Individual Role Differences in Pro-Environmental Behavior: The Influence of Biospheric Value and Perceived Capability in the Personal and the Professional Roles

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Abstract

This study aimed to explore the influence of biospheric value and perceived capability on pro-environmental behavior (PEB) across personal and professional contexts. By examining these roles, we sought to understand their differences and how to better encourage individuals to engage in PEB within each role. The results indicated that both PEB and perceived capability are significantly more pronounced in personal roles compared to professional roles. Although biospheric value was a significant predictor of PEB in both contexts, the hypothesized mediation effect of perceived capability was not supported in either role. In the personal role, biospheric value predicted perceived capability but not PEB, whereas, in the professional role, perceived capability predicted PEB independently of biospheric value. The study underscores the importance of role context in designing interventions to promote sustainable behaviors and suggests prioritizing the enhancement of biospheric value over perceived capability. Future research should address the limitations regarding sample demographics, the broad conceptualization of roles, and should include longitudinal and cross-cultural studies to better infer causal relationships and stability across different contexts.

Keywords: biospheric value, perceived capability, pro-environmental behavior (PEB), personal role, professional role

Individual Role Differences in Pro-Environmental Behavior: The Influence of Biospheric Value and Perceived Capability in the Personal and the Professional Roles

Climate change poses the most pressing and life-threatening challenge of our era, demanding immediate action to maximize our chances of survival. As we anticipate worsening effects leading to detrimental tipping points in collapsing ecosystems, we are already witnessing devastating impacts at present (IPCC, 2023). Almost half of the world's population lives in regions particularly vulnerable to these negative impacts and is significantly impacted by the effects on the economy and social stability, due to loss of life, property destruction, and disruption of critical infrastructure (IPCC, 2023). Underdeveloped areas bear the brunt of these consequences, although they have played a minor role in the emergence of these phenomena. However, Western countries are already experiencing the worsening effects of climate change as well. For instance, the Netherlands, the country in which we are conducting our study, is encountering more frequent and severe heatwaves, heavy rainfall, and subsequent flooding risks (Ministerie van Infrastructuur en Milieu., 2016).

Given the global scale of these impacts, tackling climate change requires coordinated efforts from both governments and individuals. The term pro-environmental behavior (PEB) encompasses all environment quality-enhancing acts (Steg et al., 2014). Governments hold responsibility for fostering PEB among citizens and implementing policies for high-emitting industries, to mitigate climate gas emissions. Despite pledges from 195 nations in the 2015 Paris Agreement to limit the Earth’s temperature rise to 1.5°C above pre-industrial levels, significant disparities persist between these aspirations, individual country commitments, and actual emission reduction efforts (IPCC, 2023).

As governments fail to implement adequate measures, the burden increasingly falls on individuals to mitigate climate change, as individual PEB has been shown to have a significant impact (Dietz et al., 2009; Nielsen et al., 2021). Commonly mentioned individual behaviors, in research and media include choices in modes of transportation, room temperatures, upgrading household equipment such as cars and typical household items, improving insulation, and dietary choices (Nielsen, et al., 2021).

Roles

However, we fulfill various societal roles beyond that of a consumer, which presents important opportunities for PEB that are often overlooked. Individuals hold significant roles such as investors, producers, organizational participants, community members, and citizens, each presenting an opportunity to advocate for and enact sustainable practices and decisions (Hampton & Whitmarsh, 2023; Nielsen et al., 2021). Hampton and Whitmarsh (2023) explain that various factors influence us differently in different roles, affecting our engagement in PEB. However, research on PEB across various roles and the specific influencing factors is limited. Therefore, our study aims to address this gap by examining the specific distinctions among roles. We will focus on two highly influential roles that most people occupy: the personal role and the professional role.

Personal Role

The personal role is particularly crucial as it universally applies to all individuals. It encompasses our private life, interactions with friends and family, and moments spent alone. PEB in this context may encompass the previously mentioned consumption behaviors, as well as investing savings sustainably or advocating for sustainability in the social circle (Nielsen, et al., 2021). Further investigation of influencing factors, harbors the potential to understand better how involvement in PEB can be heightened within this role thereby making significant steps in promoting sustainability.

Professional Role

The professional role significantly shapes our lives given the substantial amount of time invested and the financial dependency. PEB in the workplace includes reducing printing, turning off lights upon leaving rooms or buildings, adopting sustainable heating practices, and opting for reusable cups (Blok et al., 2015). Examining this role and understanding its dynamics, along with identifying factors that facilitate or hinder engagement in PEB, is crucial, especially given the substantial impact organizations have on climate change (Howard-Grenville et al., 2014). Additionally, individuals can influence their workplace through pressure from employees and job seekers, leading to a greater drive toward sustainability in organizations (Hampton & Whitmarsh,

2023). However, the workplace itself can also impact the PEB of individuals through factors such as leadership and management practices, rewards, education, and value-based initiatives (Hampton & Whitmarsh, 2023). Enhancing motivation through these approaches can promote more sustainable practices.

However, it may also hinder engagement in PEB. Lo et al. (2012) and Norton et al. (2015) describe the lack of sustainable subjective norms, which refers to how we perceive others to evaluate our behavior, and the general prioritization of work inhibits engagement in PEB in the workplace. As employees depend on their employer's goodwill for promotions or even to sustain their livelihood, challenging subjective norms or organizational practices to promote sustainability can be seen as threatening and undermine their perceived capability to take action.

Perceived Capability

Individual behaviors are determined by both real and perceived capabilities and constraints (Stern et al., 1999). Concerning the topic of PEB, “capability” means the capacity and ability to limit climate change (Van Zomeren et al., 2010). This can be influenced by knowledge and skills, time availability, and sociodemographic variables, as well as status and power (Stern, 2000). Many individuals doubt their capability to make a significant impact on climate change (Lorenzoni et al., 2007). Ozer and Bandura (1990) demonstrated that people tend to avoid tasks they perceive as beyond their capability, leading to a detrimental effect where individuals might avoid PEB. Therefore, studying the enabling and inhibiting effects of this factor is crucial to encourage engagement in PEB.

In the professional role, perceived capability is identified by Lo et al. (2012) as the most crucial factor in office energy-related behaviors. Employees often perceive PEB as beyond their control due to the division of labor and their limited influence over central organizational policies. However, perceived capability is restricted not only by limitations on energy-saving behaviors, such as centralized heating systems that prevent sustainable individual temperature adjustments but also by practical decisions like cafeteria food options that do not align with sustainable dietary choices (Lo et al., 2012).

Perceived capability is also an important predictor for PEB in personal roles. Abrahamse and Steg (2011) conducted a study on household energy use and found that perceived behavioral control, comparable to perceived capability, and values are the most predictive factors for PEB.

Value Belief Norm Theory

While capabilities determine our ability to behave in an environmentally friendly manner, it is crucial to understand the motivations behind our intention to do so. This insight helps to identify the driving forces behind these actions and enables the development of effective strategies to promote widespread and sustainable environmental responsibility. The Value-Belief-Norm (VBN) theory is widely recognized in environmental psychology for its efficacy in predicting PEB (Abrahamse & Steg, 2011). The VBN theory suggests that people's values influence their beliefs about what behaviors are right or wrong, which, in turn, shape their behavioral norms (Stern et al., 1999). According to this theory, values play a crucial role since they serve as the foundation for behavioral norms and, consequently, actual behavior. Rokeach (1973) defines values as goals and guiding principles that vary in importance for individuals. In comparison to beliefs, attitudes, and norms, values are relatively stable over time (Rokeach, 1973). The VBN theory identifies three value dimensions: altruistic value, biospheric value, and egoistic value (Stern, 2000). However, the article by Steg and De Groot (2012) emphasizes that biospheric value appears more predictive of PEB compared to egoistic and altruistic values.

Biospheric Value

The term "biospheric value" is defined as a concern for the environment and the quality of nature for its intrinsic value. It distinguishes itself from altruistic value by not encompassing care for the well-being of mankind, which is a significant aspect of altruistic value (Steg & De Groot, 2012). Thus, individuals high in biospheric value are more likely to choose PEB when it is expected to benefit nature and the environment (Steg & De Groot, 2012).

Perceived Capability Mediating Biospheric Value and PEB

Building on the concept of biospheric value, Stern et al. (1999) explain that differences in the types of actions individuals engage in, despite having similar values, are most likely due to variations in their capabilities. Guagnano et al. (1995) support this with empirical evidence from curbside recycling programs, showing that individuals with strong pro-environmental values are less likely to engage in pro-environmental actions when they doubt their impact, highlighting perceived capability as an important mediator. Similarly, Bamberg and Möser (2007) demonstrate in their meta-analysis that perceived behavioral control (akin to perceived capability) significantly influences the extent to which values and norms lead to PEB. However, Whitmarsh and O'Neill (2010) found opposing results, indicating that perceived behavioral control does not predict PEB. Carrus et al. (2008) suggested that the predictive power of perceived behavioral control on PEB varies across different types of behaviors. These inconsistencies emphasize the need for further research to clarify the relationships between these variables.

Our Research

As previously outlined, climate change is the most pressing threat of our time, highlighting the necessity for individual contributions to mitigation efforts. Understanding these underlying dynamics will enable us to tailor interventions more effectively, encouraging and empowering individuals to take meaningful action against climate change. While previous research highlights the importance of values and perceived capability in predicting PEB, the inconsistencies in findings, especially regarding the mediating role of perceived capability, indicate a complex interplay of factors that vary across different contexts. We will conduct the following study to help clarify the significant relationships among multiple influencing factors. To our knowledge, no studies have specifically investigated how perceived capability mediates the relationship between biospheric value and PEB across the various roles individuals inhabit. We will examine the barriers and facilitators to PEB within the personal and professional roles. Our research question explores how personal and professional contexts influence the relationship between individuals' biospheric value,

their perception of personal capability, and their engagement in PEB. To address this topic, we have formulated the following three hypotheses, which will be tested using a within-subject design.

- (H1) PEB and perceived capability are more prevalent in the personal role than in the professional role.
- (H2) The impact of biospheric value on PEB is mediated by the perceived capability to act pro-environmentally in the personal role.
- (H3) The impact of biospheric value on PEB is mediated by the perceived capability to act pro-environmentally in the professional role.

Method

Participants and Design

We conducted a power analysis for a two-sided paired t-test to determine if responses from the personal role differ from those in the professional role. To detect a small effect size (0.3) with 80% power and a significance level of 0.05, a sample size of 90 respondents was required. Participants needed to be over the age of 18 to take part in the study. Between April 29, 2024, and May 26, 2024, 130 individuals completed the questionnaire. After data cleaning, which excluded five responses due to lack of consent or failure to pass the attention check, 125 responses (n = 125) were included in the statistical analysis. Of the participants, 65.6 % were women (n = 82), 32% were men (n = 40), and 2.4 % identified as non-binary (n = 2) or preferred not to report gender (n = 1). Age distribution ranged from 18 to 71 years with a mean age of 27. Predominantly, 49% of participants affiliated themselves with the education sector (n = 62), while the remaining respondents represented diverse occupational backgrounds.

The design used for this research is a within-subject design and the data was collected with a survey. The study incorporated an experimental manipulation wherein each participant experienced both conditions and completed a portion of the questionnaire twice, under each condition. In one condition, participants were instructed to respond to the questions from the perspective of their

personal role. In the other condition, they were asked to answer the same questions from the viewpoint of their professional role.

Procedure

Participants for the survey were recruited in two ways. First, we used snowballing by sending the link to the survey to university group chats, friends, and family, and posting it on social media (e.g. Instagram). The remaining participants were first-year students at the University of Groningen, who took part in the study for course credit. The University of Groningen ethics committee approved the study before the distribution of the survey. At the beginning of the questionnaire, a control question assessed participants' belief in climate change, which was necessary to answer the questions sensibly. Following, a short paragraph explained what the personal and professional roles entail. To avoid anchoring effects, participants were randomly assigned to either see the questions focusing on the personal or the professional role first. The desired role was indicated above each question block with the terms "In your organization…" or "In your organizational role…" for the organizational role condition and "In your personal role…" for the personal role condition. For the questions about values and identity, the respondents did not have to answer in their professional or personal role, which we stated clearly before the questions.

Measures

Demographics

In the beginning of the professional role condition, the work sector was assessed using a multiple choice question with 12 answer options. Additional demographic information, consisting of age and gender, was collected at the end of the questionnaire.

Attention Check

An attention check was included in the middle of the survey. Participants were asked to select "Once" on a 5-point Likert scale ranging from "Never" to "Many".

PEB

PEB was measured as the dependent variable on a 5-point Likert scale, ranging from “Never” to “Always”. The items were adopted from Stern (2000) to fit the specific conditions. Certain items were specific to the personal role, resulting in the personal role condition comprising 11 items, while the professional role condition included 8 items. The scale included items such as how often participants engaged in a specific action in their personal or professional life, such as saving energy, traveling sustainably, or advocating for climate action. The PEB measure exhibited reliability ranging from acceptable in the professional condition ($\alpha = 0.78$) to good in the personal condition ($\alpha = 0.85$).

Perceived Capability

Perceived capability was assessed with two questions on a 7-point Likert scale, ranging from “Not at all” to “A great extent”. The items were adopted from Van Zomeren et al. (2010) to fit the conditions. The perceived capability items specifically assessed perceived capability to take action, measured by "To what extent can you take action to limit climate change," and perceived action impact, measured by "To what extent will your actions help limit climate change." The capability measures demonstrated acceptable reliability in the personal condition ($\alpha = 0.73$) and the professional condition ($\alpha = 0.71$).

Biospheric value

Biospheric value was measured independently of the conditions on a 7-point Likert scale ranging from “Not at all” to “A great extent” at the end of the questionnaire. Biospheric value was assessed with four items adapted from De Groot and Steg (2008) covering the themes: “respecting the earth,” “unity with nature,” “preventing pollution,” and “protecting the environment”. The measure for biospheric value showed good reliability ($\alpha = 0.89$).

Open-ended questions

Three open-ended questions prompted the participants to answer what pro-environmental actions can be taken in their personal and professional roles and what they believe to be the main barriers in our society that need to be removed to achieve climate goals. At the end of the questionnaire, the participants were given the opportunity to leave feedback for the researchers.

Results

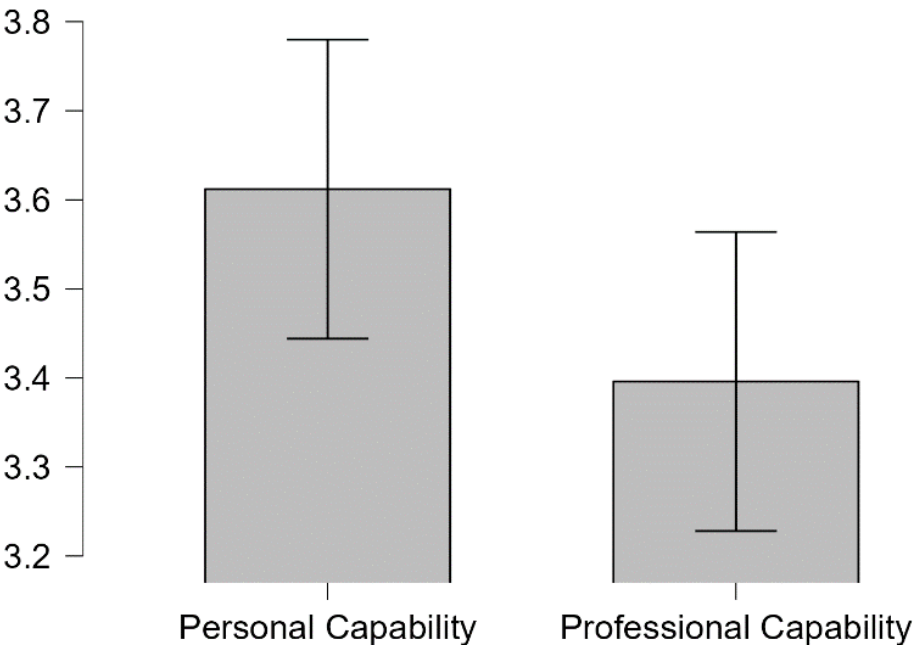
Hypothesis 1

To assess the first hypothesis, a one-sided paired sample t-test was conducted, comparing the perceived capability and PEB variables between conditions. The respective items for perceived capability and PEB in both conditions were aggregated into mean scores. All assumptions required for the paired sample t-test were satisfied. The study design ensured a continuous dependent variable with matched observations, and the normality of the differences between matched pairs was confirmed through distribution plots. Furthermore, the assumption of no significant outliers in the differences between groups was met, as indicated by Cook's distance never exceeding one.

The mean perceived capability measure in the personal condition (M = 3.61, SD = 1.29) was compared with that in the professional condition (M = 3.40, SD = 1.33). The t-test revealed a significantly higher measure in the personal condition (t = 1.80, p = 0.037). The difference between the conditions of perceived capability can be inspected in Figure 1.

Figure 1

Perceived Capability Bar Plot

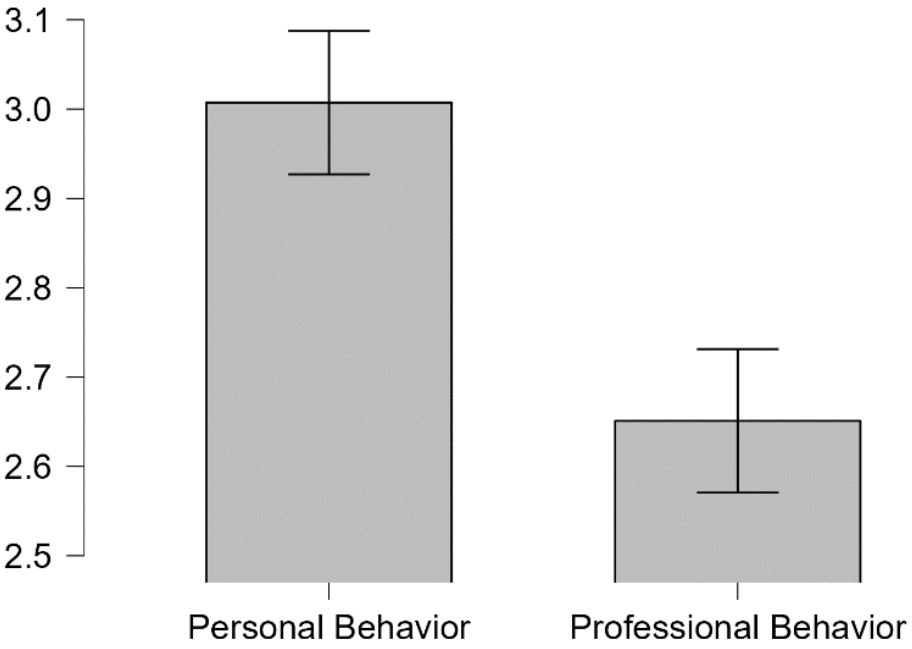


Note. Points on a 7-point Likert scale.

Furthermore, the mean score for PEB was higher in the personal condition (M = 3.01, SD = 0.76) compared to the professional condition (M = 2.65, SD = 0.79). The paired two-sample t-test confirmed the statistical significance of the difference in the dependent variable, PEB, across conditions ($t = 6.21$, $p < 0.001$). The variation in PEB between conditions is depicted in Figure 2. Therefore, it can be concluded that both PEB and perceived capability are more pronounced in the personal role than in the professional role.

Figure 2

Behavior Bar Plot



Note. Points on a 5-point Likert scale.

Hypothesis 2

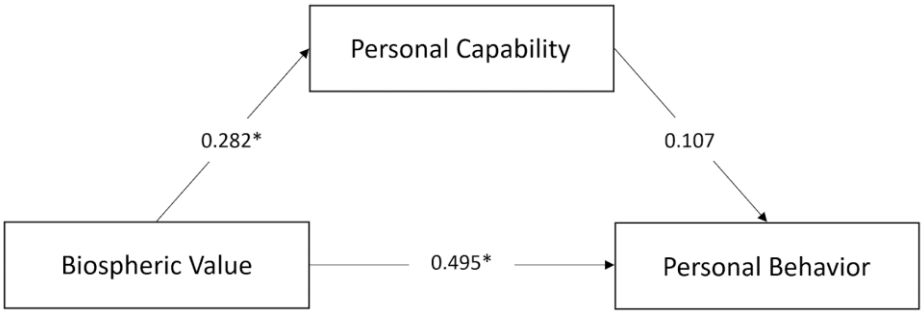
To evaluate the second hypothesis, a mediation analysis was conducted, necessitating several assumptions to be met. We examined the variables perceived capability and PEB in the personal role, as well as biospheric value. The biospheric value was created by aggregating all respective scores into a single mean score. Firstly, our study design ensured all variables were continuous. Secondly, scatterplots confirmed the linearity assumption. Thirdly, multicollinearity was assessed using the variance inflation factor (VIF), indicating very low multicollinearity (VIF = 1.09). Fourthly, normality was evaluated through distribution plots; however, the variable biospheric value exhibited a left-skewed ceiling effect, prompting robust measures for confidence interval assessment in the mediation analysis. Lastly, Cook's distance detected no outliers.

In the mediation analysis, biospheric value served as the independent variable, personal perceived capability as the mediator, and personal PEB as the dependent variable. The total effect of the mediation analysis was significant ($b = 0.525$, $z = 7.239$, $p < 0.001$). The results of the direct effect indicated that biospheric value significantly predicts PEB in the personal role ($b = 0.459$, $z = 6.645$, $p < .001$). However, the indirect effect was not significant ($b = 0.030$, $z = 1.145$, $p = 0.252$). The parameter estimates of the mediation in the personal condition can be found in Table 1 in the Appendix.

Further inspection of the path coefficients revealed that biospheric value predicted perceived capability in the personal role ($b = 0.282$, $z = 3.121$, $p = 0.002$). However, perceived capability did not predict PEB in the personal role ($b = 0.107$, $z = 1.139$, $p = 0.255$). The path coefficients of the mediation in the personal condition can be found in Table 2 in the Appendix. This indicates the insignificance of H2, as perceived capability does not mediate the relationship between biospheric value and PEB in the personal role. A visual representation of the mediation of perceived capability between biospheric value and PEB can be inspected as a path plot in Figure 3.

Figure 3

Path Plot Personal Condition



Note. Standardized path coefficients. Significant estimates are labeled with an asterisk (*).

Hypothesis 3

The assumptions checks for the mediation analysis closely mirrored those discussed in H2. Minor discrepancies were observed, with a variance inflation factor of 1.02, however remaining an indication of low multicollinearity. The normality assumption revealed more pronounced deviations in the professional condition, as the perceived capability variable exhibited strong right-skewness. Therefore, robust measures were particularly crucial when evaluating confidence intervals.

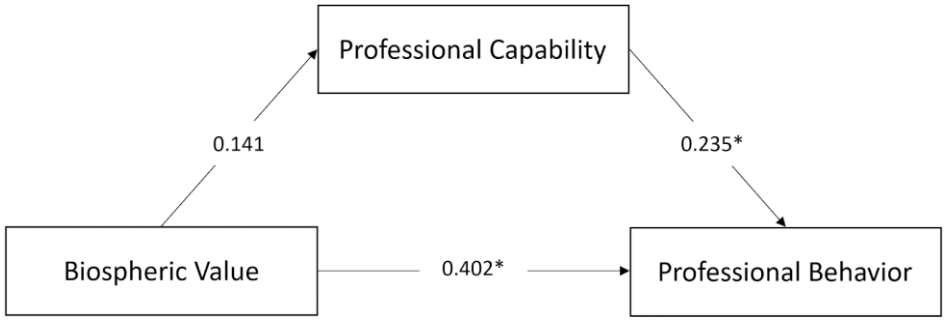
In the mediation analysis, biospheric value served as the independent variable, professional perceived capability as the mediator, and professional PEB as the dependent variable. The total effect of the analysis was significant ($b = 0.434$, $z = 5.550$, $p < 0.001$). Additionally, the direct effect showed that biospheric value significantly predicts PEB in the professional role ($b = 0.459$, $z = 6.645$, $p < 0.001$). However, the indirect effect was not significant ($b = 0.033$, $z = 1.623$, $p = 0.105$). The parameter estimates of the mediation in the professional condition can be found in Table 3 in the Appendix.

Inspecting the path coefficients revealed that, contrary to the results of the personal role, biospheric value does not predict perceived capability in the professional role ($b = 0.141$, $z = 1.719$, $p = 0.086$). However, perceived capability does predict professional PEB ($b = 0.235$, $z = 2.695$, $p = 0.007$). Although the path coefficients indicate a different relationship between biospheric value,

perceived capability, and PEB in the professional role compared to the personal role, the results show the insignificance of the third hypothesis, as perceived capability does not mediate the relationship between biospheric value and PEB in the professional role. All path coefficients of the professional condition can be found in Table 4 in the Appendix. A visual representation of the mediation of perceived capability between biospheric value and PEB is shown in the path plot in Figure 4.

Figure 4

Path Plot Professional Condition



Note. Standardized path coefficients. Significant estimates are labeled with an asterisk (*).

Discussion

The present study aimed to explore the influence of biospheric value and perceived capability on PEB across different societal roles, specifically focusing on personal and professional roles. By examining these roles, we sought to understand how they differ and how we can better encourage individuals to engage in PEB within each role. The results indicate that both PEB and perceived capability are significantly more pronounced in personal role compared to professional role. Additionally, while biospheric value was a significant predictor of PEB in both conditions, the hypothesized mediation effects of perceived capability were not supported in either role. In the personal role, perceived capability was predicted by biospheric value however did not predict PEB. Conversely, in the professional role, biospheric value did not predict perceived capability, whereas perceived capability did predict PEB.

Personal vs. Professional Role

The finding that PEB is more prevalent in the personal role than in the professional role may be partly due to the higher level of perceived capability individuals experience in their personal role compared to their professional role. However, the results show that perceived capability predicts PEB only in the professional role, showing its limitation as a predictor. Several factors may better explain the lower levels of PEB in professional roles. Norton et al. (2015) and Lo et al. (2012) highlight the significant impact of social norms on PEB in the workplace. If the prevailing social norms are not supportive of PEB, this could lead to low engagement in PEB among employees. Yang et al. (2024) propose that high work pressure limits employees' engagement in PEB. Another limiting factor could be the lack of emphasis on PEB within organizational culture, as pro-environmental organizations tend to have employees who engage more in PEB, although the precise nature of this interaction remains unclear (Norton et al., 2015). Furthermore, Song et al. (2023) found that ethical leadership strongly predicts employee PEB. Therefore, the absence of ethical leadership may also contribute to the greater prominence of PEB in the personal role compared to the professional one.

The observation of higher perceived capability in the personal role compared to the professional role is consistent with previous research, which suggests that the more structured and regulated nature of the professional role can limit perceived capability (Lo et al., 2012). The proposed high work pressure influencing the engagement in PEB could further mitigate the perceived capability as high work pressure lessens the capacity and time availability for PEB in the professional role (Yang et al., 2024). Similarly, an unsupportive pro-environmental organizational culture can significantly influence employees' perceived capability to engage in PEB in their professional roles (Norton et al., 2015). Employees rely on their organization for career advancement and financial security, which can make it challenging to engage in behaviors that may not align with the organizational preferences. The significant differences in perceived capability and PEB between these roles highlight the importance of context when designing interventions to promote sustainable behaviors.

Biospheric Value and Perceived Capability

The direct impact of biospheric value on PEB found in this study corroborates previous research highlighting the role of biospheric value in motivating sustainable actions in the personal and the professional (Ruepert et al., 2017; Steg & De Groot, 2012). However, the non-significant mediation effect of perceived capability challenges some of the existing literature that emphasizes the role of perceived capability in translating environmental values into behavior (Bamberg & Möser, 2007; Stern et al., 1999). This discrepancy suggests that while biospheric value is a strong predictor of PEB, the mechanism through which this value influences behavior might not be as straightforward as previously thought. Carrus et al. (2008) previously suggested that the predictive power of the related concept of perceived capability, known as perceived behavioral control, varies across different types of behaviors. Our findings further support and expand on this, showing that the influence of perceived capability also varies across different roles.

Personal role

In the personal role, although biospheric value significantly predicted perceived capability, the latter did not significantly predict PEB. This finding suggests that while individuals with high biospheric value feel capable of acting pro-environmentally, this perceived capability does not necessarily translate into actual behavior. The significant association between perceived capability in personal roles and biospheric value could be explained by higher levels of climate change knowledge. This increased knowledge, which includes understanding of PEB, becomes more accessible and better retained when individuals have high biospheric value (Steg & De Groot, 2012). Knowledge of PEB, in turn, enhances one's perceived capability to engage in these behaviors (Stern, 2000). Taking the variable knowledge of PEB into account further aligns with our findings that the perceived capability to engage in PEB does not predict actual engagement in PEB in personal roles. Whitmarsh and O'Neill (2010) found that no PEB, except for political action, is influenced by knowledge. This could be due to environmental numbness, which means encountering information on climate change too often leading to attenuation of the message (Gifford, 2011). In summary, this could indicate that high biospheric value leads to greater climate change knowledge, which in turn enhances the perceived capability to engage in PEB. However, the perceived capability gained through increased knowledge may not translate into actual PEB due to environmental numbness.

Furthermore, consistent with our findings that perceived capability does not predict PEB in personal roles, Whitmarsh and O'Neill (2010) demonstrated that perceived behavioral control did not predict PEB, but instead showed that past behavior was a stronger predictor. This suggests that perceived capability might not relate to actual PEB in personal roles due to the absence of pro-environmental habits. Further impactful variables that hinder engagement could be a lack of pro-environmental social norms, as they guide what behaviors we engage in to avoid social disapproval and punishment (Gifford, 2011).

Professional role

In contrast, in the professional role, biospheric value did not significantly predict perceived capability, but perceived capability did predict PEB. This suggests that other factors, such as

organizational policies, leadership practices, and workplace culture, may influence an individual's perceived capability in professional settings more than biospheric value (Hampton & Whitmarsh, 2023). Structural obstacles can lower the perceived capability and thereby hinder PEB engagement in the workplace (Lo et al., 2012).

Similarly, contrary to the findings in the personal role, perceived capability does predict PEB in the professional role. However, this also takes place when the individual's biospheric value is low. This could be explained by the distinction in PEB in the workplace, which can be either discretionary or required as part of their job duties (Ones & Dilchert, 2012). Individuals that have low biospheric value could therefore have high perceived capability to engage in PEB as it is supported by their employer, or even required, and therefore also engage in PEB in their professional role. In addition, social norms significantly impact PEB in the professional role (Lo et al., 2012; Norton et al., 2015). Companies that remove structural barriers to PEB likely promote PEB, increasing perceived capability (Ones & Dilchert, 2012). Pro-environmental companies tend to have pro-environmental employees (Norton et al., 2015). Even with low biospheric value, employees in such environments are likely to adopt PEB due to prevailing social norms.

Apart from factors that influence perceived capability, adverse circumstances for PEB can be overcome by some individuals. The results show that biospheric value does predict PEB even when the perceived capability is low. Similarly, Geiger (2020) found that biospheric value predicts recycling behavior, even when it is perceived as less feasible. This demonstrates how individuals with high biospheric value can and are motivated to overcome structural barriers and adverse circumstances to engage in PEB, underlining the importance of biospheric value as a predictor.

Limitations

Although the present results support the distinction between roles, it is appropriate to recognize several limitations of the study. Participants were recruited through snowball sampling and a platform targeting first-year psychology students, resulting in a sample in which 49% of individuals affiliated with the education sector and a mean age of 27. This restricts the generalizability of the

findings to other sectors and age demographics. Therefore many participants may not have engaged in their professional roles outside of the education sector, which predominantly includes the university setting, yet, due to the young age mean, limiting the generalizability of our findings regarding professional roles in the broader population. Moreover, the sampling method likely affects the generalizability to other cultures, as participants were predominantly recruited from Northern Europe. However, the origin country of the participants was not assessed, which would be necessary to confirm. The relationships between variables found in this study could differ in other cultural contexts, suggesting the need for cross-cultural research to validate and extend these findings. Another limitation to consider is desirability bias, given that the study relied on self-report measures. PEB might be seen as a desirable outcome, leading participants to over-report their PEB engagement to appear more favorable.

A further limitation entails that the study did not account for participant's positions within the workplace hierarchy, which could influence the associations among the variables, as different positions come with varying constraints and capabilities. Additionally, we did not specify the types of PEB, even though different behaviors are influenced by different variables. This lack of specificity could have affected the reliability of the measures. In general, all results of this study should be interpreted as correlational, and no causal claims can be made due to the observational nature of the study.

Implications and Future Research

Despite these limitations, the results have significant implications. Central to these findings is the understanding that the context of one's role profoundly shapes the interplay between biospheric value, perceived capability, and PEB. This underlines the need to tailor interventions specifically for personal and professional roles to effectively enhance PEB. Moreover, this suggests that different predictors may influence other roles, such as investor, producer, community member, and citizen, as highlighted by Hampton and Whitmarsh (2023) and Nielsen et al. (2021). Future research should further focus on these specific distinctions between roles, especially since the personal role in this

study was broadly conceptualized to encompass various aspects of roles such as community member and investor. This focused research approach would aid with optimizing interventions tailored to each role's intricacies and achieving the most effective outcomes.

Furthermore, this research suggests that interventions should prioritize enhancing biospheric value rather than perceived capability, given its consistent predictive power across different roles. Future research could explore effective strategies for promoting and strengthening biospheric value through targeted interventions. Based on the discussion of the results, variables such as social norms, organizational support in professional roles, and habit formation in personal roles appear to be promising predictors of PEB. These variables also hold potential as mediators in the relationship between biospheric value and PEB. Future research should investigate these relationships more closely within each role context to better understand their impacts and mechanisms.

Additionally, further research should address the mentioned limitations, by investigating the influence of positional differences in the workplace hierarchy within the professional role. This could be particularly important, as individuals in higher positions usually earn more money, and those with higher incomes typically have larger carbon footprints and, consequently, a greater impact on climate change (Nielsen et al., 2021). In addition, it would be interesting to investigate the distinction between required PEB (e.g., using remote technologies to reduce corporate travel for managers, or electronic forms instead of paper-based systems for clerical staff (Ones & Dilchert, 2012)) and voluntary PEB (e.g., opting for reusable cups or turning off lights when leaving a room or building (Blok et al., 2015)) in the professional role. These factors and their antecedents appeared relevant when interpreting the relationship between biospheric value, perceived capability, and PEB. Future research on this topic could clarify these relationships and provide deeper insights into how different types of PEB are influenced within professional settings.

In general, it would be valuable to conduct longitudinal and cross-cultural studies on this topic to better infer causal relationships between the variables and stability across cultures. Such

studies could provide deeper insights into how biospheric value, perceived capability, and PEB interact over time, allowing for more robust conclusions and effective interventions globally.

Conclusion

This study examined how biospheric value and perceived capability influence pro-environmental behavior (PEB) across personal and professional contexts. Findings revealed that PEB and perceived capability were more pronounced in personal roles than in professional roles. Biospheric value significantly predicted PEB in both contexts, while the hypothesized mediation effect of perceived capability was not supported. In personal roles, biospheric value predicted perceived capability but not PEB, whereas in professional roles, perceived capability predicted PEB independently of biospheric value. These results underscore the importance of tailoring interventions to specific role contexts when promoting sustainable behaviors. Targeting the enhancement of biospheric value shows promise as a strategy for fostering PEB across diverse contexts. However, the limited predictive power of perceived capability across roles suggests the need for nuanced approaches that address role-specific barriers and facilitators. Future studies should explore additional role distinctions and influencing factors, such as habit formation in personal roles and positional differences, required versus voluntary PEB and workplace barriers in professional roles. Furthermore, future research should investigate the influence and differences in social norms across roles, as it was hypothesized to predict behavior in both contexts. Overall, additional longitudinal studies with diverse samples are necessary to establish causal relationships and enhance the generalizability of the findings across populations.

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Appendix

Table 1

Parameter Estimates Personal Condition

							95% Confidence Interval	
			Estimate	Std. Error	z-value	p-value	Lower	Upper
Direct Effect								
Biospheric Value →		Personal PEB	0.495	0.075	6.645	< 0.001	0.349	0.641
Indirect Effect								
Biospheric Value →	Personal Capability →	Personal PEB	0.030	0.026	1.145	0.252	-0.021	0.081
Total Effect								
Biospheric Value →		Personal PEB	0.525	0.073	7.239	< 0.001	0.383	0.667

Note. Robust standard errors, robust confidence intervals.

Table 2

Path Coefficients Personal Condition

						95% Confidence Interval	
		Estimate	Std. Error	z-value	p-value	Lower	Upper
Personal Capability →	Personal PEB	0.107	0.094	1.139	0.255	-0.077	0.290
Biospheric Value →	Personal PEB	0.495	0.075	6.645	< 0.001	0.349	0.641
Biospheric Value →	Personal Capability	0.282	0.090	3.121	0.002	0.105	0.459

Note. Robust standard errors, robust confidence intervals.

Table 3

Parameter Estimates Professional Condition

							95% Confidence Interval	
			Estimate	Std. Error	z-value	p-value	Lower	Upper
Direct Effect								
Biospheric Value →		Professional PEB	0.402	0.078	5.142	< 0.001	0.249	0.555
Indirect Effect								
Biospheric Value →	Professional Capability →	Professional PEB	0.033	0.020	1.623	0.105	-0.07	0.073
Total Effect								
Biospheric Value →		Professional PEB	0.435	0.078	5.550	< 0.001	0.281	0.589

Note. Robust standard errors, robust confidence intervals.

Table 4

Path Coefficients Professional Condition

						95% Confidence Interval	
		Estimate	Std. Error	z-value	p-value	Lower	Upper
Professional Capability →	Professional PEB	0.235	0.087	2.695	0.007	0.064	0.405
Biospheric Value →	Professional PEB	0.402	0.078	5.142	< 0.001	0.249	0.555
Biospheric Value →	Professional Capability	0.141	0.082	1.719	0.086	-0.020	0.302

Note. Robust standard errors, robust confidence intervals.