How Does Responsible Leadership Affect Employees' Voluntary Workplace Green Behaviours? A Multi-level Dual Process Model of Voluntary Workplace Green Behaviours

Abstract

Drawing upon social identity and social information processing theories, we theorised and tested a multi-level model in which responsible leadership triggers employee voluntary green behaviour in the workplace by fostering organisational identification and a green work climate. Additionally, we distinguished these two critical processes by introducing employees' green values as a moderator. A multi-level, multi-source study collected from 299 employees and 71 supervisors generally supported our predictions. Specifically, responsible leadership was a significant predictor of voluntary green behaviour in the workplace. Moreover, employees' green values strengthened the organisational identification mechanism and attenuated the green work climate process in the relationship between responsible leadership and voluntary green behaviour in the workplace. The findings and the theoretical underpinning of our study shed a new light on the green work climate, identity and, in a responsible way, shape the voluntary green behaviours among organisational actors, and provide practical implications for leaders determined to improve environmental sustainability in organisations.

Keywords: responsible leadership; voluntary workplace green behaviour; green work climate; organisational identification; green values.

1. Introduction

Environmental issues such as pollution, ecological degradation and global warming pose a severe challenge for the world which endows organisations with a new mission — protecting the ecological environment and striving toward environmental sustainability (Robertson & Barling, 2013; Andersson et al., 2013; Pham et al., 2020; Nguyen et al., 2021). Organisations are undertaking improved environmental responsibility by enacting and implementing green policies and practices. Management and organisational scholars term the initiatives that improve environmental sustainability as 'green organisational practices', and behaviours in line with environmental sustainability are called 'green behaviours'. Organisations employ environmentally sustainable standards based on rigid rules (Nasir et al., 2021) but most green initiatives depend upon individuals' voluntary participation. Voluntary workplace green behaviour (VWGB) is defined as 'discretionary employee actions that contribute to the environmental sustainability of the employer organisation but are not under the control of any formal environmental management policies or system' (Kim et al., 2017, p.1337).

To better understand how to encourage employees to display VWGB, scholars have acknowledged that employee VWGB can be promoted by leadership behaviours (e.g., spiritual and transformational leadership) since leaders as organisational agents exert a powerful influence on employees (Robertson & Barling, 2013; Wesselink et al., 2017). Responsible leadership refers to 'a social-relational and ethical phenomenon which occurs in social processes of interaction to achieve societal and environmental targets and objectives of sustainable value creation positive change.' (Maak & Pless,

2006, p. 99). According to its definition, responsible leadership considers the natural environment as an essential stakeholder (Miska et al., 2014; Han et al., 2019) and focuses on societal and environmental sustainability and tries to achieve harmony among people, society and nature (Pless & Maak, 2011; Miska & Mendenhall, 2018) which is consistent with the values reflected in the green behaviour. Arguably, responsible leaders play a vital role in transmitting the greening efforts to individuals more proactively as responsible leaders are concerned about being environmentally sustainable (Székely & Knirsch, 2005; Miska et al., 2014). Hence, by integrating responsible leadership and workplace green behaviour research, this study probes how responsible leadership influences employee VWGB.

Drawing upon social identity[1] and social information processing theories (Tajfel, 1978; Salancik & Pfeffer, 1978), we theorise and examine a multi-level model that explicates how responsible leadership stimulates individuals to engage in VWGB. VWGB (e.g., saving energies and papers, recyclable materials) is beneficial for the organisation by saving material resources and reducing costs. Therefore, employees' attitudes and cognitions toward their organisations may impact their voluntary green behaviours. If an employee considers him or her to be a member of the organisation and defines him or herself with the organisation, they are more prone to participate in green behaviour in the workplace. Following social identity theory (Tajfel, 1978), we propose that responsible leadership motivates employee VWGB by evoking organisational identification.

Moreover, workplace green behaviour is also an environmentally specific action. Thus, the green work climate of an organisation may induce employee green behaviour. Based on social information processing theory (Salancik & Pfeffer, 1978), we argue that responsible leadership elicits employee VWGB by cultivating a green work climate. Specifically, responsible leadership could cultivate a green work climate by signalling to employees that environmental sustainability is expected and supported by organisations (Székely & Knirsch, 2005; Miska et al., 2014; Thomas et al., 2014). Overall, our study postulates that responsible leadership promotes organisational identification and green work climate, thus augmenting employee VWGB.

Prior studies have revealed that social contexts interact with individual differences to impact green behaviour (Steg & Vlek, 2009; Kim et al., 2017; Thomas et al., 2014; Canh et al., 2020). We argue that

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[1] Social identity theory (Tajfel, 1978) is only one strand of identity theories that still include identity control (Stets & Burke, 2005), identity accumulation (Thoits, 1983), uncertainty-identity (Hogg, 2007), affect control (Heise, 1987), and self-categorisation theories (Turner et al., 1987). We select social identity theory as our theoretical framework in that the organisational identification process we explore stems from this theory (Ashforth & Mael, 1989). Identity control theory posits that drawing by self-verification motive, individuals constantly assess whether identity-relevant information in the situation is consistent with their own identity standard so that they can produce emotions and behaviours according to the outcomes of the comparison (Stets & Burke, 2005). Identity accumulation theory suggests that an individual possesses multiple role identities and highlights the influences of multiple role identities on psychological health and behaviours (Thoits, 1983). Uncertainty-identity theory argues that individuals are motivated to decrease the feelings of uncertainty by identifying with a group (Hogg, 2007). Affect control theory focuses strongly on the impacts of shared social culture (not only subculture) on personal identity and social behaviours (Heise, 1987). Self-categorisation theory seeks to explain how individuals categorise themselves as the members of groups (i.e., maximising intragroup similarity and intergroup differences) (Turner et al., 1987).

employee green values, defined as 'the feeling of having a personal obligation to fulfil individual self-expectations regarding environmental sustainability' (Dumont et al., 2017), explain when both organisational identification and green work climate affect individual green behaviour to exhibit how the organisational identification view differentiates with the green work climate mechanism. Individuals with higher organisational identification may be involved in other behaviours highly regarded by their employers (e.g., helpful behaviours towards co-workers) (Van Dick et al., 2006; Wu et al., 2016) and may not certainly exhibit VWGB. What makes these employees demonstrate higher green behaviours? We suggest that employees' green values reinforce the effect of organisational identification on workplace green behaviour as employees with higher green values focus more on environmental efforts than those having lower green values. However, employees' green values will attenuate the link between green work climate and green behaviours because employees with high green values have felt obligated to offer environment-friendly behaviour. Hence, a green work climate will be less significant for them to improve green behaviour. Resultantly, green values function to discriminate the organisational identification view from the green work climate mechanism.

The remainder of this article unfolds as follows. First, we discuss voluntary workplace green behaviour with a brief literature review on individual and contextual factors that could impact employee voluntary green behaviour. Second, we present our hypotheses regarding the effect of responsible leadership on voluntary workplace green behaviour, the mediating roles of organisational identification and green work climate, and the moderating effect of green values. Third, we provide the sample collecting procedures and the methods we used to test our hypotheses, as well as the results. Lastly, theoretical and practical implications are discussed.

2. Theory and hypotheses
2.1. Voluntary workplace green behaviour

According to Norton et al. (2015), workplace green behaviour is categorised into required and voluntary green behaviour. Required green behaviour is defined as the extent to which employees accomplish required tasks in ways that conserve resources and protect the environment, such as adopting green craft or selecting eco-friendly alternatives. That is, required green behaviour reflects that the processes of accomplishing in-role tasks involve environmental protection. Voluntary green behaviour is defined as employees' pro-environmental behaviours that are discretionary and go beyond the domain of in-role tasks such as cutting off electricity when leaving the office or recycling reusable resources in the workplace. We focus on voluntary workplace green behaviour.

Extant research has suggested that some individual and contextual factors could impact employee workplace green behaviour (Norton et al., 2015; Kim et al., 2017). (1) Individual factors. A host of studies have explored the influences of personal factors on employee green behaviour, such as environmental values, norms, attitudes and passion (Andersson et al., 2005; Norton et al., 2017), job factors (Paille & Boiral, 2013; Paille & Mejia-Morelos, 2014), positive affect (Bissing-Olson et al., 2013) and motivation (Graves et al., 2013). For instance, pro-environmental norms and values make employees feel obligations to demonstrate green behaviours, thus stimulating energy-conservation behaviours (Scherbaum et al., 2008). Furthermore, studies have uncovered that job factors play a

crucial role in influencing employee green behaviours. For example, job satisfaction (Kim et al., 2019), perceived organisational support (Paillé & Boiral, 2013) and organisational commitment (Paillé & Mejia-Morelos, 2014) have been shown to exert positive influences on employee green behaviour. (2) Contextual triggers. Organisational, leader and team factors exert potent effects on employee green behaviour. Organisations can spark employee green behaviour by enacting and implementing some policies and management practices. For instance, research has reported that green human resource practices cultivate green work climate and subsequent green behaviour (Dumont et al., 2017) and an organisational sustainability policy is an essential predictor of employee green behaviour (Norton et al., 2014). Furthermore, external pressures organisations face (e.g., laws, regulations and industrial standards) force firms to formulate green policies and practices, propelling employees to engage in green behaviours (Marshall et al., 2005; Shahbaz et al., 2020). In terms of leader behaviours, researchers have shown that transformational leadership, leader conscientiousness and moral reflectiveness positively predict employee workplace green behaviour (Robertson & Barling, 2013; Graves et al., 2013; Kim et al., 2017). For example, Robertson & Barling (2013) indicated that transformational leadership positively affects employee green behaviour by evoking harmonious environmental passion. Kim et al. (2017) revealed the positive effects of leader conscientiousness and moral reflectiveness on employee VWGB. Research has suggested that employee workplace green behaviours are influenced by team-level motivators, including team norms and attitudes, team green climate and team green advocacy (Norton et al., 2014; Kim et al., 2017).

2.2. Responsible leadership and VWGB

Nowadays, leaders are confronting a complex and dynamic business setting that expects them to accomplish the financial goals and pay greater attention to CSR-related concerns (Voegtlin et al., 2012). Likewise, Maak & Pless (2006) conceptualised and theorised responsible leadership by combining leadership with CSR literature. Responsible leadership captures three key elements: (1) *Effectiveness.* Responsible leadership brings favourable ramifications for both employees and organisations, such as enhanced firm performance (Wang et al., 2015) and elevated employee affective commitment, job satisfaction and retention (Doh et al., 2011; Haque et al., 2019; Voegtlin et al., 2020). (2) *Ethics.* Responsible leaders behave ethically. They lead by example for their followers to act in the right way (Waldman, 2011; Freeman &d Auster, 2011). For example, Voegtlin (2011) reported that responsible leadership reduces the unethical behaviours of their followers. (3) *Sustainability*. Responsible leadership can lead sustainability in organisations by focusing more on social, environmental and economic performance (Szekely & Knirsch, 2005; Miska et al., 2014).

Responsible leadership and other leadership types (transformational and ethical leadership) have some overlaps and differences. Responsible leadership is similar to transformational leadership in that they offer individualised support to employees and care for employees' interests (Voegtlin, 2011). Nevertheless, they have several distinctions. Transformational leadership focuses on leaders and employees within an organisation and exerts its influences on employees by demonstrating their charisma, delineating a beautiful vision of the future and providing challenging tasks (Bass, 1999). Responsible leadership tries to build trustful associations with relevant stakeholders, including internal and external (i.e., employees, investors, natural environment and customers) (Pless & Maak, 2011; Miska & Mendenhall, 2018).

Moreover, both ethical and responsible leadership share the ethical component because they inhibit employees' unethical behaviours by acting ethically (Brown & Treviño, 2006; Voegtlin, 2011). Their differences are that ethical leadership focuses on the dyadic link between a leader and an employee whereas responsible leadership cares for internal and external stakeholders (not only employees). In sum, a critical distinction between responsible leadership and other leadership theories is that responsible leadership views the natural environment as an essential stakeholder (Miska et al., 2014; Han et al., 2019) which is in line with the purpose of green behaviour that employees engage in.

Although research has demonstrated the positive effects of responsible leadership for organisations and employees (Doh et al., 2011; Voegtlin, 2011; Wang et al., 2015), its potential impact on VWGB has not been investigated empirically so far. Hence, we argue that responsible leadership is particularly critical for employees in increasing VWGB because responsible leaders pay attention to ecological and environmental issues and encourage employees to exhibit workplace green behaviour (Miska et al., 2014; Han et al., 2019).

2.3. The mediating role of organisational identification

Organisational identification is defined as employees' perceptions of oneness or belongingness with the organisation (Ashforth & Mael, 1989; Mael & Ashforth, 1992). Employees identifying with organisations tend to integrate the goals, missions, and values of organisations into their self-conceptions, thereby developing high similarity between them and organisations in terms of goals and values. We contend that responsible leadership can motivate employees to identify with their organisations. Social identity theory suggests that the fulfilment of belongingness, self-enhancement and uncertainty reduction needs can promote organisational identification (Pratt, 1998; Hogg & Terry, 2000). Responsible leaders, as organisational representatives, can create an environment in which the interests of individuals are taken into account and employees perceive themselves as insiders (Doh & Quigley, 2014) which thus enhances employees' sense of belongingness, importance and being valued and, therefore, organisational identification (Voegtlin, 2011). Accordingly, the need for the self-enhancement of the employee will be fulfilled thereby fostering organisational identification. The element of being ethical is a crucial part of responsible leadership (Coldwell et al., 2012). Put differently, responsible leadership can make employees feel safe and decrease the sense of uncertainty which, in turn, raises their organisational identification.

We further argue that organisational identification positively predicts employee VWGB. Employees having high organisational identification consider organisational goals as their own goals (Mael & Ashforth, 1992; Ellemers et al., 2004). Hence, employees will provide extra effort in order to participate in their organisational endeavours. Prior research has showed that organisational identification is positively related to employees' behaviours valued by the organisation, including OCB, job performance and job engagement (He et al., 2014; Wu et al., 2016). VWGB (e.g., recycling materials and saving energy and papers for the organisation) benefits the environment and the organisation (Lamm et al., 2013; Kim et al., 2017). Empirical researchers have also reported the positive effects of employees' green behaviours on organisational environmental performance and financial performance (Paillé et al., 2014; Tian & Robertson, 2019). Because employees with higher

organisational identification demonstrate more engagement in behaviours valued by their organisations, we expect that these employees may perform VWGB as this behaviour can promote organisational success. Accordingly, we argue that responsible leadership will augment VWGB via organisational identification. Hence, we posit:

Hypothesis 1: Organisational identification mediates the relationship between responsible leadership and VWGB.

2.4. The mediating role of green work climate

Green work climate is defined as 'employees' shared perceptions and interpretations of organisational norms and practices concerning environmental sustainability' (Norton et al., 2014). Employees in a group are prone to establish relatively coherent views of a green work climate as they communicate and interact with one another at the workplace (Liao & Rupp, 2005). Leaders are critical in developing a desirable environment in organisations (Naumann & Bennett, 2000). Previous studies have also highlighted that climate can be created by leader behaviours (Shin et al., 2015; Demirtas & Akdogan, 2015). In light of social information processing theory, we expect that responsible leadership is positively linked to a green work climate. The theory suggests that employees are prone to utilise information gathered from their social setting to perceive organisational norms and practices (Salancik & Pfeffer, 1978). The information cues conveyed by leaders may receive more attention from employees since leaders are the organisational representatives. Put simply, employees perceive the organisational practices and norms per their leaders' behaviours. Responsible leaders pay greater attention to the organisation's interests and stakeholders by creating a balance through managerial measures (Voegtlin, 2011; Witt & Stahl, 2016). Responsible leadership considers the ecological environment as a critical stakeholder (Pless, 2007; Miska et al., 2014). Accordingly, they can promote green efforts, making sense that the greening efforts are appropriate and supported by the organisation. Likewise, responsible leaders will create awareness in employees to take care of the environment (Pless, 2007; Miska et al., 2014). Such leaders may develop a green work climate by enacting reward and punishment measures concerning environmental concerns.

We further argue that a green work climate sparks employee VWGB. The climate research has tested its potential impacts on employee outcomes. For instance, a service climate helps increase employee service performance (Liao & Chuang, 2004), and voice climate is positively related to employee voice behaviour (Morrison et al., 2011). When there is a green climate in the workplace, employees will perceive that green activities are encouraged and expected by organisations, (Norton et al., 2017) hence they are more likely to be involved in green actions. Previous empirical studies have also shown that green work climate could increase employee workplace green behaviour (e.g., Norton et al., 2014; Norton et al., 2017). Following these arguments, we submit that the relationship between responsible leadership and VWGB occurs by fostering green work climate. Thus, we propose:

Hypothesis 2: Green work climate mediates the relationship between responsible leadership and VWGB.

2.5. The moderating effect of green values

The organisational identification approach assumes that employees identifying with the organisation will devote more effort to helping the organisation (Wu et al., 2016). Workplace green behaviour is part of such behaviours (Lamm et al., 2013; Kim et al., 2017). What causes individuals with higher organisational identification to demonstrate more green behaviours instead of other behaviours? Prior research has indicated that personal values can guide the selection and evaluation of actions (Liu et al., 2013). For instance, Dumont et al. (2017) suggested that green values reflect an employee's concern for environmental sustainability. Chou (2014) uncovered that employees with high personal environmental norms exhibit behaviours benefiting the environment. Hence, we focus on employee green values as a moderator.

We posit that green values will strengthen the influence of organisational identification on employee green behaviour. When employees with stronger organisational identification hold higher green values, they are more likely to demonstrate workplace green behaviour because it is not only beneficial for the organisation but also a way to express their green values (i.e., protecting the environment). In contrast, when employees identifying with their organisations have lower green values, they are more likely to direct their attention toward other behaviours helping the organisation rather than green behaviour. It is because employees with low green values lack environmental awareness so, even when these employees hold strong organisational identification, they are less likely to participate in green behaviour. Providing indirect support for these contentions, Lipponen et al. (2008) reported that employees identifying with their organisations are more likely to make suggestions for improvement at work when paired with a higher level of openness to change values. Those who identify with their organisations with a lower level of openness to change values are more likely to invest their efforts in other aspects such as enhancing job engagement and job performance rather than making suggestions for improvement.

In a similar vein, employees' green values should moderate the relationship between green work climate and VWGB. However, the direction of green values' moderating influence in the association between green work climate and VWGB may differ from that of the link between organisational identification and VWGB. We postulate that green values mitigate the influence of a green work climate on employees' VWGB. Some empirical evidence has revealed that a high climate leads employees' responses to be more consistent and uniform as strong expectations restrict employees' behavioural expression (Barrick & Mount, 1993; Meyer et al., 2010; Lee & Dalal, 2016). However, there is ambiguity about the appropriateness of responses in a low climate due to weak expectations leading individual differences to exert powerful effects on individuals' behavioural consequences. Supporting these arguments, Beaty et al. (2001) conducted experimental research indicating that extraversion has a stronger association with contextual performance when the expectation for performance is low (i.e., weak situation) versus high (i.e., strong situation). These arguments can also extend to the study of workplace green behaviour. Employees holding high green values have felt obligations to act pro-environmentally (Dumont et al., 2017). Hence, they will also exhibit VWGB despite the low level of green work climates. That is, a green work climate becomes less significant for individuals with high green values to heighten VWGB. Conversely, employees with low green values are not aware of how to protect the environment. Consequently, a green work climate will be specifically pivotal for them to promote VWGB. Thus, we hypothesise:

Hypothesis 3a: Green values amplify the association between organisational identification and employee VWGB. The association is more positive when employees' green values are high rather than low.

Hypothesis 3b: Green values weaken the association between green work climate and employee VWGB. The association is more positive when employees' green values are low rather than high.

Combining Hypotheses 1 with 3a, we further posit that green values moderate the direct relationship between organisational identification and VWGB and moderate the indirect pathway via organisational identification. Briefly stated, this indirect influence differs across the levels of green values. Additionally, according to Hypotheses 2 and 3b, we argue that the indirect impact of responsible leadership on VWGB via a green work climate differs with the levels of green values. We suggest the following:

Hypothesis 4a: The indirect effect through organisational identification is moderated by green values such that the indirect effect is stronger when employees' green values are high rather than low.

Hypothesis 4b: The indirect effect through a green work climate is moderated by green values such that the indirect effect is stronger when employees' green values are low rather than high.

In summary, Figure 1 describes our research model.

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3. Methods
3.1. Sample and procedures

We collected data from 16 organisations in China. The participating organisations cover the manufacturing, finance, food processing, and communications industries. Considering the respondents are Chinese, we translated the English questionnaires into Chinese using the translation-back-translation procedure (Brislin, 1970). To mitigate the potential concerns of common method bias, we collected multisource data including employees and their immediate supervisors. We first contacted HR managers in those organisations and explained the purpose of our research and the contents of questionnaires. With HR managers' help, we selected the company's workgroups and randomly invited employees from each participating group to participate in the survey. Then, we sent a brief instruction to each respondent to make sure that their participation was voluntary, confidentiality was assured, and that the purpose of this survey was solely for academic research. During this survey, employees reported responsible leadership, organisational identification, a green work climate, and green values, while supervisors assessed VWGB for their participating subordinates.

We approached 386 employees and 87 group leaders to participate in the survey. We used a matched

code procedure to categorise employees' responses with their respective supervisors. Three hundred twenty-seven employees and 75 supervisors responded. The final usable sample consisted of 299 employees and 71 supervisors. On average, one supervisor assessed 4.211 employees. Among 299 employees, 61.9% were female. The average age of employees was 31.167 years old (SD= 6.85), with an average organisational tenure of 5.85 years (SD = 6.236). Most held junior college or undergraduate degrees in terms of their education (i.e., 78.9%).

3.2. Measures

The scales to measure five key constructs consisting of responsible leadership, organisational identification, green values, green work climate and VWGB have been shown desirable reliabilities and validities in previous research conducted in Chinese or Eastern contexts (Loi et al., 2014; Wu et al., 2016; Dumont et al., 2017; Kim et al., 2017; Han et al., 2019; Kim et al., 2019). Responsible leadership, organisational identification, green work climate and green values were rated using a 5-point Likert type scale (1 = strongly disagree to 5 = strongly agree), and VWGB was measured on a 7-point Likert type scale (1= never to 7= constantly).

Responsible leadership. We assessed responsible leadership using five items developed by Voegtlin (2011). First, in the questionnaire's instruction, we considered stakeholders as those who may influence or are influenced by the organisational actions, policies, and objectives, including customers, investors, suppliers, employees, the natural environment, the society, the local community, or the government. Next, employees were asked to rate their supervisors' behaviours. A sample item included "My direct supervisor considers the consequences of decisions for the affected stakeholders" (α = 0.906). Responsible leadership was measured at group-level. For this group-level appropriateness, we assessed R_{wg}, ICC (1) and ICC (2). Results showed that the mean score of R_{wg} was 0.852, ICC (1) was 0.238 (p < 0.001) and ICC (2) was 0.568. Due to the relatively smaller average of respondents (i.e., employees) per group (n=4.211) in our study, our ICC (2) value failed to reach the suggested index of 0.70 (Bliese, 2000) but researchers have recommended aggregating if the R_{wg} values are higher and there are significant between-group variances of the variables (Kozlowski & Hattrup, 1992; Chen & Bliese, 2002). Thus, individual-level responsible leadership was aggregated to the group-level.

Green work climate. We measured green work climate using a five-item scale developed by Norton et al. (2017). A sample item was "Our company is concerned with becoming more environmentally friendly" (α = 0.901). We performed data aggregation (mean R_{wg} = 0.865, ICC (1) = 0.301, p < 0.001 and ICC (2) = 0.645).

Organisational identification. We evaluated organisational identification with a six-item scale developed by Mael & Ashforth (1992). A sample item was "My organisation's successes are my successes" (α = 0.883).

VWGB. Employees' VWGB was rated by their direct supervisors using a six-item scale developed by Kim et al. (2017). A sample item was "This employee recycles reusable things in the workplace" (α = 0.826).

Green values. According to Dumont et al. (2017), we evaluated green values with a three-item scale developed by Chou (2014). A sample item was "I feel a sense of personal obligation to take action to stop wasting resources" ($\alpha = 0.793$).

Control variables. Following previous green behaviour research (Kim et al., 2017), employees' gender, age, education, tenure and group size were controlled in this study. Furthermore, they were controlled for the perceived presence of organisational sustainability policy since prior research has indicated that it positively affects employees' green behaviour (Norton et al., 2014). Following Norton et al. (2014), we adopted one item to measure this variable. Employees were asked to respond using "Yes" or "No".

3.3. Analytical strategy

The data were obtained from group leaders and their multiple subordinates, hence, multi-level analyses were utilised to examine hypotheses. We ran null models predicting organisational identification and VWGB. Results showed that ICC (1) values of organisational identification and VWGB were 0.317 and 0.762 respectively, providing support for multi-level analyses.

To test moderated mediation effect hypotheses, we followed the suggestions of Preacher & Selig (2012). Specifically, we estimated 95% confidence intervals (CI) of indirect effects at high and low levels of the moderator (i.e., green values) and the difference of these two effects. Moderated mediation effect hypotheses were supported when 95% CI of the difference in the two indirect effects did not contain zero.

4. Results
4.1. Confirmatory factor analyses

Confirmatory factor analyses were conducted to examine the discriminant validity among responsible leadership, organisational identification, green work climate, VWGB, and green values. As shown in Table 1, the five-factor model had satisfactory fit indices, $\chi^2_{(265)} = 408.156$, RMSEA= 0.043, TLI= 0.962, CFI = 0.966, IFI=0.966, suggesting excellent discriminant validity of the measures in this study.

In addition, we tested the convergent validity of these variables by calculating the average variance extracted (AVE) and composite reliability (CR). Table 2 indicated that the AVE and CR values of these constructs were above 0.50 and 0.80 respectively, demonstrating acceptable convergent validity of this study's key variables.

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4.2. Hypotheses testing

Standard deviations, reliabilities and correlation coefficients of variables are reported in Table 3.

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Hypothesis 1 stated that the link between responsible leadership and VWGB is mediated by organisational identification. Results (see Table 4) uncovered a positive influence of responsible leadership on VWGB (Model 4, γ = 0.343, p < 0.05). Furthermore, responsible leadership was positively related to organisational identification (Model 2, γ =0.367, p < 0.001). Finally, the impact of organisational identification on VWGB was not significant (Model 5, γ = 0.003, ns) after controlling for responsible leadership and green work climate. Hence, Hypothesis 1 was not supported.

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Hypothesis 2 suggested that a green work climate would mediate the relationship of responsible leadership with VWGB. We conducted a path analysis to test the impact of responsible leadership on green work climate because they were group-level variables. Table 5 presented that the effect of responsible leadership in predicting green work climate was positive (Model 8, γ =0.50, p < 0.001). Moreover, the influence of green work climate in predicting VWGB was significant (Model 5, γ =0.59, p < 0.01), while responsible leadership became a non-significant relationship with VWGB (Model 5, γ = 0.008, ns). We adopted the parametric bootstrap procedure (Preacher & Selig, 2012) and found that the indirect effect through green work climate was significant (γ = 0.295, 99% CI = [0.051, 0.636]) in support of Hypothesis 2.

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Hypothesis 3a expected that green values moderate the effect of organisational identification on VWGB. Results (see Table 4) presented that organisational identification interacted with green values to affect VWGB (Model 6, γ = 0.122, p < 0.01). The moderating effect was depicted in Figure 2. Simple slope analysis (Aiken & West, 1991) indicated that the influence of organisational identification in predicting VWGB was positive (γ = 0.136, p < 0.01) when green values were high but non-significant (γ = -0.108, ns) when green values were low. Thus, Hypothesis 3a received support.

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FIGURE 2 HERE
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Hypothesis 3b argued that green values attenuate the influence of green work climate on VWGB. Table 4 reported that a green work climate interacted with green values to predict VWGB (Model 6, γ = -0.142, p< 0.01). The results of simple slope analysis (see Figure 3) suggested that the association of a green work climate with VWGB was stronger when green values were low (γ = 0.802, p< 0.001) than when green values were high (γ = 0.518, p< 0.01), thus supporting Hypothesis 3b.

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To examine Hypotheses 4a and 4b (moderated mediation effects), we again employed the parametric bootstrap method which showed that the indirect effect through organisational identification was significant (γ = 0.05, 95% CI = [0.006, 0.109]) when green values were high but non-significant (γ = -0.039, 95% CI = [-0.094, 0.004]) when green values were low (see Table 6). In addition, the difference was also significant ($\Delta\gamma$= 0.089, 95% CI = [0.031, 0.166]). Consequently, Hypothesis 4a was supported.

Table 6 reported that the indirect effect via green work climate was stronger (γ = 0.395, 95% CI = [0.176, 0.671]) when green values were low and was weaker (γ = 0.245, 95% CI = [0.056, 0.478]) when green values were high. Meanwhile, the difference between the indirect effects through green work climate at high and low green values was significant ($\Delta\gamma$= -0.15, 95% CI = [-0.263, -0.062]). As a result, Hypothesis 4b was supported.

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5. Discussion

Integrating social identity and social information processing theories, we developed a conceptual model accounting for why responsible leadership evokes employee VWGB. In line with social identity theory (Ashforth & Mael, 1989; Tajfel, 1978), we posit that responsible leadership arouses organisational identification because responsible leaders consider employees' interests and make employees perceive themselves as insiders (Doh & Quigley, 2014), thereby facilitating VWGB. Our findings failed to support this argument owing to a non-significant association between organisational identification and VWGB. However, we indicated that green values moderate the effect of organisational identification on VWGB, suggesting that organisational identification and green values jointly shape VWGB. In addition, in light of social information processing theory (Salancik & Pfeffer, 1978), we argue that responsible leadership cultivates green work climate by signalling to employees that environmental sustainability is supported by organisations which induces employee VWGB. Results revealed that green work climate mediates the link between responsible leadership and VWGB

and that green values play a buffering role in the green work climate mechanism.

5.1. Theoretical contributions

The present study extends the existing literature on environmental sustainability for organisations in two ways. Previous research has suggested that leadership behaviours play an essential role in predicting workplace green behaviour (Robertson & Barling, 2013; Wesselink et al., 2017). Surprisingly, we know little about how responsible leadership that emphasises environmental sustainability affects employee workplace green behaviours. We answered the research question by associating responsible leadership with employee VWGB. Second, the value-belief-norm framework (Andersson et al., 2005) and theory of planned behaviour (Greaves et al., 2013) are typically invoked to explain why green behaviour arises. Because both the organisation and the environment can benefit from employee workplace green behaviour, our study provides different approaches by testing two processes (i.e., organisational identification and green work climate) that trigger employee green behaviour. It is a significant contribution as this study can enrich the theory of workplace green behaviour and help organisations achieve environmental sustainability.

Our research contributes to the responsible leadership literature as past work has mainly concentrated on the theoretical analyses of responsible leadership (Ketola, 2010; Waldman & Balven, 2015), whereas theory-orientated empirical studies were relatively scant. The present study clarifies the underlying mechanisms through which responsible leadership promotes VWGB by testing in parallel the indirect impact via green work climate and organisational identification. The mediating mechanism of green work climate was supported. However, the organisational identification process was not confirmed because organisational identification was not significantly related to VWGB. There are two possible explanations. First, previous research has, directly and indirectly, revealed these inconclusive findings. For instance, research indicated a positive link between organisational identification and green behaviour (Tian & Robertson, 2019), while Carmeli et al. (2017) found a non-significant association between organisational identification and involvement sustainability-related behaviour. These inconsistent results suggest that moderators may impact the relationship between organisational identification and workplace green behaviour. It is why we propose green values as a contingent factor for this relationship. Second, workplace green behaviour has the double advantage of protecting the environment and helping the organisation. However, some people may not be aware of the link between workplace green behaviour and benefits to the organisation. Consequently, even though these people identify with their organisation, they are less likely to engage in green behaviour. This may be a reason why the effect sizes for this relationship vary greatly.

We distinguished the green work climate pathway from the organisational identification lens by introducing a moderator (i.e., employee green values). Results uncovered that green values attenuated the indirect relationship between responsible leadership and VWGB through green work climate, which is in line with previous studies. For example, Chou (2014) reported a negative interactive effect of green work climate and personal environmental norms on employee workplace green behaviour. Additionally, our findings also correspond to behavioural plasticity theory suggesting that employees evaluating themselves positively (i.e., those with high green values) may be less susceptible to the cues from the social context to guide their behaviours (Saks & Ashforth, 2000). Consistent with these

arguments, our study showed that the relationship between green work climate and VWGB was weaker for those with higher green values. Furthermore, green values were shown to moderate the organisational identification pathway positively. Specifically, the indirect impact was positive for employees having high green values and non-significant when green values were low. Our findings indicate that organisational identification is an essential but insufficient condition for VWGB, and it further entails the environment-related values (e.g., green values), being a corresponding effect to combine and predict VWGB.

The current study also adds to the green work climate literature. Past studies have reported that a green work climate could be induced by corporate environmental strategy, organisational sustainability policies, and green HR practices (Norton et al., 2017; Dumont et al., 2017). Still, whether and how responsible leadership influences green work climates remains underexplored. Our findings increase the understanding of situational factors that foster a green work climate.

Finally, our study contributes to both social identity and social information processing theories. Social identity theory suggests that employees with strong organisational identification are more likely to engage in behaviours that help the organisation (Ashforth & Mael, 1989; Tajfel, 1978; Wu et al., 2016). We enrich the social identity literature by positioning green values as an important boundary condition elucidating when the organisational identification process occurs. Our study also adds to the organisational identification literature by first proposing responsible leadership as an impetus for organisational identification. In addition, the current study also extends social information processing theory. This theory underscores the important role of environment uncertainty, positing that when the social environment is uncertain and ambiguous, individuals pay more attention to the cues from the work environment to shape their attitudes and behaviours (Salancik & Pfeffer, 1978). We contribute to the social information processing research by acting an individual difference (i.e., green values) as a moderator that explicates when the green work climate mechanism works.

5.2. Implications for practice

The present study showed that responsible leadership is an essential trigger of workplace green behaviours. Therefore, organisations will probably improve their leaders' selection, appraisal and advancement measures that cultivate responsible leadership. Pless et al. (2011) indicated the effectiveness of international service-learning programs in facilitating responsible leadership and proposed a series of capabilities such as responsible mindset, ethical literacy, community building and cultural intelligence which are crucial for responsible leadership. Consequently, organisations may improve leaders' performance appraisal, promotion and training practices to promote responsible leadership in line with this project. Specifically, organisations should consider leaders' socially responsible behaviours when making decisions about performance appraisal and promotion. Moreover, firms can implement some training programs of social responsibility and workplace ethics that may be conducive to the emergence of responsible leadership.

Equal attention should be focused on green work climates that induces employees' green behaviours in the workplace. Extant research has uncovered the positive effects of organisational sustainability policies and green HRM practices on green work climates (Norton et al., 2014; Dumont et al., 2017).

As a result, companies may create a green work climate to inspire employee workplace green behaviour by endorsing environmental policies and implementing green HRM practices such as considering employees' green behaviours in performance appraisals, compensation system, rewards and promotion.

Social identity theory suggests that employees identifying strongly with the organisation will exhibit behaviours helping the organisation, such as OCB, job performance, and job engagement (He et al., 2014; Wu et al., 2016). However, extending this contention to the study of domain-specific actions (e.g., green behaviours) may be problematic because those having strong organisational identification are more likely to engage in other behaviours highly valued by their employers (e.g., job performance, OCB) but not green behaviours (Carmeli et al., 2017; Tian & Robertson, 2019). Our study showed that organisational identification is associated with increased workplace green behaviour when paired with a high level of green values, revealing that whether organisational identification begets green behaviours and depends on employee green values. As a result, organisations should recruit applicants with a high level of green values. Furthermore, organisations should take some measures to foster employees' identification with their organisations. Past studies have shown that LMX, transformational leadership and perceived respect trigger organisational identification (Fuller et al., 2006; Liu et al., 2010; Loi et al., 2014). Hence, managers can promote employees' organisational identification by demonstrating their charisma, delineating a shared vision of the future, providing organisational support for employees and establishing good interpersonal relationships with employees. Additionally, managers should give employees more empowerment and allow individuals to participate in decisions which can boost employees' perceptions of respect and their identification with organisations.

6. Conclusion

Through a multi-level and multisource field study, we find that responsible leadership facilitates employee VWGB. Furthermore, employee green values amplify the impact of organisational identification on VWGB and the indirect association of responsible leadership with VWGB via organisational identification. In addition, employee green values assuage the influence of green work climates on VWGB and the indirect effect of responsible leadership on VWGB through a green work climate.

The present study has some limitations. First, our data were gathered at a single time point which constrained causal interpretations. Therefore, future studies may carry out longitudinal designs to thoroughly test the causal associations. Second, the current research was conducted in China. Thus, we strongly recommend future studies to consider other contexts such as western countries and Africa.

Third, we only considered the mediating mechanisms of organisational identification and green work climates. Other factors that may be included in future studies may be perceived insider status — the extent to which an individual employee perceives him or herself as an insider within a particular organisation (Stamper & Masterson, 2002). Responsible leader behaviours, including considering employees' interests and caring about employees' well-being and contributions (Voegtlin, 2011), may lead employees to perceive themselves as insiders, thereby increasing workplace green behaviour.

Hence, we encourage additional research to examine perceived insider status as a mechanism linking responsible leadership to VWGB.

Finally, our study tested the beneficial effects of responsible leadership for employees; the possible influences of exhibiting responsible leader behaviours for leaders should be investigated in future studies. We suggest that the displays of responsible leader behaviours, such as weighing different stakeholder claims and bearing in mind the outcomes of decisions for the affected stakeholders (Voegtlin, 2011), may consume self-regulatory resources and, in turn, engender emotional exhaustion.

References

Aiken, L. S., West, S. G., 1991. Multiple regression: Testing and interpreting interactions. Thousand Oaks, CA: Sage.

Andersson, L., Jackson, S. E., Russell, S. V., 2013. Greening organisational behaviour: An introduction to the special issue. J. Organ. Behav. 34(2), 151-155.

Andersson, L., Shivarajan, S., Blau, G., 2005. Enacting ecological sustainability in the MNC: A test of an adapted value-belief-norm framework. J. Bus. Ethics 59(3), 295-305

Ashforth, B. E., Mael, F., 1989. Social identity theory and the organisation. Acad. Manag. Rev. 14(1), 20-39.

Barrick, M. R., Mount, M. K., 1993. Autonomy as a moderator of the relationships between the big five personality dimensions and job performance. J. Appl. Psychol. 78(1), 111-118.

Bass, B. M., 1999. Two decades of research and development in transformational leadership. Eur. J. Work Organ. Psychol. 8(1), 9-32.

Beaty, J. C., Cleveland, J. N., Murphy, K. R., 2001. The relation between personality and contextual performance in "strong" versus "weak" situations. Hum. Perform. 14(2), 125-148.

Bissing-Olson, M. J., Iyer, A., Fielding, K. S., Zacher, H., 2013. Relationships between daily effect and pro-environmental behaviour at work: The moderating role of pro-environmental attitude. J. Organ. Behav. 34(2), 156-175.

Bliese, P. D., 2000. Within-group agreement, non-independence, and reliability: Implications for data aggregation and analysis. In: Klein, K. J., Kozlowski, S. W. (Eds.), Multi-level theory, research, and methods in organisations: Foundations, extensions and new directions. San Francisco, CA: Jossey-Bass, 349-381.

Brislin, R. W., 1970. Back-translation for cross-cultural research. J. Cross. Cult. Psychol. 1(3), 185-216.

Brown, M. E., Treviño, L. K., 2006. Ethical leadership: A review and future directions. Leadersh. Q. 17(6), 595-616.

Canh, N. P., Thanh, S. D., Nasir, M. A., 2020. Nexus between financial development & energy intensity: Two sides of coin? J. Environ. Manag. 270, 110902.

Carmeli, A., Brammer, S., Gomes, E., Tarba, S. Y., 2017. An organisational ethic of care and employee involvement in sustainability‐related behaviours: A social identity perspective. J. Organ. Behav. 38(9), 1380-1395.

Chen, G., Bliese, P. D., 2002. The role of different levels of leadership in predicting self-and collective efficacy: Evidence for discontinuity. J. Appl. Psychol. 87(3), 549-556.

Chou, C. J., 2014. Hotels' environmental policies and employee personal environmental beliefs: Interactions and outcomes. Tourism Manag. 40, 436-446.

Coldwell, D. A. L., Joosub, T., Papageorgiou, E., 2012. Responsible leadership in organisational crises: An analysis of the effects of public perceptions of selected SA business organisations' reputations. J. Bus. Ethics 109(2), 133-144.

Demirtas, O., Akdogan, A. A., 2015. The effect of ethical leadership behaviour on ethical climate, turnover intention, and affective commitment. J. Bus. Ethics 130(1), 59-67.

Doh, J. P., Quigley, N. R., 2014. Responsible leadership and stakeholder management: Influence pathways and organisational outcomes. Acad. Manag. Perspect. 28(3), 255-274.

Doh, J. P., Stumpf, S. A., Tymon, W. G., 2011. Responsible leadership helps retain talent in India. J.

Bus. Ethics 98(1), 85-100.

Dumont, J., Shen, J., Deng, X., 2017. Effects of green HRM practices on employee workplace green behaviour: The role of psychological green climate and employee green values. Hum. Resour. Manag. 56(4), 613-627.

Ellemers, N., De Gilder, D., Haslam, S. A., 2004. Motivating individuals and groups at work: A social identity perspective on leadership and group performance. Acad. Manag. Rev. 29(3), 459-478.

Freeman, R. E., Auster, E. R., 2011. Values, authenticity, and responsible leadership. J. Bus. Ethics 98(1), 15-23.

Fuller, J. B., Hester, K., Barnett, T., Frey, L., Relyea, C., Beu, D., 2006. Perceived external prestige and internal respect: New insights into the organisational identification process. Hum. Relat. 59(6), 815-846.

Graves, L. M., Sarkis, J., Zhu, Q., 2013. How transformational leadership and employee motivation combine to predict employee pro-environmental behaviours in China. J. Environ. Psychol. 35, 81-91.

Greaves, M., Zibarras, L. D., Stride, C., 2013. Using the theory of planned behaviour to explore environmental, behavioural intentions in the workplace. J. Environ. Psychol. 34, 109-120.

Han, Z., Wang, Q., Yan, X., 2019. How responsible leadership predicts organisational citizenship behaviour for the environment in China. Leadersh. Org. Dev. J. 40(3), 305-318.

Haque, A., Fernando, M., Caputi, P., 2019. The relationship between responsible leadership and organisational commitment and the mediating effect of employee turnover intentions: An empirical study with Australian employees. J. Bus. Ethics 156(3), 759-774.

He, H., Zhu, W., Zheng, X., 2014. Procedural justice and employee engagement: Roles of organisational identification and moral identity centrality. J. Bus. Ethics 122(4), 681-695.

Heise, D. R., 1987. Affect control theory: Concepts and model. J. Math. Sociol. (1-2), 1-33.

Hogg, M. A., 2007. Uncertainty-identity theory. Adv. Exp. Soc. Psychol. 39, 69-126.

Hogg, M. A., Terry, D. I., 2000. Social identity and self-categorization processes in organisational contexts. Am. Sociol. Rev. 25(1), 121-140.

Ketola, T., 2010. Responsible leadership: Building blocks of individual, organisational and societal behaviour. Corp. Soc. Responsib. Environ. Manag. 17(3), 173-184.

Kim, A., Kim, Y., Han, K., 2019. A cross-level investigation of the linkage between job satisfaction and voluntary workplace green behaviour. J. Bus. Ethics 159(4), 1199-1214.

Kim, A., Kim, Y., Han, K., Jackson, S. E., Ployhart, R. E., 2017. Multi-level influences on voluntary workplace green behaviour: Individual differences, leader behaviour, and co-worker advocacy. J. Manag. 43(5), 1335-1358.

Kozlowski, S. W., Hattrup, K., 1992. A disagreement about the within-group agreement: Disentangling issues of consistency versus consensus. J. Appl. Psychol. 77(2), 161-167.

Lamm, E., Tosti-Kharas, J., Williams, E. G., 2013. Read this article, but do not print it: Organisational citizenship behaviour toward the environment. Group. Organ. Manag. 38(2), 163-197.

Liao, H., Chuang, A., 2004. A multi-level investigation of factors influencing employee service performance and customer outcomes. Acad. Manag. J. 47(1), 41-58.

Liao, H., Rupp, D. E., 2005. The impact of justice climate and justice orientation on work outcomes: A cross-level multi foci framework. J. Appl. Psychol. 90(2), 242-26.

Lipponen, J., Bardi, A., Haapamäki, J., 2008. The interaction between values and organisational identification in predicting suggestion-making at work. J. Occup. Organ. Psych. 81(2), 241-248.

Liu, J., Lee, C., Hui, C., Kwan, H. K., Wu, L. Z., 2013. Idiosyncratic deals and employee outcomes: The mediating roles of social exchange and self-enhancement and the moderating role of individualism. J. Appl. Psychol. 98(5), 832-840.

Liu, W., Zhu, R., Yang, Y., 2010. I warn you because I like you: Voice behaviour, employee identifications, and transformational leadership. Leadersh. Q. 21(1), 189-202.

Loi, R., Chan, K. W., Lam, L. W., 2014. Leader-member exchange, organisational identification, and job satisfaction: A social identity perspective. J. Occup. Organ. Psych. 87(1), 42-61.

Maak, T., Pless, N. M., 2006. Responsible leadership in a stakeholder society–A relational perspective. J. Bus. Ethics 66(1), 99-115.

Mael, F., Ashforth, B. E., 1992. Alumni and their alma mater: A partial test of the reformulated model of organisational identification. J. Organ. Behav. 13(2), 103-123.

Marshall, R. S., Cordano, M., Silverman, M., 2010. Exploring individual and institutional drivers of proactive environmentalism in the US wine industry. Bus. Strateg. Environ. 14(2), 92-109.

Mischel, W., 1977. The interaction of person and situation. In: Magnusson, D., Endler, N. S. (Eds.), Personality at the crossroads: Current issues in interactional psychology. Hillsdale, NJ: Erlbaum, 333-352.

Miska, C., Hilbe, C., Mayer, S., 2014. Reconciling different views on responsible leadership: A rationality-based approach. J. Bus. Ethics 125(2), 349-360.

Miska, C., Mendenhall, M. E., 2018. Responsible leadership: A mapping of extant research and future directions. J. Bus. Ethics 148(1), 117-134.

Morrison, E. W., Wheeler-Smith, S. L., Kamdar, D., 2011. Speaking up in groups: A cross-level study of group voice climate and voice. J. Appl. Psychol. 96(1), 183-191.

Nasir, M. A., Canh, N. P., Le, T. N. L., 2021. Environmental degradation & role of financialization, economic development, industrialization and trade liberalisation. J. Environ. Manag. 277, 111471.

Naumann, S. E., Bennett, N., 2000. A case for procedural justice climate: Development and test of a multi-level model. Acad. Manag. J. 43(5), 881-889.

Nguyen, D. K., Huynh, T. L. D., Nasir, M. N., 2021. Carbon emissions determinants and forecasting: Evidence from G6 countries. J. Environ. Manag. 285, 111988.

Norton, T. A., Parker, S. L., Zacher, H., Ashkanasy, N. M., 2015. Employee green behaviour: A theoretical framework, multi-level review, and future research agenda. Organ. Environ. 28(1), 103-125.

Norton, T. A., Zacher, H., Ashkanasy, N. M., 2012. On the importance of pro-environmental organisational climate for employee green behaviour. Ind. Organ. Psychol. 5(4), 497-500.

Norton, T. A., Zacher, H., Ashkanasy, N. M., 2014. Organisational sustainability policies and employee green behaviour: The mediating role of work climate perceptions. J. Environ. Psychol. 38, 49-54.

Norton, T. A., Zacher, H., Parker, S. L., Ashkanasy, N. M., 2017. Bridging the gap between green behavioural intentions and employee green behaviour: The role of green psychological climate. J. Organ. Behav. 38(7), 996-1015.

Paillé, P., Boiral, O., 2013. Pro-environmental behaviour at work: Construct validity and determinants. J. Environ. Psychol. 36, 118-128.

Paillé, P., Chen, Y., Boiral, O., Jin, J., 2014. The impact of human resource management on environmental performance: An employee-level study. J. Bus. Ethics 121(3), 451-466.

Paillé, P., Mejía-Morelos, J. H., 2014. Antecedents of pro-environmental behaviours at work: The

moderating influence of psychological contract breach. J. Environ. Psychol. 38, 124-131.

Pham, N. M., Huynh, T. L. D., Nasir, M. A., 2020. Environmental consequences of population, affluence and technological progress for European countries: A Malthusian view. J. Environ. Manag. 260, 110-143.

Pless, N. M., 2007. Understanding responsible leadership: Role identity and motivational drivers. J. Bus. Ethics 74(4), 437-456.

Pless, N. M., Maak, T., 2011. Responsible leadership: Pathways to the future. J. Bus. Ethics 98(1), 3-13.

Pless, N. M., Maak, T., Stahl, G. K., 2011. Developing responsible global leaders through international service-learning programs: The Ulysses experience. Acad. Manag. Learn. Educ. 10(2), 237-260.

Pratt, M. G., 1998. To be or not to be: Central questions in organisational identification. In: Whetten, D. A., Godfrey, P. C. (Eds.), Identity in organisations: Building theory through conversation. Thousand Oaks, CA: Sage, 171-207.

Preacher, K. J., Selig, J. P., 2012. Advantages of Monte Carlo confidence intervals for indirect effects. Commun. Methods. Meas. 6(2), 77-98.

Robertson, J. L., Barling, J., 2013. Greening organisations through leaders' influence on employees' pro-environmental behaviours. J. Organ. Behav. 34(2), 176-194.

Saks, A. M., Ashforth, B. E., 2000. The role of dispositions, entry stressors, and behavioural plasticity theory in predicting newcomers' adjustment to work. J. Organ. Behav. 21(1), 43–62.

Salancik, G. R., Pfeffer, J., 1978. A social information processing approach to job attitudes and task design. Admin. Sci. Quart. 23(2), 224-253.

Scherbaum, C. A., Popovich, P. M., Finlinson, S., 2008. Exploring individual-level factors related to employee energy-conservation behaviours at work. J. Appl. Soc. Psychol. 38(3), 818-835.

Shahbaz, M., Kablan, S., Hammoudeh, S., Nasir, M. A., Kontoleon A., 2020. Environmental implications of increased US oil production and liberal growth agenda in post- Paris Agreement era. J. Environ. Manag. 285, 111988.

Shin, Y., Sung, S. Y., Choi, J. N., Kim, M. S., 2015. Top management ethical leadership and firm performance: Mediating role of ethical and procedural justice climate. J. Bus. Ethics 129(1), 43-57.

Stamper, C. L., Masterson, S. S., 2002. Insider or outsider? How employee perceptions of insider status affect their work behaviour. J. Organ. Behav. 23(8), 875-894.

Steg, L., Vlek, C., 2009. Encouraging pro-environmental behaviour: An integrative review and research agenda. J. Environ. Manag. 29(3), 309-317.

Stets, J. E., Burke, P. J., 2005. New directions in identity control theory. Advances in Group Processes, 22, 43-64.

Székely, F., Knirsch, M., 2005. Responsible leadership and corporate social responsibility: Metrics for sustainable performance. Eur. Manag. J. 23(6), 628-647.

Tajfel, H., 1978. Social categorization, social identity and social comparison. In: Tajfel, H. (Ed.), Differentiation between social groups: Studies in the social psychology of intergroup relations. London: Academic Press, 61-76.

Thoits, P. A., 1983. Multiple identities and psychological well-being: A reformulation and test of the social isolation hypothesis. Am. Sociol. Rev. 48(2), 174-187.

Tian, Q., Robertson, J. L., 2019. How and when does perceived CSR affect employees' engagement in voluntary pro-environmental behaviour? J. Bus. Ethics 155(2), 399-412.

Turner, J. C., Hogg, M. A., Oakes, P. J., Reicher, S. D., Wetherell, M. S., 1987. Rediscovering the social group: A self-categorization theory. Basil Blackwell.

Van Dick, R., Grojean, M. W., Christ, O., Wieseke, J., 2006. Identity and the extra mile: Relationships between organisational identification and organisational citizenship behaviour. Br. J. Manag. 17(4), 283-301.

Voegtlin, C., 2011. Development of a scale measuring discursive responsible leadership. J. Bus. Ethics 98(1), 57-73.

Voegtlin, C., Frisch, C., Walther, A., Schwab, P., 2020. Theoretical development and empirical examination of a three-roles model of responsible leadership. J. Bus. Ethics 167(3), 411-431.

Voegtlin, C., Patzer, M., Scherer, A. G., 2012. Responsible leadership in global business: A new approach to leadership and its multi-level outcomes. J. Bus. Ethics 105(1), 1-16.

Waldman, D. A., 2011. Moving forward with the concept of responsible leadership: Three caveats to guide theory and research. J. Bus. Ethics 98(1), 75-83.

Waldman, D. A., Balven, R. M., 2015. Responsible leadership: Theoretical issues and research directions. Acad. Manag. Exec. 28(3), 224-234.

Wang, S., Huang, W., Gao, Y., Ansett, S., Xu, S., 2015. Can socially responsible leaders drive Chinese firm performance? Leadersh. Org. Dev. J. 36(4), 435-450.

Wesselink, R., Blok, V., Ringersma, J., 2017. Pro-environmental behaviour in the workplace and the role of managers and organisation. J. Clean. Prod. 168, 1679-1687.

Witt, M. A., Stahl, G. K., 2016. Foundations of responsible leadership: Asian versus Western executive responsibility orientations toward key stakeholders. J. Bus. Ethics 136(3), 623-638.

Wu, C. H., Liu, J., Kwan, H. K., Lee, C., 2016. Why and when workplace ostracism inhibits organisational citizenship behaviours: An organisational identification perspective. J. Appl. Psychol. 101(3), 362-378.

TABLE 1: Results of Confirmatory Factor Analyses

Model	χ^2	df	$\Delta\chi^2(\Delta df)$	RMSEA	TLI	CFI	IFI
Five-factor model	408.156	265		0.043	0.962	0.966	0.966
Four-factor model[a]—responsible leadership and VWGB were combined	1346.106	269	937.95***(4)	0.116	0.716	0.745	0.747
Four-factor model[b]—green work climate and VWGB were combined	1137.896	269	729.74***(4)	0.104	0.771	0.794	0.796
Three-factor model—combining organisational identification and green work climate; combining green values and VWGB	1446.223	272	1038.067***(7)	0.120	0.693	0.722	0.724
One-factor model	2870.714	275	2462.558***(10)	0.178	0.330	0.386	0.389

Note: N=299. ***$p< 0.001$.

TABLE 2: Measurement Validity Assessment

Constructs	Items	Factor loadings	AVE	CR
Responsible leadership	RL1	0.718		
	RL2	0.875		
	RL3	0.818	0.664	0.908
	RL4	0.866		
	RL5	0.786		
Organisational identification	OI1	0.649		
	OI2	0.657		
	OI3	0.614	0.567	0.885
	OI4	0.886		
	OI5	0.889		
	OI6	0.774		
Green work climate	GWC1	0.644		
	GWC2	0.879		
	GWC3	0.849	0.666	0.908
	GWC4	0.865		
	GWC5	0.821		
VWGB	VWGB1	0.617		
	VWGB2	0.327		
	VWGB3	0.547	0.50	0.845
	VWGB4	0.887		
	VWGB5	0.922		
	VWGB6	0.752		
Green values	GV1	0.774		
	GV2	0.918	0.595	0.81
	GV3	0.585		

TABLE 3: Results of Descriptive Statistics

Variables	M	SD	1	2	3	4	5	6	7	8
Level 1										
1. Gender	0.62	0.487								
2. Age	31.167	6.85	-0.011							
3. Education level	3.17	0.46	-0.003	-0.103						
4. Tenure	5.85	6.236	0.009	0.788***	-0.103					
5. Perceived presence of OSP	0.707	0.463	-0.032	0.122*	0.006	0.067				
6. Organisational identification	3.964	0.807	-0.009	0.047	-0.015	0.009	0.244***	(0.883)		
7. VWGB	5.468	1.05	0.07	0.123*	0.068	0.033	0.251***	0.151**	(0.826)	
8. Green values	4.058	0.786	0.093	0.085	-0.121*	0.046	0.173**	0.29***	0.222***	(0.793)
Level 2										
1. Group size	17.56	23.81								
2. Responsible leadership	3.664	0.601	-0.088	(0.906)						
3. Green work climate	3.793	0.61	0.045	0.484***	(0.901)					

Note: N=299 (for Level 1) and N=71 (for Level 2). Perceived presence of OSP refers to Perceived presence of organisational sustainability policy. Coefficient alphas are given in parentheses on the diagonal. *$p< 0.05$; **$p< 0.01$; ***$p< 0.001$.

TABLE 4: Results of Hierarchical Linear Modelling

Outcome variables	Organisational identification		VWGB			
Independent variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Intercept	3.968***(0.063)	3.971***(0.057)	5.486***(0.111)	5.486***(0.108)	5.483***(0.103)	5.52***(0.102)
Level 1						
Gender	-0.009(0.086)	-0.018(0.085)	0.138(0.086)	0.133(0.086)	0.16(0.083)	0.168*(0.077)
Age	0.001(0.009)	0.003(0.01)	0.011(0.008)	0.011(0.008)	0.015*(0.007)	0.016*(0.006)
Education level	-0.014(0.099)	0.002(0.099)	0.001(0.081)	0.009(0.084)	0.001(0.069)	0.008(0.067)
Tenure	0.003(0.01)	0.002(0.01)	-0.013(0.012)	-0.013(0.011)	-0.017(0.011)	-0.017(0.011)
Perceived presence of OSP	0.404**(0.116)	0.361**(0.111)	0.077(0.087)	0.074(0.087)	0.074(0.079)	0.045(0.079)
Organisational identification					0.003(0.066)	0.014(0.049)
Green values						0.013(0.025)
Level 2						
Group size	-0.001(0.001)	-0.001(0.001)	0.003(0.003)	0.004(0.003)	0.002(0.003)	0.002(0.003)
Responsible leadership		0.367***(0.096)		0.343*(0.164)	0.008(0.191)	
Green work climate					0.59**(0.185)	0.66***(0.146)
Interactive effects						
Organisational identification × Green values						0.122**(0.034)
Green work climate × Green values						-0.142**(0.038)
R^2	0.131	0.190	0.039	0.069	0.176	0.202

Note: Numbers in parentheses are standard errors. *$p< 0.05$; **$p< 0.01$; ***$p< 0.001$.

TABLE 5: The Effect of Responsible Leadership on Green Work Climate

Outcome variable	Green work climate	
Predicting variables	Model 7	Model 8
Group size	0.001(0.003)	0.002(0.003)
Responsible leadership		$0.50^{***}(0.108)$
R^2	0.002	0.242
ΔR^2		0.240
ΔF		21.548^{***}

Note: N=71. $^{***}p< 0.001$.

TABLE 6: Results of Moderated Mediation Analyses

Effect		High green values	Low green values	Differences
Organisational identification →VWGB		0.136*	-0.106	0.242*
		[0.019, 0.257]	[-0.226, 0.011]	[0.11, 0.375]
Green work climate → VWGB		0.489*	0.789*	-0.30*
		[0.128, 0.847]	[0.427, 1.147]	[-0.454, -0.147]
Direct effect		0.059	0.023	0.036
		[-0.33, 0.441]	[-0.363, 0.409]	[-0.152, 0.225]
Indirect effect	MV=Organisational identification	0.05*	-0.039	0.089*
		[0.006, 0.109]	[-0.094, 0.004]	[0.031, 0.166]
	MV=Green work climate	0.245*	0.395*	-0.15*
		[0.056, 0.478]	[0.176, 0.671]	[-0.263, -0.062]
Total effect		0.354	0.379	-0.025
		[-0.084, 0.801]	[-0.078, 0.849]	[-0.253, 0.197]

Note: Numbers in parentheses are 95% confidence intervals. MV=Mediating variable. *$p< 0.05$.
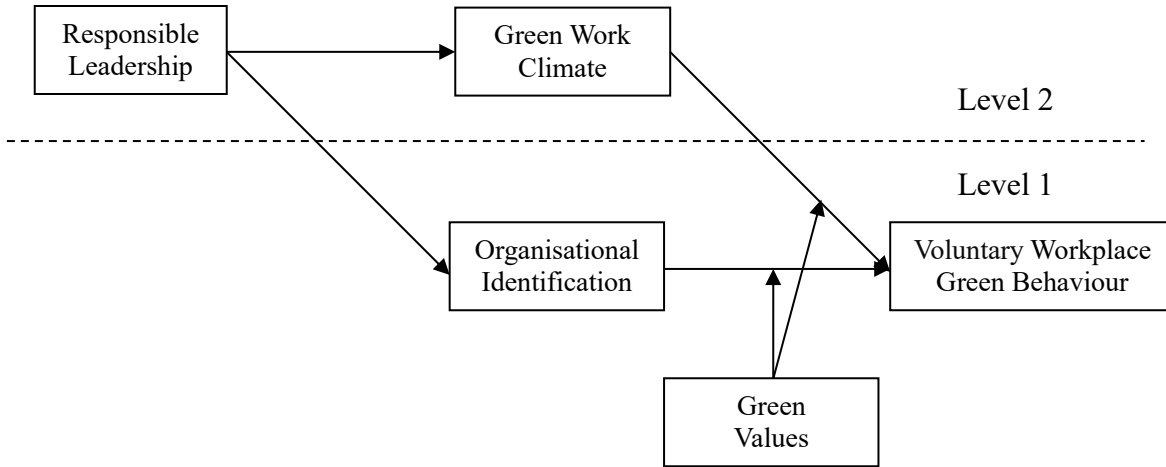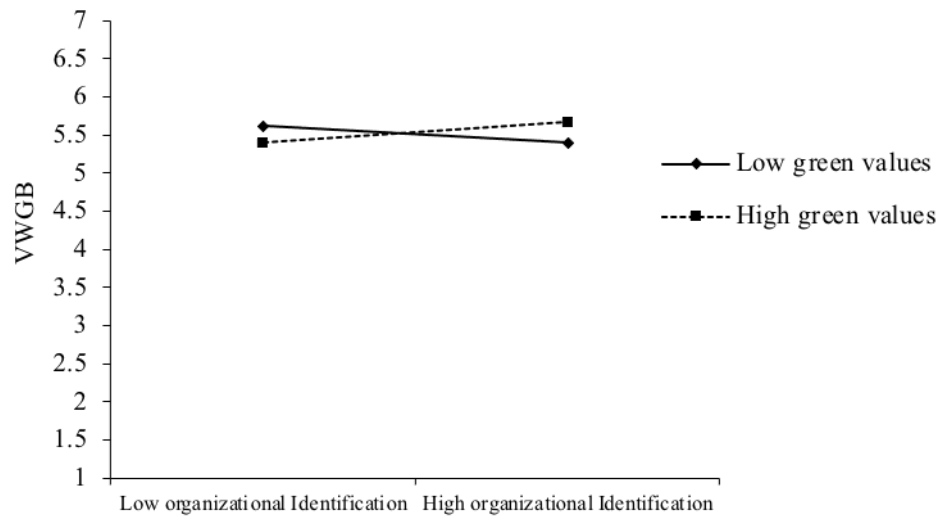
FIGURE 1: Theoretical Model

FIGURE 2: Interaction between Organisational Identification and Green Values
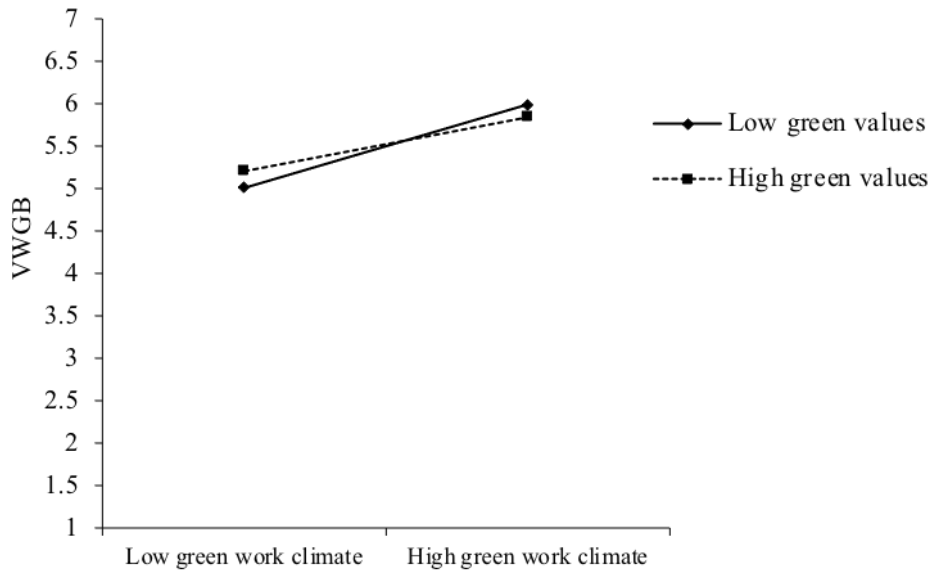

FIGURE 3: Interaction between Green Work Climate and Green Values on VWGB