

The Role of Environmental Self-Identity, Supervisory, and Organizational Support in Predicting Employee Green Behavior



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Abstract This study investigates the lesser-known organizational and psychological mechanisms leading individuals in organizations to engage in employee green behavior. Results from a survey of 744 employees from different organizations based in Germany reveal that high levels of environmental self-identity weaken the influence of supervisory support on employee green behavior—when both supervisory support and environmental self-identity are low, no relation between perceived organizational support toward the environment and employee green behavior is seen, and the highest impact on employee green behavior occurs for environmental self-identity. Theoretical and empirical implications of the findings are discussed.

1 Introduction

Environmental degradation and the problems caused by a changing climate are putting pressure on societies globally. Organizations are considered to be a significant contributor to these negative developments (United Nations, 2021), yet can remedy

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their impact through pro-environmental programs (Testa et al., 2014, 2017), such as ISO14001 (Boiral, 2007), corporate greening (Andersson & Bateman, 2000; Andersson et al., 2013; Temminck et al., 2015), and/or a variety of different environmental activities (Wagner, 2011). Employee green behavior (EGB) at the individual level has been identified as a means to establish environmental sustainability in organizations (Norton et al., 2015). EGB has been defined as “scalable actions and behaviors that employees engage in that are linked with and contribute to or detract from environmental sustainability” (Ones & Dilchert, 2012, p. 87). Prior research has grouped EGB into abstract and specific behaviors (Francoeur et al., 2021). This study refers to the abstract form of EGB and uses the subscales of eco-helping and eco-civic engagement of the organization citizenship behaviors for the environment (OCBE) scale developed by Paillé and Boiral (2013). While eco-helping encompasses behaviors such as encouraging colleagues to behave in an environmentally friendly manner and developing ideas directed at environmental issues, eco-civic engagement refers to participating in organizational environmental events and being informed about environmental initiatives at work (Paillé & Boiral, 2013).

Research in the field of corporate greening has advanced our knowledge of the influences of various personal and organizational factors on EGB. Among the organizational factors, perceived organizational support (Ramus, 2001), perceived supervisory support (Raineri & Paillé, 2016; Ramus & Steger, 2000), organizational green policy (Ramus & Steger, 2000), and leadership behavior (Cheng et al., 2021; Graves & Sarkis, 2018; Graves et al., 2013) have been found to play a particularly important role in encouraging EGB (Paillé & Raineri, 2015; Ramus & Steger, 2000; Robertson & Barling, 2013). Among the individual factors, attitudes (Baker et al., 2014), identification with nature (Schmitt et al., 2019), motivation to perform sustainable behaviors (Graves & Sarkis, 2018), environmental beliefs (Raineri & Paillé, 2016), and personal norms (Ciocirlan et al., 2020) have been identified as predictors of EGB. These individual factors are considered to play an equally important and influential role in EGB as organizational factors do.

Two aspects deserve further attention and have been so far neglected in studies on EGB. First, a recurring point of criticism refers to the lack of studies that combine individual and organizational factors in studies on EGB (Lo et al., 2012; Raineri & Paillé, 2016; Starik & Kanashiro, 2020). Most studies have isolated either individual factors or organizational factors, with the exception of a few studies that included both (Alt & Spitzbeck, 2016; Paillé & Raineri, 2015). Another exception is the study on recycling behavior in a health organization, in which Tudor et al. (2007) included attitudes as individual determinants and organizational culture as an organizational determinant. Graves and Sarkis (2018) found that environmental leadership behavior, as well as internal motivation with strong environmental values facilitates EGB.

Second, many studies only explore the role of attitudes, beliefs, motivation, and norms in explaining EGB (Baker et al., 2014; Bissing-Olson et al., 2013; Ciocirlan et al., 2020; Graves & Sarkis, 2018). Prior research on green behaviors outside of the workplace has explored the role of environmental self-identity (EnvID) in

explaining such behavior (Fielding et al., 2008; Whitmarsh & O'Neill, 2010), and research on identity theory found that self-identity is indirectly and directly linked to behavior (Biddle et al., 1987). EnvID is a psychological, intraindividual determinant that has been used as a predictor and moderator in studies on green behavior outside the workplace (Carfora et al., 2017; Fielding et al., 2008; Whitmarsh & O'Neill, 2010). The influence of social identity on sustainable workplace behaviors has been explored in a study by Carmeli et al. (2017). In cases where employee beliefs align with their organizations, it was found that employee identification with their workplace indirectly increases employee engagement in sustainability-related behaviors (Carmeli et al., 2017). With the exception of a few studies (e.g., Ruepert et al., 2016; van der Werff et al., 2021), researchers have neglected to study the relationship between EnvID and EGB (Ciocirlan, 2016). Unlike pro-environmental behavior in the private sphere, green workplace behavior is influenced by various organizational determinants, such as organizational support (Lamm et al., 2015), supervisory support (Ramus & Steger, 2000), and green policy (Raineri & Paillé, 2016). Therefore, the observation of organizational determinants demands the inclusion of individual variables to explain EGB and vice versa.

By exploring a model that investigates how EnvID and perceived supervisory as well as organizational support influence EGB, this study aims to address these gaps. By considering the conjoint influence of EnvID and supervisory support as a moderator on the relationship between organizational support and EGB, this study offers an extension to previous findings on the impact of EnvID on sustainable behavior in the private sphere (Carfora et al., 2017). Although similar antecedents, such as environmental beliefs (Raineri & Paillé, 2016), attitudes (Bissing-Olson et al., 2013), or values (Whitmarsh & O'Neill, 2010) have been investigated before, we offer a new explanation for the role of EnvID in the execution of EGB. This is because self-identity is seen as something that a person can grow into by repeated behavior; it persists and might even override attitudes: "Once such a role identity becomes central to the self, the importance of attitude and norms in determining behavioral intention diminishes" (Charng et al., 1988, p. 316).

By exploring both individual and organizational determinants, this study respects workplace-specific influences, such as supervisory and organizational behavior, on EGB. Therefore, a three-way interaction has been calculated: perceived supervisory support toward the environment (PSS-E), environmental self-identity (EnvID), and perceived organizational support toward the environment (POS-E) are studied as independent predictors of EGB. Our research is guided by the following research question: To what extent does the conjoint interaction between EnvID and PSS-E affect the relationship between POS-E and EGB?

We make the following contributions to research in the field of corporate greening. First, by studying the influence of EnvID on EGB under the influence of perceived supervisory and organizational support toward the environment, this study extends previous findings on EnvID to green behavior in the work context (Gatersleben et al., 2014; van der Werff et al., 2021; Whitmarsh & O'Neill, 2010). Second, in considering individual as well as organizational determinants, we address

calls for more studies combining social–psychological and organizational factors to explain their influence on EGB (Lo et al., 2012).

The remainder of this chapter is organized as follows. In the next section, the theoretical background and the study’s model are presented alongside the development of our research hypotheses. In the section that follows, our research methods and analytical procedure are laid out. This is followed by the result section. The findings and implications are discussed in the discussion section. The chapter concludes by offering study limitations and future research ideas.

2 Literature Review

2.1 *Theoretical Framework*

Research on corporate greening has made a convincing case that EGB leads to more effective greening processes in organizations and thus improves environmental performance and contributes to environmental sustainability in organizations (Andersson et al., 2013; Daily & Huang, 2001; Paillé, 2020). Under the framework of identity theory, this study explores the conjoint role of EnvID, POS-E, and PSS-E in predicting EGB, which we now detail.

Previous research has found that EnvID plays a decisive role in predicting green behavior (Ciocirlan, 2016; Whitmarsh & O'Neill, 2010), and self-identity is about the description of oneself, which might include values attached to that self, as by definition, “through the process of categorization or identification, an identity is formed” (Stets & Burke, 2000, p. 224). Whether an identity leads to a certain behavior depends on the salience of a particular identity, as research suggests that the more relevant an individual identity is, the more likely it is that the identity-congruent behavior is enacted (Laverie & Arnett, 2000). Self-identity fulfills two purposes: differentiation from others and confirmation of one’s set of values, beliefs, and behaviors, which reinforce positive emotions (Christensen et al., 2004). Identity theory is thus not only about individual choices, but also includes the context or social structure in which a person is embedded (Stets & Biga, 2003). Stets and Burke (2000) stated that self-identity is only played out if it is activated, which depends on the individual’s structural embeddedness or commitment: “The more persons one is tied to by holding an identity (i.e., the greater the embeddedness of the identity in the social structure), the more likely it is that the identity will be activated in a situation. In brief, the stronger the commitment, the greater the salience” (p. 230).

An EnvID implies that actions are in accordance with the self, that is, being a person who acts in environmentally friendly ways, and while doing so, establishes consistency between the individual parts of a person’s self and their behavior (Festinger, 1957; Whitmarsh & O'Neill, 2010). Depending on the salience and strength of a person’s self-identity, he or she is therefore more likely to act in a

pro-environmental way (van der Werff et al., 2013). In previous studies, self-identity has been identified as a predictor and mediator that influences greening behaviors outside of work (Fielding et al., 2008; Gatersleben et al., 2014; Stets & Biga, 2003; Whitmarsh & O'Neill, 2010). For example, in a study on recycling behavior, Nigbur et al. (2010) concluded that the identity of being a “recycler” enhances recycling behavior, and a recent study by van der Werff et al. (2021) suggested that a stronger EnvID increases the likelihood of employees engaging in green behavior. Cheng et al. (2021) concluded that EnvID can function as a moderator between psychological ownership, i.e., if employees feel a connection to their workplace and feel responsible for the organization, and EGB. As such, we predict that environmental self-identity (EnvID) is positively related to EGB (H1).

In workplace settings, POS-E and PSS-E especially are found to encourage EGB (Cantor et al., 2012; Paillé et al., 2019; Raineri & Paillé, 2016; Ramus, 2001; Ramus & Killmer, 2007; Ramus & Steger, 2000). In general terms, perceived organizational support (POS) is formed by the organization's concern about its employees' well-being and acknowledgment of employee contributions (Eisenberger et al., 1986). In this study, its narrower form POS-E is used (Lamm et al., 2015), where POS-E is defined as “the specific belief held by employees concerning how much the organization values their contributions toward sustainability” (Lamm et al., 2015, p. 209). When employees feel supported by their organizations, they are more likely to engage in EGB (Manika et al., 2015; Ramus, 2001). Consequently, POS-E functions as a facilitator for EGB. Thus, based on findings in previous research (Lamm et al., 2015; Paillé & Raineri, 2015; Ramus, 2001), we predict that POS-E is positively related to EGB (H2).

Perceived supervisory support toward the environment (PSS-E) is another relevant predictor of EGB (Paillé et al., 2019, 2022; Raineri & Paillé, 2016; Ramus & Steger, 2000), as the probability of employees engaging in greening behaviors was found to rise with the regular support of their supervisors (Ramus & Steger, 2000). PSS-E refers here to “the employee's belief that the supervisor provides subordinates with the resources and feedback needed to participate in environmental initiatives” (Cantor et al., 2012, p. 37). Prior studies have shown that supervisory and organizational support are linked, as Eisenberger et al. (2002) found that they are connected by the supervisor's organizational status and through a temporal link that supervisory support precedes the perception of organizational support. Other studies have reported reliable relationships between these two concepts (Rhoades et al., 2001; Yoon & Thye, 2000), as in her study of eco-initiatives, Ramus (2001) found that supervisory behaviors are key to encouraging EGB.

Owing to their position in the organizational hierarchy and their role, individual supervisors play a decisive role in shaping and encouraging EGB (Cantor et al., 2012; Graves & Sarkis, 2018; Graves et al., 2013), and are also able to discourage any attempts to engage in EGB too (Cantor et al., 2012). A study by Cantor et al. (2012) confirmed that high levels of PSS-E make it more likely for employees to also perceive organizational support for EGB, making PSS-E crucial for employees who attempt to engage in greening behaviors.

In this study, it is thus assumed that PSS-E does not directly influence a person's behavior but affects a person's self-identity, which in turn leads to the desired behavioral outcome. This is because identity researchers refer to self-identity in explaining behaviors that are guided by how persons perceive themselves (Sparks & Shepherd, 1992; Whitmarsh & O'Neill, 2010), and previous research has pointed out that identity has a greater influence on behavior than attitudes when a specific role identity dictates a certain behavior (Charng et al., 1988). If a preferred self-identity cannot be lived out, it is possible that the affected identity is devalued (Pratt et al., 2006) and a person adapts to a social identity (Brown, 2015, 2017). Our theorizing thus suggests that perceived supervisory support affects the living out of one's preferred identity, meaning we expect that a three-way POS-E $\times$ EnvID $\times$ PSS-E interaction positively predicts EGB (H3).

However, a self-identity that is contrary to existing organizational identity can lead to identity tensions, as individuals who perceive a mismatch between their preferred identity and the organizational identity try to work out their identity tensions (Kira & Balkin, 2014). In the worst case, if personal identities do not match with organizational identities, employees may decide to leave their work for good. Only identities that match with organizational identities lead to positive outcomes: if a personal identity and an organizational identity match, employees are found to thrive (Kira & Balkin, 2014). In several studies, the identity tensions of sustainability managers with their work environment have been seen (Carollo & Guerici, 2018; Ghadiri et al., 2015; Wright et al., 2012). For example, Carollo and Guerici (2018) found in their study of 26 sustainability managers that the double demand of work-related business goals and their personal values regarding social and environmental goals caused tensions for sustainability managers. In conclusion, EGB is performed if employees' environmental beliefs and those upheld in the work environment are congruent (Muster & Schrader, 2011). To a certain extent, PSS-E can balance out a low EnvID. However, only if EnvID and PSS-E are strong do they have an impact on the relationship between POS-E and EGB. Thus, we predict: low levels of both EnvID and PSS-E will result in low EGB (H4).

High levels of PSS-E and high levels of EnvID increase the effect of POS-E on EGB (Raineri et al., 2016). Thus, we predict that low levels of either PSS-E or EnvID can be balanced out by high levels of EnvID or PSS-E and vice versa (H5).

In sum, EnvID as well as the PSS-E and POS-E are relevant for EGB. The influence of EnvID depends on the organizational context, which is studied by the concept of PSS-E and POS-E. Our five hypotheses are therefore as follows:

Hypothesis 1: EnvID has a positive effect on EGB.

Hypothesis 2: There is an overall positive effect of POS-E on EGB.

Hypothesis 3: The three-way POS-E $\times$ EnvID $\times$ PSS-E interaction positively predicts EGB.

Hypothesis 4: Low levels of both EnvID and PSS-E will result in low EGB.

Hypothesis 5: Low levels of either PSS-E or EnvID can be balanced out by high levels of EnvID or PSS-E and vice versa.

We propose the following model in Fig. 1.

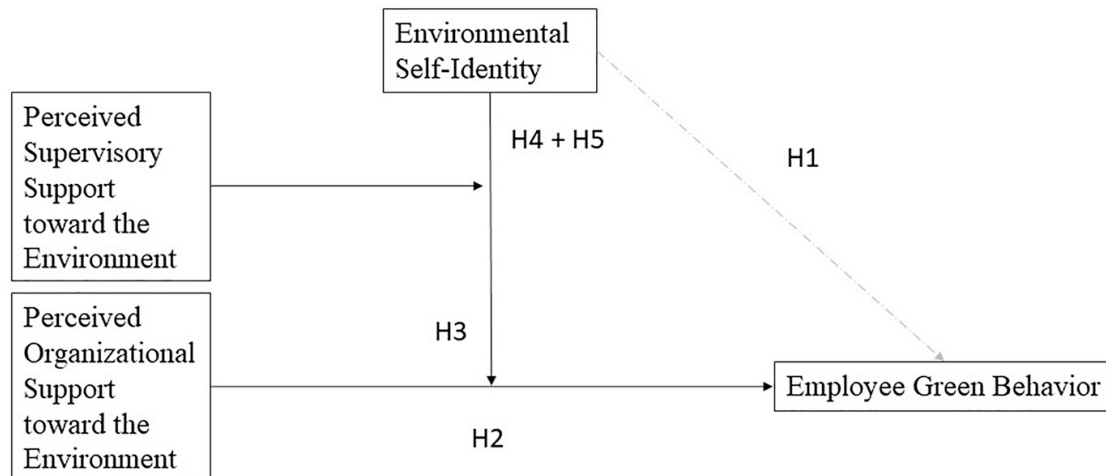


Fig. 1 Proposed conceptual model of hypothesized three-way interaction effect between perceived organizational support toward the environment (POS-E), environmental self-identity (EnvID), perceived supervisory support toward the environment (PSS-E), and employee green behavior (EGB). Source: Author's own work

3 Methodology

3.1 Sample and Procedure

The hypotheses were tested using a sample of adults working in a range of organizations and occupations, and data were collected as a part of a bigger research project in Germany in the form of an online survey, which was administered through an online panel (www.respondi.com) that focuses on online surveys and uses established procedures for ensuring data quality (e.g., recruiting suitable respondents, setting time stamps). For our study, the provider was instructed to apply a number of selection criteria during recruitment, and inclusion criteria were: white- and blue-collar workers, as well as civil servants aged 18–67 years working in an organization with at least 50 employees, resulting in a total sample size of 922 participants. Of the 922 questionnaires received, 178 were discarded because relevant data were missing, reducing the final sample to 744, of which 345 were women and 399 men. Additionally, gender and age quotas were applied, where age distribution of the sample was controlled to avoid selection effects, e.g., a bias of younger and more technologically adept Internet users (19% 18–25 years, 20% 26–34 years, 20% 35–44 years, 21% 45–54 years, 20% 55–64 years, and 0.5% 65 and older). Approximately 6% had worked for their organization for <1 year, 19% had between 1 and 3 years, 22% had between 3 and 6 years, 11% had between 6 and 9 years, and the largest group of participants (41%) had 9 years or more of organizational tenure. We also asked for their employment situation: 14% had limited and 86% had unlimited contracts. Finally, 22% worked for organizations with 50–99 employees, 16% for organizations with 100–199 employees, 10% for organizations with 200–299 employees, 11% for organizations with 300–499 employees, 15% for organizations with 500–999 employees, 10% for organizations with 1000–2499 employees, 5%

for organizations with 2500–4999 employees, and 11% for organizations with 5000 and more employees.

3.2 Measures

For all items, a 7-point Likert scale ranging from 1 = fully agree to 7 = fully disagree or 1 = always to 7 = never was applied (the scales were reversed before calculation for easier interpretation), and exceptions are indicated below for the individual measures. In all scales, a “don’t know” or if necessary a “not applicable” option was added to increase reliability and to prevent participants from opting for the middle category, and “don’t know” and “not applicable” categories were coded as missing data. For single missing values within a scale, the mean values were calculated. All items were translated from German into English, and the translation was controlled by a back translation by another team member as per Brislin (1990). Scale reliability was tested by coefficient alphas, with over 0.70 indicating acceptable reliability.

3.2.1 Environmental Self-Identity (EnvID)

An EnvID scale was developed by using items from previous research, where items 1, 2, 4, and 5 were derived from a scale by Whitmarsh and O'Neill (2010) and items 3 and 6 from one by Fielding et al. (2008). The items were: (1) “I consider myself an environmentally friendly person”; (2) “I think of myself as someone who is very concerned with environmental issues”; (3) “I would be embarrassed to be seen as having an environmentally friendly lifestyle”; (4) “I would not want my family or friends to think of me as someone who is concerned about environmental issues”; (5) “I am not the type of person who would be involved in environmental and climate protection”; and (6) “It is important to me to work for environmental and climate protection in my free time.” The factor loadings of item 4 (0.04) and item 5 (−0.05) were below the standard cutoff (Hair et al., 2010) and thus dropped. The remaining factor loadings ranged from 0.50 to 0.94 and formed a reliable scale (coefficient alpha = 0.85, $M = 4.57$, $SD = 1.42$).

3.2.2 Perceived Supervisory Support Toward the Environment (PSS-E)

PSS-E was measured by five items developed by Ramus (2001):

My immediate superior: (1) “...encourages environmental initiatives”; (2) “...makes sure that employees develop environmental skills”; (3) “...listens carefully to and values inputs on environmental topics”; (4) “...gives complete and accurate information regarding environmental issues”; and (5) “...involves employees in environmental problem solving.” The items’ factor loadings ranged from 0.90 to 0.93, and the coefficient alpha was 0.96, $M = 3.30$, $SD = 1.79$.

3.2.3 Employee Green Behavior (EGB)

EGB was investigated through the construct of OCBE, using the scale developed by Boiral and Paillé (2012), which is among the five most common measurement scales in EGB research (Francoeur et al., 2021). OCBEs are described as “discretionary behaviors performed by employees whereby they demonstrate their willingness to cooperate with their organization and its members by performing behaviors in the workplace that benefit the natural environment” (Paillé & Boiral, 2013, p. 119). The OCBE concept can be split into three dimensions: eco-initiatives, eco-civic engagement, and eco-helping (Boiral & Paillé, 2012). Although eco-civic engagement was considered, it was not used in the final analysis because it had a very high nonresponse rate. Therefore, this study focused only on the subscale eco-helping to measure the encouragement of colleagues to consider environmental concerns (Paillé & Boiral, 2013). Three items (1–3) measured eco-helping and three items eco-civic engagement (4–6): (1) “I encourage my colleagues to behave in a climate and environmentally friendly way in the workplace”; (2) “I encourage my colleagues to express their ideas and opinions on environmental and climate protection issues”; (3) “I discuss environmental and climate protection issues with colleagues, even if they have a negative or skeptical attitude towards the issues”; (4) “I actively participate in environmental or climate protection events organized by my employer”; (5) “I stay informed about the latest developments on environmental and climate protection issues from my employer”; and (6) “I volunteer for environmental and climate protection projects in my company.” Participants were given a “not applicable” option to indicate behaviors that they had no opportunity to perform in their workplace (e.g., in case there were no events). The “not applicable” option was coded as missing data. The coefficient alpha for all items was measured as 0.94 (eco-civic engagement only: coefficient alpha = 0.92; eco-helping only: coefficient alpha = 0.91). The items were measured on a 7-point scale ranging from 1 = never to 7 = always, which were reversed for the analysis. Items 4, 5, and 6 were dropped for analysis, because of the high numbers of respondents who indicated that there was no option to participate ($N = 245$), inform about the latest developments ($N = 245$), or volunteer ($N = 281$) in environmental events at their workplace. The items’ factor loadings ranged from 0.84 to 0.93 (coefficient alpha: 0.91, $M = 4.05$, $SD = 1.79$).

3.2.4 Perceived Organizational Support Toward the Environment (POS-E)

Four items measuring organizational support for environmental behavior and the possibility of suggesting and implementing employees’ own ideas for environmental and climate protection were taken and slightly adapted from Lamm et al. (2015). The items assessed the opportunities and freedom to engage in environmental activities in the workplace and how they are received in the organization. A 7-item scale was used to measure POS-E ranging from 1 = strongly agree to 7 = strongly

disagree (the scale was reversed for the analysis). The items were: (1) “At my workplace I can behave as environmentally and climate-friendly as I want without restrictions”; (2) “Anyone who brings ideas about environmental or climate protection to my employer will be rewarded (e.g., through vouchers, bonuses)”; (3) “My organization does not care about whether I behave in a sustainable manner or not” (reverse-scored); and (4) “At my workplace I have the opportunity to share ideas and initiatives on environmental and climate protection.” Since the scale was slightly adapted, we conducted an exploratory factor analysis using principal component extraction with varimax rotation to assess the measure’s reliability. This resulted in the expected one-factor solution (Kaiser-Meyer-Olkin: 0.70) accounting for 53% of common variance with factor loadings between 0.40 and 0.85. Item 3 “My organization does not care about whether I behave in a sustainable manner or not” (reverse-scored) was dropped because it was below the cutoff (0.40). After dropping item 3, the coefficient alpha increased to an acceptable 0.73, $M = 3.69$, $SD = 1.58$. Individual factor loadings ranged from 0.62 to 0.77.

3.2.5 Control Variables

Since demographic characteristics have been suggested as potential reasons for green behaviors (Lamm et al., 2013), in this study the following control variables were used: gender (1 = male, 2 = female), age (1 = 18–25, 2 = 26–34, 3 = 35–44, 4 = 45–54, 5 = 55–64, and 6 = 65 and older), organizational size (1–4 were excluded; 5 = 50–99, 6 = 100–199, 7 = 200–299, 8 = 300–499, 9 = 500–999, 10 = 1000–2499, 11 = 2500–4999, and 12 = 5000 or more), and tenure (1 = <1 year, 2 = 1 to <3 years, 3 = 3 to <6 years, 4 = 6 to <9 years, 5 = 9 or more years). Correlations between control variables and model variables are reported in Table 1. It can be noted that age correlates with EnvID and EGB, firm size with PSS-E, and tenure with EnvID.

3.2.6 Common Method Variance

Since the study was cross-sectional and used self-reports, we controlled for common method variance (CMV), defined as “variance that is attributable to the measurement method rather than to the constructs the measures represent” (Podsakoff et al., 2003, p. 879). To assess if CMV inflated the data, a confirmatory factor analysis (CFA) was conducted. The first CFA included all items mentioned above, and the second CFA was run without the items with low factor loadings. In the original model, the hypothesized factor loadings were not all statistically significant ($p < 0.05$) and ranged from -0.09 to 0.94 . Therefore, items below the cutoff value of 0.5 (Hair et al., 2010) were removed: item 3, “My organization does not care about whether I behave in a sustainable manner or not” (reverse-scored) of the latent factor POS-E, and items 4, “I would not want my family or friends to think of me as someone who is concerned about environmental issues,” and 5, “I am not the type of person who would be involved in environmental and climate protection” of the

Table 1 Descriptive statistics, correlations, and coefficient alphas for study variables

No.	Variable	Min-Max	M	SD	1	2	3	4	5	6	7
1	Gender	1–2	1.46	0.5							
2	Age	1–6	3.04	1.41	−0.165**						
3	Firm size	5–12	3.62	1.35	−0.050	−0.024					
4	Tenure	1–5	7.84	2.33	−0.167**	0.640**	0.093*				
5	PSS-E	1–7	3.30	1.79	−0.167**	−0.016	0.115**	−0.037	(0.96)		
6	EnvID	1–7	4.57	1.42	−0.044	0.146**	0.009	0.076*	0.308**	(0.85)	
7	POS-E	1–7	3.69	1.58	−0.171**	−0.041	0.157**	−0.017	0.689**	0.284**	(0.73)
8	EGB	1–7	4.05	1.71	−0.101**	0.109**	0.019	0.056	0.539**	0.619**	0.513** (0.91)

** $p < 0.01$, * $p < 0.05$

Gender (1 = male, 2 = female), Age (1 = 18–25, 2 = 26–34, 3 = 35–44, 4 = 45–54, 5 = 55–64, and 6 = 65 or older), firm size (not included in sample: 1 = 1–5, 2 = 6–9, 3 = 10–19, 4 = 20–49; included in sample: 5 = 50–99, 6 = 100–199, 7 = 200–299, 8 = 300–499, 9 = 500–999, 10 = 1000–2499, 11 = 2500–4999, and 12 = 5000 or more employees), tenure (1 = <1 year, 2 = 1 to <3 years, 3 = 3 to <6 years, 4 = 6 to <9 years, 5 = 9 or more years). Source: Author's own work

latent EnvID factor we recalculated the model without these items. As a result, the hypothesized four-factor model indicated an adequate fit to the data (Marsh et al., 2004), a chi-square (χ^2) of 435.384 (df = 84, $N = 744$), an acceptable comparative fit index (CFI) of 0.96, an acceptable root mean square error of approximation (RMSEA) of 0.08, and a RMSEA confidence interval of [0.07, 0.08] as well as a root mean square residual (SRMR) of 0.06 (Bentler, 1990). Previous tests to see if the data met the assumption of collinearity indicated that multicollinearity was not a concern [POS-E: tolerance 0.52; variance inflation factor (VIF) 1.93; EnvID: tolerance 0.89; VIF 1.135; PSS-E: tolerance 0.51; VIF 1.97] (Field, 2018). Inspection of the correlation table revealed some high correlations between variables.

As such, different factor models were computed, as per Table 2. The four-factor model had a better fit than other computed models. In the case of POS-E and EGB, the two-factor solution showed a better fit [χ^2 of 13.77 (df = 8), CFI: 0.997, RMSEA: 0.03, SRMR: 0.02] than the calculated one-factor solution [χ^2 of 297.08 (df = 9), CFI: 0.872, RMSEA: 0.21, SRMR: 0.09]. For EnvID and EGB, the two-factor solution also had a better fit [χ^2 of 134.82 (df = 13), CFI: 0.97, RMSEA: 0.11, SRMR: 0.04] than the calculated one-factor solution [χ^2 of 848.72 (df = 14), CFI: 0.78, RMSEA: 0.28, SRMR: 0.08]. The calculated two-factor solution for PSS-E and POS-E showed a better fit [χ^2 of 95.25 (df = 19), CFI: 0.98, RMSEA: 0.09, SRMR: 0.03] than if both were loaded on one factor [χ^2 of 250.02 (df = 20), CFI: 0.96, RMSEA: 0.12, SRMR: 0.05]. Thus, although POS-E and PSS-E are highly correlated, for theoretical and empirical reasons, treating them as two independent latent factors was found justifiable.

Table 2 Fit indices for alternative measurement models

Model	χ^2	df	χ^2/df	CFI	TLI	RSMEA	SRMR
4-factor model	435.38**	84	5.18	0.96	0.95	0.08 [0.07; 0.08]	0.06
3-factor model: PSS-E+POS-E, EnvID, EGB	562.70**	87	6.05	0.95	0.94	0.08 [0.08; 0.09]	0.07
3-factor model: EnvID+POS-E, PSS-E, EGB	1200.71**	87	13.8	0.88	0.86	0.13 [0.13; 0.14]	0.16
3-factor model: PSS-E+EnvID, POS-E, EGB	2188.94**	87	25.16	0.78	0.74	0.18 [0.17; 0.19]	0.16
2-factor model: PSS-E+POS-E+EnvID, EGB	2305.91**	89	25.91	0.77	0.73	0.18 [0.18; 0.19]	0.16
1-factor model: PSS-E+POS-E+EnvID+EGB	3348.17**	90	37.2	0.66	0.60	0.22 [0.21; 0.23]	0.17

** $p < 0.001$

Source: Author's own work

4 Findings

PSS-E as an independent variable, EnvID as a moderator Z, and POS-E as a moderator W were standardized and together with EGB as a dependent variable entered in model 3 in the PROCESS macro (Hayes, 2013) in SPSS. The overall model measures were: $F(7, 736) = 129.57, p < 0.001; R^2 = 0.55$. The model revealed a significant effect of EnvID [$\beta = 0.52, t(736) = 15.96, p < 0.001, LLCI = 0.46, ULCI = 0.58$] and of POS-E [$\beta = 0.21, t(736) = 5.86, p < 0.001, LLCI = 0.14, ULCI = 0.28$]. Hypotheses 1 and 2 are thus confirmed. A significant effect was also reported for PSS-E [$\beta = 0.27, t(736) = 7.59, p < 0.001$].

We also tested for the individual interactions. The three-way interaction between POS-E $\times$ PSS-E $\times$ EnvID was significant with $\beta = -0.02, t(736) = -2.0, p = 0.04, LLCI = -0.04, ULCI = -0.001$. Therefore, H3 can be confirmed. The two-way interaction between POS-E and PSS-E was not significant with $\beta = 0.03, t(736) = 1.01, p = 0.31, LLCI = -0.03, ULCI = 0.08$, and so was the interaction between POS-E and EnvID ($\beta = 0.05, t(736) = 1.31, p = 0.19, LLCI = -0.02, ULCI = 0.11$). The two-way interaction between PSS-E and EnvID was marginally significant with $\beta = -0.06, t(736) = -1.88, p = 0.06, LLCI = -0.13, ULCI = 0.003$. At different levels of PSS-E and EnvID, POS-E was found to predict EGB—see Table 3.

However, when PSS-E and EnvID were low, no significant relation between POS-E and EGB could be identified. Ergo, H4 cannot be confirmed. In all other cases, with either PSS-E or EnvID showing a high level, POS-E predicted EGB. However, the effect of EnvID decreased when PSS-E levels were high. The largest observed effect can be reported for low levels of PSS-E and high levels of EnvID (effect: 0.27, $p < 0.001$). At high levels of PSS-E, the effect slightly decreased with increasing levels of EnvID, ranging from 0.24 to 0.23 ($p < 0.001$). In all other cases, the effect increased with increasing levels of EnvID (effects ranging from 0.16 to 0.25, $p < 0.001$). Overall, it can be said that if EnvID increases, the effect of PSS-E on EGB decreases, and vice versa. H5 can therefore be confirmed.

Table 3 Interaction effects at different levels of PSS-E and EnvID on POS-E

PSS-E	EnvID	β	se	T	P	LLCI	ULCI
Low	Low	0.08	0.05	1.58	0.11	-0.02	0.18
Low	High	0.28	0.06	4.53	0.00	0.16	0.40
High	Low	0.24	0.08	3.21	0.00	0.10	0.39
High	High	0.23	0.06	3.76	0.00	0.11	0.34

High: +1SD, Low: -1SD

Source: Author's own work

5 Discussion of Implications

The purpose of this study was to investigate the conjoint influence of environmental self-identity (EnvID) and perceived supervisory support toward the environment (PSS-E) on the link between perceived organizational support toward the environment (POS-E) and EGB, and the study results provide evidence that PSS-E and EnvID conjointly moderate the link between POS-E and EGB. However, it was observed that the link is rather weak and EnvID individually is a strong predictor of EGB. In line with research on self-identity in predicting private green behavior (Lalot et al., 2019; Sparks & Shepherd, 1992; Whitmarsh & O'Neill, 2010) and EGB (Cheng et al., 2021; van der Werff et al., 2021), EnvID was found to be positively connected with EGB (H1). As such, employees with higher levels of EnvID are more likely to engage in EGB, which also confirms expectations that intrinsic motivation guides employees' green behaviors (Ciocirlan, 2016).

Analyzing the influence of organizational determinants on EGB, as expected, POS-E positively predicted EGB overall (H2), consistent with previous findings on the influence of POS-E on EGB (Paillé & Raineri, 2015; Ramus, 2001). Under the conjoint influence of PSS-E and EnvID, POS-E predicts EGB. However, the link between POS-E and EGB disappeared when a person reported low levels of PSS-E and EnvID (H4). This is unexpected, since it was assumed that it would only result in weak EGB, and differs from previous findings, which found that POS-E is directly related to EGB, even when moderated by psychological empowerment of employees (Lamm et al., 2015). However, this study adds to previous research finding that a relationship between POS-E and EGB only holds for employees who are committed to the organization (Temminck et al., 2015) or who show environmental commitment and beliefs (Raineri & Paillé, 2016). If either PSS-E or the reported EnvID was high (i.e., the weaker one of the variables, the more positive the effect of the other variable), we expected the link between POS-E and EGB to be reinforced, which was confirmed (H5). The strongest influence on EGB was found if employees reported high levels of all three independent variables (H3)—see Fig. 2. Consequently, this finding confirms the combined effect of individual and organizational determinants influence EGB (Lo et al., 2012; Raineri & Paillé, 2016).

This study's findings advance theory on EGB in several ways. First, it contributes to recent but scarce research on the role of EnvID in predicting EGB (Ruepert et al., 2016; van der Werff et al., 2021), as EnvID can be regarded as a new influential factor in explaining EGB. This study thus extends previous findings on social-psychological mechanisms (Paillé & Mejía-Morelos, 2014; Paillé & Raineri, 2015; Raineri et al., 2016), and extends previous research on EnvID in the private sphere (Fielding et al., 2008; van der Werff et al., 2013; Whitmarsh & O'Neill, 2010) and studies using self-identity as an extension to the theory of planned behavior to explain pro-environmental behavior in general (van der Werff et al., 2021), by combining elements from both streams of research.

Second, combining EnvID and supervisory as well as organizational support in explaining EGB responds to calls to combine individual and organizational factors

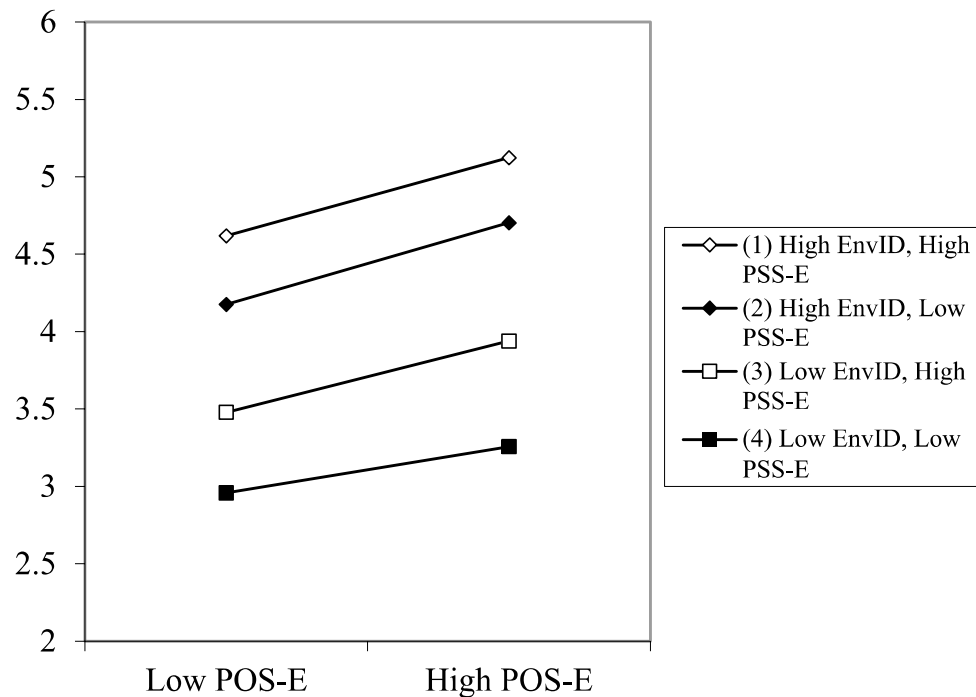


Fig. 2 Strength of employee green behavior (EGB) as a function of organizational support (POS-E), environmental self-identity (EnvID), and supervisory support (PSS-E)*. *All independent variables were mean centered. Source: Author's own work

(Lo et al., 2012), and makes a contribution to studies that have started to combine supervisory and organizational support with psychological-value-related attributes in EGB studies (Paillé et al., 2019; Paillé & Raineri, 2015; Raineri & Paillé, 2016).

This study adds to the scarce studies addressing the role of EnvID in workplace settings. In particular, green employees with EnvID are found to be intrinsically motivated to engage in EGB (Ciocirlan, 2016), as employees connect private environmental interests with their engagement in environmental goals at work (Clayton, 2003; Muster & Schrader, 2011), and also underpins findings in green HRM acknowledging the role of empowerment through supervisors and attracting “green job candidates” (Renwick et al., 2013, p. 23).

However, whether an identity is enacted depends on the identity's salience, the relative importance that a person assigns to an individual identity, and the context (Charng et al., 1988; Stryker & Serpe, 1994). In this study, the role of EnvID in EGB has been studied under the influence of supervisory and organizational support toward the environment. Although low levels of EnvID can be balanced with PSS-E, thus confirming previous findings on the influential role of supervisors on EGB (Paillé et al., 2022; Raineri & Paillé, 2016; Ramus & Steger, 2000), this study shows that high levels of EnvID decrease the influence of PSS-E on EGB. It is possible that PSS-E might even have countereffects for employees with high EnvID (Davis et al., 2020), discouraging their engagement in EGB. Essentially, there is a need to leverage the salience of EnvID if employees are to stay connected and committed to organizations, as it is found that the activation of a preferred identity is connected

with positive emotions (Stets, 2005). Therefore, employees with high levels of EnvID play an important role in fostering EGB.

A key question for HR professionals and practitioners arises on assessing levels of employee environmental self-identity, and the role of supervisory support on EGB, and the role of both in supervisor-employee relationships, and organizational support for environmental self-identity in them too.

6 Future Directions

6.1 Research Limitations

Some limitations are present in this study. First, the study's item selection did not fulfill common standards. Although, coefficient alphas and other reliability estimates indicate no concern, the implemented item battery of POS-E cannot be fully compared to the variables used in the original scale to measure POS-E (Lamm et al., 2015) since items were changed and adapted to fit the German context, we also need to report the high correlation between POS-E and PSS-E which could raise some concern regarding the independence of these two variables. It is imaginable that the respondents perceived no significant difference between organizational support and the supervisory support toward the environment in their work environments, thus leading to a high overlap between the two variables.

Second, our study findings are based on self-reported data, which resulted in CMV, and raise calls for a study with more objective measures to capture EGB. Therefore, a future study should try to measure actual behavior and/or collect data in waves or measure the dependent and independent variables from different respondents as recommended by Podsakoff et al. (2003).

Third, the data stem from a convenience sample of an online panel, and it is a concern that the respondents of such panels are "trained" in filling out questionnaires (although, according to the provider, protections are in place to avoid such a scenario) and, therefore, lead to biased data. In particular, reverse coded, negatively formulated items in general loaded low on the respective factors. The sample was further composed of participants working in a range of different companies and industries that might have reduced the possibility of engaging in eco-civic behaviors (Boiral & Paillé, 2012). It is imaginable that certain types of organizations do not offer any environmental activities in which participants can actually take part (which was also shown in the high number of participants indicating that there were no such options at their workplace). This problem should be addressed in future research studies measuring eco-civic engagement.

6.2 Future Research

More research is needed on the influence of EnvID in predicting EGB, as earlier research has pointed at a possible influence of past behaviors on identity (Smith et al., 2007), yet in a recent study, while controlling for past behavior, interaction effects rose with rising levels of identity (Carfora et al., 2017). However, in the light of the present study, this could be interpreted as behavioral spillover from private or public green activism to the workplace (Blazejewski et al., 2018), i.e., past green behavior outside the workplace strengthens workplace EnvID.

Future research could also deepen the study of organizational context on the unfolding and exertion of EnvID. In particular, in light of that EnvID is positively related to EGB and beyond (Whitmarsh & O'Neill, 2010), it is of great theoretical and practical interest to understand the mechanisms beyond the influence of EnvID in the work context. Although research on self-identity asserts that identity activation/salience is connected with positive emotions (Stryker, 1987), the contextual factors that lead to such an activation in the context of EGB are still to be explored.

7 Conclusions

Organizations are tasked with demands to achieve environmental sustainability, and this study provides an understanding of the role of EnvID in predicting EGB, and our results show that supervisory and organizational support plays a decisive role in EGB. A strong EnvID together with a high level of supervisory and organizational support also resulted in the strongest levels of EGB, while low levels of either PSS-E or EnvID can be balanced out by high levels of EnvID or PSS-E in moderating the relationship between POS-E and EGB.

Academic Contribution This chapter contributes to the literature on EGB and green HRM by addressing the call for more research on it from Renwick (2018), and Renwick et al. (2024), and extends it by branching out to explore employee green behavior in a relatively large sample of employees in Germany, which is less seen in the relevant literature.

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