

Greening Government: Key Factors Influencing Low-Carbon Behaviour Among Malaysian Public Institution Employees

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Abstract: *Fostering low-carbon behaviour has been widely presented by prominent scholars as an approach to addressing global climate change. This study examines the significant impact of low-carbon behaviour on employees in the workplace, focusing on four key factors that are crucial in mobilising green behaviour within public institutions: green transformational leadership, ethical climate, environmental passion, and green mindfulness. This research aims to evaluate how these factors contribute to fostering a sustainable and environmentally conscious work environment through thematic analysis and semi-structured interviews. The results underscore the significant impact of these antecedents on employees' low-carbon behaviour, thus highlighting the significance of green transformational leadership and an ethical climate in fostering sustainable green culture among employees. In light of these findings, this study recommends that stakeholders, the government, and policymakers implement green practices within the aspects of low-carbon behaviour. This study contributes to the green behaviour literature by addressing the limited research in Eastern contexts.*

Keywords: Green transformational leadership; Environmental passion; Green mindfulness; Ethical climate; Low-carbon behaviour

JEL Classification: D20, D23, Q00

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1. Introduction

Climate change has been a pressing global concern for over five decades, disrupting nations through shifting weather patterns and rising sea levels. The United Nations 2030 Agenda for Sustainable Development Goals (SDGs), launched in 2015, outlines 17 global goals, with Goal 13 highlighting the importance of urgent action against climate change. Environmental sustainability is essential to this goal, requiring technological advancements and behaviour changes.

In alignment with the SDGs, Industry 4.0 promotes sustainability by integrating digital transformation, reducing waste, and conserving energy (Bonilla et al., 2018). Institutions play a central role in these efforts as their activities directly affect environmental conditions (Stead, 1996). Therefore, encouraging behaviour changes is essential to reducing environmental impacts in addition to structural and technological advancements. The Intergovernmental Panel on Climate Change (IPCC) highlights that behaviour and lifestyle choices significantly influence emission levels (Edenhofer et al., 2014).

Malaysia has introduced various environmental policies and frameworks to address climate change. Initiatives such as the Low Carbon Cities Framework and the Green Technology Master Plan aim to reduce emissions and enhance environmental responsibility. Although these efforts emphasise structural and technological strategies, fostering low-carbon behaviour at the employee level is equally crucial to achieving long-term sustainability. Nonetheless, studies exploring low-carbon behaviour within institutional settings remain limited (Kamil et al., 2024).

Low-carbon behaviour involves individual actions intended to reduce environmental impact, such as minimising energy consumption and adopting sustainable practices. Examples include turning off unused devices, operating energy-efficient appliances, and adjusting air conditioners to temperatures below 24°C (Whitmarsh et al., 2011). Therefore, institutions should actively promote low-carbon behaviour among employees to help achieve sustainability goals. Yet, economic demands still propel resource-intensive activities (Saidi & Hammami, 2015), potentially undermining individual environmental efforts.

In response, government and non-governmental organisations (NGOs) have introduced environmental safeguards to enhance overall

environmental performance. However, research on how institutional practices influence employees' low-carbon behaviour remains scarce. Although skilled employees are vital to these outcomes (Markey et al., 2019), their contributions are often overlooked. Prior studies predominantly emphasise institutional strategies over individual behaviour involvement in environmental performance.

Although interest in low-carbon behaviour is increasing, many studies remain regionally focused, offering limited insights into Malaysian public institutions. For instance, Büchs et al. (2018) examined low-carbon behaviour in the United States, while Neo et al. (2017) explored environmental awareness among Malaysians. Similarly, Wang et al. (2019) and Ding et al. (2018) investigated low-carbon tourism and community initiatives in China. Additionally, Kaffashi and Shamsudin (2019) studied the development of a low-carbon society in Malaysia, and Curtin et al. (2017) analysed advancement in low-carbon technologies in the United States. These studies emphasise the need for further research across a range of institutional and cultural contexts, particularly within Malaysian public institutions.

Public institutions—such as ministries, agencies, and statutory bodies—play a vital role in implementing national policies, delivering public services, and advancing sustainability agendas. These institutions are well-positioned to cultivate environmental awareness and facilitate low-carbon practices among employees. However, prior Malaysian studies have primarily focused on psychological factors among urban residents (Neo et al., 2017), leaving a gap in understanding the organisational factors that shape employee behaviour.

While existing research often emphasises individual and community-level interventions, the role of organisational structures in promoting low-carbon behaviour remains underexplored. For example, Kaffashi and Shamsudin (2019) highlighted societal attitudes but did not examine how leadership or workplace climates may influence employees' low-carbon behaviour. Yet, leadership is a key driver of low-carbon behaviour, and understanding its role within the Malaysian public institution is timely and necessary.

Green transformational leadership is especially relevant as it fosters a shared environmental vision, motivates sustainable behaviour, and builds a culture of responsibility. However, the mechanisms through which leadership affects low-carbon behaviour remain understudied. Similarly, ethical climate, which was characterised by shared moral norms within organisations—

has been associated with improved environmental performance (Lee & Ha-Brookshire, 2018). However, its role in public institutions remains underexplored, limiting our understanding of how leadership and ethical climate contribute to sustainability.

Additionally, the roles of green environmental passion and green mindfulness have emerged as potential factors influencing low-carbon behaviour. Environmental passion reflects a strong personal connection and enthusiasm for protecting the natural environment. Although prior studies (Choong et al., 2020; Kamil et al., 2024) have highlighted the significance of environmental passion, its specific role within public institutions remains insufficiently explored. Meanwhile, green mindfulness, defined as the awareness of the environmental consequences of an individual's actions, has been associated with low-carbon behaviour (Barbaro & Scott, 2016). However, more research is needed to understand how it operates within the public institutions.

Given these, this study investigates how green transformational leadership, ethical climate, environmental passion, and green mindfulness influence employees' low-carbon behaviour in Malaysian public institutions. Specifically, it explores the leadership and ethical climate factors shaping low-carbon behaviour, examines the roles of environmental passion and green mindfulness, and assesses how these factors collectively foster low-carbon behaviour.

The structure of this study comprises five main sections. The subsequent section reviews the relevant literature on low-carbon behaviour, highlighting theoretical perspectives and empirical findings. The third section outlines the methodology, including focus group discussions (FGDs) to explore employees' perspectives on low-carbon initiatives. The fourth section presents the data analysis and findings, followed by a discussion of practical implications. Finally, the conclusions offer a summary of key insights, limitations, and recommendations for further research.

2. Literature Review

2.1 Low-Carbon Behaviour

Low-carbon behaviour has attracted researchers' attention for its potential to protect the environment by reducing carbon footprints through individual

actions (Bai & Liu, 2013). This behaviour is considered a prerequisite for coping with environmental disasters. Low-carbon behaviour can be expressed in various ways, including conserving energy, using public transportation, purchasing eco-friendly products, and adopting other sustainable practices (Moloney et al., 2010).

In the workplace, employees' low-carbon behaviour refers to the behaviour of performing duties in an environmentally friendly manner (Bissing-Olson et al., 2013). Employees can incorporate these behaviours into their daily tasks and routines at work. In addition, they can actively contribute to broader sustainability initiatives by supporting improvements in their institution's policies and procedures (Pichel, 2008).

Recent studies have examined how leadership styles and organisational climate can enhance employees' engagement in low-carbon behaviour. For example, green transformational leadership promotes pro-environmental behaviour through green thinking and a green psychological climate (Zafar et al., 2025). Furthermore, ethical climate has been found to influence low-carbon behaviour, particularly when shaped by environmental passion and green mindfulness (Kamil & Nordin, 2025).

2.2 *Green Transformational Leadership*

Transformational leadership, widely studied in the Western literature for over three decades (Bass, 1985), focuses on symbolic behaviour, such as inspirational vision, rather than economic transactions (Bass, 1985; Avolio et al., 2009). It motivates employees to exceed expectations by transforming their ideas, morals, and values to raise their self-interest (Bass, 1985; Yukl, 1999). Recently, the concept of transformational leadership has evolved to include a more environmentally focused approach, referred to as *green transformational leadership*. The term highlights a distinct focus on environmental objectives within the broader framework of transformational leadership (Graves et al., 2013; Robertson & Barling, 2013).

Green transformational leadership refers to "a manifestation of transformational leadership in which the content of the leadership behaviour is all focused on encouraging low-carbon initiatives" (Robertson & Barling, 2013). It encourages employees to adopt low-carbon practices in the workplace through four main environmentally focused dimensions: intellectual stimulation, individualised consideration, inspirational

motivation, and idealised influence. Leaders who demonstrate environmental intellectual stimulation encourage employees to reconsider issues and evaluate existing practices, thereby fostering innovative solutions (Khan & Khan, 2022; Riva et al., 2021). Environmentally inspired leaders use passion and optimism to motivate beyond their self-interest and engage in low-carbon behaviour. Environmental individualised consideration involves building close relationships with employees to convey sustainability values and challenge existing assumptions and priorities related to environmental issues (Farrukh et al., 2022). Finally, environmental idealised influence reflects a moral commitment to sustainability, modelling low-carbon behaviour (Robertson & Barling, 2013).

There is considerable theoretical overlap between general and green transformational leadership; both share four core behaviours that employees achieve to exceptional results (Robertson & Barling, 2013). Studies have linked transformational leadership to employees' low-carbon behaviour by enhancing their motivation, environmental passion, and perceptions of the psychological climate (Graves et al., 2013). Moreover, green transformational leadership combined with green HR practices can further promote low-carbon behaviour by clarifying goals and aligning values (Tu et al., 2023).

2.3 Ethical Climate

Ethical climate refers to employees' shared understanding of appropriate behaviour within the organisational hierarchy and the expected ways of handling ethical issues (Victor & Cullen, 1988). It has been widely studied over the past four decades and has consistently been shown to be a positive predictor of organisational behaviour (Schneider, 1975). Several factors shape an institution's ethical climate, including its operating environment, organisational structure, and historical development. Bourne and Snead (1999) further emphasise the importance of contextual elements such as the institution's external environment, the industry it belongs to, and prevailing community concerns.

Ethical practices are guided not only by legal standards but also by the fundamental moral principles valued by the community (Valentine et al., 2011). Within organisations, these practices reflect employees' shared perceptions of institutional cues and behaviour related to ethical decision-

making (Martin & Cullen, 2006). An ethical climate fosters enduring attitudes influenced by the broader organisational environment, which can lead to more sustainable, long-term outcomes rather than being driven by short-term or situational concerns (Valentine et al., 2011).

The importance of an ethical climate grows when linked with personal capabilities such as mindfulness. Mindfulness, or repetitive attention to present-moment experiences, interacts with the ethical climate to enhance awareness and behaviour (Small & Lew, 2021). Mindful employees are better equipped to recognise ethical cues, manage their impulses, and align their behaviour with shared moral standards, thereby fostering a consistent and enduring ethical mindset (Eisenbeiss & Van Knippenberg, 2015).

Ford and Richardson's (1994) systematic review of the ethical decision-making literature highlights the role of internal institutional factors in shaping individual decisions. The structure of the intra-institutional environment is vital, with the presence of a code of conduct positively linked to ethical behaviour (Weeks & Nantel, 1992). Studies have also explored the relationship between employees' perceptions of ethical climate and their behaviour (Tsai & Huang, 2008). Integrating ethical climate with psychological constructs such as mindfulness provides deeper insights into how organisational environments shape sustained behavioural outcomes. An ethical climate can foster mindful awareness, which in turn supports ethical decision-making and encourages low-carbon behaviour.

2.4 *Green Environmental Passion*

There is a plethora of studies on green environmental passion as an essential influence on employees' environmental behaviour. Employees passionate about the environment tend to show positive emotions toward engaging in low-carbon behaviour (Robertson & Barling, 2013). They express pride, joy, and confidence in contributing to and conserving the environment, which leads to increased commitment to low-carbon behaviour (Vallerand et al., 2007). However, the specific mechanisms through which green environmental passion influences low-carbon behaviour remain underexplored. This study aims to address this gap by examining how green environmental passion, when combined with other organisational factors, enhances employees' low-carbon behaviour in the workplace.

2.5 *Green Mindfulness*

Mindfulness encourages employees to be aware of their behavioural choices based on their intentional awareness of their experiences (Brown & Ryan, 2003; Chatzisarantis & Hagger, 2007). It refers to the ability to attend to detailed knowledge and feedback from ongoing operations as a basis for successful adaptation (Weick & Roberts, 1993). According to Langer (1997), five components of mindfulness influence employees' awareness in making behavioural choices toward a low-carbon environment: sensitivity to varied contexts, openness to novelty, awareness of diverse perspectives (implicit or explicit), orientation in the present, and alertness to distinction. Mindfulness offers several benefits, including heightened awareness of new stimuli and interactions, sustained observation, context-sensitive perception, consideration of multiple viewpoints, and greater appreciation for diverse opinions (Fiol & O'Connor, 2003). Therefore, green mindfulness is a key factor in moderating low-carbon behaviour among employees as they respond to the growing emphasis on sustainability in the workplace.

Green mindfulness refers to “a state of conscious awareness in which individuals are implicitly aware of the context and content of environmental information and knowledge” (Chen et al., 2015). Previous studies examining the impact of green mindfulness on low-carbon behaviour are limited (Brown & Kasser, 2005). Thus, this study aims to fill this gap by exploring how green mindfulness strengthens the relationship between green environmental passion and low-carbon behaviour.

3. **Methodology**

The study adopts an interpretive approach, emphasising the construction of reality through employees' subjective experiences in Malaysian public institutions. This approach aligns with the exploratory nature of the research, which seeks to understand how leadership and organisational climate influence low-carbon behaviour. The study employs a qualitative research methodology, which is well-suited to exploring the complex, context-dependent factors that shape employees' environmental behaviour. Qualitative methods, such as unstructured interviews and focus group discussions, allow researchers to explore participants' experiences and perceptions, offering valuable insights into how the internal dynamics of

public institutions influence low-carbon behaviour.

The researchers selected focus group discussions to encourage interactive dialogue on workplace climate, leadership, and employee behaviour. The qualitative approach is especially well-suited for capturing the social interactions and underlying motivations that drive low-carbon behaviour, which are often difficult to identify through quantitative methods. Focus groups provide a space to gather diverse perspectives, observe group norms, and investigate contextual factors related to green transformational leadership and ethical climate. Through this method, the study aimed to uncover insights grounded in the local context, essential for shaping targeted interventions and policy measures to enhance environmental sustainability in public institutions.

3.1 Data Collection

We used a structured approach that included focus group discussions (FGDs) to collect data for this study. FGDs are effective for exploring shared understanding of organisational practices and leadership perceptions. Initially highlighted by Merton (1946), FGDs evolved into an interactive environment where informants share ideas, leading to deeper insights (Krueger, 1994). The group setting allows researchers to examine how social influences on behaviour and opinions (Morgan, 1997). Compared to more time-intensive methods such as ethnography or case studies, focus group discussions (FGDs) offer a more efficient way to gather diverse perspectives within a shorter timeframe (Krueger & Casey, 2015). The group setting encourages open and honest discussions, allowing participants to share their ideas freely and thereby enhancing the quality of the data collected (Almutrafi, 2019). Focus groups are particularly valuable for exploring individual and group-level dynamics in applied research.

We selected informants from four Malaysian public institutions, including ministries and government agencies. By confidentiality agreements, the names of the participating institutions are not disclosed. Each focus group consisted of three to six employees. According to Kreuger (2014), saturation, when no new information emerges, typically occurs after three to four groups. We assessed saturation during the sessions. By the third focus group, participants' responses had become repetitive, particularly regarding leadership and organisational climate. This pattern continued

in the fourth group, indicating that no new information was emerging. To enhance the credibility of the findings, we included participants with diverse backgrounds. Before participating, individuals received clear information about the study's purpose and provided informed consent in accordance with the university ethics committee's guidelines, which ensured the protection of their rights and well-being. We obtained ethical approval for the study.

A semi-structured discussion guide with open-ended questions was used to explore environmental definitions, low-carbon behaviour, current practices, influencing factors, implementation challenges, and institutional initiatives. This approach allows participants to express their views openly and share in-depth experiences, with each session lasting 1 to 1.5 hours. All discussions were conducted online due to the COVID-19 restrictions, enabling informants to participate from their locations. The principal investigator moderated the discussions with support from a co-researcher and a research assistant. Multiple moderators ensured discussions flowed and reduced bias.

A semi-structured discussion guide with open-ended questions was used to explore participants' understanding of environmental issues, their low-carbon behaviour, current workplace practices, factors influencing these behaviours, challenges in implementation, and related institutional initiatives. This approach allows participants to express their views openly and share in-depth experiences, with each session lasting 1 to 1.5 hours. All discussions were conducted online due to the COVID-19 restrictions, enabling informants to participate from their locations. The principal investigator led the discussions, assisted by a co-researcher and a research assistant. Having multiple moderators helped maintain the flow of conversation and minimise potential bias.

3.2 *Participants*

The population of this study consisted of employees from four different Malaysian public institutions, including ministries and government agencies. These institutions were selected using purposive sampling, based on their active participation in government-led environmental sustainability initiatives such as digital transformation, waste reduction campaigns, and energy conservation policies. By focusing on institutions with established sustainability efforts, this study ensures a representative sample that

aligns with the Malaysian government’s low-carbon agenda and includes participants well-positioned to provide valuable insights into low-carbon behaviour in the public institutions.

A total of 12 informants participated in the study, representing a mix of management and support staff roles. Involving both groups provided insight into how leadership influences various organisational levels. Management informants shared insights on leadership strategies and the organisational climate, while support staff explained how these strategies affect their daily tasks and interactions.

The participants’ demographics varied in terms of gender, job roles, and years of service, from new employees to those with more than ten years of experience. This diversity offered a nuanced understanding of how perceptions of environmental practices change over time. Before participating in the study, participants were informed about the research purposes. Each participant provided informed consent, and the university’s ethics committee granted ethical approval to ensure adherence to ethical research standards. Table 1 provides information on the characteristics of the informants.

Table 1: Characteristics of informants

Session	Public Institution	Informants	Gender		Group	
			Male	Female	Management & Professional	Support
1	A	2	0	2	2	0
1	B	3	2	1	3	0
1	C	1	1	0	1	0
2	D	3	2	1	3	0
3	D	3	1	2	0	3
Total		12	6	6	9	3

Although the study involved only 12 participants from four institutions, this number is sufficient for in-depth qualitative research, particularly when participants are carefully selected and provide rich, comprehensive insights. By qualitative research standards, the emphasis on institutions with clear environmental mandates further improves the findings’ contextual relevance and depth (Guest et al., 2006). Given the interpretive qualitative approach of this study, the researcher engaged in reflexivity to ensure transparency

throughout the research process. Although the principal researcher's experience with environmental initiatives in public institutions offered valuable context, it may have influenced the interpretation of the findings. The coding and analysis of data were reviewed and confirmed in collaboration with other researchers to enhance reliability and reduce potential bias.

3.3 Data Analysis

Thematic analysis, a fundamental method in qualitative research, offers researchers a nuanced approach to exploring texts and understanding documented human communication (Babbie, 2013). It serves as a lens through which researchers can decipher the intricate layers of meaning embedded within texts. Thematic analysis begins by identifying recurring patterns and themes in the data. This process involves several stages, including familiarisation with the data, generating initial codes, searching for themes, reviewing and refining these themes, and ultimately defining and naming them (Braun & Clarke, 2006). Thematic analysis offers greater flexibility than many other qualitative methods and can be applied across various theoretical frameworks, enabling rich and detailed interpretations of the data (Braun & Clarke, 2013).

Additionally, two researchers independently reviewed the transcripts in detail to generate preliminary codes before initiating the formal coding process. After that, these codes were compared and combined in consensus discussions. Themes were developed by grouping similar codes, followed by iterative discussions to refine and ensure they accurately captured the underlying patterns in the data. A codebook detailed how codes evolved into themes and sub-themes. The underpinning theory behind this study is grounded theory, which operates inductively. This method guides subsequent stages of data collection and analysis by continuously refining ideas in response to new observations.

Grounded theory is beneficial for exploring new or complex phenomena where existing theories may not be fully applicable, allowing for the development of theories closely linked to the data and context. This study focuses on promoting low-carbon behaviour in Malaysian public institutions, examined through green transformational leadership and ethical climate. Based on Charmaz and Thornberg (2021), the analytic focus in grounded theory evolves during the research process rather than being predetermined.

Thus, this study employed an inductive approach, involving repeated data reviews and ongoing refinement of a categorisation framework to ensure that the themes accurately captured the participants' perspectives.

3.4 Thematic Exploration and Refinement

This study used an inductive approach to thematic analysis to explore the influence of low-carbon behaviour among employees. The process began with open coding, which generated initial codes based on the informant's responses. These codes, such as "supportive leadership" and "energy conservation," were then grouped into broader categories like "green transformational leadership" and "ethical climate," based on common themes. We applied axial coding to clarify overlapping themes and distinguish between categories such as "green mindfulness" and "environmental passion," which reflect awareness and emotional engagement, respectively. Repeated discussions among the researchers helped refine and validate themes to reflect the informants' experiences. The final themes include green transformational leadership, ethical climate, environmental passion, and green mindfulness. Together, they provide a comprehensive understanding of the key factors that influence low-carbon behaviour among employees in public institutions.

4. Results

The thematic analysis identified four primary dimensions that promote low-carbon behaviour in the workplace, as shown in Figure 1 (Thematic map), and graphically depicts these themes and their connections. This analysis offers a comprehensive overview of the key drivers of low-carbon behaviour within public institutions. Green transformational leadership, ethical climate, environmental passion, and green mindfulness influence employees' low-carbon behaviour by fostering awareness, a sense of responsibility, and commitment to sustainability efforts within public institutions (please refer to Table 2).

Green transformational leadership plays a crucial role in shaping workplace sustainability by guiding and motivating employees toward environmentally responsible behaviour. Leaders who model sustainability-focused behaviour and promote eco-friendly initiatives foster a culture

where employees feel motivated to adopt sustainable practices. Leaders who integrate sustainability into their vision and encourage awareness initiatives enhance employees’ environmental engagement and reinforce institutional commitment.

An ethical climate is the foundation of low-carbon behaviour and influences how employees view their moral and professional responsibilities to sustainability. Institutions with strong ethical frameworks promote behaviours such as resource conservation, waste reduction, and active participation in sustainability campaigns. Employees are more likely to engage in discretionary behaviour when they perceive their organisation values ethical conduct. Policies such as digital transformation initiatives and plastic bag bans reflect the government’s commitment to environmental sustainability and serve as institutional signals that shape employees’ attitudes toward ecological responsibility.

Green mindfulness involves employees’ awareness of how their actions affect the environment, along with their proactive efforts to minimise carbon emissions. Green mindfulness interacts with leadership and ethical climate; employees in institutions with strong ethical guidance and transformational leadership are more likely to develop a mindfulness-oriented approach to sustainability. Therefore, these findings highlight the interconnected nature of leadership, ethical climate, environmental passion, and green mindfulness. Sustainability initiatives are most effective when they integrate a top-down (leadership, policies) and bottom-up (employees’ mindfulness, ethical responsibility) approach.

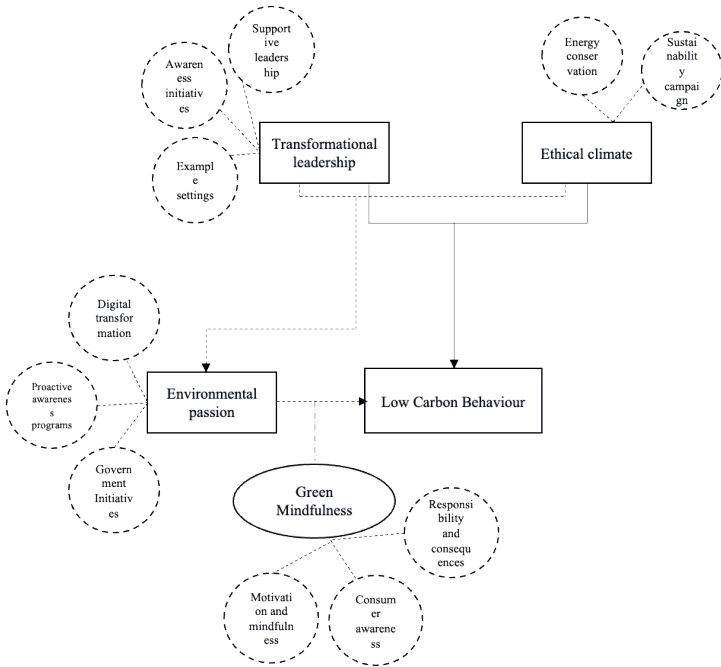
Table 2: Thematic analysis of factors influencing low-carbon behaviour

Themes	Codes	Quotations
Green transformational leadership	Supportive leadership	The policies and the leadership are extremely crucial. How to encourage institutions and public institutions to go green. Our leaders are incredibly supportive of our efforts to raise awareness about the importance of preserving the environment. (Informant 4, Public Institution B).
	Awareness initiatives	Leaders could increase awareness by encouraging subordinates and colleagues to become paperless through email, WhatsApp, or any other medium that can help the environment. (Informant 6, Public Institution C).

Themes	Codes	Quotations
	Example settings	Leaders could encourage employees or their subordinates to reduce electricity consumption by setting a good example, such as turning off lights when attending meetings. (Informant 9, Public Institution D).
Ethical climate	Energy conservation	One thing I noticed is that in our building...., our complex, we have to conserve energy by lowering the air conditioner's temperature. (Informant 5, Public Institution B).
	Sustainability campaign	In my opinion, I believe there are many environmental sustainability campaigns in public institutions. I believe that in the public institution, we have expanded our efforts in all ministries to reduce energy consumption, air conditioning usage, and paper usage. (Informant 10, Public Institution D).
Green environmental passion	Government Initiatives	The government has shown their passion by issuing a general circular letter in 2019 prohibiting the use of plastic bags in government meetings. That is, the general circular letter applies to ministry offices and all public agencies. It's also an initiative to encourage low-carbon behaviour in government buildings. (Informant 2, Public Institution A).
	Proactive awareness programs	We do a lot of programs and raise awareness in our ministry. We launched the National Energy Award as one of the efforts that we are passionate about promoting this behaviour. (Informant 8, Public Institution D).
	Digital transformation	We are passionate about the environment. We are now moving to my digital portfolio. Then there is the Cloud. (Informant 3, Public Institution B).
Green mindfulness	Motivation and mindfulness	For me, it's important to be motivated and mindful of what we're doing. Although it doesn't seem to have much impact, people say there is an effort. Our efforts then create awareness among others around us that we all need to participate equally. We must reduce our carbon footprint so that everyone contributes, and when everyone contributes, the results of his/her actions will be seen. (Informant 4, Public Institution B).
	Consumer awareness	The most important thing to me is mindfulness. We must be mindful of what is going on around us. You must be mindful of how you act, particularly as a consumer or individual. We use products, we don't produce much... we produce waste as individuals. (Informant 1, Public Institution A).

Themes	Codes	Quotations
	Responsibility and consequences	In my opinion, it's more about mindfulness and concern. We will be affected because we are responsible for the consequences when the carbon rate in our country, or globally, is too high. For example, global warming, floods, prolonged droughts, and a slew of other issues. Because of climate change, things that never happened before are now happening. So, I believe that if every individual or employee is aware of and understands low-carbon behaviour, we may be able to reduce the current carbon levels in our country or globally. (Informant 7, Public Institution D).

Figure 1: Thematic analysis



5. Discussion

This study provides valuable insights into how green transformational leadership, ethical climate, environmental passion, and green mindfulness influence low-carbon behaviour among public institution employees.

The findings emphasise the role of these factors in shaping a sustainable workplace environment and align with the growing emphasis on institutional responsibility for environmental impact. The following sections examine the theoretical and managerial implications of the study.

5.1 Theoretical Implications

From a theoretical standpoint, this study advances our knowledge of low-carbon behaviour, which is becoming increasingly vital worldwide, by investigating how green transformational leadership and ethical climate influence employees' low-carbon behaviour. Although evidence supporting green initiatives continues to grow, few studies have explored the leadership and ethical climate required to sustain these efforts, especially within Eastern cultural contexts. Therefore, this study extends previous research by highlighting the role of green transformational leadership, ethical climate, environmental passion and green mindfulness in influencing employees' low-carbon behaviour. These factors align with existing literature, reinforcing their relevance in promoting sustainability. This study also deepens understanding of leadership dynamics in hierarchical public institutions, where centralised decision-making means that leadership support plays a crucial role in driving environmental initiatives.

Green transformational leadership positively impacts employees' understanding of institutional environmental goals and encourages a culture of sustainability. Leaders who demonstrate a strong commitment to environmental sustainability can inspire employees to adopt low-carbon practices, such as conserving energy and reducing waste. These findings support prior research suggesting that transformational leadership inspires pro-environmental behaviour through procedures, such as role modelling and intellectual stimulation (Graves et al., 2013; Peng et al., 2021). Leaders' ability to set sustainability expectations significantly influences long-term environmental engagement in hierarchical public institutions.

An ethical climate influences low-carbon behaviour by fostering shared values aligned with sustainability goals. It supports a collective responsibility among employees to engage in environmentally conscious actions, consistent with findings by Valentine et al. (2011) and Lee and Ha-Brookshire (2018), which illustrate how ethical standards guide employee behaviour. In public institutions, where policies often reflect societal values, an ethical climate

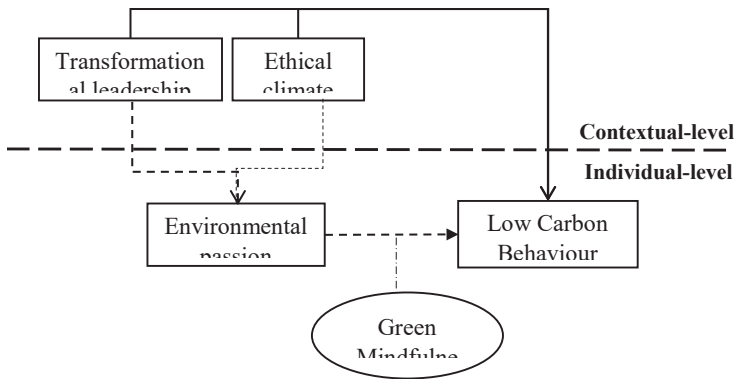
encourages employees to internalise environmental responsibilities, leading to behaviour that supports conservation and sustainability. Thus, institutional structures that uphold moral principles promote sustainable practices.

An essential component that motivates employees to adopt low-carbon behaviour is environmental passion, which is an intense emotional connection to environmental issues. Given that passion has been identified as a key driver of low-carbon behaviour, individuals who feel a strong connection to environmental goals are more likely to participate in green initiatives in the institutions (Robertson & Barling, 2013; Fineman, 1996). This intrinsic motivation is particularly relevant in public institutions, where employees often work in roles aligned with community service and societal values. Fostering environmental passion leads to a proactive approach to sustainability, driving low-carbon practices across the institution.

Green mindfulness encourages environmentally conscious behaviour even in challenging situations by raising employees' awareness of how their actions affect the environment (Chen et al., 2015). Employees who demonstrate green mindfulness, measured by self-reported awareness, paying attention to environmental warnings, and eco-friendly behaviour, reinforce low-carbon behaviour. This study supports the findings of Barbaro and Scott (2016), who emphasised that mindfulness enhances individuals' awareness of their environmental surroundings. Green mindfulness is crucial for workplace sustainability and their commitment to environmental goals. Promoting mindfulness in the workplace can lower the carbon footprint and increase environmental awareness.

The findings highlight the emergence of key themes, such as green mindfulness and environmental passion, in shaping low-carbon behaviour in the workplace. These factors provide essential insights into employee engagement in low-carbon behaviour, even if not captured in existing theoretical frameworks. This study provides a clearer understanding of workplace dynamics by identifying key factors using an inductive, data-driven approach, expanding understanding beyond traditional frameworks. Figure 2 shows how these factors can guide long-term performance strategies aligned with environmental goals.

Figure 2: Proposed framework for required low-carbon behaviour



5.2 Practical Implications

The findings of this study provide actionable implications for public institutions seeking to foster low-carbon behaviour among employees through green transformational leadership, ethical climate, environmental passion, and green mindfulness. Employee behaviour is a key factor in organisational success, particularly in public institutions where sustained performance and effective service delivery depend heavily on employee commitment (Abdullah & Kamil, 2020; Kamil, 2024). Implementing these insights can promote environmental responsibility and workplace sustainability by encouraging employees to deliver quality services and adopt low-carbon behaviour.

Public institutions should adopt structured training programs that focus on developing green transformational leadership and fostering an ethical climate to encourage low-carbon behaviour. These programs should prepare leaders with skills to integrate sustainability into management, decision-making, and planning. Civil service training should include leadership development to build long-term sustainability capacity. Incentivization mechanisms such as recognition and reward systems can further motivate employee participation. Public institutions should introduce structured rewards, including performance-based bonuses, sustainability recognition awards, and public acknowledgement for employees who contribute to environmental initiatives. These measures can reinforce the values of low-carbon behaviour within the institutional culture.

Public institutions should establish structured feedback systems that enable employees to share ideas and experiences related to low-carbon practices. Tools such as regular environmental impact surveys, feedback forums, and focus groups can generate valuable insights for refining sustainability policies. Additionally, digital platforms for sustainability reporting can also encourage transparency and engagement. To support long-term progress, public institutions should embed sustainability objectives into their strategic planning, aligning them with national emission reduction targets and integrating them into operational policies and performance evaluations.

Policymakers should promote clear, measurable, low-carbon policies that set specific targets for reducing carbon emissions, energy use, and waste. These policies should serve as a framework for employees to understand their roles in achieving environmental goals. Furthermore, public institutions could also plan engagement initiatives, such as workplace sustainability workshops and community-driven sustainable programs, to increase employees' commitment and foster a shared environmental culture. By implementing these targeted strategies, public institutions can effectively leverage green transformational leadership and an ethical climate to promote low-carbon behaviour among employees. The insights from this study lay the groundwork for advancing sustainability within public institutions and support broader national and global efforts to mitigate climate change.

5.3 Limitations and Future Research

This study contributes to the factors influencing low-carbon behaviour among public institution employees. However, future studies may address the methodological and theoretical constraints of this study. Longitudinal research could clarify how employees gradually adapt their workplace behaviour to support low-carbon practices.

The sample size of this study consisted of 12 officers and support staff from four public institutions. This sample size has limited the generalizability of the findings. Similarly, this study focuses on a specific context, namely the public institutions, which, like other public institutions around the world, are making significant efforts to foster low-carbon behaviour, limiting the generalizability of the findings. Therefore, future research should target larger and more diverse samples to enhance the

applicability of these findings across various contexts, such as private institutions or comparative studies between different settings.

The study highlights that low-carbon behaviour in the workplace results from green transformational leadership, ethical climate, environmental passion, and green mindfulness. However, additional factors may also play a role. At the institutional level, green human resource management (GHRM) practices (Fawehinmi et al., 2020) and ethical leadership (Ahmad et al., 2021) can reinforce sustainability by integrating environmental responsibility into policies and leadership behaviour. Environmental knowledge (Ahmad et al., 2021) and environmental concerns (Pagiaslis & Krontalis, 2014) affect employees' awareness and willingness to participate in environmentally friendly behaviour at the individual level. Future research should explore how these factors interact to provide a more comprehensive understanding of workplace low-carbon behaviour. Finally, this study sheds light on future studies that will delve deeper into low-carbon behaviour among employees in the workplace, as the literature on low-carbon behaviour is limited, with studies focusing solely on the population.

6. Conclusion

This study examines the influence of green transformational leadership, ethical climate, environmental passion, and green mindfulness on low-carbon behaviour among employees in Malaysian public institutions. The findings revealed that supportive leadership and a strong ethical climate create a conducive environment for sustainability, while employees' passion and mindfulness further drive low-carbon actions. The study met its objectives by identifying key organisational and individual factors that shape environmentally responsible behaviour, offering insights into how these elements interact within public sector institutions. The findings have broader implications for policy and practices. Encouraging leadership that models sustainability, fostering ethical workplace climates, and promoting employee awareness can support national and institutional goals toward a low-carbon future.

CRediT Author Statement

Nurul Liyana Mohd Kamil: Project Administration, Supervision, Funding Acquisition, Conceptualisation, Writing - Original Draft. **Wan Noor Azreen Wan Mohamad Nordin:** Design of Methodology, Data Curation, Formal Analysis, Software, Writing Original Draft. **Nur Hairani Abd Rahman:** Investigation, Visualisation, Writing - Review & Editing. Kai Zhao: Validation, Writing - Review & Editing.

Acknowledgement

We would like to acknowledge the financial support provided by the Faculty of Business and Economics Special Research Grant: UMG0291-2024. This publication was also partially funded by the Faculty of Business and Economics, Universiti Malaya Special Publication Fund.

References

- Abdullah, M. R., & Kamil, N. L. M. (2020). Demographic characteristics and organizational citizenship behaviour in public institutions. *Institutions and Economies*, 89-105.
- Ahmad, S., Islam, T., Sadiq, M., & Kaleem, A. (2021). Promoting green behavior through ethical leadership: a model of green human resource management and environmental knowledge. *Leadership & Organization Development Journal*, 42(4), 531-547. <https://doi.org/10.1108/LODJ-01-2020-0024>.
- Almutrafi, A. (2019). The use of focus groups in applied social research: A critical review. *Journal of Social Sciences and Humanities*, 12(3), 123-138.
- Avolio, B. J., Walumbwa, F. O., & Weber, T. J. (2009). Leadership: Current theories, research, and future directions. *Annual Review of Psychology*, 60, 421-449. <https://doi.org/10.1146/annurev.psych.60.110707.163621>.
- Babbie, E. (2013). *The practice of social research* (13th ed.). Belmont, CA: Wadsworth, Cengage Learning.
- Bai, Y., & Liu, Y. (2013). An exploration of residents' low-carbon awareness and behavior in Tianjin, China. *Energy Policy*, 61, 1261-1270. <https://doi.org/10.1016/j.enpol.2013.06.014>.

- Barbaro, N., & Pickett, S. M. (2016). Mindfully green: Examining the effect of connectedness to nature on the relationship between mindfulness and engagement in pro-environmental behavior. *Personality and Individual Differences*, 93, 137-142. <https://doi.org/10.1016/j.paid.2015.05.026>.
- Barling, J. (2014). *The science of leadership: Lessons from research for organizational leaders*. Oxford University Press.
- Bass, B. M. (1985). *Leadership and performance beyond expectations*. Collier Macmillan.
- 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. *Journal of Organizational Behavior*, 34(2), 156-175. <https://doi.org/10.1002/job.1788>.
- Bonilla, S. H., Silva, H. R., Terra da Silva, M., Franco Gonçalves, R., & Sacomano, J. B. (2018). Industry 4.0 and sustainability implications: A scenario-based analysis of the impacts and challenges. *Sustainability*, 10(10), 3740. <https://doi.org/10.3390/su10103740>.
- Bourne, S., & Snead, J. D. (1999). Environmental determinants of organizational ethical climate: A community perspective. *Journal of Business Ethics*, 21(4), 283-290. <https://doi.org/10.1023/A:1006085124136>.
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77-101.
- Braun, V., & Clarke, V. (2013). *Successful qualitative research: A practical guide for beginners*.
- Brown, K. W., & Kasser, T. (2005). Are psychological and ecological well-being compatible? The role of values, mindfulness, and lifestyle. *Social Indicators Research*, 74(2), 349-368. <https://doi.org/10.1007/s11205-004-8207-8>.
- Brown, K. W., & Ryan, R. M. (2003). The benefits of being present: mindfulness and its role in psychological well-being. *Journal of Personality and Social Psychology*, 84(4), 822-848.
- Büchs, M., Bahaj, A. S., Blunden, L., Bourikas, L., Falkingham, J., James, P., ... & Wu, Y. (2018). Promoting low carbon behaviours through personalized information? Long-term evaluation of a carbon calculator interview. *Energy Policy*, 120, 284-293. <https://doi.org/10.1016/j.enpol.2018.05.030>.
- Charmaz, K., & Thornberg, R. (2021). The pursuit of quality in grounded

- theory. *Qualitative Research in Psychology*, 18(3), 305-327. <https://doi.org/10.1080/14780887.2020.1780357>.
- Chatzisarantis, N. L., & Hagger, M. S. (2007). Mindfulness and the intention-behavior relationship within the theory of planned behavior. *Personality and Social Psychology Bulletin*, 33(5), 663-676. <https://doi.org/10.1177/0146167206297401>.
- Chen, Y. S., Chang, C. H., Yeh, S. L., & Cheng, H. I. (2015). Green shared vision and green creativity: The mediation roles of green mindfulness and green self-efficacy. *Quality & Quantity*, 49(3), 1169-1184. <https://doi.org/10.1007/s11135-014-0041-8>.
- Choong, Y. O., Ng, L. P., Tee, C. W., Kuar, L. S., Teoh, S. Y., & Chen, I. C. (2020). Green work climate and pro-environmental behaviour among academics: The mediating role of harmonious environmental passion. *International Journal of Management Studies*, 26(2), 77-97. <https://doi.org/10.32890/ijms.26.2.2019.10520>.
- Curtin, J., McInerney, C., & Gallachóir, B. Ó. (2017). Financial incentives to mobilize local citizens as investors in low-carbon technologies: A systematic literature review. *Renewable and Sustainable Energy Reviews*, 75, 534-547. <https://doi.org/10.1016/j.rser.2016.11.020>.
- Ding, Z., Jiang, X., Liu, Z., Long, R., Xu, Z., & Cao, Q. (2018). Factors affecting low-carbon consumption behavior of urban residents: A comprehensive review. *Resources, Conservation and Recycling*, 132, 3-15. <https://doi.org/10.1016/j.resconrec.2018.01.013>.
- Edenhofer, O., Pichs-Madruga, R., Sokona, Y., Kadner, S., Minx, J. C., Brunner, S., ... & Zwickel, T. 2014: Technical Summary. *Climate Change 2014: Mitigation of Climate Change. Contribution of Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*.
- Eisenbeiss, S. A., Van Knippenberg, D., & Fahrbach, C. M. (2015). Doing well by doing good? Analyzing the relationship between CEO ethical leadership and firm performance. *Journal of Business Ethics*, 128, 635-651. <https://doi.org/10.1007/s10551-014-2124-9>.
- Farrukh, M., Ansari, N., Raza, A., Wu, Y., & Wang, H. (2022). Fostering employee's pro-environmental behavior through green transformational leadership, green human resource management and environmental knowledge. *Technological Forecasting and Social Change*, 179, 121643. <https://doi.org/10.1016/j.techfore.2022.121643>.

- Fawehinmi, O., Yusliza, M. Y., Mohamad, Z., Faezah, J. N., & Muhammad, Z. (2020). Assessing the green behaviour of academics: The role of green human resource management and environmental knowledge. *International Journal of Manpower*, 41(7), 879-900. <https://doi.org/10.1108/IJM-07-2019-0347>.
- Fineman, S. (1996). Emotional subtexts in corporate greening. *Organization Studies*, 17(3), 479-500. <https://doi.org/10.1177/017084069601700306>.
- Fiol, C. M., & O'Connor, E. J. (2003). Waking up! Mindfulness in the face of bandwagons. *Academy of Management Review*, 28(1), 54-70. <https://doi.org/10.5465/amr.2003.8925227>.
- Ford, R. C., & Richardson, W. D. (1994). Ethical decision making: A review of the empirical literature. *Journal of Business Ethics*, 13(3), 205-221. <https://doi.org/10.1007/BF02074820>.
- Graves, L. M., Sarkis, J., & Zhu, Q. (2013). How transformational leadership and employee motivation combine to predict employee pro-environmental behaviors in China. *Journal of Environmental Psychology*, 35, 81-91. <https://doi.org/10.1016/j.jenvp.2013.05.002>.
- Guest, G., Bunce, A., & Johnson, L. (2006). How Many Interviews Are Enough? An Experiment with Data Saturation and Variability. *Field Methods*, 18(1), 59-82. <https://doi.org/10.1177/1525822X05279903>.
- Kaffashi, S., & Shamsudin, M. N. (2019). Transforming to a low carbon society; an extended theory of planned behaviour of Malaysian citizens. *Journal of Cleaner Production*, 235, 1255-1264. <https://doi.org/10.1016/j.jclepro.2019.07.047>.
- Kamil, N. L. M. (2024). Positioning Bank Managers for Entrepreneurship: The Importance of Personal and Job Attributes. *Institutions and Economies*, 79-104. <https://doi.org/10.22452/IJIE.vol16no1.4>.
- Kamil, N. L. M., & Wan Mohamad Nordin, W. N. A. (2025). How does ethical climate attract employees' low-carbon behaviour? The role of environmental passion and green mindfulness. *Journal of Management & Organization*, 31(1), 103-121. <https://doi.org/10.1017/jmo.2024.38>.
- Kamil, N. L. M., Nordin, W. N. A. W. M., & Matsat, A. B. (2024). Cultivating Green Human Resource Management and Employee Environmental Behaviour in Local Governments: Evidence from Malaysia. In *Green Human Resource Management: A View from Global South Countries* (pp. 407-424). Singapore: Springer Nature Singapore.
- Khan, A. N., & Khan, N. A. (2022). The nexuses between transformational

- leadership and employee green organizational citizenship behaviour: Role of environmental attitude and green dedication. *Business Strategy and the Environment*, 31(3), 921-933. <https://doi.org/10.1002/bse.2926>.
- Krueger, R. A. (2014). *Focus groups: A practical guide for applied research*. Sage publications.
- Krueger, R. A., & Casey, M. A. (2015). *Focus group interviewing. Handbook of practical program evaluation*, 506-534.
- Langer, E. J. (1997). *The power of mindful learning*. Reading, MA: Addison-Wesley.
- Lee, S. H., & Ha-Brookshire, J. (2018). The effect of ethical climate and employees' organizational citizenship behavior on US fashion retail organizations' sustainability performance. *Corporate Social Responsibility and Environmental Management*, 25(5), 939-947.
- Markey, R., McIvor, J., O'Brien, M., & Wright, C. F. (2019). Reducing carbon emissions through employee participation: evidence from Australia. *Industrial Relations Journal*, 50(1), 57-83. <https://doi.org/10.1111/irj.12238>.
- Martin, K. D., & Cullen, J. B. (2006). Continuities and extensions of ethical climate theory: A meta-analytic review. *Journal of Business Ethics*, 69(2), 175-194. <https://doi.org/10.1007/s10551-006-9084-7>.
- Merton, R. K., Fiske, M., & Kendall, P. L. (1946). *The focused interview: A manual of problems and procedures*. The Free Press.
- Moloney, S., Horne, R. E., & Fien, J. (2010). Transitioning to low carbon communities—from behaviour change to systemic change: Lessons from Australia. *Energy Policy*, 38(12), 7614-7623. <https://doi.org/10.1016/j.enpol.2009.06.058>.
- Morgan, D. L. (1997). *Focus Groups as Qualitative Research (2nd ed.)*. Sage Publications.
- Neo, S. M., Choong, W. W., & Ahamad, R. B. (2017). Differential environmental psychological factors in determining low carbon behaviour among urban and suburban residents through responsible environmental behaviour model. *Sustainable Cities and Society*, 31, 225-233. <https://doi.org/10.1016/j.scs.2017.03.003>.
- Pagiaslis, A., & Krontalis, A. K. (2014). Green consumption behavior antecedents: Environmental concern, knowledge, and beliefs. *Psychology & Marketing*, 31(5), 335-348. <https://doi.org/10.1002/mar.20698>.
- Peng, J., Chen, X., Zou, Y., & Nie, Q. (2021). Environmentally specific

- transformational leadership and team pro-environmental behaviors: The roles of pro-environmental goal clarity, pro-environmental harmonious passion, and power distance. *Human Relations*, 74(11), 1864-1888. <https://doi.org/10.1177/0018726720942306>.
- Pichel, K. (2008). Enhancing ecopreneurship through an environmental management system: a longitudinal analysis for factors leading to proactive environmental behavior. *Sustainable Innovation and Entrepreneurship*, 141-196.
- Riva, F., Magrizos, S., & Rubel, M. R. B. (2021). Investigating the link between managers' green knowledge and leadership style, and their firms' environmental performance: The mediation role of green creativity. *Business Strategy and the Environment*, 30(7), 3228-3240. <https://doi.org/10.1002/bse.2799>.
- Robertson, J. L., & Barling, J. (2013). Greening organizations through leaders' influence on employees' pro-environmental behaviors. *Journal of Organizational Behavior*, 34(2), 176-194. <https://doi.org/10.1002/job.1820>.
- Roller, M. R., & Lavrakas, P. J. (2015). *Applied qualitative research design: a total quality framework approach*. New York: Guilford Press.
- Saidi, K., & Hammami, S. (2015). The impact of energy consumption and CO2 emissions on economic growth: Fresh evidence from dynamic simultaneous-equations models. *Sustainable Cities and Society*, 14, 178-186. <https://doi.org/10.1016/j.scs.2014.05.004>.
- Schneider, B. (1975). Organizational climates: An essay 1. *Personnel Psychology*, 28(4), 447-479. <https://doi.org/10.1111/j.1744-6570.1975.tb01386.x>.
- Tsai, M. T., & Huang, C. C. (2008). The relationship among ethical climate types, facets of job satisfaction, and the three components of organizational commitment: A study of nurses in Taiwan. *Journal of Business Ethics*, 80(3), 565-581. <https://doi.org/10.1007/s10551-007-9455-8>.
- Tu, Y., Li, Y., & Zuo, W. (2023). Arousing employee pro-environmental behavior: A synergy effect of environmentally specific transformational leadership and green human resource management. *Human Resource Management*, 62(2), 159-179. <https://doi.org/10.1002/hrm.22138>.
- United Nations (2020). SDG 13; Climate Action: Take urgent action to combat climate change and its impact. Retrieved from <https://sustainabledevelopment.un.org/sdg13>.

- United Nations (2015). Transforming our world: The 2030 agenda for sustainable development. New York: United Nations, Department of Economic and Social Affairs.
- Valentine, S., Godkin, L., Fleischman, G. M., Kidwell, R. E., & Page, K. (2011). Corporate ethical values and altruism: The mediating role of career satisfaction. *Journal of Business Ethics*, 101(4), 509-523. <https://doi.org/10.1007/s10551-011-0739-7>.
- Vallerand, R. J., Salvy, S. J., Mageau, G. A., Elliot, A. J., Denis, P. L., Grouzet, F. M., & Blanchard, C. (2007). On the role of passion in performance. *Journal of Personality*, 75(3), 505-534. <https://doi.org/10.1111/j.1467-6494.2007.00447.x>.
- Victor, B., & Cullen, J. (1987). A theory and measure of ethical climate in organizations.
- Wang, K., Gan, C., Ou, Y., & Liu, H. (2019). Low-carbon behaviour performance of scenic spots in a world heritage site. *Sustainability*, 11(13), 3673. <https://doi.org/10.3390/su11133673>.
- Weeks, W. A., & Nantel, J. (1992). Corporate codes of ethics and sales force behavior: A case study. *Journal of Business Ethics*, 11(10), 753-760. <https://doi.org/10.1007/BF00872307>.
- Weick, K. E., & Roberts, K. H. (1993). Collective mind in organizations: Heedful interrelating on flight decks. *Administrative Science Quarterly*, 38, 357-381. <https://doi.org/2393372>.
- Whitmarsh, L., Seyfang, G., & O'Neill, S. (2011). Public engagement with carbon and climate change: To what extent is the public 'carbon capable'? *Global Environmental Change*, 21(1), 56-65. <https://doi.org/10.1016/j.gloenvcha.2010.07.011>.
- Yukl, G. (1999). An evaluation of conceptual weaknesses in transformational and charismatic leadership theories. *The Leadership Quarterly*, 10(2), 285-305. [https://doi.org/10.1016/S1048-9843\(99\)00013-2](https://doi.org/10.1016/S1048-9843(99)00013-2).
- Zafar, H., Cheah, J.-H., Ho, J.A., Suseno, Y. and Tian, F. (2025). "How green servant leadership influences organizational green performance? The roles of employee green creativity, voluntary pro-environmental behavior and green psychological climate", *Personnel Review*, Vol. ahead-of-print No. ahead-of-print. <https://doi.org/10.1108/PR-10-2023-0843>.