



# Organisational sustainability policies and employee green behaviour: The mediating role of work climate perceptions



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## ABSTRACT

Organisations are increasingly introducing sustainability policies to encourage environmentally friendly behaviours. Employees' green work climate perceptions (i.e., how they perceive their organisations' and co-workers' orientations towards environmental sustainability) may constitute psychological mechanisms that link such policies with behaviour. We present findings of a study on relationships among the perceived presence of organisational sustainability policies, green work climate perceptions and employee reports of their green behaviour (EGB). We hypothesised that green work climate perceptions mediate the positive relationship between employees' perceptions of the presence of a sustainability policy and EGB. Results based on data from 168 employees supported our hypotheses. Green work climate perceptions of the organisation and of co-workers differentially mediated the effects of the perceived presence of a sustainability policy on task-related and proactive EGB. These findings extend research on the efficacy of sustainability policies by shedding new light on the psychological mechanisms that link them with EGB.

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## 1. Introduction

Researchers interested in the topic of corporate environmental sustainability have recently highlighted the need to encourage proenvironmental behaviour in the workplace (Ones & Dilchert, 2012; Paillé & Boiral, 2013). The aim of the present study was to investigate whether employees' green work climate perceptions can explain the relationship between the perceived presence of an organisational sustainability policy and employee green behaviour (EGB). Previous research has shown that there is not necessarily a positive relationship between organisational policies and employee behaviour (Ramus & Steger, 2000; Whitmarsh, 2009). We argue that these inconsistent findings may be due to a neglect of the psychological mechanisms that underlie the link between policies and behaviour. To this end, we develop and test a conceptual model that explains how two types of employee green work climate perceptions differentially mediate the relationship between employees' perceptions of the presence of an organisational

sustainability policy and their task-related and proactive environmental behaviours (Fig. 1).

We base our model on the theory of normative conduct (TNC), which attributes behaviour to social norms (Cialdini, Reno, & Kallgren, 1990). For example, social norms indicating that most people do not litter can influence behaviour by suggesting that littering has negative social consequences (Cialdini et al., 1990; Keizer, Lindenberg, & Steg, 2008; Smith et al., 2012). Specifically, TNC differentiates injunctive norms representing that which is *approved of* from descriptive norms representing that which is *typically observed*. We argue that social norms within organisations are created via employees' perceptions of work climate, which is defined as the perceptions of formal organisational policies, the procedures that translate these policies into tacit guidelines, the practices that are rewarded and supported, as well as what is typically observed among co-workers (Schneider, Ehrhart, & Macey, 2013). Employees' perceptions of work climate reflect individual value-based schemas used to interpret workplace information (James et al., 2008), as well as espoused values and behavioural norms (Ashkanasy, 2007; Schneider & Reichers, 1983).

Research has shown that work climate is reliably associated with employee attitude and behaviour (Kuenzi & Schminke, 2009). In this regard, Norton, Zacher, and Ashkanasy (2012) suggested that work climate is important to investigate in order

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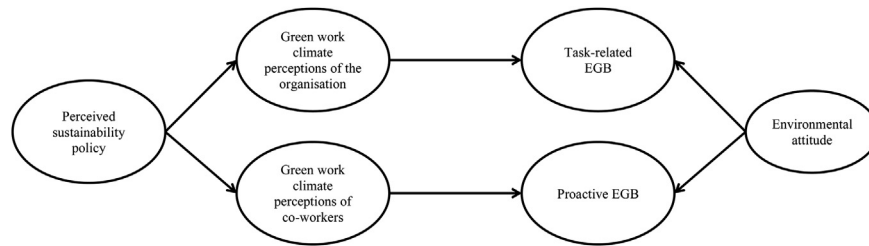


Fig. 1. Conceptual model.

to understand and facilitate EGB. These authors proposed that green work climate captures employee perceptions regarding the organisational attributes and behavioural norms within a company that pertain to environmental sustainability. Based on TNC, we distinguish between climate perceptions of the organisation, which are similar to injunctive norms, and climate perceptions of co-workers, which are related to descriptive norms. Specifically, if an employee perceives her organisation to have a positive orientation towards environmental sustainability, then the injunctive norm would be that the company approves of behaviour that benefits the environment. This is in line with research that operationalised injunctive norms as an official statement regarding the environment (Cialdini et al., 1990) and an organisation's involvement in environmental policies or action (Lo, Peters, & Kok, 2012). If an employee perceives her co-workers to be environmentally friendly at work, then the descriptive norm would be that employees of that organisation typically behave positively towards the environment. This is in line with research that operationalised descriptive norms as observations of others' proenvironmental behaviour (Cialdini et al., 1990; Goldstein, Cialdini, & Griskevicius, 2008).

We first propose that employees' perceptions of the presence of an organisational sustainability policy are positively related to their EGB (Fig. 1). Consistent with Bissing-Olson, Iyer, Fielding, and Zacher (2013), we distinguish between task-related and proactive EGB. *Task-related EGB* is proenvironmental behaviour performed within the context of assigned work tasks, including behaviours such as conserving water, energy, and other resources (e.g., printing double-sided). *Proactive EGB* is behaviour that involves personal initiative and exceeds expectations with regard to environmental sustainability. Research has shown that policies are precursors to behaviour by communicating accepted standards of conduct (Ramus & Steger, 2000). We argue that the perceived presence of sustainability policies facilitates both types of EGB by emphasising what the organisation and its members value and expect from employees.

**Hypothesis 1.** Positive relationships exist between the perceived presence of an organisational sustainability policy and (a) task-related EGB and (b) proactive EGB.

We further argue that, consistent with TNC (Cialdini et al., 1990) and related findings regarding the distinct behavioural outcomes of injunctive and descriptive norms (Smith et al., 2012), green work climate perceptions differentially mediate the relationship between the perceived presence of an organisational sustainability policy and EGB (Fig. 1). Specifically, we propose that green work climate perceptions of the organisation reflect the organisation's injunctive norms and that these perceptions mediate the relationship between the perceived presence of an organisational sustainability policy and task-related EGB, because injunctive norms should be most salient when employees are engaged in tasks

set by the organisation. In contrast, we expect that green work climate perceptions of co-workers, which reflect the descriptive norms of the workplace, will mediate the relationship between the perceived presence of an organisational sustainability policy and proactive EGB. Injunctive norms should have less salience when employees are not engaged in tasks set by the organisation. In these situations, the descriptive norms of what is typically observed of co-workers should be dominant and influence more discretionary types of EGB.

**Hypothesis 2.** The relationship between the perceived presence of an organisational sustainability policy and (a) task-related EGB and (b) proactive EGB will be mediated by climate perceptions of the organisation and of co-workers, respectively.

## 2. Method

### 2.1. Participants and procedure

Participants comprised 168 full-time employees. For the purposes of this study, we were interested only in collecting data from full-time employees. Thus, we screened initial respondents ( $N = 436$ ) based on their employment status. This screening process identified 187 participants who did not identify as full-time workers. Of the remaining 249 participants, we excluded those who responded with "unsure" as to the perceived presence of a sustainability policy in their company. This screening excluded a further 81 participants, resulting in the final sample of 168 employees. Of the final sample, the majority (61.9%) were male. Participants' ages ranged from 18 to 59 years ( $M = 29.50$ ,  $SD = 9.62$ ). Participants were employed in a wide range of industries and the majority had worked in their current organisation for between one and six years.

We employed a survey methodology using members of an online survey panel (Amazon's Mechanical Turk). Participants were offered financial compensation of \$0.25 or \$0.50 in return for completing the short survey. Buhrmester, Kwang, and Gosling (2011) noted that Mechanical Turk offers researchers access to a large and diverse population that is more representative than undergraduate students and provides high quality data unaffected by compensation rates.

### 2.2. Measures

#### 2.2.1. Employee perceptions of the presence of an organisational sustainability policy

We utilised a single item to determine whether employees perceived the presence of an organisational sustainability policy, with participants asked to respond using 'Yes' ( $n = 100$ ), 'No' ( $n = 68$ ), or 'Unsure' ( $n = 81$ ). The inclusion of an 'unsure' response option has been previously employed by Ramus and Steger (2000),

and prevents participants from having to make a forced-choice response. Only participants who provided a conclusive answer were retained (however, see [Footnote 1](#) for additional analyses with 'unsure' respondents). [Table 1](#) shows results of a series of independent sample *t*-tests conducted to examine differences between participants who responded differently to the policy item. For parsimony, this variable is labelled "perceived sustainability policy" in tables and figures.

### 2.2.2. Green work climate perceptions

We developed an 8-item scale based on suggestions by [Norton et al. \(2012\)](#) to measure green work climate perceptions. Participants reported their perceptions of policies, procedures and practices (i.e., work climate) relating to environmental sustainability and demonstrated by their employing organisation and co-workers. Items for perceptions of the organisation were "Our company is worried about its environmental impact", "Our company is interested in supporting environmental causes", "Our company believes it is important to protect the environment" and "Our company is concerned with becoming more environmentally friendly". Items for perceptions of co-workers were "In our company, employees pay attention to environmental issues", "In our company, employees are concerned about acting in environmentally friendly ways", "In our company, employees try to minimise harm to the environment" and "In our company, employees care about the environment". Responses were made using a 5-point scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Cronbach's alphas for the organisation and co-worker subscales were .93 and .92, respectively.

### 2.2.3. Employee green behaviour

We used two 3-item scales adapted from [Bissing-Olson et al. \(2013\)](#) to measure self-report task-related and proactive employee green behaviour. Example items include: "I fulfil responsibilities specified in my job description in environmentally friendly ways" for task-related behaviour and "I take initiative to act in environmentally friendly ways at work" for proactive behaviour. Responses were made using a 5-point scale ranging from 1 (*never*) to 5 (*always*). Cronbach's alphas for the task-related and proactive subscales were .92 and .84 respectively. In support of their validity, both subscales have previously been demonstrated to correlate positively with environmental attitude ([Bissing-Olson et al.](#)).

<sup>1</sup> We performed additional analyses to compare participants who responded either 'yes' or 'unsure' to the policy item ([Table 1](#)). Independent samples *t*-tests revealed that participants who responded 'yes' reported significantly higher task-related and proactive EGB, and stronger green work climate perceptions of the organisation and of co-workers. There was no significant difference between the two groups for environmental attitude. Green work climate perceptions of the organisation significantly mediated the direct relationship between a newly created policy variable (with 0 = *unsure* and 1 = *yes*) and task-related EGB (standardised indirect effect = .14,  $p < .001$ , 95% CI = .06; .23). Similarly, green work climate perceptions of co-workers significantly mediated the direct relationship between this policy variable and proactive EGB (standardised indirect effect = .05,  $p < .05$ , 95% CI = .01; .12). We also compared participants who responded 'no' or 'unsure'. Independent samples *t*-tests revealed no significant differences between the two groups for task-related and proactive EGB, perceptions of co-workers, nor environmental attitude. However, participants who responded 'unsure' also reported significantly higher scores for green work climate perceptions of the organisation. Green work climate perceptions of the organisation significantly mediated the direct relationship between a newly created policy variable (0 = *no* and 1 = *unsure*) and task-related EGB (standardised indirect effect = .11,  $p < .001$ , 95% CI = .05; .20). Conversely, perceptions of co-workers did not mediate the direct relationship between this policy variable and proactive EGB (standardised indirect effect = .03,  $p = .058$ , 95% CI = -.00; .08).

**Table 1**

Mean scores and differences for all perceived sustainability policy response groups.

	Mean scores			Difference		
	Yes ( <i>n</i> = 100)	No ( <i>n</i> = 68)	Unsure ( <i>n</i> = 81)	Yes – No	Yes – Unsure	No – Unsure
Perceptions of the organisation	3.75	2.61	3.15	1.14***	0.60***	–0.54***
Perceptions of co-workers	3.47	2.79	3.06	0.68***	0.41***	–0.27
Task-related EGB	4.06	3.49	3.66	0.57***	0.40***	–0.17
Proactive EGB	3.52	3.24	3.08	0.28	0.44***	0.16
Environmental attitude	3.82	3.75	3.78	0.07	0.04	–0.03

Note. EGB = employee green behaviour.

\*\*\* $p < .001$ .

### 2.2.4. Environmental attitude

We controlled for participants' general environmental attitude in this study, as it has been shown to positively predict pro-environmental intentions and behaviour ([Bamberg & Möser, 2007](#)). We measured environmental attitude using [Bamberg's \(2003\)](#) 8-item scale. Example items include "Limits to economic growth have been crossed or will be reached very soon," "Newspaper articles or TV-reports concerning environmental problems make me angry," and "For the benefit of the environment we should be ready to restrict our momentary style of living". Responses were recorded on a 5-point scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Cronbach's alpha was .84.

### 2.3. Statistical analyses

We tested our hypotheses using structural equation modelling (SEM) procedures in AMOS (Version 20.0; [Arbuckle, 2011](#)). SEM was chosen on the basis of its ability to provide unbiased estimates of mediation effects ([Cheung & Lau, 2008](#)) and the presence of latent constructs in the model (green work climate perceptions, EGB). We employed maximum likelihood estimation to test our hypotheses and included environmental attitude as a covariate. Following [Anderson and Gerbing's \(1988\)](#) recommendation, we validated the measurement model before testing the structural model. We tested mediation (i.e. indirect) effects using bootstrapping ([Hayes, 2009](#); [Preacher & Hayes, 2004](#)). Advantages of this approach include high statistical power, no assumption of normality and no requirement to estimate the error of the indirect effect. Additionally, by using the bootstrapping technique, we were able to test the influence of all mediators individually, control for collinearity and apply a method that is less vulnerable to Type I error ([Preacher & Hayes, 2008](#)).

We evaluated the goodness of fit for all models based on results of a chi-square test; comparative fit index (CFI) and Tucker–Lewis index (TLI) equal or greater than .95; and standard root mean residual (SRMR) and root mean square error of approximation (RMSEA) lower than .06 ([Hu & Bentler, 1999](#)). We performed confirmatory factor analyses including all five scales as well as with each scale separately to test the measurement model. [Table 2](#) provides a summary of the factor structures of the latent constructs in the conceptual model. As can be seen in [Table 2](#), our results supported a unidimensional conceptualisation of environmental attitude, a two-factor structure of task-related and proactive EGB, and a two-factor structure for the green work climate scales (i.e., perceptions of the organisation and perceptions of co-workers). A 5-factor model fit the data significantly better than a single factor model in which all items loaded on one latent factor ( $\Delta\chi^2 = 1137.43$ ,  $df = 10$ ,  $p < .001$ ).

To control for the potential impact of common method variance, we examined a method effects model, in which all items loaded

**Table 2**  
Results of confirmatory factor analyses.

Model/Measure	<i>n</i> factors	$\chi^2$	<i>df</i>	CFI	TLI	RMSEA	SRMR	$\Delta\chi^2$
Five-factor measurement model	5	242.69	199	0.98	0.98	0.04	0.05	
Single-factor measurement model	1	1380.12	209	0.49	0.43	0.18	0.17	1137.43***
Method effects measurement model	6	242.69	198	0.98	0.98	0.04	0.05	<0.001
Environmental attitude	1	26.58	20	0.98	0.98	0.04	0.04	
Employee green behaviours (EGB)	2	5.58	8	1.00	1.07	0.00	0.02	
Task-related EGB	1	0.26	1	1.00	1.00	0.00	0.00	
Proactive EGB	1	1.42	1	1.00	0.99	0.05	0.01	
Green work climate	2	31.54	19	0.99	0.98	0.06	0.03	
Perceptions of the organisation	1	5.68	2	0.99	0.98	0.11	0.02	
Perceptions of co-workers	1	0.39	2	1.00	1.01	0.00	0.00	

Note. CFI = comparative fit index; TLI = Tucker–Lewis index; RMSEA = root mean square error of approximation; SRMR = square root mean residual.  $\Delta\chi^2$  = difference in chi-square compared to the five-factor model. \*\*\* $p < .001$ .

equally on an additional sixth factor (Podsakoff, MacKenzie, & Podsakoff, 2012). The method effects model did not fit the data better than the 5-factor model ( $\Delta\chi^2 < 0.001$ ,  $df = 1$ ,  $p = 1.00$ ), which suggests that common method bias did not constitute a significant problem in our study.

### 3. Results

Descriptive statistics and correlations of variables are provided in Table 3. Fit indices and chi-square change for the models estimated can be found in Table 4. After confirming the measurement model, we estimated the hypothesised structural model depicted in Fig. 2. As can be seen in Table 4, fit indices based on variance–covariance matrices and residuals indicated that the model provided a good account of the actual relationships in the data. We next estimated a nested model, with additional paths from green climate perceptions of the organisation to proactive EGB and from green climate perceptions of co-workers to task-related EGB. A non-significant change in chi-square (Table 4) demonstrated that this model (Model 2) did not provide a significantly better fit than the hypothesised model. Moreover, both additional paths were non-significant. Model 1 was therefore retained because it was more parsimonious. Fig. 3 reports the standardised path coefficients from this model.

#### 3.1. Test of direct and indirect effects

We hypothesised a positive direct effect of employees' perceptions of the presence of an organisational sustainability policy on EGB. Consistent with Hypothesis 1a, employees' perceptions of the presence of an organisational sustainability policy positively predicted task-related EGB (standardised direct effect = .31,  $p < .001$ ). In support of Hypothesis 1b, employees' perceptions of the presence of an organisational sustainability policy also positively predicted proactive EGB (standardised direct effect = .17,  $p < .05$ ).

We further hypothesised that employees' perceptions of the presence of an organisational sustainability policy would have a significant indirect effect on task-related EGB via green work climate perceptions of the organisation (Hypothesis 2a) and on proactive EGB via green work climate perceptions of co-workers (Hypothesis 2b). Five thousand bootstrap samples were generated to estimate bias-corrected 95% confidence intervals for the indirect effects. Indirect effects are considered significant at  $p < .05$  if zero is not included in the 95% confidence interval (CI; Cheung & Lau, 2008). The results of the bootstrap procedure supported our hypotheses.

Specifically, in support of Hypothesis 2a, the relationship between employees' perceptions of the presence of an organisational sustainability policy and task-related EGB was mediated by green

**Table 3**  
Means (*M*), standard deviations (*SD*), and correlations of study variables.

Scale	<i>M</i>	<i>SD</i>	1	2	3	4	5	6
1. Perceived sustainability policy	0.60	0.49	–					
2. Environmental attitude	3.79	0.66	.05	(.84)				
3. Task-related EGB	3.76	0.80	.32***	.31*** (.92)				
4. Proactive EGB	3.41	0.98	.14	.43***	.53*** (.84)			
5. Perceptions of the organisation	3.35	0.94	.59***	.13	.47***	.22** (.93)		
6. Perceptions of co-workers	3.20	0.83	.40***	.18*	.41***	.29***	.67*** (.92)	

Note. Internal reliability estimates (Cronbach's alphas), where available, appear in parentheses along the diagonal.

EGB = employee green behaviour.

\* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

work climate perceptions of the organisation (standardised indirect effect = .27,  $p < .001$ , 95% CI = .17; .38). Consistent with Hypothesis 2b, the relationship between employees' perceptions of the presence of an organisational sustainability policy and proactive EGB was mediated by green work climate perceptions of co-workers (standardised indirect effect = .09,  $p < .01$ , 95% CI = .03; .17).

### 4. Discussion

Our goal in this research was to investigate green work climate perceptions as mediators of the relationships between the perceived presence of an organisational sustainability policy and two forms of EGB. Consistent with expectations, we found positive relationships between the perceived presence of an organisational sustainability policy and self-report task-related and proactive EGB (Hypotheses 1a and 1b), and confirmed that these relationships were fully mediated by green work climate perceptions of the organisation and of co-workers, respectively (Hypotheses 2a and 2b). Specifically, we found green work climate perceptions of the

**Table 4**  
Fit indices for structural models.

	Model 1	Model 2	Comparison of models 1 and 2
	Structural model	Nested model	$\Delta\chi^2$
$\chi^2$	271.53, <i>df</i> = 221; $p < .05$	270.28, <i>df</i> = 219; $p < .05$	1.25, <i>df</i> = 2; $p = .535$
CFI	.98	.98	
TLI	.98	.97	
RMSEA	.04	.04	
SRMR	.05	.05	

Note. CFI = comparative fit index; TLI = Tucker–Lewis index; RMSEA = root mean square error of approximation; SRMR = square root mean residual.



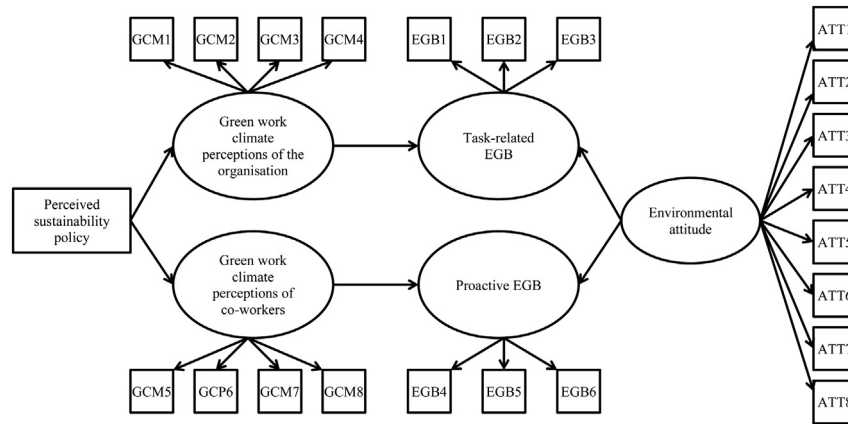


Fig. 2. Measurement model. GCM = green climate measure item; EGB = employee green behaviour item; ATT = environmental attitude item.

organisation to be positively associated with task-related EGB only, and green work climate perceptions of co-workers to be positively related to proactive EGB only. Our results are consistent with research showing that these two types of EGB are conceptually distinct and have unique antecedents (Bissing-Olson et al., 2013).

#### 4.1. Theoretical contribution

The work climate literature proposes that employee perceptions of organisational attributes influence behaviour by establishing behavioural norms (e.g. see Zohar & Luria, 2005). Using the TNC (Cialdini et al., 1990) as our guiding theoretical framework, we proposed differential effects of green work climate perceptions on EGB; that employees' injunctive norms (i.e., what the organisation approves of) are positively related to task-related EGB and that descriptive norms (i.e., what is typical among co-workers) are associated with proactive EGB. Our findings thus support and extend earlier research (e.g., Cialdini et al., 1990; Robertson & Barling, 2012) that has evinced that injunctive and descriptive norms operate, at least to some extent, independently to inform EGB.

In particular, we extend earlier findings by showing that different green work climate perceptions are associated with different types of EGB depending on the specific content of both constructs. That is, green work climate perceptions of the organisation were only associated with EGB when employees engage in tasks assigned by the organisation, whereas green work climate perceptions of co-workers were only associated with a more discretionary type of EGB that is not prescribed by the organisation.

Overall, our findings contribute to the literature by highlighting the contribution of previously neglected psychological mechanisms underlying the association between organisational policies and behaviour (Ramus & Steger, 2000; Whitmarsh, 2009). While extant research has yielded inconsistent results, the test of our conceptual model suggests that the pathways between employee perceptions

of the presence of an organisational sustainability policy and different types of EGB are more complex than previously assumed.

#### 4.2. Limitations and future research

We acknowledge that our research has limitations that need to be addressed in future research. The first is our exclusive reliance on self-report data provided by employees. The use of such data can skew results due to common method bias (Podsakoff et al., 2012), which creates artificially inflated correlations among constructs reported by the same source. However, we ran statistical analyses that suggested that common method bias was not a major issue in the current study. Nevertheless, future research should collect multi-source information and objective measures of policies, green work climate, and EGB.

Another concern is that we evaluated employee perceptions of the presence of an organisational sustainability policy using a single self-report item. As Wanous, Reichers, and Hudy (1997) point out, however, the use of single-item measures is justified to measure relatively objective constructs such as the perceived presence of an organisational policy. A follow-up analysis of  $n = 39$  of the initial participants using a more comprehensive 13-item measure of corporate policy (Ramus & Steger, 2000) demonstrated that their initial responses to the single-item measure correlated moderately with responses to the larger scale ( $r = .407, p < .05$ ), which ameliorates some concern regarding this single item.

Finally, we examined only two forms of EGB – task-related and proactive – while recently other forms of EGB have been proposed (Ones & Dilchert, 2012; Paillé & Boiral, 2013). Future studies should investigate workplace-specific behaviours, including organisational citizenship behaviours directed toward the environment (Paillé & Boiral), as well as workplace behaviours that are harmful to the environment. It might also be pertinent to examine what could be considered counterproductive behaviour, or behaviour that benefits the environment to the detriment of task completion. In short,

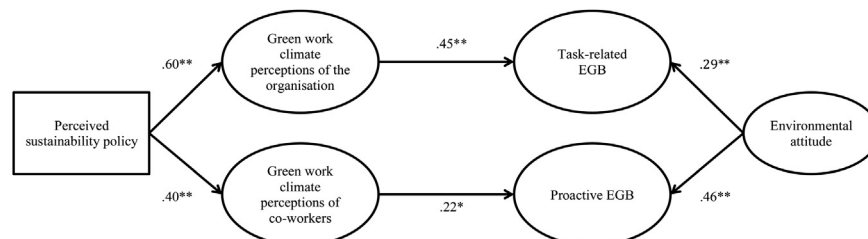


Fig. 3. Structural model with standardised regression weights. \* $p < .05$ , \*\* $p < .01$ .

the findings from this initial research should encourage further research on a range of conceptualisations of EGB.

#### 4.3. Practical contributions

The practical contributions of the present study highlight the important normative role of employee workplace perceptions in facilitating the success of organisational sustainability policies on EGB. The differential effects reported, however, suggest that organisations seeking to encourage task-related and proactive EGBs need to address employee perceptions of descriptive as well as injunctive norms. One approach would be to supplement formal policies with appropriate procedures and practices to communicate a clear and consistent message regarding the injunctive norms of the organisation to reduce ambiguity and enhance the efficacy of those policies. James et al. (2008) highlight consistent communication as a key factor in reducing ambiguity regarding an organisation's priorities and creating a strong climate. Organisational leaders could also play a key role in the communication of sustainability policies (Robertson & Barling, 2012).

In conclusion, the differential effect of the two types of perceived green work climates on the two types of EGB suggests that organisations need to be aware of which social norms, injunctive or descriptive, are likely to be effective for desired behaviours. Organisations could then use this understanding to activate the appropriate norm in the appropriate context to encourage a particular behaviour or set of behaviours.

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