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Green Transformational Leadership and Green Voice Behavior: The Motivational Role of Green Psychological Empowerment

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ABSTRACT

Improving organizational environmental performance requires broad, proactive employee engagement. Company leaders can play an important role in motivating employees to speak up on environmental issues in the workplace. Drawing on self-concept and psychological empowerment theories, we propose and test a model that examines how perceived green transformational leadership is associated with employees' green psychological empowerment and, in turn, employees' green voice behavior. We conducted a two-wave survey study with 170 participants. Results of structural equation modeling showed that green transformational leadership was positively related to all four dimensions of green psychological empowerment—green meaning, competence, self-determination, and impact. Additionally, green transformational leadership was indirectly associated with green voice behavior via green meaning and impact. This research contributes to the literature by introducing green psychological empowerment as a new construct to explain the motivational pathways between green transformational leadership and green voice behavior.

1 | Introduction

The world faces multiple ecological crises, including climate change and biodiversity loss (IPCC 2023; Richardson et al. 2023). In response to these challenges, organizations need to enhance their environmental performance, and environmental sustainability has become a central concern in corporate boardrooms (Landrum 2018; Whiteman et al. 2013). This highlights the urgent need for companies to rethink how they conduct business, calling for behavioral changes and mindset shifts to enable meaningful action (Ones and Dilchert 2012; Williams et al. 2017). Organizations cannot meet their environmental sustainability goals without engaged employees contributing ideas and raising their voices to address challenges and develop

solutions (Daily and Huang 2001; Paillé and Francoeur 2022; Zacher et al. 2023).

Voicing improvements regarding the organization's environmental practices (i.e., green voice behavior) can be associated with several internal and external obstacles, including personal environmental attitudes and knowledge, opportunities to contribute ideas, and opposition from other people in the workplace (Zacher et al. 2023). Therefore, to promote green voice behavior, it is crucial to identify how employees can be encouraged to engage in this behavior. Previous research has shown that green transformational leadership plays a key role in promoting employee green behaviors by supporting, motivating, and stimulating employees, and by leading through vision and role

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modeling (Robertson and Barling 2015a; Zacher et al. 2024). Transformational leadership in general is found to be crucial in empowering employees through shaping positive, self-related cognitions (Schermuly et al. 2022; Shamir et al. 1993) and fostering voice behavior, for example, through leaders' voice expectation and employees' voice role perception (Duan et al. 2017; Zhao and Luan 2022). Positive relations between green transformational leadership and various employee green behaviors have already been demonstrated (Katz et al. 2022; Robertson and Barling 2015a; Zacher et al. 2024). However, it remains uncertain whether green transformational leadership is also positively related to green voice behavior as a specific and particularly proactive form of employee green behavior.

Previous research explored several mechanisms linking green transformational leadership and overall proactive employee green behavior, focusing on factors at individual (e.g., green identity), team (e.g., environmental goal clarity), and organizational levels (e.g., corporate social responsibility; Aycan et al. 2025). However, the mediating role of motivational mechanisms is so far unclear. The concept of psychological empowerment may be particularly important here, as it explains how individuals' cognitive states influence and enhance their motivation (Spreitzer 1995). Empowerment-related beliefs (i.e., meaning, competence, self-determination, impact) are closely related to voice behavior in general (Ilyas et al. 2021; Seibert et al. 2011). Preliminary findings suggest that psychological empowerment acts as a mediator between environmentally specific servant leadership and voluntary pro-environmental behavior (Zafar, Tian, et al. 2022).

In this study, we introduce the concept of green psychological empowerment, which specifically pertains to environmental initiatives, assuming that this concept could be highly relevant to understanding how employees can be motivated to proactively contribute to the green transformation of organizations. More specifically, we propose and test a motivational process model in which perceived green transformational leadership of company leaders is positively related to each of the four dimensions of employees' green psychological empowerment (i.e., green

meaning, competence, self-determination, and impact), which, in turn, are each expected to relate positively to employee green voice behavior. Together, these relations make up our hypothesized research model, which is graphically depicted in Figure 1. We draw on self-concept-based theory (Shamir et al. 1993) and psychological empowerment theory (Spreitzer 1995) to explain these relations. We conducted a two-wave survey study with 170 employees from various industries to test our hypotheses.

Our study offers several important theoretical contributions. First, we contribute to research on employee green behavior by examining the antecedents of green voice behavior, an area that has received limited research attention. Specifically, we explore how green transformational leadership and employees' perceptions of empowerment may facilitate green voice behavior. This is particularly important given the transformative nature of voice behavior, which can drive significant organizational change. Second, we introduce the concept of green psychological empowerment and apply self-concept-based theory as a novel framework for explaining the motivational pathways between green transformational leadership and employee green behavior. Specifically, we explore how green meaning, competence, self-determination, and impact function as key mediators in this relationship. Third, we contribute to psychological empowerment theory by adapting the concept to be target-specific, demonstrating how empowerment processes operate within the domain of environmental sustainability. From a practical perspective, our study may have significant implications for leadership development programs, as it highlights the need to equip leaders with the tools and strategies to empower an environmentally conscious workforce.

2 | Theoretical Background

2.1 | Green Voice Behavior

Researchers have repeatedly argued that organizational environmental performance largely depends on the collective green behaviors of its employees (Ones and Dilchert 2012; Unsworth

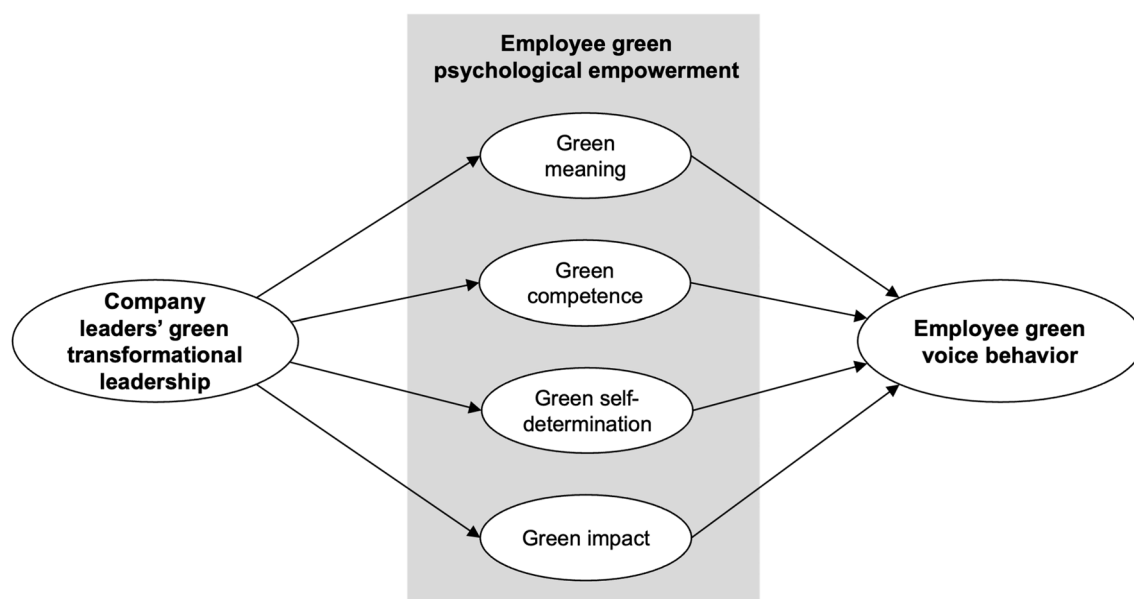


FIGURE 1 | The hypothesized research model.

et al. 2021; Zacher et al. 2023). Employee green behavior is defined as “scalable actions and behaviors that employees engage in that are linked with and contribute to or detract from environmental sustainability” (Ones and Dilchert 2012, p. 87). Employee green behaviors range from prescribed, task-related behaviors, such as conserving resources or completing prescribed tasks in environmentally sustainable ways, to more self-starting, proactive behaviors, such as taking initiative to actively push environmental sustainability issues in the workplace (Zacher et al. 2023). Proactive behaviors are especially critical in spurring meaningful organizational change toward environmental sustainability (Bissing-Olson et al. 2013; Francoeur et al. 2021; Zacher et al. 2023).

One prominent form of proactive employee green behavior is green voice behavior. In general, voice behavior is defined as the “informal and discretionary communication of ideas, suggestions, concerns, problems, or opinions about work-related issues, with the intent to bring about improvement or change” (Morrison 2023, p. 80). In the context of environmental sustainability, green voice behavior refers to verbal communication aimed at seeking improvements to the organization's environmental practices. It specifically involves employees proposing solutions and voicing ideas related to environmental sustainability challenges in the workplace (Temminck et al. 2015; Zacher et al. 2023). Previous research suggests that voice behavior can significantly influence the work environment (Morrison 2023). Given its change-oriented nature, green voice behavior may serve as a powerful tool for advancing environmental sustainability. This makes understanding the factors that promote green voice behavior critically important.

Context factors such as team characteristics (e.g., coworker support, Xie et al. 2015), leadership behaviors (e.g., transformational leadership, Duan et al. 2017), and organizational factors (e.g., employee-oriented human resource management, Hu and Jiang 2018) play a crucial role in facilitating voice behavior (Morrison 2023). In the context of environmental sustainability, prior research has primarily focused on organizational antecedents of green voice behavior. For example, Temminck et al. (2015) showed that perceived organizational support for employee environmental efforts is positively related to green voice behavior. Similarly, studies indicate that green human resource management practices (Ari et al. 2020; Tabrizi et al. 2023) and corporate social responsibility (Nourafkan et al. 2024) are positively associated with green voice behavior. In contrast, the role of more proximal workplace factors, particularly leadership, and the mechanisms through which they may influence green voice behavior have received comparatively less attention (Tang et al. 2023). This oversight is significant, given that leadership is widely recognized as a key antecedent of employee green behavior (Zacher et al. 2024).

2.2 | Green Transformational Leadership

Leadership in the context of environmental sustainability can be defined “as a process in which one or more individuals (i.e., leaders), through their actions, direct, control, or influence other

individuals' (i.e., followers') behavior and/or the actions of their organization as a whole (e.g., by introducing a new policy) toward the attainment of environmental sustainability goals, which are more or less shared by those involved in the leadership process” (Zacher et al. 2024, p. 374). Among various constructs within the broad category of environmentally specific leadership behavior, green transformational leadership (Robertson and Barling 2013, 2015a) is by far the most studied leadership construct (Aycan et al. 2025; Robertson 2018; Zacher et al. 2024).

Transformational leadership (Bass 1985; Burns 1978) involves motivating employees through idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration. Transformational leaders serve as role models who inspire employees to pursue a higher-order vision, uplifting their morale and motivation beyond immediate self-interests (Bass 1999). Green transformational leadership refers to a form of transformational leadership that aims to promote employee green behaviors (Robertson and Barling 2013, 2015b). Green transformational leaders seek to create an overarching understanding and awareness of the organization's environmental goals, encouraging employees to transcend self-interest for the greater good of environmental sustainability within the organization. Green transformational leadership can be expressed through behaviors such as acting as a role model by making sustainable choices, inspiring others with a compelling environmental vision, and encouraging innovative thinking around ecological challenges. For instance, leaders may set environmental goals for their teams, stimulate employees to generate green ideas, or act in consideration of their employees' environmental values. They also support employees in aligning with and achieving these goals through personalized encouragement and development (Chen and Chang 2013; Robertson and Barling 2013).

Previous research suggests that green transformational leadership relates positively to employee green behavior (Katz et al. 2022; Robertson and Barling 2015a). The impact of green transformational leadership on employee green behavior might be particularly driven by elements such as behavioral modeling and social learning. Green transformational leaders act as environmental role models, demonstrating environmentally friendly behavior that employees can observe and replicate (Cairns et al. 2010; Shao et al. 2023; Zacher et al. 2024). They also transmit green norms and expectations, making such actions a positive goal for employees. Furthermore, behaviors such as sense-making and vision-sharing can help reshape employees' views on environmental issues (Portugal and Yukl 1994; Robertson and Barling 2015b).

Several mediating factors have been explored to explain the positive relationship between green transformational leadership and employee green behavior. These include employee-related factors, such as green values and environmental concern, and team- and organization-level mediators, such as environmental goal clarity and green human resource management (see Aycan et al. 2025, for a review). However, green voice behavior has not been considered a target behavior in this context. Additionally, most of the existing studies are methodologically weak, as they rely on cross-sectional data (e.g., Chen et al. 2014; Iqbal et al. 2020), which precludes conclusions regarding temporal

precedence and introduces the risk of common method bias. Additionally, these studies are often limited to specific industries, thereby restricting their generalizability (e.g., Gurmani et al. 2021; Elshaer et al. 2023). Moreover, motivational factors have played little to no role in examining the underlying mechanisms between green transformational leadership and employee green behavior. This study addresses this gap by providing a deeper understanding of how company leaders' green transformational leadership can motivate employees to show green voice behavior, and how this relationship may be explained through green psychological empowerment.

2.3 | Green Psychological Empowerment

Psychological empowerment refers to employees' perceptions of empowerment and describes a state of intrinsic motivation (Spreitzer 1995). It is a multifaceted construct, manifested in a set of four work-related beliefs (i.e., meaning, competence, self-determination, and impact) that reflect an active orientation to the work role and shape an individual's intrinsic motivation to perform a given task (Spreitzer 1995; Thomas and Velthouse 1990). Specifically, meaning involves the personal significance of work goals and activities, competence represents work-related self-efficacy, self-determination refers to autonomy and control in one's work activities, and impact reflects one's belief to be able to influence work outcomes (Maynard et al. 2012; Spreitzer 1995). Importantly, the perception of psychological empowerment differs from structural employee empowerment, which describes the actual transfer of authority and responsibility from leaders to employees (Maynard et al. 2013).

Previous research identified high-performance managerial practices (e.g., organizational learning orientation, training and rewards), socio-political support (e.g., organizational climate, peer support), positive leadership (e.g., transformational leadership, leader support), and work design characteristics (e.g., task feedback, job enrichment) as key contextual factors that contribute to psychological empowerment (Seibert et al. 2011; Spreitzer 2008). Furthermore, meta-analytic evidence (Llorente-Alonso et al. 2024; Maynard et al. 2013; Seibert et al. 2011) shows a positive relationship between psychological empowerment at the individual and team level with employee attitudes (e.g., organizational commitment) and behaviors (e.g., organizational citizenship behavior).

We propose that psychological empowerment plays a critical role in the dynamic transformation toward organizational environmental sustainability. To this end, we introduce the construct of green psychological empowerment, which refers to the perception of empowerment related to environmentally focused activities and goals. It conceptually differs from general psychological empowerment in that the state of intrinsic motivation is specifically targeted at making one's own work environment more environmentally sustainable. It also conceptually differs from green employee empowerment, which can be considered a top-down structural measure, such as involving employees in decision-making regarding green practices (Daily and Huang 2001; Priyadarshini et al. 2023). Green psychological empowerment is manifested in the following four beliefs (based on Spreitzer 1995): green meaning (i.e., the

personal significance one experiences due to environmentally related work characteristics and goals), green competence (i.e., the self-efficacy one perceives regarding the competence to perform one's job in an environmentally friendly manner), green self-determination (i.e., the autonomy one experiences to perform his or her job in an environmentally friendly way), and green impact (i.e., the ability one perceives to influence environmental outcomes through one's own work activities). Table 1 summarizes the definitions of the four psychological empowerment dimensions based on Spreitzer (1995), as well as the definitions and examples of the green psychological empowerment dimensions.

2.4 | Relations Between Green Transformational Leadership and Green Psychological Empowerment

We build on self-concept-based theory (Shamir et al. 1993) to explain the relationship between green transformational leadership and green psychological empowerment. The theory provides an explanation of processes through which transformational leaders influence employees' self-related perceptions and beliefs. These processes include, for example, increasing employees' effort-accomplishment expectancies by setting high performance expectations and demonstrating confidence in their ability to meet them, or enhancing the intrinsic value of goal accomplishment by connecting goals to a compelling vision and mission (Shamir et al. 1993). Previous research showed that transformational leadership is positively related to psychological empowerment as a higher-order construct and to each of its four dimensions individually (Schermuly et al. 2022; Seibert et al. 2011). Based on self-concept-based theory, we propose that green transformational leadership is related to the four dimensions of green psychological empowerment in the following ways.

Transformational leaders enhance employees' sense of meaningful work by inspiring them and addressing their deeper needs (Shamir et al. 1993; Walumbwa et al. 2013). Green transformational leadership was found to be linked to employees' perceptions of meaningful work (Elshaer et al. 2023; Gurmani et al. 2021). These leaders create a vision aligned with green values and inspire employees to set environmental goals that resonate with their personal values. By emphasizing the broader impact of environmental sustainability, green transformational leaders help employees recognize the larger purpose behind their environmentally friendly behaviors, thereby enhancing their beliefs of green meaning.

Experiencing competence is closely linked to self-efficacy, the belief in one's ability to successfully perform tasks (Bandura 1997). Self-efficacy is central to self-concept-based theory, as transformational leaders enhance it by shaping positive self-perceptions, setting high expectations, and reinforcing capabilities (Shamir et al. 1993). Green self-efficacy refers to individuals' confidence in their ability to carry out environmental actions, representing a proactive "can-do" mindset toward accomplishing environment-related tasks (Chen et al. 2014; Tu et al. 2023). Green transformational leaders express high expectations of team members' environmental-related goals and are confident in their abilities to achieve these goals, which increases employees'

TABLE 1 | Definition of green psychological empowerment dimensions and distinction from general psychological empowerment.

Psychological empowerment dimension	Definition: Psychological empowerment (based on Spreitzer 1995)	Definition: Green psychological empowerment (new construct)	Example for green psychological empowerment
Meaning	Perception of personal significance due to alignment of personal values, ideals, and standards with work characteristics and job goals	Perception of personal significance due to alignment of environmentally related values, ideals, and standards with environmentally related work characteristics and job goals	Experiencing meaning due to a high fit between goal to drastically reduce emissions and own environmental values
Competence	Perception of work-related self-efficacy, including a high belief in own skills and ability to perform work activities well	Perception of work-related self-efficacy for sustainability, including a high belief in own skills and ability to carry out work activities in an environmentally friendly manner	Experiencing competence due to possession of relevant knowledge about materials for developing an environmentally sustainable alternative of a product
Self-determination	Perception of autonomy, control, and the ability to make choices regarding one's work activities and processes	Perception of autonomy, control, and the ability to make choices to perform one's job in an environmentally friendly way	Experiencing self-determination due to having the choice to establish environmentally friendly processes for production
Impact	Perception that one's actions matter and confidence in one's ability to influence work outcomes	Perception that one's environmental actions matter and confidence in one's ability to influence environmental performance	Experiencing impact when raising concerns about waste management leads to increase in recycling

green self-efficacy. Employees with greater green self-efficacy are likely to experience stronger green competence.

With respect to self-determination, transformational leaders promote autonomy instead of imposing psychological control (Gilbert et al. 2017; Waglay et al. 2020). Autonomy enhances self-determination by allowing employees to choose how to approach tasks, experience greater ownership, and directly influence outcomes. Green transformational leaders are assumed to promote green autonomy, representing the discretion to make environmentally responsible decisions and adopt sustainable practices. By granting employees autonomy to engage in environmental sustainability initiatives, these leaders reinforce employees' self-concepts and beliefs of green self-determination.

Finally, regarding green impact, green transformational leaders act as role models, demonstrating that individual actions can have a tangible influence on environmental outcomes. It can be assumed that employees with high self-efficacy are more likely to believe their contributions can lead to real change (Shamir et al. 1993). As discussed above, green transformational leadership is closely related to green self-efficacy (Chen et al. 2014; Tu et al. 2023). Moreover, by sharing their vision for a better future, green transformational leaders inspire employees and strengthen their belief in the positive impact of their environmental actions. Based on these considerations, we offer the following hypothesis:

Hypothesis 1. *Green transformational leadership is positively related to (a) green meaning, (b) green competence, (c) green self-determination, and (d) green impact.*

2.5 | Indirect Relations Between Green Transformational Leadership and Green Voice Behavior Through Green Psychological Empowerment

According to psychological empowerment theory, employees who experience empowerment are intrinsically motivated and more likely to adopt a proactive approach to their work, which entails going above and beyond their core responsibilities (Seibert et al. 2011; Spreitzer 2008). Meaningful work, for example, can foster proactive workplace behaviors by enhancing identification with one's work. Competence, self-determination, and impact further promote proactive behavior by fostering employees' sense of capability, autonomy in decision-making, and belief in their ability to influence and drive change. Thus, psychological empowerment is positively linked to proactive behaviors, such as voice behavior (Seibert et al. 2011). Leaders play a crucial role in shaping voice processes, for example, by deciding how to respond to employees' suggestions, either validating or discouraging their input (King et al. 2019). Moreover, psychological empowerment has been established as a comprehensive motivational mechanism explaining the relationships between transformational leadership and employee job-related behaviors, such as employee task performance, organizational citizenship behaviors (Dust et al. 2014; Saira et al. 2021), and voice behavior (Ilyas et al. 2021; Jackson Makwetta et al. 2021).

To date, few studies have explored the motivational mechanisms of psychological empowerment in explaining the relationship between leadership and proactive behaviors within the context of environmental sustainability. Zafar, Tian, et al. (2022) found that environmentally specific servant leadership was linked to voluntary pro-environmental behavior through psychological empowerment, although the study's reliance on cross-sectional data from the textile industry seems to be a limitation. Studies focusing on moderating effects found that psychological empowerment enhanced the positive relationship between sustainable leadership and sustainable performance (Iqbal et al. 2020), as well as between environmentally specific servant leadership and organizational identity (Zafar, Ho, et al. 2022). Harrach et al. (2020) introduced sustainability empowerment, a broader concept than green psychological empowerment, to explain employee engagement in corporate social responsibility activities. Their results show that employees' sustainability orientation and perceived organizational support for sustainability are key determinants of sustainability empowerment, which positively impacts job satisfaction and organizational commitment.

Advancing these earlier findings, introducing a contextualized form of psychological empowerment (i.e., green psychological empowerment) and its four associated beliefs as a new concept could help specify the relationships and underlying mechanisms between leader green behavior (i.e., green transformational leadership) and employee green behavior (i.e., green voice behavior). Also, a multi-wave design is lacking in this research context and would be valuable for obtaining more robust and reliable results. Self-concept-based theory (Shamir et al. 1993) offers a framework not only for understanding the relationships between leadership and psychological empowerment, but also for understanding the relationships between empowerment dimensions and voice behavior (Dust et al. 2014). It can be assumed that the four green empowerment beliefs impact green voice behavior in different ways.

First, research has shown that employees' perceptions of meaningful work mediate the positive relationship between green transformational leadership and organizational citizenship behavior towards the environment (Gurmani et al. 2021) as well as between environmentally specific servant leadership and brand citizenship behavior (Elshaer et al. 2023). In a review by Ayman et al. (2025), job meaningfulness was found to be one of the strongest mediators between green leadership and employee green behavior. When employees find personal meaning in their work related to environmental sustainability (i.e., green meaning), they perceive their contributions as more valuable, motivating them to express their thoughts on green initiatives.

Second, previous research on green self-efficacy suggests that green competence mediates the positive relation between green transformational leadership and green voice behavior. Individuals with higher levels of green self-efficacy tend to believe in their abilities to complete tasks in environmentally sustainable ways, which results in better performance outcomes (Chen et al. 2014). Green self-efficacy has been examined as a determinant of employee green behavior (Luo et al. 2024; Van Valkengoed et al. 2022) and as a mediator in the green leadership–employee green behavior relationship (Mughal et al. 2022;

Tu et al. 2023). Thus, it can be assumed that employees who feel competent in their environmental skills are more likely to express ideas and suggestions related to environmental sustainability, as they believe their efforts will lead to positive environmental outcomes and that voicing their ideas can make a meaningful difference.

Third, it was shown that job autonomy, as a work characteristic measure, mediates the positive relationship between transformational leadership and employees' work engagement (Gözükarar and Şimşek 2015). Also, green autonomy is positively associated with proactive green behaviors, likely driven by autonomous motivation (Luo et al. 2024; Stein et al. 2025). It can be assumed that when employees feel autonomous and in control of their environmental decisions, they are more inclined to voice their concerns and advocate for initiatives they believe in. Accordingly, a strong sense of self-determination in making environmentally friendly choices, fostered by green transformational leadership, can promote green voice behavior.

Fourth, employees who perceive their actions as impactful are more likely to speak up, as this strengthens their green self-efficacy and self-concept as agents of change. Green transformational leaders support this by recognizing and reinforcing employees' contributions, which boosts their confidence and further motivates green voice behavior. Building on self-concept-based and psychological empowerment theories, we expect that green transformational leadership is positively related to green voice behavior via the four green psychological empowerment dimensions.

Hypothesis 2. *Green transformational leadership is positively related to employees' green voice behavior via (a) green meaning, (b) green competence, (c) green self-determination, and (d) green impact.*

3 | Method

3.1 | Data Collection and Sample

We conducted a two-wave survey study in Germany between October 2023 and March 2024. Participants were recruited via the professional networking platform LinkedIn. Participants who completed the first survey were invited to complete a second survey between four and eight weeks later. A total of 456 people completed the first survey, and 278 persons (61%) completed the second survey. Data from measurement waves 1 (T1) and 2 (T2) were matched via an individual ID Code generated by the participants based on predefined instructions. Overall, 243 persons (53%) provided data in both measurement waves. An exclusion criterion for the study was that participants were neither holding a sustainability-specific position, such as a sustainability manager, nor working in a company that exclusively offers sustainable products or services. Excluding these participants addresses self-selection bias, as they are more likely to perceive higher green psychological empowerment and exhibit green voice behavior, which can reduce variability in the data and lead to distortions. We collected this information at T2. Thus, our final sample consists of 170 participants (37%). Gender distribution

TABLE 2 | Descriptive statistics and correlations.

	<i>M</i>	<i>SD</i>	1	2	3	4	5	6
1. Green transformational leadership (T1)	2.92	1.04	(0.90)					
2. Green meaning (T2)	2.53	0.90	0.35**	(0.91)				
3. Green competence (T2)	3.60	0.76	0.26**	0.29**	(0.83)			
4. Green self-determination (T2)	3.12	0.95	0.32**	0.27**	0.48**	(0.90)		
5. Green impact (T2)	2.47	0.91	0.39**	0.39**	0.40**	0.65**	(0.88)	
6. Green voice behavior (T2)	2.85	0.97	0.19*	0.42**	0.35**	0.31**	0.44**	(0.88)

Note: *N* = 170. Reliability estimates (Cronbach's α) are shown along the diagonal. * $p < 0.05$, ** $p < 0.01$.

was approximately equal in the sample (52% females). 25% of participants were between 20 and 29 years old, 37% between 30 and 39 years old, 22% between 40 and 41 years old, 15% between 50 and 59 years old, and 1% older than 60 years. Our sample was highly educated, with 81% holding a college or university degree. Of the participants, 22% had been with their current company for only one year, 48% for between one and five years, and 30% for more than five years. Regarding industries, 25% reported working in the IT sector, 16% in the service sector, 9% in the pharmaceutical industry, 9% in healthcare and social services, and 6% in finance and insurance. The remaining 35% were distributed across various other industries, each representing less than 5%.

3.2 | Measures

Data were collected via online surveys in the German language. For two scales (i.e., green transformational leadership, green voice behaviors) the original English items were translated to German using the forward-backward translation method. The items for the green psychological empowerment scale were adapted from the original scale and translated to German. All items were scored on 5-point Likert scales ranging from 1 ("strongly disagree") to 5 ("strongly agree"). The complete questionnaire is provided in the Appendix A. We used a two-wave survey design with an approximate six-week time lag between measurements to reduce common method bias and to enable stronger inferences about temporal precedence (Podsakoff et al. 2003). Green transformational leadership was measured at T1, whereas green psychological empowerment and green voice behavior were measured at T2.

3.2.1 | Green Transformational Leadership

We measured perceived green transformational leadership with four items taken from the six-item scale suggested by Chen and Chang (2013). Item selection was based on the highest factor loadings. The scale refers to transformational leadership behaviors at the company leader level. Cronbach's α for the scale was 0.90.

3.2.2 | Green Psychological Empowerment

Green psychological empowerment was measured with the four subscales green meaning, green competence, green self-determination, and green impact—each consisting of three

items. The items were adapted from the original items developed by Spreitzer (1995) for psychological empowerment with a specific focus on environmentally friendly work performance. Cronbach's α reliability estimates were 0.91, 0.83, 0.90, and 0.88 for green meaning, competence, self-determination, and impact, respectively.

3.2.3 | Green Voice Behavior

Green voice behavior was measured with the scale developed by Temminck et al. (2015). The original scale consists of seven items. We selected four items based on the principle of covering the content of the construct as comprehensively as possible. Cronbach's α was 0.88.

3.3 | Data Analysis

Statistical analyses were conducted via structural equation modelling (SEM) using the 'lavaan' package (Rosseel 2012) within RStudio (Version 1.4.1106). We followed a two-step analytical approach as suggested by Anderson and Gerbing (1988). First, we assessed the adequacy of our measurement model through confirmatory factor analysis (CFA). In the second step, SEM was used to evaluate the fit of the research model and test our hypotheses. Both CFA and SEM were conducted using maximum-likelihood estimation with robust standard errors. All models exhibited good fit (Schermelleh-Engel et al. 2003). Complete data and code are available online at the Open Science Framework (<https://osf.io/k4pfx/>).

4 | Results

Table 2 presents the descriptive statistics for the study variables, including means, standard deviations, and Cronbach's α reliability estimates.

4.1 | Measurement Model

First, we tested the measurement model consisting of six latent variables and their items as reflective indicators, which are (1) T1 green transformational leadership, as well as the mediator and outcome variables assessed at T2, including (2) green meaning, (3) green competence, (4) green self-determination, (5)

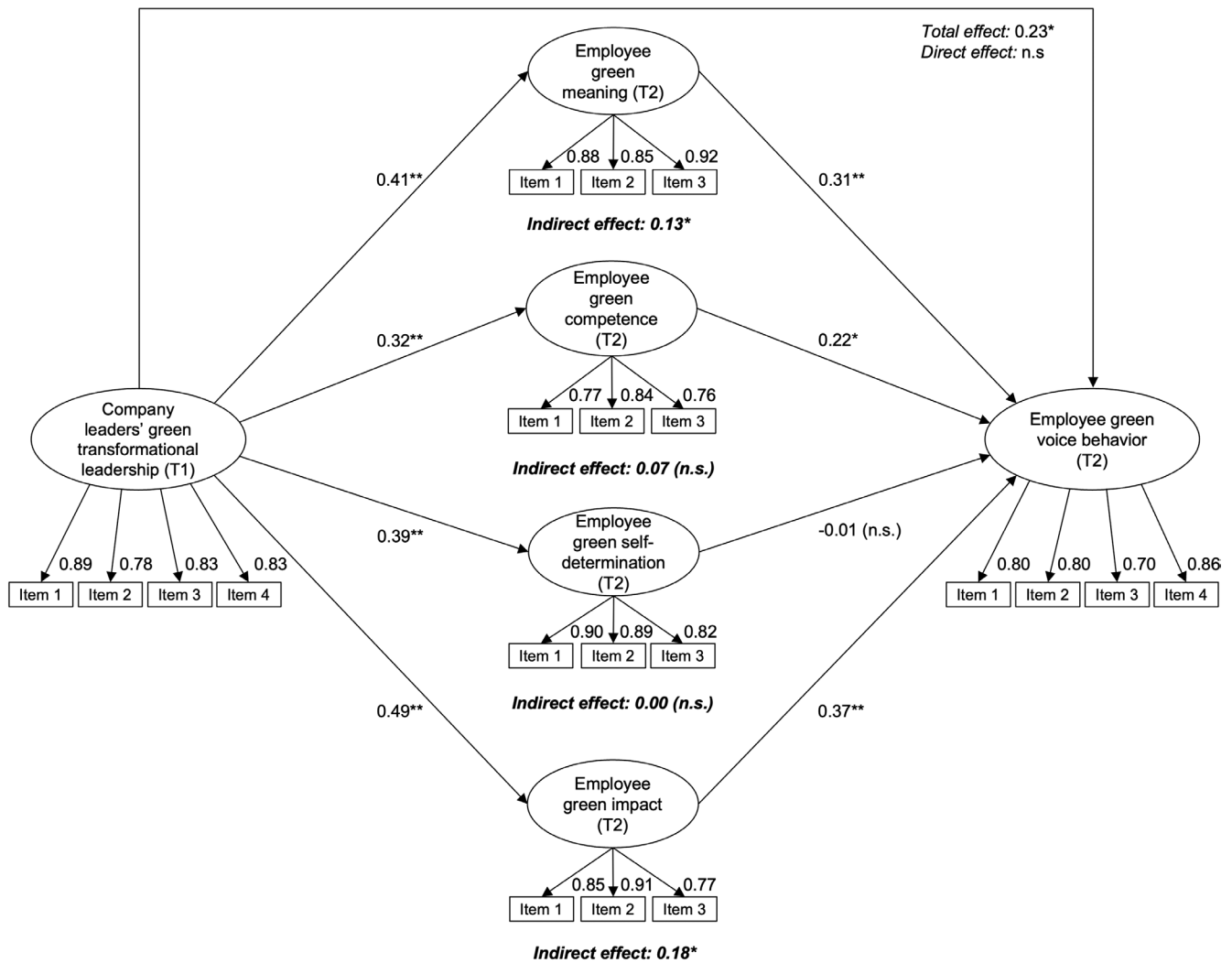


FIGURE 2 | Results of structural equation modeling (hypothesized research model). Path coefficients are standardized. * $p < 0.05$, ** $p < 0.01$, $N = 170$.

green impact, and (6) green voice behavior. The CFA results suggested an adequate fit ($\chi^2(155) = 169.609$, CFI = 0.99; TLI = 0.99; RMSEA = 0.03; SRMR = 0.04). Standardized coefficients ranged from 0.70 to 0.92, and all indicators loaded significantly on their intended latent factors ($p < 0.001$). Although psychological empowerment has been validated as a reflective, unitary second-order construct in previous research (Seibert et al. 2011), we chose to examine the individual pathways via the four empowerment beliefs separately to identify potential differences in their influence. However, we also report the results of a supplemental analysis where psychological empowerment is incorporated into the model as a reflective second-order construct.

4.2 | Total Effects

Second, we tested a model with only T1 green transformational leadership as the antecedent and T2 green voice behavior as the outcome, but without green psychological empowerment. Again, the model fit was acceptable: $\chi^2(19) = 28.614$, CFI = 0.99; TLI = 0.99, RMSEA = 0.04; SRMR = 0.04. The total effect of green transformational leadership on green voice behavior was positive and significant ($\gamma = 0.23$, $p = 0.010$).

4.3 | Direct and Indirect Effects

Third, we tested the hypothesized model. The results also indicated an acceptable model fit: $\chi^2(161) = 314.878$, CFI = 0.94, TLI = 0.93, RMSEA = 0.07, SRMR = 0.13. Figure 2 shows the standardized parameter estimates from the structural equation model. Both significant and non-significant effects are shown in the figure. The indirect effect estimates are shown below each mediator in bold font. The total effect refers to the model without mediators, whereas the direct effect represents the direct effect of green transformational leadership on green voice behavior after controlling for mediators. The paths from green transformational leadership to the four dimensions of green psychological empowerment were all positive and significant (green meaning: $\gamma = 0.41$, $p < 0.001$; green competence: $\gamma = 0.32$, $p = 0.002$; green self-determination: $\gamma = 0.39$, $p < 0.001$; green impact: $\gamma = 0.49$, $p < 0.001$). Thus, Hypotheses 1a–d were supported. The paths from green meaning ($\gamma = 0.31$, $p = 0.001$), green competence ($\gamma = 0.22$, $p = 0.022$), and green impact ($\gamma = 0.37$, $p = 0.006$) to green voice behavior were also positive and significant. However, the path from green self-determination to green voice behavior was not significant ($\gamma = -0.01$, $p = 0.940$). As an additional control, we examined the Variance Inflation Factors

TABLE 3 | Direct and indirect effects using bootstrapping (10,000 replications).

Direct effects	Bootstrap			
	Est.	SE	<i>p</i>	CI 95%
H1a: Green transformational leadership (T1) → Green meaning (T2)	0.41	0.07	<0.001	(0.17, 0.45)
H1b: Green transformational leadership (T1) → Green competence (T2)	0.32	0.06	0.002	(0.06, 0.31)
H1c: Green transformational leadership (T1) → Green self-determination (T2)	0.39	0.09	<0.001	(0.17, 0.51)
H1d: Green transformational leadership (T1) → Green impact (T2)	0.49	0.08	<0.001	(0.26, 0.56)
Green transformational leadership (T1) → Green voice behavior (T2)	−0.11	0.09	0.291	(−0.28, 0.08)
Green meaning (T2) → Green voice behavior (T2)	0.31	0.11	0.001	(0.15, 0.58)
Green competence (T2) → Green voice behavior (T2)	0.22	0.14	0.022	(0.08, 0.60)
Green self-determination (T2) → Green voice behavior (T2)	−0.01	0.12	0.940	(−0.24, 0.22)
Green impact (T2) → Green voice behavior (T2)	0.37	0.14	0.006	(0.08, 0.63)
Indirect effects	Est.	SE	<i>p</i>	CI 95%
H2a: Green transformational leadership (T1) → Green meaning (T2) → Green voice behavior (T2)	0.13	0.05	0.013	(0.01, 0.19)
H2b: Green transformational leadership (T1) → Green competence (T2) → Green voice behavior (T2)	0.07	0.03	0.057	(0.00, 0.12)
H2c: Green transformational leadership (T1) → Green self-determination (T2) → Green voice behavior (T2)	0.00	0.04	0.941	(−0.08, 0.08)
H2d: Green transformational leadership (T1) → Green impact (T2) → Green voice behavior (T2)	0.18	0.06	0.014	(0.01, 0.27)

Note: Parameter estimates are presented as standardized coefficients. *N* = 170.

Abbreviations: CI, confidence interval; Est., fully standardized estimate; H, hypothesis; *p*, significance level; SE, standard error; T, measuring time.

(VIF) to rule out multicollinearity due to the high correlations among the empowerment dimensions. The VIF values ranged from 1.21 to 1.94, which are well below the critical threshold of 5 (Marcoulides and Raykov 2019), indicating that multicollinearity was not a concern in this study. Moreover, the direct path from green transformational leadership to green voice behavior was not significant in the model that included the four mediator variables ($\gamma = -0.11$, $p = 0.291$).

Table 3 displays the results of the bootstrapping analysis (10,000 replications) for the direct and indirect effects of green transformational leadership on green psychological empowerment dimensions and green voice behavior. It provides standardized parameter estimates, standard errors, significance levels, and confidence intervals. Results showed that the indirect effects of green transformational leadership on green voice behavior were positive and significant via green meaning ($\gamma_{indirect} = 0.13$, $p = 0.013$) and via green impact ($\gamma_{indirect} = 0.18$, $p = 0.014$). However, the indirect effects via green competence ($\gamma_{indirect} = 0.07$, $p = 0.057$) and green self-determination ($\gamma_{indirect} = 0.00$, $p = 0.941$) were not significant. Thus, Hypotheses 2a and 2d were supported, whereas Hypotheses 2b and 2c were not supported.

4.4 | Supplemental Analyses

In previous research, the construct of psychological empowerment has mainly been examined as a reflective, unitary

second-order construct. However, since we are particularly interested in the distinct pathways represented by the four empowerment beliefs, we decided to treat each empowerment dimension as a separate reflective construct in our main analyses, using their respective three corresponding items as indicators. As a supplemental analysis, we tested our model with green psychological empowerment as a broader reflective construct, using the variables green meaning, green competence, green self-determination, and green impact as reflective indicators of an overall green psychological empowerment. The standardized parameter estimates for the direct and indirect relationships of the supplemental model are presented in Figure 3 and Table 4. The information presented in both figure and table corresponds to those of the hypothesized model. The results showed an acceptable model fit: $\chi^2(51) = 96.064$, CFI = 0.97, TLI = 0.96, RMSEA = 0.07, SRMR = 0.06. The Chi-Square difference test (using the 'anova' function in the R 'lavaan' package; Rosseel 2012) indicated that the original test model had a significantly worse fit compared to the supplemental model ($\Delta\chi^2 = 218.814$, $\Delta df = 110$, $p < 0.001$). The direct paths from green transformational leadership to green psychological empowerment ($\gamma = 0.49$, $p = 0.001$) and from green psychological empowerment to green voice behavior ($\gamma = 0.60$, $p < 0.001$) were positive and significant. In contrast, the direct path from green transformational leadership to green voice behavior (with green psychological empowerment included in the model) was not significant ($\gamma = -0.07$, $p = 0.490$). Also, the indirect relationship between green transformational leadership and green voice behavior via

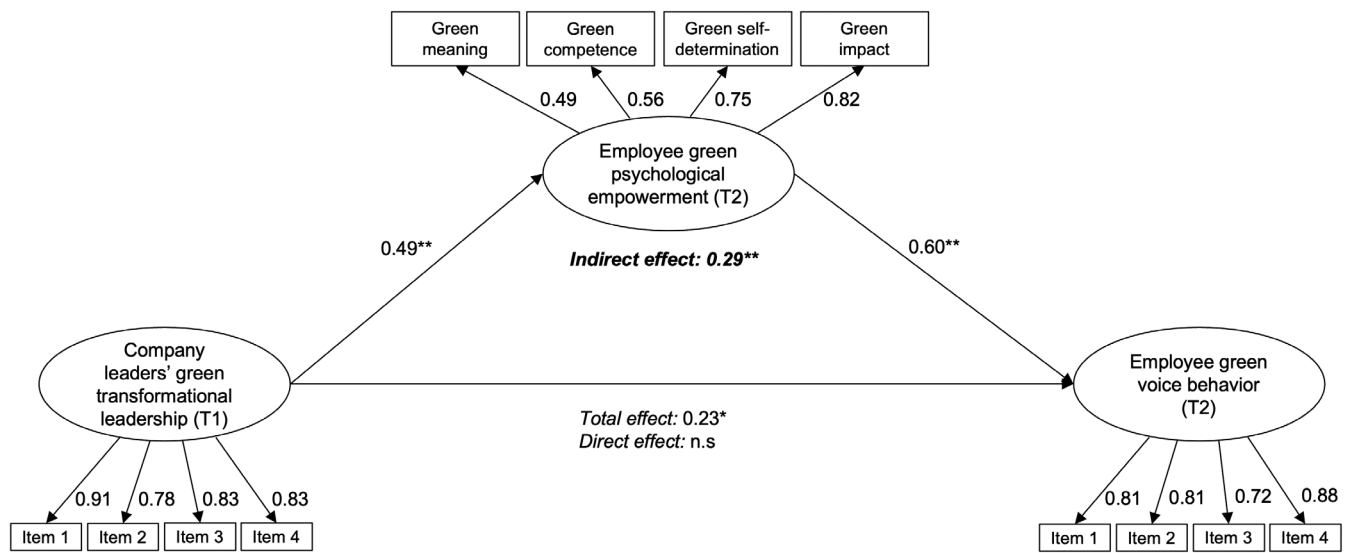


FIGURE 3 | Results of structural equation modeling (supplemental analysis). Path coefficients are standardized. * $p < 0.05$, ** $p < 0.01$, $N = 170$.

TABLE 4 | Direct and indirect effects of the supplemental analysis using bootstrapping (10,000 replications).

Direct effects	Bootstrap			
	Est.	SE	<i>p</i>	CI 95%
Green transformational leadership (T1) → Green psychological empowerment (T2)	0.49	0.06	0.001	(0.07, 0.31)
Green psychological empowerment (T2) → Green voice behavior (T2)	0.60	0.30	<0.001	(0.61, 1.76)
Green transformational leadership (T1) → Green voice behavior (T2)	−0.07	0.09	0.490	(−0.23, 0.12)
Indirect effects	Est.	SE	<i>p</i>	CI 95%
Green transformational leadership (T1) → Green psychological empowerment (T2) → Green voice behavior (T2)	0.29	0.08	0.001	(0.09, 0.39)

Note: Parameter estimates are presented as standardized coefficients. $N = 170$.

Abbreviations: CI, confidence interval; Est., fully standardized estimate; H, hypothesis; *p*, significance level; SE, standard error; T, measuring time.

green psychological empowerment was positive and significant ($\gamma_{indirect} = 0.29$, $p = 0.001$).

5 | Discussion

Systemic change for environmental sustainability is urgently needed within organizations due to the ongoing destruction of the natural environment caused by current economic practices. This transformation requires individual behavior change of leaders and employees alike. Green voice behavior of employees (i.e., speaking up to environmental sustainability challenges and proposing solutions; Temminck et al. 2015) is particularly important. However, the antecedents of green voice behavior have been largely overlooked in past research. This is problematic since understanding the motivational processes that drive such behavior is essential for developing impactful interventions (Luo et al. 2024).

We hypothesized that the four dimensions of green psychological empowerment (i.e., green meaning, competence, self-determination, and impact; see Spreitzer 1995) serve as motivational mechanisms linking green transformational leadership to employee green voice behavior. As expected,

green transformational leadership was positively related to all four dimensions of green psychological empowerment. This is in line with findings that general transformational leadership is associated with all four dimensions of general psychological empowerment (Schermyly et al. 2022). Additionally, our findings support previous results that psychological empowerment can explain the relationship between green leadership and employee green behaviors (Zafar, Tian, et al. 2022). First, green transformational leaders enhance their perception of personal significance through the alignment of environmental values and job goals (i.e., green meaning). This reinforces the previously reported significance of perceptions of meaningful work in this context (Elshaer et al. 2023; Gurmani et al. 2021) and extends this insight by highlighting the role of employees' personal sense of meaning in their engagement with environmentally friendly activities. Second, green transformational leadership boosts work-related self-efficacy for environmental sustainability (i.e., green competence). This aligns with previous findings that green transformational leaders enhance employees' self-efficacy by setting ambitious environmental goals and expressing confidence in their ability to achieve them (Chen et al. 2014; Tu et al. 2023). Third, results confirm that green transformational leaders can strengthen employees' perceptions of autonomy and self-control in

making environmentally conscious decisions (i.e., green self-determination). Fourth, green transformational leadership reinforces the belief that employees' actions can positively impact environmental performance (i.e., green impact), likely through an increase in green self-efficacy and the confidence that their contributions can drive real change.

Furthermore, we found that the two empowerment dimensions green meaning and green impact mediated the positive relationship between green transformational leadership and green voice behavior. Overall, this aligns with research that psychological empowerment mediates the relation between transformational leadership and proactive workplace behavior (Dust et al. 2014; Saira et al. 2021; Seibert et al. 2011), suggesting that similar effects also apply to environmentally specific empowerment. In prior studies, job meaningfulness as well as perceptions of meaningful work were found to be strong mediators for the relation between green leadership and employee green behavior (Aycan et al. 2025; Elshaer et al. 2023; Gurmani et al. 2021). In line with previous findings, our results indicate that green meaning serves as a key mechanism linking green transformational leadership to green voice behavior. A heightened sense of green meaning might help employees feel more connected to their organization's environmental goals, encouraging them to express ideas and concerns related to environmental sustainability. Similarly, the perception of impact may enhance their belief that voicing pro-environmental suggestions can lead to tangible improvements.

Contrary to expectations, the indirect paths from green transformational leadership to green voice behavior via green competence and green self-determination were not significant. However, the direct effect of green competence on green voice behavior was significant, aligning with previous findings on the role of non-environmental specific competence (Paillé and Francoeur 2022) and of green self-efficacy—a closely related construct—in motivating employee green behavior (Chen et al. 2014; Mughal et al. 2022; Tu et al. 2023). Our results indicate that employees who perceive themselves as highly competent in environmentally related tasks may feel more confident and motivated to engage in green voice behavior. We recommend re-examining the indirect pathway through green competence with a larger sample size, as we anticipate that this indirect relationship will be further supported. Additionally, and contrary to our expectations, green self-determination neither shows a significant direct effect on green voice behavior nor mediates the relationship between green transformational leadership and green voice behavior. Our theoretical rationale was based on findings related to green job autonomy (Luo et al. 2024; Stein et al. 2025). However, green self-determination does not relate to job characteristics like decision-making latitude, but rather to employees' perceived autonomy in performing tasks in an environmentally friendly way. A possible explanation for our findings lies in the nature of green self-determination itself, which primarily reflects autonomy within one's own work domain (Spreitzer 1995). Employees with high levels of green self-determination may feel empowered to act independently in their roles but not necessarily motivated to speak up at the team or organizational level. Thus, green self-determination may be more closely linked to in-role behaviors, such as green

job crafting (Elshaer et al. 2023), rather than broader, proactive behaviors like green voice behavior.

Additional analyses showed that green psychological empowerment as an overall second-order construct also mediated the relationship between green transformational leadership and green voice behavior and that this model fitted the data better than the hypothesized model. In the context of general psychological empowerment, similar results were found by Seibert et al. (2011). Our results thus imply that the holistic view of the construct better captures its motivational effects. Although the four separate empowerment dimensions differ in their influence in our path model, the overall experience of green psychological empowerment more effectively explains the impact of green transformational leadership on green voice behavior.

6 | Theoretical Contributions

The current study advances theory in several meaningful ways. First, we contribute to research on employee green behavior (see Zacher et al. 2023, for a review) by exploring the antecedents of green voice behavior, an important yet under-researched form of employee green behavior. Specifically, we inform how green transformational leadership and green psychological empowerment jointly facilitate engagement in green voice behavior. Green voice behavior involves employees proposing ideas to improve environmental practices in the workplace (Temminck et al. 2015). This focus is particularly important because proactive forms of employee green behavior have received comparatively little attention, despite their potential to contribute to organizational change (Zacher et al. 2023; Francoeur et al. 2021). Due to its emphasis on transformative action, green voice behavior can be a key driver of environmental sustainability, making it essential to understand the factors that encourage this behavior. Our results show that green transformational leadership and the empowerment dimensions green meaning, green impact, and green competence can be direct drivers of green voice behavior.

Second, we contribute to research on employee green behavior by exploring the underlying mechanisms linking green leadership to proactive green behavior (see Aycan et al. 2025, for a review). We achieve this by introducing the construct of green psychological empowerment and highlighting its mediating role in the relationship between green transformational leadership and green voice behavior. We assumed that the four individual dimensions of empowerment should be examined separately to provide more specific insights. We also assumed that considering psychological empowerment as a contextualized construct in relation to environmental aspects could yield even more precise findings. Drawing on self-concept-based and psychological empowerment theory, we found that green transformational leadership positively relates to green voice behavior via green psychological empowerment. The fit results of both the measurement and test models indicate that this newly developed construct is well applicable in workplace research. Regarding different green psychological empowerment dimensions, we found that only employees' sense of meaning and perceived impact regarding environmental initiatives seem to be key mechanisms explaining the link between green transformational leadership

and green voice behavior, but not green competence and green self-determination. Moreover, our additional analyses suggest that while the individual dimensions of green psychological empowerment play a role, it might be more useful to think of green psychological empowerment as a holistic, integrated construct. In sum, green psychological empowerment is a promising concept that deepens our understanding of the motivational mechanisms underlying employee green behavior.

Third, we contribute to psychological empowerment theory (Spreitzer 2008) by extending its application to the context of environmental sustainability. This marks an important theoretical progression as it helps to deepen our understanding of how psychological empowerment functions in the environmental context and bridges the gap between general theories on motivation and behavior at work and the growing emphasis on environmental sustainability. As our findings link green transformational leadership and green voice behavior via green psychological empowerment, we demonstrate that the core premise of the theory that psychologically empowered employees are more inclined to adopt proactive behaviors (Dust et al. 2014; Saira et al. 2021; Seibert et al. 2011) also holds true for proactive behaviors related to sustainability.

7 | Limitations and Future Research

This study has several limitations that offer important directions for future research. First, all constructs were measured using single-source self-reports. Self-report measures rely on individuals' subjective assessments, which can be influenced by social desirability and other biases (Donaldson and Grant-Vallone 2002)—something particularly problematic in the context of pro-environmental behavior (Kormos and Gifford 2014). While green psychological empowerment is a subjective experience that can only be assessed via self-report, future studies should incorporate more objective behavioral measures for green voice behavior, such as field observations (e.g., green voice behavior in organizational meetings) or peer or supervisor ratings (Lange and Dewitte 2019), as well as additional data sources to measure green transformational leadership, such as organizational records of top management communication. In this context, future research could also explicitly examine whether green psychological empowerment may play a mediating role in bridging the gap between green behavioral intentions and actual employee green behavior (Norton et al. 2017).

Second, we did not control for the potential effect of the original (non-environmental specific) psychological empowerment construct as defined by Spreitzer (1995). Future research should explore the incremental predictive validity of green psychological empowerment, beyond what general psychological empowerment can explain. Such studies could also further validate the newly introduced green psychological empowerment scale using assessments of related constructs (e.g., employees' intrinsic motivation to contribute to environmental sustainability).

Third, we introduced green transformational leadership as an overall construct and used a short but well-established scale that does not differentiate between the four dimensions of

transformational leadership (i.e., idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration; Bass and Avolio 1994). This approach was chosen to maintain the conciseness of the questionnaire, considering that it was intended for voluntary participants from practice. Future research should explore the distinct dimensions of green transformational leadership to refine our understanding of the specific relationships between green transformational leadership and green psychological empowerment. For instance, certain dimensions, such as intellectual stimulation, may have a stronger relationship with specific green empowerment dimensions than others (see Van Knippenberg and Sitkin 2013, for a critique of transformational leadership research). For future research, we recommend using the green transformational leadership scale developed and validated by Robertson (2018), which includes all four dimensions of green transformational leadership. Moreover, incorporating general transformational leadership as a control variable in future research would allow for testing the unique and incremental effects of green transformational leadership (Robertson and Barling 2015a).

Forth, future research could explore the role of green psychological empowerment as a mediator of relationships between additional forms of green leadership and employee green behavior. Green leadership also encompasses constructs such as green supportive leadership or environmental specific servant leadership (Aycan et al. 2025; Zacher et al. 2024), while employee green behavior also encompasses behaviors such as transforming work processes, conserving resources, avoiding environmental harm, and influencing others to act more environmentally sustainable (Zacher et al. 2023). Future research should integrate these broader facets into a comprehensive model of green leadership, green psychological empowerment, and employee green behavior. By expanding the scope, we could better capture the complexity of how leadership is associated with various forms of employee green behavior, including both in-role and extra-role behaviors (Francoeur et al. 2021). Green voice behavior and green leadership could also be related reciprocally, resulting in a positive feedback loop (Williams et al. 2017; Zacher et al. 2024).

Fifth, future research could introduce organizational environmental performance as an additional objective outcome variable. Investigating how green leadership, empowerment, and voice behavior are related to organizational environmental performance, such as lower emissions or improved sustainability reporting, could significantly enhance the relevance of the findings.

Sixth, organizations should use interventions to empower employees for green voice behavior (Unsworth et al. 2013). There is a need for more intervention-based research that provides actionable recommendations for promoting green transformational leadership, green psychological empowerment, and green voice behaviors within organizations (Aycan et al. 2025; Kühner et al. 2025). Future studies could focus on designing and evaluating specific interventions, such as leadership training programs aimed at enhancing green leadership behaviors, measures that cultivate green psychological empowerment, particularly green meaning and impact, and dialogue formats to increase green voice behavior.

Finally, future research could explore how other work context factors as substitutes for leadership, such as work design, organizational climate, or group dynamics (Kerr and Jermier 1978; Podsakoff et al. 1993) are related to green psychological empowerment. For example, investigating how green job characteristics, such as autonomy and coworker support, contribute to green psychological empowerment could provide valuable insights. Existing studies indicate that higher green job autonomy is associated with proactive green behaviors (Katz et al. 2023; Stein et al. 2025), suggesting that job design may offer an additional approach to fostering green voice behavior. The role of social groups and peer influence on green psychological empowerment also deserves further attention. Research on team processes could reveal how social dynamics within teams, including group-level behaviors, cognition, motivation, and affect, can encourage or inhibit green psychological empowerment at group and individual levels (Kühner et al. 2025; Tang et al. 2023). In this context, team psychological safety could also be an important influencing factor to include in future research (Iqbal et al. 2020). The mentioned substitutes for leadership may not only have direct effects on green psychological empowerment and green voice behavior but could also constitute contextual factors that moderate relations between leadership and the empowerment dimensions. This would help identify under what conditions these effects are present or more pronounced.

8 | Implications for Practice

The findings of this study offer valuable insights for accelerating organizational transformation toward environmental sustainability. We identify several levers that businesses can use to generate action toward improving their environmental performance. First, the results have important implications for leaders in organizations. Leaders should focus on enhancing employees' perceptions of meaning and impact in their sustainability-related work to foster green voice behavior. Strengthening green meaning involves, for example, linking individual and team efforts to broader environmental goals, integrating environmental sustainability discussions into meetings, and connecting daily tasks to global challenges. Green impact can be enhanced by giving employees ownership of key environmental projects, making sustainability achievements visible, and publicly recognizing contributions.

Second, human resources (HR) professionals can use our findings to inform the development of leadership programs, policies, strategies, and goal and incentive systems to boost motivation and enhance overall environmental sustainability efforts. For example, leadership programs should focus on building relevant green transformational leadership skills to empower employees, designing work to provide employees with a sense of purpose and environmental meaning, and promoting effective communication of environmental impact.

Third, corporate social responsibility (CSR) professionals can use the concept of green psychological empowerment as a strategic tool, identifying areas for targeted interventions like campaigns, cross-departmental initiatives, or feedback systems to support green voice behaviors. Moreover, CSR professionals can partner with leaders and HR professionals to align green

empowerment initiatives with overarching environmental sustainability goals.

Fourth, at the macro level, fostering green voice behavior within organizations may drive substantial environmental improvements and thus inspire broader societal change. Green voice behavior initiates high-impact sustainability actions that reduce the organizational footprint and may motivate external stakeholders to also engage with environmental sustainability. Organizations that align environmental sustainability strategies with policy frameworks amplify their societal impact, demonstrating how internal initiatives, such as circular economy practices, contribute to systemic environmental progress (Kühner et al. 2025).

9 | Conclusion

In this study, we developed a motivational model explaining why and how green transformational leadership is related to green voice behavior via green psychological empowerment. We found that green transformational leadership and green voice behavior were indirectly and positively related via green meaning and green impact but not via green competence and green self-determination. Our findings provide valuable insights for leadership development initiatives aimed at advancing environmental sustainability and contribute to theorizing on the motivational processes underlying employee green behavior.

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Data Availability Statement

The datasets and analysis code for this study can be found via the project page on Open Science Framework (<https://osf.io/k4pfx/>).

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Appendix A

Green transformational leadership scale (adapted from Chen and Chang 2013)

- The company leaders inspire the employees with environmental plans.
- The company leaders encourage the employees to achieve the environmental goals.
- The company leaders act with consideration of the environmental beliefs of the employees.
- The company leaders stimulate employees to think about green ideas.

Green psychological empowerment scale (adapted from Spreitzer 1995)

Green meaning

- My work is very important to me because it is environmentally friendly.
- My work activities are of personal significance to me because environmental friendliness plays a major role in them.
- The work that I do means something to me because environmental friendliness is an important part of it.

Green competence

- I have confidence in my ability to manage my work in environmentally friendly ways.
- I am convinced that I am able to meet the requirements of an environmentally friendly execution of my work.
- I have the skills required to carry out my job in environmentally friendly ways.

Green self-determination

- I can usually determine on my own how to organize my work in environmentally friendly ways.
- I can decide for myself how to carry out my work in environmentally friendly ways.
- I have considerable opportunities to carry out my work freely and independently in an environmentally friendly manner.

Green impact

- I have a big influence on what happens in my area of work regarding environmental friendliness.
- I have a great deal of control over what happens in my area of work regarding environmental friendliness.
- I take considerable influence on the environmentally friendly processes in my area of work.

Green voice behavior scale (adapted from Temminck et al. 2015)

- I make suggestions to improve the organization's environmental performance.

I try to draw management's attention to potentially environmentally unfriendly activities.

I am willing to speak up when policies or rules do not contribute to the achievement of the organization's environmental goals.

I suggest revisions to work practices to achieve the organization's environmental objectives.