Behavior	Yes	Yes	Yes
H3	Green Employees Behavior–> Environmental Organizational Performance	Yes	Yes	Yes
H4	GHRM–> Green Organizational Culture	Yes	Yes	Yes
H5	GHRM–> Green Employees Behavior	No	No	No
H6	Green Organizational Culture–> Green Employees Behavior	Yes	Yes	Yes
H8	Green Leadership Behavior–> Green Organizational Culture	Yes	Yes	Yes
H7	Green Leadership Behavior–> Green Employees Behavior Indirect path (mediation)	No	No	No
H9	GHRM ->GOC–> GEB	F. M	No	F. M
H10	EC -> GOC–>GEB	P. M	Direct	P. M
H11	GLB ->GOC–> GEB	F. M	F. M	F. M

F. M: Full mediation; P. M: Partial mediation; No: no mediation effect; Direct: just direct effect

organisational culture. For example, the environmental awareness of employees might strengthen their attitudes towards the environment and the usage of the resources. In addition, leadership behaviours can help in directing and coordinating the efforts to develop a vision, mission, values, and objectives directed towards developing a cleaner production system or the so called "green organization". The vision, mission and values, in turn, should be reflected in HRM practices such as recruiting environmentally conscious individuals, providing environment-related training, rewarding the green initiatives of employees and empowering them with all the infrastructure and resources required. This could lead to the development of a GOC that enhances the green behaviour of employees and results in a better environmental management and performance. This eventually will help organisations to establish a robust cleaner production system that efficiently use the resources and care about the environment towards producing high quality products.

In organisations, top management can play a critical role in developing an organisational vision that can be translated into green leadership behaviours and GHRM practices that result in developing a green, which promotes environmentally friendly attitudes in the employees and changes their thinking towards environmental protection(Liu et al., 2020). The findings of the current study confirmed the significant role of organisational leadership in creating the green organisational culture. In the view of that, green organizational culture is deemed as the foundation for any successful implementation of environmental friendly strategies (Amrutha and geetha (2021); Chen et al. (2020); Piwowar-Sulej (2020); Wang et al. (2020); Zhang et al. (2020).

As the role of green organizational culture in improving the green behaviour and the overall organizational performance has been confirmed, organization should invest in developing such culture to ensure appropriate cleaner production system that results in high quality and environmental friendly products. However, many directions are suggested for organisations to develop a green culture characterised by environmental protection. This culture mainly affected by some HRM green practices, such as recruiting staff who are committed to caring for the environment, providing the green training required, and establishing an appropriate appraisal system that rewards environment-related initiatives. Other factors such as the leadership behaviours and strategic goals along with policies and guidelines may be of great value towards developing green oriented organizational culture.

Furthermore, the findings of the study imply that all organisations, whether public or private, need to accept responsibility for protecting the environment, at the same time operating at high levels of effectiveness and efficiency of their production systems. Within a GOC, with a training and reward system, employees can be more innovative, developing many opportunities to reduce the use of resources, achieve high-level goals and increase productivity. This, in turn, could enhance the organisation's overall performance and improve its competitiveness in the market.

In addition to that, the findings of this study suggest that organisations can develop green organisational culture to shape the employees' behaviour if the employees are made aware of the environmental issues and problems and have a high level of environment concern. GHRM practices such as recruitment, training, performance appraisal and reward system along with the leadership behaviour could be very crucial to create green organisational culture and be the basis of an environmental friendly production system.

Lastly, the findings of this study concluded that both public and private organisations can play an important role in protecting the environment if they choose to adopt effective GHRM practices and leadership behaviour to develop a GOC which enhances individual and organisational environmental performance.

Table 13
Predictive quality measures.

Construct	Complete set (n = 614)		Public Sector employees (n = 319)		Private Sector employees (n = 295)	
	CR	CC	CR	CC	CR	CC
	Q^2	Q^2	Q^2	Q^2	Q^2	Q^2
EOP	0.130	0.440	0.120	0.123	0.140	0.155
GEB	0.167	0.317	0.168	0.173	0.163	0.182
GOC	0.357	0.555	0.325	0.333	0.391	0.388

CR: Construct Cross-validated Redundancy; CC: Construct Cross-validated Communality.

Table 12
Model predictive quality.

Construct	Complete Data (n = 614)	Public Sector employees(n = 319)	Private Sector employees(n = 295)	R^2 difference	p value	Decision
	R^2 Adjusted	R^2 Adjusted	R^2 Adjusted			
EOP	0.230	0.230	0.234	−0.004	0.947	No difference
GEB	0.351	0.349	0.362	−0.012	0.860	No difference
GOC	0.550	0.493	0.620	−0.127	0.092	No difference

Table 14
Multi-group comparison test analysis results.

Direct Relationship	Public Employees	Private Employees	Path Coefficients-diff	p-Value	Difference
	β	β			
Environmental Concern–> Green Employees Behavior	0.294***	0.340***	−0.046	0.598	No
Environmental Concern–> Green Organizational Culture	0.090	0.156**	−0.066	0.380	No
Green Employees Behavior–> Environmental Organizational Performance	0.480***	0.484***	−0.004	0.954	No
GHRM–> Green Employees Behavior	0.151	0.069	0.082	0.598	No
GHRM–> Green Organizational Culture	0.382***	0.466***	−0.084	0.507	No
Green Organizational Culture–> Green Employees Behavior	0.307**	0.336***	−0.029	0.830	No
Green Leadership Behavior–> Green Employees Behavior	−0.023	0.009	−0.031	0.811	No
Green Leadership Behavior–> Green Organizational Culture	0.322**	0.299***	0.024	0.847	No
Indirect Relationship	Public Employees a*b	Private Employees a*b	Path Coefficients-diff	p-Value	Decision
GHRM ->GOC–> GEB	0.072	0.117*	−0.039	0.577	No
EC -> GOC–>GEB	0.027	0.052**	−0.025	0.338	No
GLB ->GOC–> GEB	0.099*	0.100**	−0.001	0.962	No

5.3. Limitations and future research

As in other studies, there are limitations to be considered in the light of which our results are analysed, providing opportunities for future research. First, this study uses cross-sectional data collected at a single time point. However, HRM and leadership may require time to reflect on their cultural and behavioural changes. To fully understand the dynamic nature of these relationships, future researchers may adopt a longitudinal methodology to examine in-depth changes in behaviour and performance and establish causal relationships. Second, this study was conducted with public and private sector employees in Qatar. Although Qatar is moving towards implementing green initiatives to better protect the environment, future studies may replicate this study in other countries and regions with specific cultural values and across different sectors of operations.

Furthermore, future studies could consider other variables which are not included here, such as green dynamic capabilities and environmental management systems. This study took a quantitative approach which provides limited information, so future studies might employ a mixed methods approach to gain greater in-depth understanding of the factors influencing green behaviour. Finally, as this study examined the mediating effect only of OC, based on the AMO and SIT theories, future researchers might consider the mediating effect of other variables such as employee attitude (Harvey et al., 2013) or the moderating effect of management support (Ramus, 2002).

5.4. Conclusion

This study aimed to examine the joint role of environmental concern, GHRM and green leadership behaviour on the formation of GOC, which further influences employees' green behaviour and organisational environmental performance. The intervening role of GOC was also examined and confirmed. The findings also confirmed the critical role played by employees' green behaviour towards improving organisational environmental performance. Hence, this study provides significant insights to enhance our understanding of the determinants and outcomes of green organisational values, whether in the public or private sector, in reviewing their policies and strategies to ensure the development of GOC. Again, the study confirmed the role of human resources in both top management and lower-level managerial positions in greening the organisation and enhancing its environmental and, subsequently, its overall organisational performance. Finally, one of the most important findings of this study is that GHRM practices and green leadership behaviour will be unable to produce the desired outcome for employees' green behaviour that results in better environmental organisational performance, unless they facilitate a plan that supports sustainable GOC.

CRediT authorship contribution statement

Abdullah Kaid Al-Swidi: Conceptualization, Formal analysis, Data curation, revising the manuscript critically for important intellectual content, Approval of the version of the manuscript to be published (the names of all authors must be listed). **Hamid Mahmood Gelaidan:** Conceptualization, Funding acquisition, Data curation, Approval of the version of the manuscript to be published (the names of all authors must be listed). **Redhwan Mohammed Saleh:** Conceptualization, Writing – original draft, Approval of the version of the manuscript to be published (the names of all authors must be listed).

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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References

Abrahamse, w., steg, l., vlek, c., rothengatter, t., 2005. A review of intervention studies aimed at household energy conservation. J. Environ. Psychol. 25, 273–291.
Afum, e., agyabeng-mensah, y., owusu, j.A., 2020. Translating environmental management practices into improved environmental performance via green organizational culture: insight from Ghanaian manufacturing SMEs. Journal of Supply Chain Management Systems 9.
Ahmad, h., gelaidan, h.M., 2011. Organisational culture, leadership styles and employee's affective commitment to change: a case of Yemen public sector. J. Organ. Manag. Stud. 1–10, 2011.
Ahmad, S., 2015. Green human resource management: policies and practices. Cogent business & management 2, 1030817.
Ahmed, M., Guo, Q., Qureshi, M.A., Raza, S.A., Khan, K.A., Salam, J., 2021. Do green HR practices enhance green motivation and proactive environmental management maturity in hotel industry? Int. J. Hospit. Manag. 94, 102852.
Al -swidi, a., al yahya, m., 2017. Training transfer intention and training effectiveness. Int. J. Organ. Anal.
Alt, e., spitzeck, h., 2016. Improving environmental performance through unit-level organizational citizenship behaviors for the environment: a capability perspective. J. Environ. Manag. 182, 48–58.
Amrutha, v.N., geetha, s.N., 2021. Linking organizational green training and voluntary workplace green behavior: mediating role of green supporting climate and employees' green satisfaction. J. Clean. Prod. 290, 125876.

Anderson, l.M., bateman, t.S., 2000. Individual environmental initiative: championing natural environmental issues in US business organizations. Acad. Manag. J. 43, 548–570.
Andrews, r.N., johnson, e., 2016. Energy use, behavioral change, and business organizations: reviewing recent findings and proposing a future research agenda. Energy Research & Social Science 11, 195–208.
Anwar, n., mahmood, n.H.N., yusliza, m.Y., ramayah, t., faezah, j.N., khalid, w., 2020. Green Human Resource Management for organisational citizenship behaviour towards the environment and environmental performance on a university campus. J. Clean. Prod. 256, 120401.
Appelbaum, e., bailey, t., berg, p., kalleberg, a.L., bailey, t.A., 2000. Manufacturing Advantage: Why High-Performance Work Systems Pay off. Cornell University Press.
Ashforth, b.E., mael, f., 1989. Social identity theory and the organization. Acad. Manag. Rev. 14, 20–39.
Auranzeb, n., bhutto, a., 2016. Influence of talent management in enhancing organization performance: evidence from service sector companies in Pakistan. Ind. Eng. Lett. 6 (6), *50*–55.
Axelrod, l.J., lehman, d.R., 1993. Responding to environmental concerns: what factors guide individual action? J. Environ. Psychol. 13, 149–159.
Azzone, g., noci, g., 1998. Identifying effective PMSs for the deployment of "green" manufacturing strategies. Int. J. Oper. Prod. Manag.
Babin, b.J., griffin, m., hair jr., j.F., 2016. Heresies and Sacred Cows in Scholarly Marketing Publications. Elsevier.
Balfour, d.L., wechsler, b., 1996. Organizational commitment: antecedents and outcomes in public organizations. Publ. Prod. Manag. Rev. 256–277.
Bamberg, s., möser, g., 2007. Twenty years after Hines, Hungerford, and Tomera: a new meta-analysis of psycho-social determinants of pro-environmental behaviour. J. Environ. Psychol. 27, 14–25.
Barber, n., taylor, d.C., deale, c.S., 2010. Wine tourism, environmental concerns, and purchase intention. J. Trav. Tourism Market. 27, 146–165.
Becker, b., gerhart, b., 1996. The impact of human resource management on organizational performance: progress and prospects. Acad. Manag. J. 39, 779–801.
Bissing-olson, m.J., iyer, a., fielding, k.S., zacher, h., 2013. Relationships between daily affect and pro-environmental behavior at work: the moderating role of pro-environmental attitude. J. Organ. Behav. 34, 156–175.
Bohlmann, c., van den bosch, j., zacher, h., 2018. The relative importance of employee green behavior for overall job performance ratings: a policy-capturing study. Corp. Soc. Responsib. Environ. Manag. 25, 1002–1008.
Boselie, p., dietz, g., boon, c., 2005. Commonalities and contradictions in HRM and performance research. Hum. Resour. Manag. J. 15, 67–94.
Boxall, p., guthrie, j.P., paauwe, j., 2016. Editorial introduction: progressing our understanding of the mediating variables linking HRM, employee well-being and organisational performance. Hum. Resour. Manag. J. 26, 103–111.
Brammer, s., hoejmose, s., marchant, k., 2012. Environmental management in SME s in the UK: practices, pressures and perceived benefits. Bus. Strat. Environ. 21, 423–434.
Brammer, s., millington, a., rayton, b., 2007. The contribution of corporate social responsibility to organizational commitment. Int. J. Hum. Resour. Manag. 18, 1701–1719.
Bratton, j., gold, j., 2017. Human Resource Management: Theory and Practice. Palgrave.
Busse, m., menzel, s., 2014. The role of perceived socio-spatial distance in adolescents' willingness to engage in pro-environmental behavior. J. Environ. Psychol. 40, 412–420.
Byrne, b.M., 2013. Structural Equation Modeling with Mplus: Basic Concepts, Applications, and Programming. routledge.
Cadden, t., marshall, d., cao, g., 2013. Opposites attract: organisational culture and supply chain performance. Supply Chain Manag.: Int. J.
Chams, n., garcía-blandón, j., 2019. On the importance of sustainable human resource management for the adoption of sustainable development goals. Resour. Conserv. Recycl. 141, 109–122.
Chan, e.S.W., hon, a.H.Y., okumus, f., chan, w., 2017. An empirical study of environmental practices and employee ecological behavior in the hotel industry. J. Hospit. Tourism Res. 41, 585–608.
Chan, w.W., ho, k., 2006. Hotels' environmental management systems (ISO 14001): creative financing strategy. Int. J. Contemp. Hospit. Manag.
Chaudhary, R., 2020. Green human resource management and employee green behavior: an empirical analysis. Corp. Soc. Responsib. Environ. Manag. 27, 630–641.
Cheema, s., javed, f., 2017. The effects of corporate social responsibility toward green human resource management: the mediating role of sustainable environment. Cogent Business & Management 4, 1310012.
Chen, y.-s., chang, c.-h., 2013. The determinants of green product development performance: green dynamic capabilities, green transformational leadership, and green creativity. J. Bus. Ethics 116, 107–119.
Chen, y.-s., chang, c.-h., lin, y.-h., 2014. Green Transformational leadership and green performance: the mediation effects of green mindfulness and green self-efficacy. Sustainability 6, 6604–6621.
Chen, y.-s., lin, s.-h., lin, c.-y., hung, s.-t., chang, c.-w., huang, c.-w., 2020. Improving green product development performance from green vision and organizational culture perspectives. Corp. Soc. Responsib. Environ. Manag. 27, 222–231.
Chen, Y.S., 2011. Green Organizational Identity: Sources and Consequence. Management decision.
Craney, t.A., surles, j.G., 2002. Model-dependent variance inflation factor cutoff values. Qual. Eng. 14, 391–403.
Daft, r.L., 2014. The Leadership Experience. Cengage Learning.
Daily, b.F., huang, s.C., 2001. Achieving sustainability through attention to human resource factors in environmental management. Int. J. Oper. Prod. Manag.
Davies, f.M., gould-williams, j.S., 2005. Using social exchange theory to predict the effects of HRM practice on employee outcomes. Publ. Manag. Rev. 7, 1–24.
De leeuw, a., valois, p., ajzen, i., schmidt, p., 2015. Using the theory of planned behavior to identify key beliefs underlying pro-environmental behavior in high-school students: implications for educational interventions. J. Environ. Psychol. 42, 128–138.
Diamantopoulos, a., siguaw, j.A., 2006. Formative versus reflective indicators in organizational measure development: a comparison and empirical illustration. Br. J. Manag. 17, 263–282.
Dief, m.E., font, x., 2010. The determinants of hotels' marketing managers' green marketing behaviour. J. Sustain. Tourism 18, 157–174.
Dilchert, s., ones, d.S., 2012. Environmental sustainability in and of organizations. Industrial and organizational psychology 5, 503–511.
Dixon, g.N., deline, m.B., mccomas, k., chambliss, l., hoffmann, m., 2015. Saving energy at the workplace: the salience of behavioral antecedents and sense of community. Energy Research & Social Science 6, 121–127.
Dumont, j., shen, j., deng, x., 2017. Effects of green HRM practices on employee workplace green behavior: the role of psychological green climate and employee green values. Hum. Resour. Manag. 56, 613–627.
Ehrhart, m.G., schneider, b., macey, w.H., 2013. Organizational Climate and Culture: an Introduction to Theory, Research, and Practice. Routledge.
Elkins, t., keller, r.T., 2003. Leadership in research and development organizations: a literature review and conceptual framework. Leader. Q. 14, 587–606.
Elkordy, M., 2013. Transformational leadership and organizational culture as predictors of employees attitudinal outcomes. Bus. Manag. Dynam. 3, 15.
Enz, c.A., siguaw, j.A., 1999. Best hotel environmental practices. Cornell Hotel Restaur. Adm. Q. 40, 72–77.
Fernández, e., junquera, b., ordiz, m., 2003. Organizational culture and human resources in the environmental issue: a review of the literature. Int. J. Hum. Resour. Manag. 14, 634–656.
Flammer, C., 2013. Corporate social responsibility and shareholder reaction: the environmental awareness of investors. Acad. Manag. J. 56, 758–781.
Fornell, c., cha, j., 1994. In: Bagozzi, R.P. (Ed.), Advanced Methods of Marketing Research. Blackwell, Cambridge.
Fuller, c.M., simmering, m.J., atinc, g., atinc, y., babin, b.J., 2016. Common methods variance detection in business research. J. Bus. Res. 69, 3192–3198.
Gamba, r.J., oskamp, s., 1994. Factors influencing community residents' participation in commingled curbside recycling programs. Environ. Behav. 26, 587–612.
Geisser, S., 1975. The predictive sample reuse method with applications. J. Am. Stat. Assoc. 70, 320–328.
Gelaidan, H.M., Ahmad, H., 2013. The factors effecting employee commitment to change in public sector: evidence from Yemen. Int. Bus. Res. 6, 75–87.
Govindarajulu, n., daily, b.F., 2004. Motivating Employees for Environmental Improvement. Industrial management & data systems.
Gupta, s., kumar, v., 2013. Sustainability as corporate culture of a brand for superior performance. J. World Bus. 48, 311–320.
Gürlek, m., tuna, m., 2018. Reinforcing competitive advantage through green organizational culture and green innovation. Serv. Ind. J. 38, 467–491.
Hair, j.F., hult, g.T.M., ringle, c.M., sarstedt, m., thiele, k.O., 2017a. Mirror, mirror on the wall: a comparative evaluation of composite-based structural equation modeling methods. J. Acad. Market. Sci. 45, 616–632.
Hair, j.F., sarstedt, m., ringle, c.M., mena, j.A., 2012. An assessment of the use of partial least squares structural equation modeling in marketing research. J. Acad. Market. Sci. 40, 414–433.
Hair jr., j.F., sarstedt, m., hopkins, l., kuppelwieser, v.G., 2014. Partial Least Squares Structural Equation Modeling (PLS-SEM). *European Business Review*.
Hair jr., j.F., sarstedt, m., ringle, c.M., gudergan, s.P., 2017b. Advanced Issues in Partial Least Squares Structural Equation Modeling. Sage Publications.
Harris, l.C., crane, a., 2002. The greening of organizational culture. J. Organ. Change Manag.
Harvey, g., williams, k., probert, j., 2013. Greening the airline pilot: HRM and the green performance of airlines in the UK. Int. J. Hum. Resour. Manag. 24, 152–166.
Henseler, J., 2017. Bridging design and behavioral research with variance-based structural equation modeling. J. Advert. 46, 178–192.
Henseler, j., ringle, c.M., sarstedt, m., 2015. A new criterion for assessing discriminant validity in variance-based structural equation modeling. J. Acad. Market. Sci. 43, 115–135.
Henseler, j., ringle, c.M., sarstedt, m., 2016. Testing measurement invariance of composites using partial least squares. Int. Market. Rev. 33, 405–431.
Henseler, j., sarstedt, m., 2013. Goodness-of-fit indices for partial least squares path modeling. Comput. Stat. 28, 565–580.
Hilman, h., ali, g.A., gorondutse, a.H., 2019. The relationship between TQM and SMEs' performance. Int. J. Prod. Perform. Manag.
Hines, j., hungerford, h., tomera, a., 1986. Analysis and synthesis of research on environmentally responsible behavior. J. Environ. Educ. 18, 1–8.
Howard-grenville, j., bertels, s., 2012. Organizational Culture and Environmental Action. The Oxford handbook of business and the natural environment.
Hu, l.T., bentler, p.M., 1999. Cutoff criteria for fit indexes in covariance structure analysis: conventional criteria versus new alternatives. Struct. Equ. Model.: a multidisciplinary journal 6, 1–55.
Hult, g.T.M., ketchen, d.J., griffith, d.A., finnegan, c.A., gonzalez-padron, t., harmancioglu, n., huang, y., talay, m.B., cavusgil, s.T., 2008. Data equivalence in cross-cultural international business research: assessment and guidelines. J. Int. Bus. Stud. 39, 1027–1044.
Jabbour, c.J.C., 2011. How Green Are HRM Practices, Organizational Culture, Learning and Teamwork? A Brazilian Study. *Industrial and Commercial Training*.

Jabbour, c.J.C., de sousa jabbour, a.B.L., 2016. Green human resource management and green supply chain management: linking two emerging agendas. J. Clean. Prod. 112, 1824–1833.
Jiang, j., wang, s., zhao, s., 2012. Does HRM facilitate employee creativity and organizational innovation? A study of Chinese firms. Int. J. Hum. Resour. Manag. 23, 4025–4047.
Jones, p., hillier, d., comfort, d., 2014. Sustainability in the global hotel industry. Int. J. Contemp. Hospit. Manag.
Jung, d.I., chow, c., wu, a., 2003. The role of transformational leadership in enhancing organizational innovation: hypotheses and some preliminary findings. Leader. Q. 14, 525–544.
Kasim, A., 2009. Managerial attitudes towards environmental management among small and medium hotels in Kuala Lumpur. J. Sustain. Tourism 17, 709–725.
Kassinis, g.I., soteriou, a.C., 2003. Greening the service profit chain: the impact of environmental management practices. Prod. Oper. Manag. 12, 386–403.
Kellstedt, p.M., zahran, s., vedlitz, a., 2008. Personal efficacy, the information environment, and attitudes toward global warming and climate change in the United States. *Risk Analysis*. Int. J. 28, 113–126.
Kim, y.J., kim, w.G., choi, h.-m., phetvaroon, k., 2019. The effect of green human resource management on hotel employees' eco-friendly behavior and environmental performance. Int. J. Hospit. Manag. 76, 83–93.
Kirk, D., 1995. Environmental management in hotels. Int. J. Contemp. Hospit. Manag.
Kline, r.B., 2011. Convergence of Structural Equation Modeling and Multilevel Modeling na.
Kock, n., lynn, g., 2012. Lateral collinearity and misleading results in variance-based SEM: an illustration and recommendations. J. Assoc. Inf. Syst. Online 13.
Kollmuss, a., agyeman, j., 2002. Mind the gap: why do people act environmentally and what are the barriers to pro-environmental behavior? Environ. Educ. Res. 8, 239–260.
Kuo, y. K., 2013. Organizational Commitment in an Intense Competition Environment. Industrial Management & Data Systems.
Lansana, f.M., 1992. Distinguishing potential recyclers from nonrecyclers: a basis for developing recycling strategies. J. Environ. Educ. 23, 16–23.
Lavelle, m.J., rau, h., fahy, f., 2015. Different shades of green? Unpacking habitual and occasional pro-environmental behavior. Global Environ. Change 35, 368–378.
Lehman, p.K., geller, e.S., 2004. Behavior analysis and environmental protection: accomplishments and potential for more. Behav. Soc. Issues 13, 13–33.
Levy, b.L., marans, r.W., 2012. Towards a campus culture of environmental sustainability. Int. J. Sustain. High Educ.
Liu, j., liu, y., yang, l., 2020. Uncovering the influence mechanism between top management support and green procurement: the effect of green training. J. Clean. Prod. 251, 119674.
López-gamero, m.D., molina-azorín, j.F., claver-cortés, e., 2009. The whole relationship between environmental variables and firm performance: competitive advantage and firm resources as mediator variables. J. Environ. Manag. 90, 3110–3121.
López-mosquera, n., lera-lópez, f., sánchez, m., 2015. Key factors to explain recycling, car use and environmentally responsible purchase behaviors: a comparative perspective. Resour. Conserv. Recycl. 99, 29–39.
Lu, h., liu, x., chen, h., long, r., yue, t., 2017a. Who contributed to "corporation green" in China? A view of public- and private-sphere pro-environmental behavior among employees. Resour. Conserv. Recycl. 120, 166–175.
Lu, h., liu, x., chen, h., long, r., yue, t., 2017b. Who contributed to "corporation green" in China? A view of public-and private-sphere pro-environmental behavior among employees. Resour. Conserv. Recycl. 120, 166–175.
Lu, h., zou, j., chen, h., long, r., 2020. Promotion or inhibition? Moral norms, anticipated emotion and employee's pro-environmental behavior. J. Clean. Prod. 258, 120858.
Lülfs, r., hahn, r., 2013. Corporate greening beyond formal programs, initiatives, and systems: a conceptual model for voluntary pro-environmental behavior of employees. Eur. Manag. Rev. 10, 83–98.
Luo, y., deng, j., 2008. The New Environmental Paradigm and nature-based tourism motivation. J. Trav. Res. 46, 392–402.
Luu, t.T., 2018. Employees' green recovery performance: the roles of green HR practices and serving culture. J. Sustain. Tourism 26, 1308–1324.
Mandip, G., 2012. Green HRM: people management commitment to environmental sustainability. Research Journal of Recent Sciences, ISSN 2277, 2502.
Margaretha, m., saragih, s.R., 2012. Developing New Corporate Culture through Green Human Resource Practice.
Marin-garcia, j.A., tomas, j.M., 2016. Deconstructing AMO framework: a systematic review. Intang. Cap. 12, 1040–1087.
Masri, h.A., jaaron, a.A., 2017. Assessing green human resources management practices in Palestinian manufacturing context: an empirical study. J. Clean. Prod. 143, 474–489.
Matinaro, v., liu, y., 2017. Towards increased innovativeness and sustainability through organizational culture: a case study of a Finnish construction business. J. Clean. Prod. 142, 3184–3193.
Melnyk, s.A., sroufe, r.P., calantone, r., 2003. Assessing the impact of environmental management systems on corporate and environmental performance. J. Oper. Manag. 21, 329–351.
Mensah, I., 2006. Environmental management practices among hotels in the greater Accra region. Int. J. Hospit. Manag. 25, 414–431.
Milliman, j., clair, j., 1996. Best environmental HRM practices in the US. In: Wehrmeyer, W. (Ed.), Greening People: Human Resource and Environmental Management. Greenleaf Publishing, Sheffield, UK, pp. 49–74.
Mishra, r., sarkar, s., kiranmai, j., 2014. Green HRM: innovative approach in Indian public enterprises. World Rev. Sci. Technol. Sustain. Dev. 11, 26–42.
Mittal, s., dhar, r.L., 2016. Effect of green transformational leadership on green creativity: a study of tourist hotels. Tourism Manag. 57, 118–127.
Mousa, s.K., othman, m., 2020. The impact of green human resource management practices on sustainable performance in healthcare organisations: a conceptual framework. J. Clean. Prod. 243, 118595.
Muisyo, p.K., qin, s., 2021. Enhancing the FIRM'S green performance through green HRM: the moderating role of green innovation culture. J. Clean. Prod. 289, 125720.
Naffziger, d.W., ahmed, n.U., montagno, r.V., 2003. Perceptions of environmental consciousness in US small businesses: an empirical study. SAM Adv. Manag. J. 68, 23.
Newton, t., harte, g., 1997. Green business: technicist kitsch? J. Manag. Stud. 34, 75–98.
Norton, t.A., zacher, h., ashkanasy, n.M., 2015. Pro-environmental Organizational Culture and Climate.
Norton, t.A., zacher, h., parker, s.L., ashkanasy, n.M., 2017. Bridging the gap between green behavioral intentions and employee green behavior: the role of green psychological climate. J. Organ. Behav. 38, 996–1015.
Nunnally, j.C., bernstein, i., 1994. Validity. Psychometric theory 3, 99–132.
O'reilly, c.A., chatman, j., 1986. Organizational commitment and psychological attachment: the effects of compliance, identification, and internalization on prosocial behavior. J. Appl. Psychol. 71, 492.
Ones, d.S., dilchert, s., 2012a. Employee Green Behaviors.
Ones, d.S., dilchert, s., 2012b. Environmental sustainability at work: a call to action. Industrial and Organizational Psychology 5, 444–466.
Oskamp, s., harrington, m.J., edwards, t.C., sherwood, d.L., okuda, s.M., swanson, d.C., 1991. Factors influencing household recycling behavior. Environ. Behav. 23, 494–519.
Paillé, p., boiral, o., 2013. Pro-environmental behavior at work: construct validity and determinants. J. Environ. Psychol. 36, 118–128.
Paillé, p., boiral, o., chen, y., 2013. Linking environmental management practices and organizational citizenship behaviour for the environment: a social exchange perspective. Int. J. Hum. Resour. Manag. 24, 3552–3575.
Paillé, p., chen, y., boiral, o., jin, j., 2014. The impact of human resource management on environmental performance: an employee-level study. J. Bus. Ethics 121, 451–466.
Paillé, p., mejía-morelos, j.H., 2014. Antecedents of pro-environmental behaviours at work: the moderating influence of psychological contract breach. J. Environ. Psychol. 38, 124–131.
Paillé, p., raineri, n., 2015. Linking perceived corporate environmental policies and employees eco-initiatives: the influence of perceived organizational support and psychological contract breach. J. Bus. Res. 68, 2404–2411.
Paillé, p., valéau, p., Renwick, D.W., 2020. Leveraging green human resource practices to achieve environmental sustainability. J. Clean. Prod. 260, 121137.
Parr, A., 2012. Hijacking Sustainability. Mit Press.
Peterson, s.L., 2004. Toward a theoretical model of employee turnover: a human resource development perspective. Hum. Resour. Dev. Rev. 3, 209–227.
Pham, n.T., tučková, z., jabbour, c.J.C., 2019. Greening the hospitality industry: how do green human resource management practices influence organizational citizenship behavior in hotels? A mixed-methods study. Tourism Manag. 72, 386–399.
Pierce, j.C., dalton, r.J., zaitsev, a., 1999. Public Perceptions of Environmental Conditions. Critical Masses: Citizens, Nuclear Weapons Production, and Environmental Destruction in the United States and Russia, pp. 97–129.
Piwowar-Sulej, K., 2020. Pro-environmental organizational culture: its essence and a concept for its operationalization. Sustainability 12, 4197.
Podsakoff, p.M., mackenzie, s.B., 1997. Impact of organizational citizenship behavior on organizational performance: a review and suggestion for future research. Hum. Perform. 10, 133–151.
Podsakoff, p.M., mackenzie, s.B., lee, j.-y., podsakoff, n.P., 2003. Common method biases in behavioral research: a critical review of the literature and recommended remedies. J. Appl. Psychol. 88, 879.
Pooley, j.A., o'connor, m., 2000. Environmental education and attitudes: emotions and beliefs are what is needed. Environ. Behav. 32, 711–723.
Rad, a.M.M., 2006. The Impact of Organizational Culture on the Successful Implementation of Total Quality Management. the TQM Magazine.
Ramus, c. A., 2001. Organizational support for employees: encouraging creative ideas for environmental sustainability. Calif. Manag. Rev. 43, 85–105.
Ramus, c. A., 2002. Encouraging innovative environmental actions: what companies and managers must do. J. World Bus. 37, 151–164.
Ramus, c.A., steger, u., 2000. The roles of supervisory support behaviors and environmental policy in employee "ecoinitiatives" at leading-edge European companies. Acad. Manag. J. 43, 605–626.
Ravasi, d., schultz, m., 2006. Responding to organizational identity threats: exploring the role of organizational culture. Acad. Manag. J. 49, 433–458.
Rehman, s.U., kraus, s., shah, s.A., khanin, d., mahto, r.V., 2021. Analyzing the relationship between green innovation and environmental performance in large manufacturing firms. Technol. Forecast. Soc. Change 163, 120481.
Renwick, d.W., jabbour, c.J., muller-camen, m., redman, t., wilkinson, a., 2016. Contemporary Developments in Green (Environmental) HRM Scholarship. Taylor & Francis.
Renwick, d.W., redman, t., maguire, s., 2013. Green human resource management: a review and research agenda. Int. J. Manag. Rev. 15, 1–14.
Rigdon, e.E., 2016. Choosing PLS path modeling as analytical method in European management research: a realist perspective. Eur. Manag. J. 34, 598–605.
Ringle, c.M., wende, s., becker, j.-m., 2015. SmartPLS 3. *Boenningstedt*. SmartPLS GmbH.
Robertson, j.L., barling, j., 2013. Greening organizations through leaders' influence on employees' pro-environmental behaviors. J. Organ. Behav. 34, 176–194.
Robertson, j.L., barling, j., 2015. The Psychology of Green Organizations. Oxford University Press, USA.

Rodríguez, f.J.G., cruz, y.D.M. A., 2007. Relation between social-environmental responsibility and performance in hotel firms. Int. J. Hospit. Manag. 26, 824–839.
Roscoe, s., subramanian, n., jabbour, c.J., chong, t., 2019. Green human resource management and the enablers of green organisational culture: enhancing a firm's environmental performance for sustainable development. Bus. Strat. Environ. 28, 737–749.
Rothenberg, s., 2003. Knowledge content and worker participation in environmental management at NUMMI. J. Manag. Stud. 40, 1783–1802.
Roy, m.J., boiral, o., paillé, p., 2013. Pursuing quality and environmental performance. Bus. Process Manag. J.
Saleh, r.M., al-swidi, a., 2019. The adoption of green building practices in construction projects in Qatar: a preliminary study. Manag. Environ. Qual. Int. J.
Sarros, j.C., cooper, b.K., santora, j.C., 2008. Building a climate for innovation through transformational leadership and organizational culture. J. Leader. Organ Stud. 15, 145–158.
Sarstedt, m., hair, j.F., ringle, c.M., thiele, k.O., gudergan, s.P., 2016. Estimation issues with PLS and CBSEM: where the bias lies! J. Bus. Res. 69, 3998–4010.
Sarstedt, m., henseler, j., ringle, c.M., 2011. Multigroup Analysis in partial least squares (PLS) path modeling: alternative methods and empirical results. Adv. Int. Market. 22, 195–218.
Schaper, M., 2002. Small firms and environmental management: predictors of green purchasing in Western Australian pharmacies. Int. Small Bus. J. 20, 235–251.
Schein, e.H., 2010. Organizational Culture and Leadership. John Wiley & Sons.
Schultz, p.W., shriver, c., tabanico, j.J., khazian, a.M., 2004. Implicit connections with nature. J. Environ. Psychol. 24, 31–42.
Shahzad, F., 2014. Impact of organizational culture on employees' job performance. Int. J. Commer. Manag.
Shahzad, f., xiu, g., shahbaz, m., 2017. Organizational culture and innovation performance in Pakistan's software industry. Technol. Soc. 51, 66–73.
Sia, a.P., hungerford, h.R., tomera, a.N., 1986. Selected predictors of responsible environmental behavior: an analysis. J. Environ. Educ. 17, 31–40.
Singh, s.K., del giudice, m., chierici, r., graziano, d., 2020a. Green innovation and environmental performance: the role of green transformational leadership and green human resource management. Technol. Forecast. Soc. Change 150, 119762.
Singh, s.K., giudice, m.D., chierici, r., graziano, d., 2020b. Green innovation and environmental performance: the role of green transformational leadership and green human resource management. Technol. Forecast. Soc. Change 150, 119762.
Siyambalapitiya, j., zhang, x., liu, x., 2018. Green human resource management: a proposed model in the context of Sri Lanka's tourism industry. J. Clean. Prod. 201, 542–555.
Smith-sebasto, n., fortner, r.W., 1994. The environmental action internal control index. J. Environ. Educ. 25, 23–29.
Smith-sebasto, n.J., d'costa, a., 1995. Designing a Likert-type scale to predict environmentally responsible behavior in undergraduate students: a multistep process. J. Environ. Educ. 27, 14–20.
Steg, l., bolderdijk, j.W., keizer, k., perlaviciute, g., 2014. An integrated framework for encouraging pro-environmental behaviour: the role of values, situational factors and goals. J. Environ. Psychol. 38, 104–115.
Steg, l., perlaviciute, g., van der werff, e., 2015. Understanding the human dimensions of a sustainable energy transition. Front. Psychol. 6, 805.
Steg, l., vlek, c., 2009. Encouraging pro-environmental behaviour: an integrative review and research agenda. J. Environ. Psychol. 29, 309–317.
Stern, p.C., 2000. New environmental theories: toward a coherent theory of environmentally significant behavior. J. Soc. Issues 56, 407–424.
Stern, p.C., dietz, t., kalof, l., 1993. Value orientations, gender, and environmental concern. Environ. Behav. 25, 322–348.
Stone, M., 1974. Cross-validatory choice and assessment of statistical predictions. J. Roy. Stat. Soc. B 36, 111–133.
Su, l., swanson, s.R., 2019. Perceived corporate social responsibility's impact on the well-being and supportive green behaviors of hotel employees: the mediating role of the employee-corporate relationship. Tourism Manag. 72, 437–450.
Tebini, h., m'zali, b., lang, p., perez-gladish, b., 2016. The economic impact of environmentally responsible practices. Corp. Soc. Responsib. Environ. Manag. 23, 333–344.
Ting, h., fam, k.-s., hwa, j.C.J., richard, j.E., xing, n., 2019. Ethnic food consumption intention at the touring destination: the national and regional perspectives using multi-group analysis. Tourism Manag. 71, 518–529.
Tsaur, s.-h., lin, y.-c., 2004. Promoting service quality in tourist hotels: the role of HRM practices and service behavior. Tourism Manag. 25, 471–481.
Turker, D., 2009. How corporate social responsibility influences organizational commitment. J. Bus. Ethics 89, 189.
Úbeda-garcía, m., claver-cortés, e., marco-lajara, b., zaragoza-sáez, p., 2021. Corporate social responsibility and firm performance in the hotel industry. The mediating role of green human resource management and environmental outcomes. J. Bus. Res. 123, 57–69.
Unsworth, k.L., dmitrieva, a., adriasola, e., 2013. Changing behaviour: increasing the effectiveness of workplace interventions in creating pro-environmental behaviour change. J. Organ. Behav. 34, 211–229.
Van knippenberg, d., schippers, m.C., 2007. Work group diversity. Annu. Rev. Psychol. 58, 515–541.
Vlek, c., steg, l., 2007. ⊡ human behavior and environmental sustainability: problems, driving forces, and research topics. J. Soc. Issues 63, 1–19.
Walz, s.M., niehoff, b.P., 2000. Organizational citizenship behaviors: their relationship to organizational effectiveness. J. Hospit. Tourism Res. 24, 301–319.
Wang, h., tong, l., takeuchi, r., george, g., 2016a. Corporate Social Responsibility: an Overview and New Research Directions: Thematic Issue on Corporate Social Responsibility. Academy of Management Briarcliff Manor, NY.
Wang, j., xue, y., sun, x., yang, j., 2020. Green learning orientation, green knowledge acquisition and ambidextrous green innovation. J. Clean. Prod. 250, 119475.
Wang, y.-s., li, h.-t., li, c.-r., zhang, d.-z., 2016b. Factors affecting hotels' adoption of mobile reservation systems: a technology-organization-environment framework. Tourism Manag. 53, 163–172.
Wang, z., guo, d., wang, x., 2016c. Determinants of residents'e-waste recycling behaviour intentions: evidence from China. J. Clean. Prod. 137, 850–860.
Williams, r., o'brien, l., eagles, h.A., solah, v.A., jayasena, v., 2008. The influences of genotype, environment, and genotype× environment interaction on wheat quality. Aust. J. Agric. Res. 59, 95–111.
Yu, w., chavez, r., feng, m., wong, c.Y., fynes, b., 2020. Green human resource management and environmental cooperation: an ability-motivation-opportunity and contingency perspective. Int. J. Prod. Econ. 219, 224–235.
Yusliza, m.-y., othman, n.Z., jabbour, c.J.C., 2017. Deciphering the implementation of green human resource management in an emerging economy. J. Manag. Dev.
Zaid, a.A., jaaron, a.A., bon, a.T., 2018. The impact of green human resource management and green supply chain management practices on sustainable performance: an empirical study. J. Clean. Prod. 204, 965–979.
Zhang, y., sun, j., yang, z., wang, y., 2020. Critical success factors of green innovation: technology, organization and environment readiness. J. Clean. Prod. 264, 121701.
Zhang, y., wang, x., zhang, z., lü, s., shao, m., lee, f.S., yu, j., 2013. Species profiles and normalized reactivity of volatile organic compounds from gasoline evaporation in China. Atmos. Environ. 79, 110–118.
Zikmund, w.G., carr, j.C., griffin, m., 2013. Business Research Methods (Book Only). Cengage Learning.

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