Pro-Environmental Behavior in Distinct Social Roles and the Effects of Constructive Hope

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PSB3E-BT15: Bachelor Thesis

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July 07, 2024

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Abstract

In the face of climate change, identifying factors that facilitate or hinder pro-environmental behavior (PEB) is crucial. Interestingly, previous literature suggests that individuals tend to engage less in PEB at work to home settings. This thesis expands these findings to social roles, investigating PEB differences and the impact of constructive hope across one's individual and organizational role. Constructive hope, defined by realistic beliefs in reaching environmental goals, was observed to predict PEB, however, variations across roles have yet to be investigated. This study hypothesizes 1) higher levels of PEB in the individual role; 2) higher levels of constructive hope in the individual role; 3) constructive hope predicting PEB in the individual role when controlling for well-studied variables biospheric values and subjective norms and 4) a similar prediction in the organizational role, however, an overall lower predictive value. An online questionnaire employed a within-subject design with 125 respondents. Results only support H1, indicating a significant difference in PEB across the two roles. Constructive hope did not vary across roles and did not predict PEB beyond the influence of biospheric values and subjective norms, solely in the organizational role as a single predictor. These findings suggest that individuals face multiple obstacles to PEB in their organizational role, providing valuable insights for developing role-specific interventions. Hope's relationship to collective action within organizational group membership and the role of trust are discussed. Future research ought to specify the role of hope in climate issues and develop goal-directed strategies to enhance environmental hope. However, results and implications must be handled with caution, as this study is subject to multiple limitations.

Keywords: climate change, pro-environmental behavior, constructive hope, social roles

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The world is facing one of humanity's most pressing challenges: climate change and its catastrophic consequences. Due to anthropogenic global warming, environmental, economic, and health crises are increasing rapidly (IPCC, 2023; Tol, 2018) and require collective and individual action against further temperature rise and greenhouse gas emissions by engaging in pro-environmental behavior (PEB).

In order to develop effective strategies and interventions to enhance PEB, it is crucial to understand and identify factors impacting climate action. For instance, prior evidence hints that social contexts and -roles determine variations in PEB (Hampton & Whitmarsh, 2023; Nielsen et al., 2021). Furthermore, constructive hope for the environment has been introduced in the body of literature, as it seems to predict PEB and mediate collective political action (Cohen-Chen & Van Zomeren, 2018; Ojala, 2012; Wlodarczyk et al., 2017). While social role differences in constructive hope, influenced by variations in trust (Edelman Trust Report, 2023) are suggested, a profound research gap concerning this relationship remains. To gather a more comprehensive understanding of what impacts our climate choices, this thesis aims to investigate how PEB differs across social roles and further examines how constructive hope impacts role-dependent climate action.

Pro-Environmental Behavior

PEB includes a wide range of actions that contribute to protecting the environment and therefore mitigate global warming (Krajhanzl, 2010; Stern, 2000). Individuals can adopt lifestyle changes, for instance, reducing plastic use, water uptake, or the consumption of animal products (Hampton & Whitmarsh, 2023). Prior research has thoroughly studied values and norms concerning climate change as strong motivators of PEB (Van Valkengoed & Steg, 2019). For

instance, the relationship between biospheric values and PEB has achieved substantial empirical support (Bouman et al., 2020; Ruepert et al., 2017). Biospheric values imply high concerns for nature and the environment, and individuals strongly aligned with these values are often motivated to protect the environment and engage in PEB (Nordlund & Garvill, 2002; Poortinga et al., 2004; Steg & De Groot, 2012). Comparably, subjective norms have been validated for significantly predicting PEB (Blandford et al., 2023; Clark et al., 2019; Mouro & Duarte, 2021; Van Valkengoed & Steg, 2019). According to the theory of planned behavior, subjective norms are formed through descriptive norms, which describe what one perceives others do in a social group, and injunctive norms, concerning perceptions of what one should do (Ajzen, 1991; Manning, 2009). Evidently, social influences strongly impact PEB, however, climate action contingent on social roles has been overlooked in previous studies.

Social Roles Differences in Pro-Environmental Behavior

Despite past research explaining the essential part social roles play in people's lives (Massey, 2002) and how they determine expectations, behaviors, and emotions (Chen et al., 2014; Frijda & Mesquita, 1994; Matsumoto, 2007), climate action across roles has not gained sufficient attention. To clarify, social roles are grouped behaviors and attitudes specific to social positions, and contexts, accompanied by perceptions of unique role requirements (APA Dictionary of Psychology, 2023; Biddle, 1986; Lawrence, 2023). As different contexts activate diverse social role behavior, PEB might also differ depending on roles. For instance, Nielsen et al. (2021) identified various social roles among high-socioeconomic-status people and found role-dependent differences in their environmental behaviors. In accordance, Hampton and Whitmarsh (2023) recently identified distinct domains of PEB, and importantly, significant variations in the social and work domains, comparable to Stern (2000) describing particular

PEBs unique to a private sphere, underscoring the importance of investigating role- and context-dependant PEB.

As being part of an organization takes up a profound amount of time and energy in a person's life, the urgency of climate mitigation not only requires alterations of personal habits but also changes in work environments (Sanfilippo et al., 2012). Workers and employees encounter various opportunities to engage in and advocate for PEBs through, for instance, initiatives within their organizations (Paillé & Boiral, 2013; Ruepert et al., 2017) or through work-related energy-saving behaviors (e.g, switching off lights) (Yuriev et al., 2018). In contrast, several PEBs emerge outside the workplace, for example, consuming more plant-based, buying more locally-produced products, choosing public transportation, or advocating and voting for pro-environmental policies (Hampton & Whitmarsh, 2023; Stern, 2000). The current study will, therefore, contrast an organizational role (Biddle, 1986), implying action in both the workplace and university with an individual role that focuses on PEB at home, as a resident or a consumer.

Concerning the individual role, PEBs are significantly predicted by close friends and parents (Collado et al., 2017), for example, through the strong influence of family social norms (Grønhøj & Thøgersen, 2012). Similarly, parental environmental values were positively correlated with their children's environmental values (Balundė & Perlaviciute, 2023). On the contrary, some research suggests that PEB holds less significance in one's organization. For instance, recycling in the workplace was found to be less followed than at home, and overall energy-saving behaviors seem to be more frequent at home than in the workplace (Lee et al., 1995; Lo et al., 2011). Furthermore, climate action in the office was not seen as a priority compared to productivity and work efficiency.

In addition to examining PEB differences in distinct roles, this study introduces hope for the environment to the debate, as it is directly connected to PEB (Vandaele & Stålhammar, 2022) and might also vary across roles.

Constructive Hope and Pro-Environmental Behavior

The feeling of hope is not only associated with overall well-being and resilience (Çiçek, 2021; Murphy, 2023) but is also perceived as essential for engaging in climate action (Vandaele & Stålhammar, 2022). Comparably, prior research presents hope as a valid predictor of PEB across diverse samples (Geiger et al., 2021; Ojala 2012, 2015; Sangervo et al., 2022; Swim & Bloodhart, 2015). In prior research, one certain kind of hope is repeatedly identified to predict PEB in environmental research: constructive hope (Marlon et al., 2019; Ojala 2012, 2015). Constructive hope comprises realistic beliefs in humanity, government, and climate policies to accelerate climate mitigation. According to Ojala (2012, 2015) constructive hope is conceptualized as a unique, multifaceted concept that comprises both emotional and cognitive features. Following the conceptualization by Ojala (2012), constructive hope is organized into different sources individuals derive their hope from. For this investigation of social roles, two key concepts are particularly relevant, namely '*trust in oneself',* and *'trust in others'.* Hope based on trust in oneself implies deriving feelings of hope from the belief that one's climate actions have an impact and will contribute to the mitigation of global warming. On the other hand, the concept of hope based on trust in others includes believing in, for example, environmental technologies, to reduce the impact of climate change (Ojala, 2012).

Findings have identified constructive hope as a strong predictor of PEB (Marlon et al., 2019; Ojala, 2015), even when controlling for biospheric values and social influences (Ojala, 2012), well-studied predictors of climate action (Bouman et al., 2020; Ruepert et al., 2017).

Hence, the present research adapts the conceptualization and measures by Ojala (2012), while investigating constructive hope across social role differences.

Constructive Hope in Distinct Roles

Social roles seem to influence attitudes, behaviors, and emotions (Chen et al., 2014; Frijda & Mesquita, 1994; Matsumoto, 2007), giving rise to the question of whether constructive hope also fluctuates and impacts PEB differently across roles. As emphasized by a large interdisciplinary review, hope is experienced in a social sense, and could be approached as a context-dependent process (Pleeging et al., 2022). Particularly, research underscores the influence of social support from family and friends on hope (Kwok et al., 2024; Mahon & Yarcheski, 2017). One study even found hope to be mediated by perceived social norms (Carvajal, 1998), which are particularly activated in families and friendships (Collado et al., 2017; Grønhøj & Thøgersen, 2012), arguing for high levels of constructive hope in the individual role. Organizational social support might depend on organizational influences, for example, negative supervisor-employee relationships were associated with lower social support towards coworkers (Kim et al., 2010). Potentially disruptive factors might, therefore, interfere with organizational norm-behavior, social support, and as a result lower levels of hope and prediction of PEB in the organizational role.

Additionally, constructive hope incorporates trust in others, which, for instance, can be seen in close relationships, such as family and friends (Rempel et al., 1985). On the other hand, organizational relationships are presumably less intimate, and contingent on organizational influences (Lau & Liden, 2008). Regarding climate issues, a global report found that trust in family and friends to act responsibly concerning the climate was significantly high, while

businesses were distrusted (Edelman Trust Barometer, 2023). Such context-dependent feelings of trust further suggest differences in constructive hope and its predictive value across roles.

Since constructive hope conceptualizes an emotional component, general evidence suggests context-dependent emotional expression (Diefendorff et al., 2008). By utilizing emotional regulation strategies, employees seem to experience and express less emotions in the workplace compared to their home settings (Lawrence, 2023). Emotional regulation describes controlling emotions based on situations (Alam et al., 2019; Diefendorff et al., 2008; Gross & Muñoz, 1995). Therefore, emotion regulation might take place across the proposed roles, indicating that constructive hope might be lower in the organizational one.

The Current Study

This study identifies a profound lack of theoretical background concerning role-specific differences in PEB and constructive hope. Observing societal-wide climate inaction despite extreme concerns to counteract further global temperature rise (IPCC, 2023), the need for narrowing this knowledge gap to investigate motivators of PEB and the influence of social contexts, particularly social roles becomes evident. This study aims to contribute to the development of tailored climate interventions, as research presents workplace-specific interventions to be more effective in motivating PEB, compared to non-tailored messages (Daamen et al., 2001).

Regarding constructive hope, this study encounters a lack of theoretical background on hope in social roles, which requires attention. Since hope is associated with several health benefits (Çiçek, 2021; Murphy, 2023), its significance when examining predictors of PEB and developing interventions becomes apparent. Building upon prior knowledge, suggesting lower levels of PEB and constructive hope in the organizational role the following is hypothesized:

Hypothesis 1: Levels of pro-environmental behavior are higher in the individual role than in the organizational role.

Hypothesis 2: Levels of constructive hope will be higher in the individual role compared to the organizational role.

Furthermore, this research aims to expand the investigation to the predictive value of constructive hope across the two roles. Following evidence for hope's significant prediction effect even when accounting for the well-studied predicting variables biospheric values and subjective norms, two more hypotheses are proposed:

Hypothesis 3: In the individual role, constructive hope predicts individual behavior, even when subjective norms and biospheric values are controlled for.

Hypothesis 4: In the organizational role, organizational behavior is predicted by constructive hope, when controlling for subjective norms and biospheric values, however, the overall influence is weaker than in the individual role.

Methods

Participants and Procedure

Respondents were students and other European citizens above the age of 18. A power analysis was conducted to determine the minimum sample size. To detect a small effect size (0.3) with 80% power and 0.05 significance, a sample size of 90 respondents was required. A total of 125 individuals took part in the study, comprising 65% women (n = 82), 32% men (n = 40), 1.6% identifying as non-binary (n = 2), and 0.8% preferred not to report gender (n =1) (see Table A1, Appendix A). Age distribution ranged from 18 to 71 years with a mean age of 27 years and predominantly, participants affiliated themselves with the education sector (49.6%, n = 62), while the remaining respondents represented diverse occupational backgrounds (Table A2,

Appendix A). Participants expressing disbelief in climate change were automatically directed to the survey's end and excluded from further analysis. In addition, participants who did not consent to participation were removed from the analysis as well as those who failed the attention check within the questionnaire (n = 5).

Data was collected through an online survey between the 29th of April and the 26th of May 2024. The study received approval from the Ethics Committee of the University of Groningen (RUG) before the survey was distributed. A convenience sample was gathered in two ways: First, a snowballing method was utilized by forwarding the survey link to friends and family, and by posting it on social media platforms (e.g., Instagram) and university group chats. Second, first-year students of the RUG took part in the study for course credit via the 'SONA'-panel.

Survey and Design

The survey was conducted through Qualtrics, ensuring full anonymity of the participants. At the start of the survey, participants received information about the study and were asked for their informed consent to take part. Thereupon, a control question assessed participants' belief in anthropogenic climate change, followed by a short paragraph explaining what the personal and organizational roles entail (see Appendix B). Importantly, the survey was structured following a within-subject design, meaning that each participant encountered every question in both conditions. Resembling a manipulation into each condition, the designated role was indicated above each question block, for example stating '*In your organizational role…'* or *'In your personal role…'***.** To avoid anchoring effects, respondents were randomly assigned to questions in the personal or the organizational role first. An attention check was included in the scale for individual advocacy behavior, prompting participants to select '*Once*' on the 5-point Likert

scale. Questions concerning biospheric values were asked once at the end of the survey. The variable category order was kept the same in both conditions and the survey ended with the opportunity to leave feedback for the researchers. The complete questionnaire is listed in Appendix B.

Measures

Cronbach's alpha was measured to construct a reliable scale for the item variables. All scales presented high internal consistency.

Pro-environmental Behavior

To measure the outcome variable PEB, personal and advocacy behaviors items were adapted from items proposed by Hampton and Whitmarsh (2023). Advocacy behavior was measured by asking how often participants have taken a specific climate action in the last 12 months along a 5-point Likert scale (1 = *never* to 5 = *always*). As detailed in Appendix B, four items examined advocacy behaviors in the organizational condition (e.g.,*"Signed a petition in support of limiting climate change"*) and seven items in the individual (e.g.,*"Voted for candidates that support actions on climate change"*).

Similarly, respondents were asked to report their personal behaviors in the past 12 months in both conditions along a 5-point Likert scale (1 = *none* to 5 = *many (6+)*). Four different personal behavior items were examined (e.g., *"Saving energy* at home/in my organization*"*). For the analysis personal and advocacy behaviors were considered a single PEB variable (*Individual PEB:* $\alpha = .85$; *Organizational PEB:* $\alpha = .79$).

Demographics

Participants' age and gender was indicated at the end of the questionnaire. At the beginning of the organizational role questions, the survey presented 12 different occupation

sectors to choose from (e.g., *Public administration and services/ Education, such as University, School, Apprenticeship*) (see Appendix A).

Constructive Hope

Constructive hope measures were adapted from the questionnaire employed by Ojala (2012), using a 7-point Likert scale (1 = *not at all* to 7 = *to a great extent*) in both conditions, starting with "*I feel hope concerning climate change…".* Two items measured hope based on trust in oneself (e.g., *"...because we as* individuals/members of my organization *can change our behavior; together we can influence climate change in a positive direction"*). Three items measured hope based on trust in others (e.g.,*"...because I believe that research and technical solutions will contribute to the improvement of the climate change problem"*), including one specifically generated and tailored to this study (*...because I know other people in my* social circle/organization *are taking climate action*). Items were combined into one constructive hope variable due to strong internal consistency in the individual ($\alpha = .82$) and the organizational role ($\alpha = .82$).

Biospheric Values

To measure biospheric values, questions utilized by De Groot and Steg (2008) were employed on a 7-point Likert scale ($\alpha = .89$; 1 = *not at all* to 7 = *to a great extent*). Four items of biospheric values were measured once in the survey and asked for the extent the person values each item (e.g., *"Preventing pollution: protecting natural resources"/"Protecting the environment: preserving nature"*).

Subjective Norms

Subjective norm measures were generated according to the designated role, adapted from organizational subjective norms introduced by Mouro and Duarte (2021). Descriptive norms and

injunctive norms were measured separately on 7-point Likert scales (1 = *strongly disagree* to 7 = *strongly agree*), querying participants' agreement with the statements. Three items measured injunctive norms (e.g., *"The people in my* social circle/organization *expect me to engage in PEB"/"It is important for* my social circle/organization *that I engage in pro-environmental behavior"*). Four items measured descriptive norms, asking about the perceived PEB of the people in one's social circle or organization (e.g., *"Saving energy"/"Sustainable food consumption"*). Both scales were combined into one subjective norms variable for the individual ($\alpha = .87$) and the organizational role ($\alpha = .77$).

Results

Assumption Checks and Reliability

To ensure the statistical validity of the analysis, assumptions checks for a paired sample t-test and linear regressions were performed. All checks provide support for approximate normality, homogeneity, linearity, and independence of samples, as well as lack of multicollinearity. All hypothesis tests were performed with a significance level of $\alpha = 0.05$. Data from 125 participants was considered in the analysis.

Hypotheses Testing

Hypothesis 1: Differences in PEB

H1 predicted higher levels in PEB of the individual role compared to the organizational. Therefore, a one-sided paired samples t-test was conducted to compare the group means of PEB in the organizational group and in the individual. Results support the hypothesis, as PEB scores in the individual role were significantly higher ($t(121) = 6.21$, $p < .001$). As shown in Figure A1 (Appendix A) the group means of individual PEB ($M = 3.01$, $SD = 0.76$) and organizational ($M = 2.65$, $SD = 0.79$) differ substantially.

Hypothesis 2: Differences in Constructive Hope

A significant difference in constructive hope levels across roles, with higher hope levels in the individual role was predicted (H2). To examine the difference in group means of the roles a second one-sided paired sample t-test was utilized. Findings reveal a nonsignificant difference ($t(121) = 0.83$, $p = .204$). When observing the means of individual and organizational hope, slightly higher scores in individual hope can be detected in the output ($M = 4.29$, $SD = 1.09$), while organizational hope scores are minimally lower ($M = 4.23$, $SD = 1.12$), as shown in Figure A2 (Appendix A).

Hypothesis 3: Constructive Hope in the Individual Role

H3 stated that constructive hope explains significant variance found in PEB when controlling for subjective norms and biospheric values in the individual role. Therefore, a stepwise multiple linear regression analysis was conducted taking scores of constructive hope, biospheric values, and subjective norms into the regression model to analyze the predictive value of individual PEB. However, results contradict the hypothesis, as constructive hope does not explain individual PEB when controlling for biospheric values and subjective norms ($\beta = 0.041$, $p = .559$) (see Table 1). The regression model makes up 40.5% of the total variance explained in climate behavior when constructive hope, subjective norms, and biospheric values are taken into account ($F(3,121) = 29.19$, $p < .001$).

Running a simple linear regression of individual constructive hope and PEB a nonsignificant association between constructive hope and PEB in the individual role is revealed $F(1,123) = 2.929$, $p = .09$. Therefore, constructive hope explains a negligible proportion of the variance, accounting for only 1.5% of the observed variability in the outcome variable (see Table 1). To sum up, H3 was not supported, since constructive hope did not predict the outcome

variable in the individual condition when controlled for biospheric values and subjective norms or predicted PEB as a single predictor.

Table 1

Stepwise Multiple Regression Model Individual Role

Model	Variables	B	SE	95% CI		t	p	Adj. R^2
				LL	UL			
1	(Intercept)	2.550	0.276	2.003	3.096	9.242	<.001	
	Ind. Hope	0.107	0.062	-0.017	0.230	1.712	.090	.015
2	(Intercept)	0.467	0.393	-0.312	1.245	1.187	.237	
	Ind. Hope	0.070	0.054	-0.037	0.176	1.290	.199	
	Bio.Values	0.392	0.059	0.275	0.509	6.645	<.001	.271
3	(Intercept)	-0.212	0.377	-0.959	0.534	-0.562	.575	
	Ind. Hope	0.029	0.049	-0.069	0.126	0.586	.559	
	Bio.Values	0.317	0.055	0.208	0.426	5.746	<.001	
	Ind. S.N.	0.290	0.054	0.182	0.397	5.346	<.001	.405

Note. N = 125. Abbreviations: CI = confidence interval; LL = lower limit; UL = upper limit; Ind. Hope = individual hope; Bio.Values = biospheric values; Ind. S.N. = individual subjective norms

Hypothesis 4: Constructive Hope in the Organizational Role

H4 was tested with a multiple linear regression model to examine the unique explanation of PEB by hope in the organizational condition in a model with biospheric values and subjective norms. Similar to the analysis of H3, constructive hope in the organizational condition did not explain a unique part of the variance in PEB in the multiple regression model (β = .09, p = .263), as detailed in Table 2. This indicates that constructive hope does not predict organizational PEB when controlling for biospheric values and subjective norms. However, in contrast to the

individual role findings, a simple linear regression to analyze constructive hope as a unique predictor of PEB in the organizations presents significant results $F(1,123) = 8.473$, $p = .004$, as detailed in Table 2. Therefore, when solely looking at constructive hope, some of the variation in organizational PEB is explained ($R^2_{adj} = .06$). Notably, also when controlling for biospheric values alone, constructive hope has a unique predicting effect (see Table 2). The overall multiple regression model significantly explains a total of 33.4% of the variance found in organizational behavior ($R^2_{adj} = .33$, $F(3,121) = 21.68$, $p < .001$). These findings do not support H4, however constructive hope in the organizational setting predicts PEB to a notable extent by itself. H4 receives some support as the overall regression model does account for less variance in behavior.

Table 2

Stepwise Multiple Regression Model Organizational Role

Model	Variables	B	SE	95% CI		t	p	Adj. R^2
				LL	UL			
1	(Intercept)	1.894	0.269	1.361	2.426	7.039	<.001	
	Org. Hope	0.179	0.061	0.057	0.301	2.911	.004	.057
2	(Intercept)	0.132	0.418	-0.696	0.960	0.317	.752	
	Org. Hope	0.152	0.056	0.041	0.263	2.713	.008	
	Bio.Values	0.328	0.063	0.203	0.453	5.190	<.001	.221
3	(Intercept)	-0.849	0.441	-1.721	0.024	-1.926	.056	
	Org. Hope	0.062	0.055	-0.047	0.172	1.126	.263	
	Bio.Values	0.329	0.058	0.213	0.444	5.629	<.001	
	Org. S.N.	0.318	0.068	0.183	0.454	4.649	<.001	.334

Note. $N = 125$. Abbreviations: CI = confidence interval; LL = lower limit; UL = upper limit; Org. Hope = organizational hope; Bio. Values = biospheric values; Org. S.N. = organizational subjective norms

Exploratory Analysis

Simple linear regressions were run to explore role differences in the influence of biospheric values and subjective norms. Looking at the variance explained, biospheric values have the strongest prediction effect in both roles and account for 26,7% ($p < .001$) in the individual role and 18,1% ($p < .001$) in the organizational. Similarly, subjective norms predicted PEB significantly more in the individual role ($R^2_{adj} = .25$, $p < .001$) compared to the organizational ($R^2_{adj} = .16$, $p < .001$).

For further investigation, a Pearson's correlation analysis was conducted to explore if single constructive hope items correlate more strongly with PEB than others. The results give insight into which items seem to be associated with PEB the most. Findings present that the last two items of each scale ("*I feel hope concerning climate change because I know…": "that there are a number of things that I myself can do to contribute to the improvement of the climate change problem"*/ "*other people in my social circle/organization are taking climate action"*) display the strongest correlations in both conditions. In the organizational role, both correlations of PEB and *self-contribution* ($r = .29$, $p < .001$) and *other's PEB* ($r = .32$, $p < .001$) are most significant and strong compared to the other items (see Table 3). In the individual role, item 5 presents the only significant correlation (Table 4), indicating that the constructive hope item based on *other's PEB* mostly correlates with PEB. Lastly, one more significant correlation in the organizational role is observed ($r = .21$, $p = .02$), namely between *collective action* and *organizational PEB,* as indicated in Table 3.

Table 3

Pearson's Correlations Organizational Hope and PEB

Item/Variable	1	2	3	4	5	6
1. Collective Action	-–					
2. Research & Tech.	.379**	–-				
3. Env. organizations	.466**	.405**	–-			
4. Self-contribution	.562**	.282**	.529**	—		
5. Others' PEB	.644**	.439**	.412**	.593**	—	
6. Org. PEB	.212*	.094	.013	.293**	.322**	—

Note. item 1-5: see Appendix B; Abbreviations: Research & Tech. = Research and Technologies; Env. organizations = environmental organizations; Org. PEB = organizational pro-environmental behavior; see Appendix for full items. * indicates p <.05. ** indicates p <.01

Table 4

Pearson's Correlations Individual Hope and PEB

Item/Variable	1	2	3	4	5	6
1. Collective Action	—					
2. Research & Tech.	.562**	—				
3. Env. organizations	.571**	.397**	—			
4. Self-contribution	.765**	.431**	.410**	—		
5. Others' PEB	.442**	.191*	.312**	.567**	—	
6. Indiv. PEB	.046	.094	.055	.123	.444**	—

Note. 1-5: see Appendix B; Abbreviations: Research & Tech. = Research and Technologies; Env. organizations = environmental organizations; Indiv. PEB = individual pro-environmental behavior; see Appendix for full items. * indicates p <.05. ** indicates p <.01

Discussion

The current study aimed to investigate PEB differences in one's organizational role compared to one's individual one, identify important predictors, and explore the role of constructive hope. Key findings present a significant difference in behavior, demonstrating that people engage less in PEB in their organizational role compared to their individual role. In contrast to predicted outcomes, constructive hope predicted climate action solely as a single predictor of organizational PEB and does not account for PEB when controlling for subjective norms and biospheric values in either social role.

Organizational and Individual Role Differences in PEB

Following H1, the present findings suggest generally lower levels of PEB in the organizational role than in the individual one, agreeing with previous literature concerning recycling and energy-saving behavior (Lee et al., 1995; Lo et al., 2012) and overall PEB differences across work and social domains (Hampton and Whitmarsh, 2023). These findings require a thorough discussion of the underlying reasons for the significant role-dependent discrepancies.

A current review identifies various factors impacting PEB that are unique to the workplace (Zacher et al., 2023). Particularly, as emphasized by large-scale reviews, employees and organizations face various obstacles that hinder PEB at work (Yuriev et al., 2018, Zacher et al., 2023). Overall, such factors are categorized as personal and organizational factors contributing to PEB. For example, organizational factors, such as the lack of prioritization of green atmospheres seem crucial for organizational climate action. Similarly, environmental support from one's organization was found to be associated with PEB (Lamm et al., 2014), as well as perceived corporate social responsibility (Duarte & Mouro, 2022; Tian & Robertson,

2019; Zhang et al., 2024). It also seems vital that PEB possibilities are communicated comprehensively and role-modeled by leaders and management (Yuriev et al., 2018). Additionally, personal factors in the organizational role, such as organizational identification (Peng et al., 2020), or willingness to change habits (Yuriev et al., 2018) impact engagement in PEB. Comparably, employees tend to prioritize productivity and efficiency over PEB (Lo et al., 2012), hence, climate action might only be integrated if compatible with work outcomes. Those findings are supported by a global report measuring that 65% of respondents perceived companies to fail at proper commitment to climate goals (Edelman Trust Barometer, 2023).

In contrast, more PEB was explained in the individual role, which could be due to the fact that the aforementioned organizational factors do not impact the individual role, as supported by the current results. This analysis presented biospheric values and subjective norms to significantly predict individual PEB, consistent with prior research (Blandford et al., 2023; Clark et al., 2019; Nordlund & Garvill, 2002; Steg & De Groot, 2012; Poortinga et al., 2004). This indicates that values and norms are key predictors of PEB in the individual context, corresponding to findings detecting that perceived norms and environmental values of family and friends are strongly associated with PEB (Balundė & Perlaviciute, 2023; Grønhøj & Thøgersen, 2012). Even though personal factors such as values, and norms also play a role in organizational PEB (Lülfs & Hahn, 2014; Norton et al., 2015), both simple linear regression models of biospheric values and subjective norms accounted for lower levels of PEB, suggesting that numerous organization-dependent factors and barriers are more influential in the organizational role.

Constructive Hope Across Social Roles

Findings did not reveal a significant difference in constructive hope across roles, opposing H2. Against predictions based on emotional regulation across work and home settings (Lawrence, 2023), results imply constant expression of constructive hope. These findings suggest that environmental hope is rather stable and does not vary across different roles or contexts, supported by longitudinal studies that indicate personality trait-like features of hope (Marques & Gallagher, 2017; Valle et al., 2006). Regarding constructive hope based on others, trust in one's social circle was indeed more correlated with PEB than trust in members of one's organization, in line with prior research underscoring high levels of trust in close relationships (Rempel et al., 1985) and perceiving family and friends as truthful and responsible about climate change (Edelman Trust Barometer, 2023). Nevertheless, overall correlations were quite weak, and constructive hope did not differ across roles, nor predicted PEB in the proposed models. Therefore, the general question of the role of trust in hope and environmental issues arises.

The Role of Trust in Constructive Hope

In contrast to H3 and H4, constructive hope did not predict PEB in either the individual role nor the organizational role when controlling for subjective norms and biospheric values, opposing prior findings by Ojala (2012, 2015) and Marlon et al. (2019). One reason for these contradicting findings might be attributed to trust. Trust has been repeatedly discussed throughout this study, as constructive hope incorporates trusting individual or collective action. However, it is questionable what impact trust and constructive hope still have on individuals as a global report recently observed a decline in trust, labeling it a "trust crisis" about climate issues (Edelman Trust Barometer, 2023, p. 13). Respondents were queried about their trust in honesty and responsibility-taking in climate-related issues across contexts. In fact, CEOs, journalists, and government leaders were not trusted, and only half of the participants believed NGOs or even

climate activists to be honest. These findings are reflected in the correlation analysis, as correlations between hope based on trust and PEB were either insignificant or extremely low. For instance, constructive hope based on trust in climate organization did not correlate with PEB in both conditions.

One reason for the proposed trust crisis, and possibly resulting decline in hope, might be the impact of other attitudes and negative feelings about climate change. Global studies found that 93% of respondents perceive climate change as dangerous for the planet and the majority experience so-called climate anxiety, worry, or sadness about the future of the environment (Edelman Trust Barometer, 2023; Hickman et al., 2021). In fact, 77% of global respondents described themselves as worried about global warming, and within this group, more than half did not feel hopeful, but pessimistic about mitigating climate change. Furthermore, studies have shown that climate anxiety and worry also correlate with PEB (Clayton & Ogunbode, 2023; Sangervo et al., 2022; Smith & Leiserowitz, 2014). Therefore, hope for the climate, might be prevailed by pessimism, anxiety, and worry as natural disasters are accumulating over time (IPCC, 2023), accounting for the low predictive value.

The Collective Nature of Hope

However, when considering merely constructive hope as a predictor of PEB, the data reveal a significant prediction in the organizational role. This finding could stem from the possible sense of collective action cultivated by hope, as recently reviewed by Kovács et al. (2024). Particularly, evidence reveals that hope mediates collective climate and political action (Cohen-Chen & Van Zomeren, 2018; Wlodarczyk et al., 2017). Collective action describes group members engaging in goal-directed behavior, for example collectively engaging in PEB (Van Zomeren et al., 2018), facilitated by group identity (Klandermans, 2002). Group identification in

the workplace plays a key role as it enhances, for instance, job satisfaction (Van Dick et al., 2008). Therefore, constructive hope could predict PEB in one's organization due to its collective aspect reflected in organizational group identity. This is supported by the correlation analysis presenting a significant correlation between PEB and the constructive hope item based on collective action in the organizational role. Furthermore, through the nature of organizations clearer boundaries defining group membership are presumably provided, in comparison to the individual role presenting rather ambiguous group boundaries. This could create the perception of being part of a large group without clear boundaries, and as suggested by prior research (Cocciolo et al., 2019; Olson, 1971), large group sizes might interfere with collective action.

To summarize, constructive hope might facilitate the perception of collective action and predict PEB only in the organization due to clearer group membership and identity.

Theoretical Limitations

Alternatively, theoretical limitations might account for the low predictive value of hope. One review found hope only correlated with PEB when measures asked about hopefulness toward specific solutions and actions, compared to generally asking about hope for climate change (Geiger et al., 2023). The present study only asked for responses for '*I feel hope concerning climate change'* and did not state clear goals or solutions, possibly explaining the weak predictions.

Furthermore, the complexity of conceptualizing constructive hope must be addressed. Some environmental studies conceptualize hope solely as an emotion, or a cognitive state, while others recognize both aspects in hope or do not conceptualize it as either (Geiger et al., 2023, Ojala 2012). One current review argues that hope as a cognition presented more consistent correlational findings with PEB than hope measured as an emotion (Ojala, 2023). Interestingly,

the present data correspond to these findings, as correlations between constructive hope items and PEB are higher in items beginning with "I feel hope concerning climate change because *I know*…", underscoring the cognitive part of hope based on *knowing.* Cognitive measures of hope might correlate stronger with PEB, as its theoretical conceptualization often includes goal-directed pathway and agency thinking (Ojala, 2023, Snyder et al., 2002), and as aforementioned hope related to specific goals presented stronger results.

Methodological Limitations

Alongside theoretical limitations, methodological limitations must be taken into account, and results need to be considered with caution. A general limitation of this study concerns the little to non-existent previous research on PEB and hope differences in certain social roles, as well as about hope in work settings. Similarly, the roles presented, particularly the individual role have little scientific background and were rather generally defined by the researchers, interfering with the overall credibility and impact of the study.

Another limitation is the sample and the recruitment of participants. Due to convenience sampling instead of random sampling, an increased risk of bias emerges and representation of the population is not given, further restricting the overall generalizability of the results. Similarly, the participants' average age was 27, and almost half of them were affiliated with the education sector, which could indicate inadequate representation of the organizational role. Additionally, the study was conducted employing a self-report survey. Hence, the risk of social desirability increases, a possible obstacle to internal validity. Especially about global topics like PEB, responding more socially acceptable is quite likely (Koller et al., 2023). The study design could also have integrated precise manipulations properly activating each role. This way a

manipulation check in the survey could have tested if participants were successfully prompted into the conditions.

Furthermore, this study measured the ‘organizational role’ including both employees and students. However, studies referenced were predominantly workplace-related, while universities likely entail other PEB-influencing factors (Shafiei & Maleksaeidi, 2020; Torroba Diaz et al., 2023). Therefore, combining both university and workplace might not fully represent one social role. Comparably, the individual role proposed lacks scientific background and clear conceptualization, which obstructs the study’s validity.

Implications and Future Directions

Despite these limitations, the current findings contribute to the understanding of context-dependent climate action. Hence, implications for interventions to increase PEB for future research, policymakers, and employers are suggested. Importantly, these findings encourage researchers to invest in a large-scale study with a representative sample and clearer specified social roles. The most striking observation is the significantly lower expression of PEB in the organizational role, implying that measures of PEB require careful consideration of which social role is activated. This suggests that a “one-size fits all” approach for climate interventions cannot be implemented, and therefore, has to be specifically tailored to, for example, the workplace (Daamen et al., 2001). Regarding future directions, the data suggests exploring other social roles and their impact on PEB.

As different aspects and barriers seem to play a significant role in the organizational role it is recommended to identify strategies to confront and reduce obstacles to PEB in one’s organization (Yuriev et al., 2018). For instance, future studies should develop work-tailored interventions that enhance PEB, without compromising work productivity and efficiency (Lo et

al., 2012). Concerning the individual role, the data emphasize the role of subjective norms and biospheric values and invoke the development of interventions that enhance such values and norms, to subsequently increase PEB.

Lastly, this study adds to the understanding of constructive environmental hope, in particular, shows hope to be rather stable across contexts and prompts future hope research to conceptualize it as such. Even though the findings were nonsignificant, hope is an essential concept in activism (Vandaele & Stålhammar, 2022), especially concerning collective action (Cohen-Chen & Van Zomeren, 2018; Wlodarczyk et al., 2017). This relationship should be further examined, particularly how to increase collective PEB through hope. As negative emotions and attitudes toward the climate might overshadow hopefulness, research should identify ways to increase optimism, hope, and positive emotions to increase PEB.

Furthermore, the present findings suggest a focus on the cognitive part of constructive hope, hence, interventions need to integrate specific goals and solutions to create a positive, but realistic perspective on the future while facilitating PEB. Nevertheless, the multifaceted nature of hope must not be ignored, as it still incorporates a positive emotional component that needs to be acknowledged (Ojala, 2012, 2023). Consequently, future research should identify a clear conceptual framework, recognizing the complexity of hope, while integrating the benefits of hope with practical goals. Due to hope's positive effects on well-being and resilience (Çiçek, 2021; Murphy, 2023), it should not be rejected in environmental research, but future studies should identify new possibilities to integrate and enhance climate hope.

Conclusion

Climate change is a global concern urging research to understand and develop adequate interventions to motivate climate action. However, a profound research gap in social role

differences emerges, which the current study aimed to address. For this purpose, two distinct social roles and how they differ in pro-environmental behavior (PEB) were investigated. Particularly, the organizational role was compared to an individual one, and further, the impact of constructive hope and other predicting factors were explored. Results revealed that PEB in the organizational role is substantially less, indicating that different organizational-dependent factors and obstacles impact engagement in climate action and need to be reduced. Constructive hope solely predicted PEB as a single predictor in the organizational role, which might be explained by hope's relationship with collective action, enhanced by group membership in the workplace. However, constructive hope was a nonsignificant predictor in the individual role and when controlled for biospheric values or subjective norms in both roles. In summary, the present study calls upon society to regain hope and trust in a positive future to individually and collectively engage in PEB, while taking well-being and other benefits of hope into account.

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Appendix A

Table A1

Frequencies of Age and Gender

	n	%
Gender		
Female	82	65.6
Male	40	32
Non-Binary	2	1.6
Prefer not to say	1	0.8
Age		
18-24	82	65.6
25-34	23	18.4
35-49	12	9.6
50-64	7	5.6
65 or older	1	0.8

Note: $N = 125$

Table A2

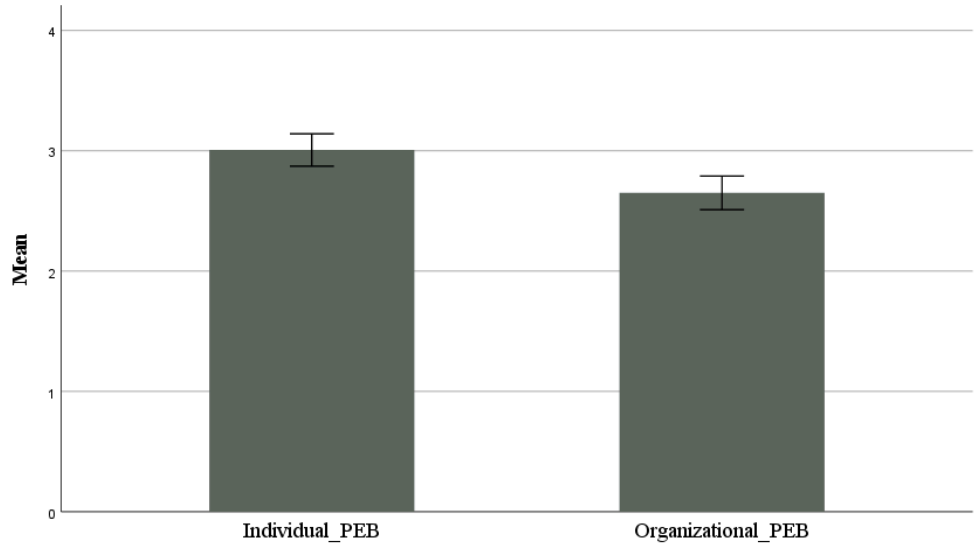
Frequencies of Occupation Sectors

Occupation Sector	n	%
1. Agriculture	0	0
2. Energy	3	2,4
3. Production Industry	1	.8
4. Transportation	2	1.6
5. Public Administration/Services	7	5.6
6. Financing Institutions	3	2.4
7. NGO	2	1.6
8. Media, Communications	4	3.2
9. Education (University/School/etc.)	62	49.6
10. Health and Welfare	13	10.4
11. Food and Acommodation Service	5	4
12. Culture, Sports and Recreation	6	4.8
13. Other	17	13.6

Note. $N = 125$, see Appendix B

Figure A1

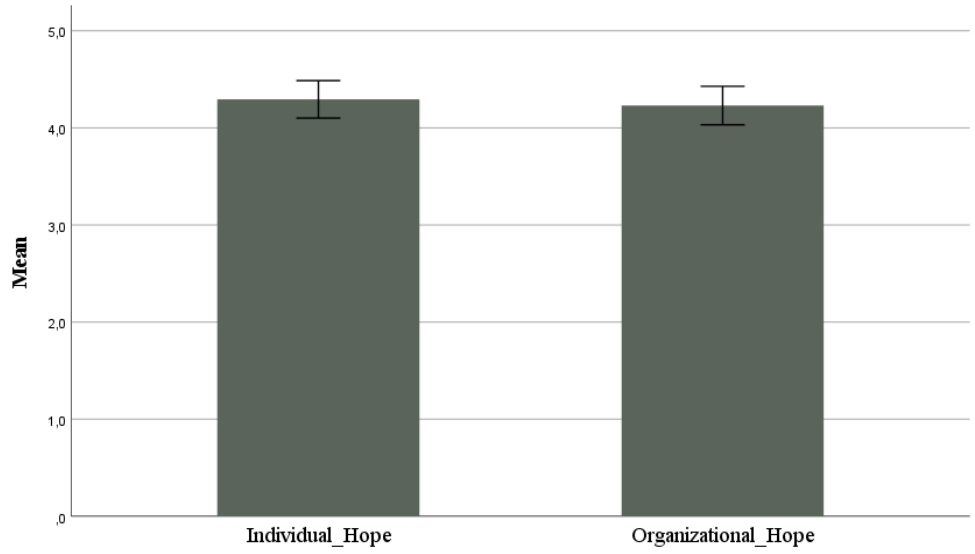
Bar Graph of Paired Sample t-Test Comparing PEB Group Means



Note: Error bars: 95% confidence interval

Figure A2

Bar Graph of Paired Sample t-Test Comparing Hope Group Means



Note: Error bars: 95% confidence interval

Appendix B

Online Questionnaire

Climate Change Belief

Do you think climate change is caused by natural processes, human activity or both?

1. Completely by natural processes
2. Mainly due to natural processes
3. About as much due to natural processes and human activity
4. Mainly due to human activity
5. Entirely due to human activity
6. I don't think there is climate change

Individual and Organizational Role

This study will focus on the different attitudes, beliefs, and behaviors you might have towards climate change. We would like you to answer some questions in either your personal role or as a member of an organization.

In your **personal role**, please focus on actions you take at home, with friends or family, etc.

In your **organizational role**, please focus on actions you take in your work or university setting.

Individual Role

In the following questions, we would like you to answer in your personal role.

Please focus on actions you take at home, with friends or family, etc.

Individual Constructive Hope

To what extent do these statements correspond to how you are thinking?

I feel hope concerning climate change…

(1 = *not at all*, 2 = *to a little extent*, 3 = *to a moderately little extent*, 4 = *to a moderate extent*, 5 = *to a moderately large extent*, 6 = *to a large extent*, 7 = *to a great extent*)

1) ...because we as individuals can change our behavior; together we can influence climate change in a positive direction (*collective action*)
2) ...because I believe that research and technical solutions will contribute to the improvement of the climate change problem (*research & technologies*)
3) ...because as long as there are people who are active in environmental organizations there is a possibility that the climate issue will be solved (*environmental organizations*)
4) ...because I know that there are a number of things that I myself can do to contribute to the improvement of the climate change problem (*self-contribution*)
5) ..because I know other people in my social circle are taking climate action (*other's PEB*)

Individual Personal Behavior

In this part of the survey, we will ask about the actions you can take personally that help limit climate change and would like you to answer in your personal role.

Over the past 12 months, how often have you taken the following actions in your personal life?

(1 = *never*, 2 = *sometimes*, 3 = *about half of the time*, 4 = *most of the time,* 5 = *always*)

1) Saving energy at home (e.g. lowering/turning off the thermostat, turning off lights, using energy efficient appliances)
2) Sustainable food consumption (e.g., eating no or little meat and dairy, reducing food waste, not using disposable cutlery)
3) Sustainable consumption (e.g., only purchasing items if necessary, repairing items instead of buying new ones, purchasing sustainably produced products)

4) Traveling in a sustainable way (e.g., walking, cycling or public transport instead of using a car or flying, traveling less)

Individual Advocacy Behavior

In this part of the survey, you will be asked about the actions you can take to encourage others to help limit climate change.

How often have you taken the following action in your personal role?

(1 = *never*, 2 = *once*, 3 = *a few times*, 4 = *several times*, 5 = *many*)

1) Voted for candidates that support actions on climate change
2) Joined public demonstrations or protests to urge governments and industries to take action to limit climate change
3) Signed a petition in support of limiting climate change
4) Donated money to an organization working on climate change
5) Boycotted companies that have a great impact on climate change
6) For attention check, please select "Once" for this question
7) Urged friends and family to take action to limit climate change
8) Advocated for climate actions in your social circle (e.g., calling out unsustainable practices)

Individual Descriptive Norms

In the following questions, we would like you to answer in your personal role.

How much do you agree with the following statement: the people in my social circle engage in…

(1 = *strongly disagree*, 2 = *disagree*, 3 = *somewhat disagree*, 4 = *neither agree nor disagree*, 5 = *somewhat agree*, 6 = *agree*, 7 = *strongly agree*)

1) Saving energy (e.g. lowering/turning off the thermostat, turning off lights, using energy efficient appliances)
2) Sustainable food consumption (e.g., eating no or little meat and dairy, reducing food waste, not using disposable cutlery)
3) Sustainable consumption (e.g., only purchasing items if necessary, repairing items instead of buying new ones, purchasing sustainably produced products)
4) Traveling in a sustainable way (e.g., walking, cycling or public transport instead of using a car or flying, traveling less)

Individual Injunctive Norms

In your personal role, how much do you agree with the following statement:98

(1 = strongly disagree, 2 = disagree, 3 = somewhat disagree, 4 = neither agree nor disagree, 5 = somewhat agree, 6 = agree, 7 = strongly agree)

1) The people in my social circle expect me to engage in pro-environmental behavior
2) I disappoint the people in my social circle when I do not engage in pro-environmental behavior
3) It is important for my social circle that I engage in pro-environmental behavior

Organizational Role

In the following questions, we would like you to answer in your organizational role.

Please focus on actions you take in your work or university setting.

Occupation

Which sector does your organization belong to?

1) Agriculture
2) Energy

3) Production Industry
4) Transportation
5) Public administration and services
6) Financing Institutions
7) NGO
8) Media, Communication
9) Education (University, School, Apprenticeship, etc.)
10) Health and welfare
11) Food and accommodation services
12) Culture, Sports and recreation
13) Other

Organizational Constructive Hope

To what extent do these statements correspond to how you are thinking?

I feel hope concerning climate change…

(1 = *not at all*, 2 = *to a little extent*, 3 = *to a moderately little extent*, 4 = *to a moderate extent*, 5 = *to a moderately large extent*, 6 = *to a large extent*, 7 = *to a great extent*)

1) ...because we as individuals can change our behavior; together we can influence climate change in a positive direction (*collective action*)
2) ...because I believe that research and technical solutions will contribute to the improvement of the climate change problem (*research & technologies*)
3) ...because as long as there are people who are active in environmental organizations there is a possibility that the climate issue will be solved (*environmental organizations*)

4) ...because I know that there are a number of things that I myself can do to contribute to the improvement of the climate change problem (*self-contribution*)
5) ..because I know other people in my organization are taking climate action (*other's PEB*)

Organizational Personal Behavior

In this part of the survey, we will ask about the actions you can take that help limit climate change and would like you to answer in your organizational role.

Over the past 12 months, how often have you taken the following actions in your organization?

(1 = *never*, 2 = *sometimes*, 3 = *about half of the time*, 4 = *most of the time,* 5 = *always*)

1) Saving energy at home (e.g. lowering/turning off the thermostat, turning off lights, using energy efficient appliances)
2) Sustainable food consumption (e.g., eating no or little meat and dairy, reducing food waste, not using disposable cutlery)
3) Sustainable consumption (e.g., only purchasing items if necessary, repairing items instead of buying new ones, purchasing sustainably produced products)
4) Traveling in a sustainable way (e.g., walking, cycling or public transport instead of using a car or flying, traveling less)

Organizational Advocacy Behavior

In this part of the survey, you will be asked about the actions you can take to encourage others to help limit climate change and would like you to answer in your organizational role.

How often have you taken the following action in your organization?

(1 = *never*, 2 = *once*, 3 = *a few times*, 4 = *several times*, 5 = *many*)

1) Signed a petition in support of limiting climate change
2) Boycotted companies that have a great impact on climate change

3) Urged colleagues to take action to limit climate change
4) Advocated for climate actions in your organisation (e.g., calling out unsustainable practices)

Organizational Descriptive Norms

In the following questions, we would like you to answer in your organisational role.

How much do you agree with the following statement:

The people in my organisation engage in…

(1 = *strongly disagree*, 2 = *disagree*, 3 = *somewhat disagree*, 4 = *neither agree nor disagree*, 5 = *somewhat agree*, 6 = *agree*, 7 = *strongly agree*)

1) Saving energy (e.g. lowering/turning off the thermostat, turning off lights, using energy efficient appliances)
2) Sustainable food consumption (e.g., eating no or little meat and dairy, reducing food waste, not using disposable cutlery)
3) Sustainable consumption (e.g., only purchasing items if necessary, repairing items instead of buying new ones, purchasing sustainably produced products)
4) Traveling in a sustainable way (e.g., walking, cycling or public transport instead of using a car or flying, traveling less)

Organizational Injunctive Norms

In the following questions, we would like you to answer in your organizational role.

How much do you agree with the following statement:

(1 = *strongly disagree*, 2 = *disagree*, 3 = *somewhat disagree*, 4 = *neither agree nor disagree*, 5 = *somewhat agree*, 6 = *agree*, 7 = *strongly agree*)

1) The people in my organization expect me to engage in pro-environmental behavior

2) I disappoint the people in my organisation when I do not engage in pro-environmental behavior
3) It is important for my organization that I engage in pro-environmental behavior

Biospheric Values

In this part of the survey, we will ask about your identity beliefs and values in general. You do NOT have to focus on a specific role.

To what extent do you personally value... ?

(1 = *Not at all*, 2 = *To a little extent*, 3 = *To a moderately little extent*, 4 = *To a moderate extent*, 5 = *To a moderately large exten*t, 6 = *To a large extent*, 7 = *To a great extent*)

1) Preventing pollution: protecting natural resources
2) Respecting the earth: harmony with other species
3) Unity with nature: Fitting in to nature
4) Protecting the environment: preserving nature

Demographics

1) What is your age? (in years)
2) What is your gender?
    a) Male
    b) Female
    c) Non-binary
    d) Prefer not to say