

Systematic Literature Review: Sustainable Framework of the Employee Green Behavior Research Agenda

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Abstract:- This study aims to provide insightful knowledge on key concepts in employee green behavior, identify factors influencing employee green behavior, and examine the most common theories in the study of employee green behavior. The researchers used the Scopus database and Google Scholar platform to search and cite 88 relevant literature sources using the keywords "employee green behaviour, employee pro-environment behaviour, and green human resources" for this review. A PRISMA systematic literature review primarily examines full-text articles published between 1958 and 2023 that discuss employee green behaviour. The results of this study indicated that factors influencing green behaviour can be divided into two levels: the individual level and the organizational level. This study revealed that several factors influence green behaviour at the individual level, such as personality traits, green motivation, perception, value, and attitude. On the other hand, the factors influencing green behavior at the organizational level are leadership, organizational climate, management practices, and corporate responsibility. In addition, several theories have been frequently utilized in green behavior studies, including the theories of planned behavior, self-determination, social exchange, and social learning. Finally, this study presents the limitations of this systematic literature review and makes recommendations for future research.

Keywords: Employee Green Behavior, PRISMA, Social Exchange Theory, Systematic Literature Review, Theory of Planned Behavior.

1. Introduction

With the emergence of issues such as global warming, ocean pollution, and outbreaks of infectious diseases, people have become aware of the seriousness of environmental problems [1] and are striving for sustainable development of the environment [2], actively taking various environmental initiatives [3]. Environmental sustainability has become a major challenge for businesses [4]. It can reduce energy costs for businesses [5] and contribute to establishing a positive corporate image [6, 7]. Both businesses dedicated to environmental sustainability practices and academia are committed to researching corporate environmental sustainability [8]. On the path to corporate environmental sustainability, macro (government), meso (businesses), and micro (employees) levels all play important roles [9]. In the research on corporate sustainability, scholars have focused mainly on the operational aspects of businesses, with less emphasis on studying employee behavior [10]. It is worth noting that employees are the implementers of corporate environmental sustainability policies [11], and their green behavior plays a significant role in corporate environmental sustainability [12]. Employee green behaviour can complement government and corporate green policies, facilitating better progress in sustainable corporate development [13]. As a result, scholars have started to study employee green behavior [14]. However, there is still a lack of studies on this subject. Consequently, these limitations highlight significant gaps that warrant attention to gain insights into studies on employee green behavior.

Thus, this study aims to explore key concepts in this research area and summarize the main findings of previous studies. In addition, this study aimed to identify the factors influencing employee green behavior and to identify the most common theories of employee green behavior.

2. Methodology

The research methodology was meticulously designed to curate a collection of high-quality and relevant literature, vital for a comprehensive examination of the study area concerning employee green behavior and its integration within organizational practices. The methodology was structured into several distinct stages to systematically filter and identify pertinent literature, as outlined below:

A. Literature Search and Selection Process

Initially, a comprehensive literature search was conducted across two major databases, Scopus and Google Scholar, utilizing key phrases such as "employee green behaviour," "employee pro-environment behaviour," and "green human resources." This search focused on retrieving full-text publications published in English from the past until 2023. As a result, 300 potentially relevant articles were identified. As shown in Figure 1, this initial selection was refined by removing duplicates and reducing the corpus to 200 articles. Subsequently, a thorough examination of titles and abstracts was conducted to determine their direct connection to the study's main emphasis. Specifically, publications describing "pro-environmental behaviour" and "green human resource management in organisational contexts" were considered. As a result, 110 articles were selected for further assessment.

B. Screening Process

The screening of the 110 relevant articles was divided into initial and final stages to ensure the alignment of the selected literature with the research objectives:

1) *Initial screening*: This phase involved a preliminary review of article titles and abstracts, filtering out those not directly related to employee green behavior within organizational settings. This stage was crucial for excluding literature focusing on unrelated contexts, such as educational institutions.

2) *Final screening*: Articles that passed the initial screening underwent a thorough full-text review to evaluate their relevance and contribution to understanding employee green behavior in organizational settings. At this stage, 25 articles not fulfilling requirements were excluded from the analysis. This rigorous assessment resulted in the selection of 88 articles that closely matched the research criteria, providing a rich source of data for subsequent analysis.

Analysis and Synthesis: With a refined set of 88 articles, the researchers embarked on in-depth reading and analysis, focusing on extracting and organizing key concepts, factors influencing employee green behavior, and relevant theoretical frameworks. This stage was instrumental in distilling essential insights and evidence from the literature, facilitating a nuanced understanding of the research topic. The meticulous organization and synthesis of the literature not only enriched the literature review section but also underscored the study's scholarly rigor, enhancing the overall credibility and reliability of the research findings.

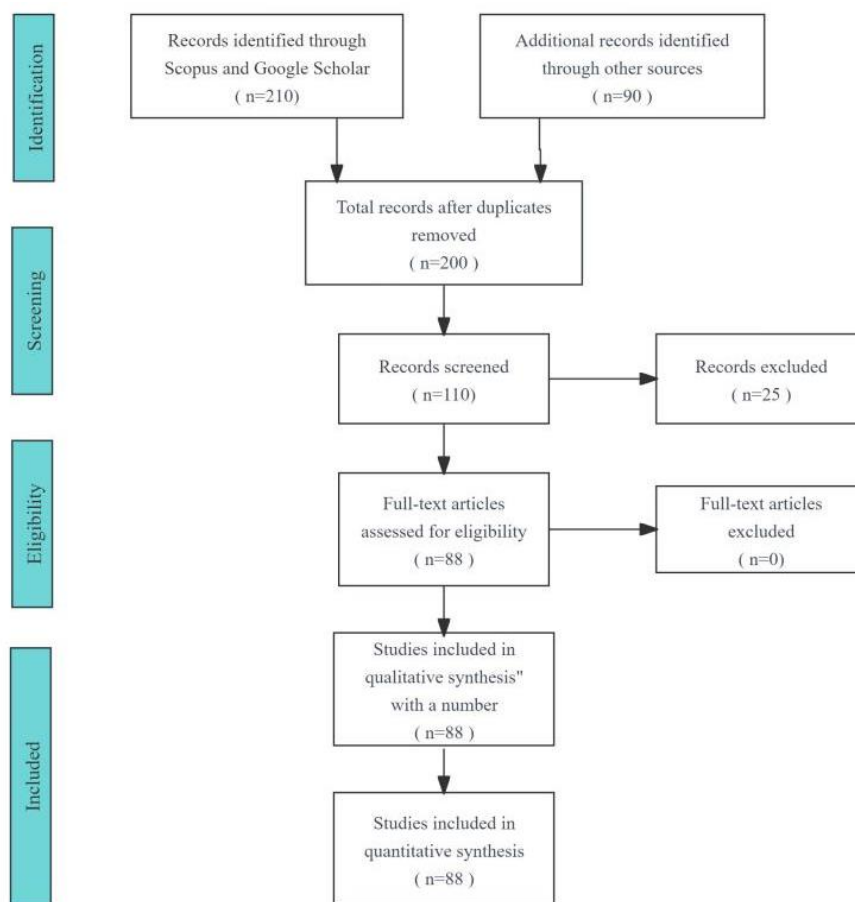


Figure 1. Flow diagram: Selection of articles

Figure 2 illustrates the annual distribution of publication counts drawn from selected journals that were used as references in this study, covering an extensive period from 1958 to 2023. The frequency of publications was generally low until 2011, with most years showing only one publication and no publications recorded for certain years. Notably, there was an increase in activity beginning in 2011, with the number of publications fluctuating annually and reaching a maximum of 10 publications in 2017. From 2019 to 2021, there was a period of increased consistency, with 8 studies contributed each year. This indicates a consistent interest and research concentration in the specified topic field over these years. And additional 6 research studies would be conducted in 2022. The overall trend presented in the data indicates the evolving interest and research intensity in the field encapsulated by the selected journals.

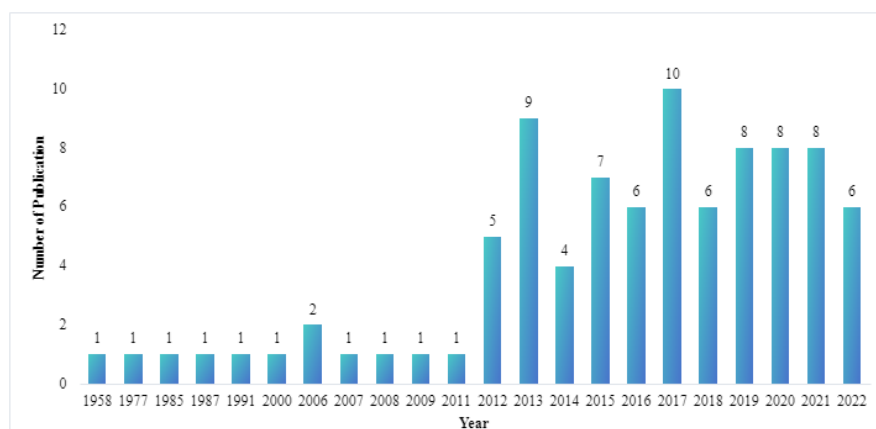


Figure 2. Trend of the sum of the number of publications per year

3. Findings

A. Employee Green Behavior

The concept of employee green behaviour evolved from the concept of "environmental behaviour" in the 1980s. "Environmental behavior" was used to describe individual actions taken to address environmental issues [15]. Stern introduced the concept of "pro-environmental behaviour," which refers to human behaviours that reduced negative impacts on the environment in 2000 [16]. The concept of "pro-environmental behaviour" has been widely used [17].

Building upon this foundation, in 2012, Ones introduced the more nuanced concept of "employee green behavior", which explicitly focuses on the environmental initiatives undertaken by employees within the workplace setting. This concept encapsulates four intrinsic elements: the identification of employees as agents of green initiatives; the independence of employees in performing these activities; the tangible positive environmental outcome of such actions; and the ability to quantify these behaviors [18]. Essentially, 'employee green behaviour' is an extension of 'pro-environmental behaviour' manifested in an occupational context, encompassing practices such as energy saving, water conservation, and comprehensive waste management, including sorting, reusing, and recycling, as well as the efficient use of resources [18, 19].

Academic discourse typically categorizes 'employee green behavior' into two distinct forms: task-related and discretionary [20]. This classification has been widely accepted in academia [21, 22]. Task-related employee green behavior refers to pro-environmental actions exhibited by employees in their job roles, such as using eco-friendly materials and processes and double-sided printing. Discretionary employee green behavior refers to pro-environmental actions exhibited by employees beyond their job roles [20], such as turning off lights and computers when leaving the office and promoting and supporting colleagues' environmentally friendly behaviors. Discretionary employee green behavior is not driven by social exchange incentives; rather, it is a moral behavior and a form of organizational citizenship behavior [23]. In reality, most employee green behaviors fall under discretionary employee green behavior [24]. Research on employee green behavior has focused mostly on discretionary employee green behavior [25, 26].

B. Factors Influencing Employee Green Behavior

It is being increasingly recognized that environmentally conscious behaviour on the part of employees is a significant component of organisations' responses to environmental sustainability [27]. This is due to the growing significance of environmental challenges. Additionally, academics have been paying a growing amount of attention to research on green behaviour among employees. As shown in Table 1, the majority of the research that has been conducted on the elements that influence the green behaviour of employees has concentrated on both the individual and organisational levels.

Table 1. Factors influencing Employee Green Behavior

Influencing Factors		Scholars
Individual Level	Personality Traits	Fraj & Martinez, 2006 ; Milfont & Sibley, 2012 ; Blok et al., 2015 ; Terrier et al., 2016 ; Kim et al., 2017
	Green Motivation	Steg & Vlek, 2009 ; S. H. Kim et al., 2016 ; Dumont et al., 2017 ; Norton et al., 2017
	Perception	Paillé & Boiral, 2013 ; Smith & O'Sullivan, 2012 ; Greaves et al., 2013 ; Norton et al., 2014 ; Raineri & Paillé, 2016 ; S. H. Kim et al., 2016 ; Norton et al., 2017 ; Wu et al., 2019 ; Xiao et al., 2020
	Values	Ruepert et al., 2017 ; Scherbaum et al., 2008 ; Hurst et al., 2013 ; Lamm et al., 2013 ; Chou, 2014 ; Dumont et al., 2017 ; Zhang et al., 2021
	Attitudes	Robertson & Barling, 2015 ; H. Tian et al., 2020 ; A. Kim et al., 2019 ; Sabokro et al., 2021

Influencing Factors		Scholars
Organizational Level	Leadership	Graves et al., 2013 ; Robertson & Barling, 2013 ; Mittal & Dhar, 2016 ; Raineri & Paillé, 2016 ; M. Kim et al., 2017 ; Xing & Starik, 2017 ; Wang et al., 2018 ; Azhar & Yang, 2021 ; Yang, 2019 ; Luu, 2020 ; Saleem et al., 2020 ; Ying et al., 2020 ; Saleem et al., 2021 ; Quan et al., 2022
	Organizational Climate	Norton et al., 2012 ; S. H. Kim et al., 2016 ; Dumont et al., 2017 ; Robertson & Barling, 2017 ; Zientara & Zamojska, 2018 ; Zhang et al., 2021
	Management Practices	Graves et al., 2013 ; Norton et al., 2014 ; Zibarras & Coan, 2015 ; Norton et al., 2017 ; Dumont et al., 2017 ; Chaudhary, 2019 ; Aboramadan, 2022 ; Chen et al., 2021 ; Amrutha & Geetha, 2021
	Corporate Responsibility	Q. Tian & Robertson, 2019 ; Su & Swanson, 2019 ; Ahmed et al., 2020 ; Koch-Bayram & Biemann, 2020 ; AlSuwaidi et al., 2021

Studies on employee green behaviour suggest that personal factors such as values, norms, and environmental attitudes influence the intention to engage in environmentally friendly actions. On the other hand, external factors such as situational context and leadership have an impact on actual pro-environmental behaviour. This relationship is illustrated in Figure 3 [28]. In other words, individuals with a propensity towards openness tend to embrace environmental values more readily, increasing the likelihood of engaging in green behaviors.

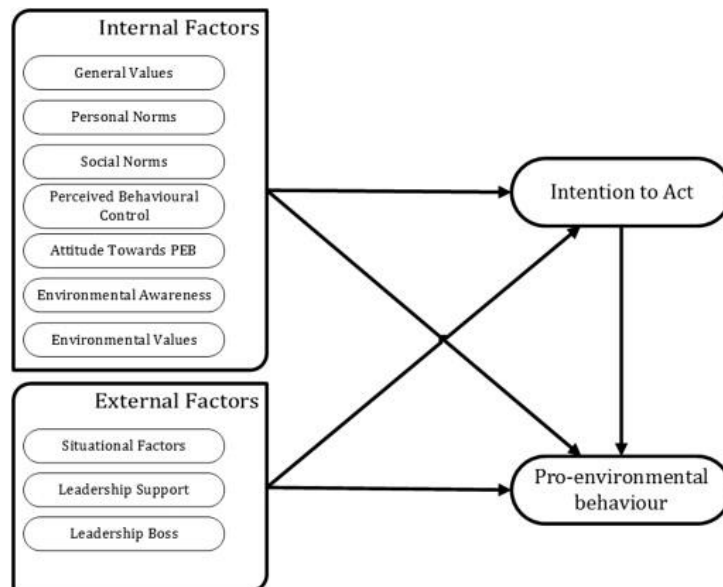


Figure 3. Factors affecting pro-environmental behaviour in the workplace

Source: Blok et al. (2015)

Furthermore, several researchers corroborate the perspectives put out by Blok et al. in 2015, which suggest that both intrinsic and extrinsic incentives have a substantial impact on employee green behavior[29]. There is a positive relationship between perceived organizational identity and employees' voluntary green behavior, which is mediated by the perception of internal person-organization fit [30]. Employees' green behavior is influenced by their own values [31]. In addition, a study conducted by Katz et al. revealed that there are favourable connections between the environmentally friendly actions of employees and their pro-environmental attitudes, corporate social responsibility, and green psychological climate [88]. Therefore, there is evidence indicating a strong correlation between employees' pro-environmental sentiments and their green behaviour[32].

Additionally, demographic variables and environmental knowledge were also investigated. There is a correlation between gender and employee green behaviour, with women exhibiting a greater inclination towards engaging in

green behaviour [33]. A correlation has been shown between environmental knowledge and employee green behaviour, with a strong relationship between the two [34].

Research on the organizational level of employee green behavior has focused primarily on leadership, organizational climate, management practices, and corporate responsibility. There is a significant positive relationship between servant leadership and employee green behavior that is mediated by psychological empowerment [35]. An environmental climate within an organization has a positive predictive effect on employee green behavior, moderated by environmental values [25]. Green human resource management has a significant impact on employee green behavior [36]. Corporate social responsibility influences employee green behavior through employee well-being and individual environmental norms [37].

C. The Most Common Theories Employed in Employee Green Behavior Studies

In the exploration of factors influencing employee green behaviour, scholars have drawn upon a diverse set of theories. These include the Theory of Planned Behavior, Self-Determination Theory, Social Exchange Theory, Social Learning Theory, Affective Events Theory [55], Social Cognitive Theory [56], Person-Organization Fit Theory [57], Social Information Processing Theory [58], Cognitive-Affective Processing System Theory [59], Broaden-and-Build Theory [20], and Stimulus–Organism–Response Model [60]. Within this spectrum, the theory of planned behavior, self-determination theory, social exchange theory, and social learning theory have been prevalently applied to studies of employee green behavior.

The significance of these four theories lies in their ability to comprehensively encompass the complete spectrum of psychological and sociological factors that influence employee green behaviour. The theory of planned behaviour posits that green behaviour is driven by conscious intentionality, which is influenced by attitudes, subjective norms, and perceived behavioural control. Self-determination theory emphasizes the crucial significance of both internal and extrinsic motivation in promoting personal satisfaction and rewards in behaviour. Social exchange theory explains how reciprocal connections within an organization can influence employee engagement in environmentally friendly behaviours. This finding suggests that employees are more likely to engage in such behaviors when they feel supported and receive positive reinforcement from their employers. Social learning theory explains how employees see and imitate green behaviours inside an organization, influenced by role models and the organisational context. Therefore, these theories collectively offer a logical framework for understanding the various factors that motivate employees to act in an ecologically responsible way. Therefore, these theories were selected for this study since they encompass both decision making and the individual, as well as the social influences that affect individuals and drive green behaviours in organisational contexts. For a more comprehensive analysis of these theories and how they have been used in existing research, please refer to Table 2.

Table 2. The Most Common Theories Employed in Employee Green Behavior Studies

Theory	Scholar
Theory of Planned Behavior	Graves et al., 2013 ; Mcconnaughy, 2014 ; Norton et al., 2015 ; Xing & Starik, 2017 ; Norton et al., 2017 ; Safari et al., 2018 ; Tian et al., 2020 ; Yuriev & Sierra-Barón, 2020 ; Sabbir & Taufique, 2022 ; Katz et al., 2022
Self-Determination Theory	Graves et al., 2013 ; A. Kim et al., 2019 ; Norton et al., 2015 ; M. Kim et al., 2017 ; Tian et al., 2020 ; Ying et al., 2020 ; Ying et al., 2020 ; Z. Zhang et al., 2021 ; Faraz et al., 2021
Social Exchange Theory	Paillé et al., 2013 ; Aboramadan et al., 2021 ; Ahmed et al., 2020 ; AlSuwaidi et al., 2021 ; Amrutha & Geetha, 2021 ; Darvishmotevali & Altinay, 2022
Social Learning Theory	Robertson & Barling, 2013 ; Yang, 2019 ; Tuan, 2019 ; Han et al., 2019 ; Saleem et al., 2020 ; Saleem et al., 2021

The application of these theories enables a more thorough examination of the intricacies of environmentally friendly behaviour, resulting in crucial discoveries that play a key role in promoting and improving sustainable practices inside organisations. The following description thoroughly examines each of these ideas, clarifying their distinct contributions to the field and providing guidance for studying green behaviours across several fields.

1) *Theory of Planned Behavior*: The theory of planned behavior (TPB) is used to explain individual behavior in specific environments. According to this theory, individual behavior is influenced by the individual's attitudes, subjective norms, and perceived behavioral control [81]. Based on the theory of planned behavior, it is evident that the implementation of employee green behavior is influenced by various factors, and extensive research by scholars is needed. Scholars consider the theory of planned behavior to be one of the most important theories in the study of employee green behavior [65].

The theory of planned behavior reveals that employees' attitudes, normative beliefs, and perceived behavioral control collectively affect their green behavior [53]. The theory of planned behavior explores the impact of environmental attitudes, motivations, beliefs, and norms on employee green behavior [22]. The theory of planned behavior reveals that there is a positive correlation between pro-environmental attitudes, norms, perceived behavioral control, intention, and employee green behavior [67]. Scholars have explored the role of planned behavior theory in the study of employee green behavior through a literature review [65].

2) *Self-Determination Theory* : Self-determination theory (SDT) suggests that individual behavior is influenced by individual motivation. This motivation can be categorized into intrinsic and extrinsic motivation. The initiation of individual behavior, such as employee green behavior, may be influenced by either or both of these motivations [82]. According to self-determination theory, the outcomes of employee green behavior (rewards or avoidance of punishment) serve as motivation for such behavior [29]. However, excessive emphasis on extrinsic motivation can have a negative impact on role-related behaviors such as employee green behavior [83]. To better understand the influencing factors of employee green behaviour, numerous scholars have applied self-determination theory to study employee green behaviour from the perspective of motivation. Scholars have explored the mediating role of environmental motivation in employee green behavior through self-determination theory and have found that environmental motivation positively predicts employee green behavior [69]. Through the influence of self-determination theory and the theory of planned behavior, pro-environmental attitudes stimulate employees' environmental motivation, thereby encouraging them to engage in more green behaviors [32]. Self-determination theory states that servant leaders influence employees' voluntary green behavior through psychological empowerment and intrinsic motivation [68]. Self-Determination Theory and Social Learning Theory reveal that under the moderating effect of self-efficacy, servant leadership has a positive impact on employee green behavior through intrinsic motivation [70].

3) *Social Exchange Theory*: Social exchange theory (SET) posits that all social activities can be understood as a form of exchange relationship. This exchange relationship, known as social exchange, is considered the fundamental form of human interaction [84]. In social life, individuals adhere to the "norm of reciprocity." When there is a perceived exchange of benefits in social interactions, it can motivate individuals to engage in voluntary behavior. Social exchange theory is an important framework in the study of employee green behavior.

Based on social exchange theory, scholars have conducted a survey on employees of Palestinian higher education organizations, with green work engagement as a mediator, and found that green human resource management positively influences employees' green behavior [72]. Social exchange theory has demonstrated that employee green training has a significant positive impact on voluntary employee green behavior through the presence of a supportive green organizational climate [73]. Social exchange theory shows that there is a significant correlation between corporate social responsibility and employee green behavior, moderated by employee well-being and personal environmental norms [37]. Social exchange theory also shows that under the regulation of servant leadership, green human resource management influences employee green behavior through environmental awareness [74].

4) *Social Learning Theory*: Social learning theory suggests that individual behavior can be learned directly through personal past experiences or indirectly through observing the behavior of others [85]. In this learning

process, individual attitudes and emotional responses play a significant role. Unlike traditional learning theories, social learning theory posits that social learning is a process that integrates information processing and reinforcement theories. Social learning theory has been widely applied in research related to organizational behavior, such as employee green behavior.

According to social learning theory, responsible leadership has a positive impact on employee green behavior through the mediating role of moral reflection [76]. Social learning theory has been utilized to investigate the correlation between responsible leadership and employees' environmentally sustainable behavior [78]. Social learning theory has shown that charismatic leadership has a positive impact on employee green behavior through the mediating variable of organizational justice [77]. Using social learning theory, a survey was conducted among 410 employees in universities and hospitals in Pakistan, revealing a positive correlation between ethical leadership and employee green behavior [79]. By applying social learning theory, it was determined that ethical leadership exerts a positive influence on organizational environmental performance. This influence operates through the mediating factors of a green psychological climate, employees' alignment with environmental concerns, and employees' commitment to environmental initiatives [80].

Our study utilizes a combination of the TPB, SDT, SET, and SLT to examine the environmentally friendly actions of employees in an organisational setting. Each source provides unique perspectives on the factors and mechanisms that contribute to environmentally responsible behaviour. These insights, when combined, offer holistic knowledge that aligns well with the goals of this study.

This study focuses on the role of the TPB [53, 65, 67, 81] in explaining how employees' intentions to engage in environmentally friendly behaviour are influenced by their attitudes, perceived behavioural control, and environmental norms. This enables our study to investigate the cognitive processes that drive employees' decision-making on sustainability activities within their organization. The cognitive model of SDT [29, 32, 68, 69, 70, 82, 83] is expanded by including the motivational factors that influence green behaviour. Self-compassion differentiates between intrinsic motivation, which is driven by personal happiness, and extrinsic motivation, which is influenced by external sources such as pressure or rewards. Our study applies this theory to gain an understanding of how these distinct motives might be utilized to promote an environmentalist culture within an organization. The group of papers [37, 72, 73, 74, 84] offers a framework for comprehending the trade dynamics that form the foundation of an organization. According to recent studies, when employees perceive their efforts towards sustainability as a mutually advantageous transaction, they are more inclined to participate in environmentally friendly actions. This research perspective enables our study to examine how an organization's policies and leadership may create an environment that encourages and incentivizes employees to participate in sustainable activities. SLT [76, 77, 78, 79, 80, 85] offers a valuable understanding of the societal foundations of environmentally friendly actions. Learning occurs when employees witness the behaviours exhibited inside the organization, particularly those of the leaders, and the subsequent culture that is established. As part of this study, we analyse how different leadership styles and the general organisational climate might act as influential factors that either promote or hinder environmentally friendly behaviour inside the organization.

These ideas collectively form a theoretical patchwork that enables our study to comprehensively analyse employee green behaviour. When combined, these elements illustrate how internal motives, social dynamics, and organisational culture come together to either support or hinder the implementation of environmentally sustainable activities. Through the implementation of an integrated theoretical approach, our study aims to develop research questions and objectives that provide practical solutions to an organization's endeavours to improve its sustainable initiatives.

4. Conclusion

This study accomplished its goals by conducting a thorough examination of the literature on employee green behaviour. This study revealed that a transition from individual factors to organisational factors was the primary influence on green behaviours among employees. Additionally, this study identified a significant area for future research regarding the distinction between voluntary green behaviours and task-oriented green behaviours. By applying the theory of planned behaviour, self-determination theory, social exchange theory, and worker social

learning theory, we identified several factors that can influence employees' environmental behaviour. These factors include the individual's personal attitudes and motivations, the impact of various organisational factors such as culture, and the role of leadership. These findings demonstrate the intricate nature of influencing sustainable behaviours in the workplace and highlight the crucial importance of organisational context in establishing an environmentally friendly organization. The findings indicate that organisations should consider green behaviours as a strategy to enhance sustainability at both the cultural and operational levels, therefore maximizing the benefits of their sustainability initiatives.

5. Discussion

Regarding the antecedents of employee green behaviour, early scholars focused primarily on individual-level factors, while later scholars recognized the importance of organizational-level influences on employee green behaviour, leading to more research on organizational-level factors. In practical work settings, employee green behavior is mostly voluntary, with fewer instances of task-oriented green behavior. Within the academic community, scholars have conducted more research on voluntary green behavior while paying less attention to task-oriented green behavior. The study of the factors influencing employee green behaviour is not yet systematic, and future research still needs to explore more unknown variables, such as negative influencing factors. With numerous influencing factors on employee green behavior, which factor is the most important? What are the relationships between these influencing factors? These questions still require further research.

Scholars primarily rely on the theory of planned behavior, self-determination theory, social exchange theory, and social learning theory to study the influencing factors of employee green behavior. These four theories provide explanations from different perspectives regarding the influences on employee green behavior. The theory of planned behavior explains from the perspective of behavioral attitudes, self-determination theory from the perspective of motivation, social exchange theory from the perspective of benefit exchange, and social learning theory from the perspective of information learning. Research theories on employee green behavior are relatively concentrated, and future studies should attempt to apply other theories from various perspectives to explain the influencing factors of employee green behavior.

Considering the significant contribution of employee green behavior to the environmental sustainability of organizations [86], scholars are encouraged to research employee green behavior from different angles and to use various research methods by implementing relevant policies. The study of employee green behavior is expected to become a hot topic in the academic community [87]. Organizations can shift their focus to task-oriented green behaviour and incorporate employee green behaviour into employees' job responsibilities.

6. Limitations

This study has a few limitations that must be addressed. First, this systematic review attempted to determine the factors influencing green behaviour in the workplace at the individual and organization levels. Second, this systematic literature review assessed two databases. It may be beneficial for a broader systematic review to use other databases related to research questions. Third, the publication years included were 1958–2022. Therefore, future systematic literature reviews on this topic could use more databases and cover a wider range of publication years to identify a greater number of relevant studies.

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